Illinois Business

Review

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Is the Illinois State Lottery a Winning Ticket for the State? A Financial Overview

Lotteries have a long history as a source of government revenue. They were often used to raise money for public purposes in colonial times. In fact, the early Harvard and Yale universities were funded in part with lottery proceeds. The Continental Congress even approved a lottery to help finance the American Revolution, but the lottery failed—the Tories had most of the money.

The modern experience with government-run lotteries began in 1964 when the New Hampshire legislature authorized a twice-a-year sweepstakes on horse race results, with the proceeds dedicated to public education. The first great wave of lottery adoptions occurred between 1971 and 1974 when ten northeastern states, comprising 28 percent of America's population, began operations. Since 1970, state lotteries have been the fastest-growing source of revenue to state governments in the United States. Net lottery income for all lottery states has been growing at 29 percent per year since fiscal year (FY) 1980,[1] accelerating to 36 percent per year since FY 1984. By 1987, 22 states and the District of Columbia operated lotteries; 6 other states had authorized them; and several states were actively debating the issue.

Lottery Issues

Since its authorization in 1974, the Illinois State Lottery has generated total lottery sales of over $7.6 billion and has paid approximately $3.7 billion in prize money. In view of the lottery's acceptance and its growing importance as a source of revenue for the state, it is useful to review some of the issues associated with the operation of a lottery.

First, the lottery has been criticized as providing neither a sizable nor a stable foundation for government revenue. Lotteries raise substantially less revenue than the major broad-based taxes such as the sales, income, and property taxes. Additionally, lotteries appear to have a natural life cycle. As people become bored with existing games, interest wanes and sales decrease. Frequent introduction of new games and aggressive marketing and promotion seem necessary to maintain revenues. The lottery's dependence on new games for growth can lead to inconsistent earnings from year to year. This makes it difficult to forecast accurately lottery profits and, thus, state revenue.

Second, all major revenue sources for state government require considerable resources for their collection. Studies indicate that most state taxes can be collected at much lower costs than lottery profits. Analysis of several lotteries reveals that from 1978 to 1984, average administrative costs have often exceeded 15 percent of total lottery revenue. Does this mean that lotteries are an inefficient source of revenue for state governments? The answer depends on which view of net lottery revenue dominates.

On the one hand, it can be argued that the lottery is a form of government taxation since the state raises lottery revenue for the primary purpose of financing other government activities. It is appropriate to label the resulting net lottery revenue an implicit tax, with a tax rate of 100 percent on net income, that is, all profit is taken by the state. If this view is adopted, collection costs are significantly higher for lottery earnings than for comparable tax collections. On the other hand, it is argued that a state-run lottery is a profit-making enterprise that provides an entertainment service that lottery customers seem to value. Ticket purchases represent a voluntary payment to the state government—unlike compulsory taxes. Therefore, the lottery is not a source of taxation. In this view, the administrative expenses associated with running a lottery "business" are not comparable with tax collection costs and may not constitute waste. Whether it is proper for the state to reap monopoly profits from lottery operations may be a more appropriate concern.

As more states adopt lotteries, competition grows for players and dollars, stimulating more aggressive promotion and marketing efforts. State competition affects both the size and stability of lottery revenues and administrative costs. Higher administrative expenses, coupled with flat per capita sales, tend to reduce lottery profits.

Third, although many states direct net lottery earnings to the general fund, several earmark revenues for specific functions. Illinois targets all lottery profits for public elementary and secondary education. Despite the fact that lottery earnings are assigned to the Common School Fund within the General Revenue Fund (GRF), critics argue that lottery earnings merely replace other sources of revenue for education.

This article focuses on the financial aspects of the Illinois State Lottery within the context of the preceding issues. Are Illinois lottery revenues stable over time, and do they represent a significant source of revenue for the state? Have lottery revenues grown since the creation of the Illinois State Lottery? What is the distribution of total lottery earnings? And what is the link between lottery profits and public education expenditures in Illinois?

Lottery Proceeds from Individual Games

The 50 cent and one dollar games were the first introduced in the Illinois State Lottery. Although the two games combined drew in sales of over $129 million in FY 1975, interest in playing dwindled, causing steady declines in yearly sales. The games were discontinued in 1981. Instant Games, introduced in January 1976, also experienced decreasing sales from FY 1977 through FY 1981. However, Instant Game ticket sales have increased since then to a high of $226.1 million in FY 1988, although growth has not been consistent. Year-to-year changes range from a high of 103.4 percent in FY 1983 to a low of −4.3 percent in FY 1987.

The Daily Game, in which winners match a three-digit number drawn every evening, began play in February 1980. Although it generated substantial sales of $164 million in its first full year of operation (FY 1981), growth in sales slowed and eventually became negative until FY 1988. Daily Game ticket sales of $352.6 million in FY 1988 represented a 5.2 percent increase over FY 1987 sales. This game may or may not continue to show growth in the future.

Another game available from the Illinois State Lottery is Pick Four, in which winners must match the four-digit number drawn every evening. Pick Four, introduced in February 1982, continues to experience increases in annual sales, although year-to-year growth has varied considerably. Fiscal year 1984 sales increased by 7.3 percent over FY 1983 levels, rose by 52.9 percent in the next fiscal year, and dropped again by 13.9 percent in FY 1988. Pick Four sales of $105.9 million in FY 1988 were less than half of Instant Game sales and less than a third of Daily Game ticket sales in the same fiscal year.

Variations of Lotto Six have been in operation since February 1983, with current prize winners correctly picking four, five, or six of the numbers selected from a field of 54. Lotto has produced the most substantial sales, reaching over $644.8 million in FY 1987. As with other lottery games, however, growth of Lotto sales has consistently fallen, with the FY 1988 amount decreasing by 36.6 percent over FY 1987.

Lotto Seven, introduced in April 1987, may have drawn sales away from Lotto Six. It operated briefly from April 1987 through May 1988, when it was replaced in the same month by Cash Five, a "mini-lotto" game. Yearly sales figures are not yet available for Cash Five.

Annual sales figures for individual lottery games indicate that continued growth and maintenance of current lottery revenues must be accompanied by frequent variations in the product mix offered by the Illinois State Lottery. Promoters need to design new games and advertisements in order to ensure continued participation in the lottery. However, if increased participation eventually levels off, revenues may become relatively static.

Total Lottery Proceeds

Despite general declines in sales growth rates of individual lottery games, the state lottery on the whole has significantly enhanced the growth of GRF receipts for most of the 1980s. (See Chart 1.) Total lottery revenue, the amount of money the State of Illinois actually receives from operating the lottery, consists of total sales plus license fees and interest earned on lottery proceeds. In FY 1988, total lottery revenues reached over $1.3 billion, with net receipts exceeding $487.9 million after deducting commissions to agents and vendors, operating expenses, and prize winnings.

Chart 1. Total and Net Lottery Revenue, FY1975–FY1988 *(in millions of dollars)*
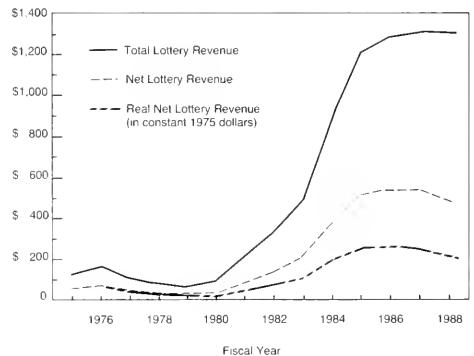
Net receipts, or lottery profits in current dollars grew at a rapid pace from 1980–1987 with an annual compounded growth rate of 47.5 percent. During FY 1983, a period in which the trough of the most recent recession occurred, lottery profits increased more than all other GRF tax revenues combined.

This large amount of money surely has an impact on the state's budget. However, lottery critics claim that the Illinois State Lottery provides relatively small and unstable amounts of revenue for the state. Illinois lottery profits account for a modest share of the state's General Revenue Fund—the fund that supports many

of the largest and most prominent state programs, including elementary and secondary education. Net lottery transfers into the GRF have averaged 2.4 percent of GRF funds since the lottery's inception. The share has risen from a low of .45 percent in FY 1980 to a high of 5 percent in FY 1987. The fraction fell to 4.5 percent in FY 1988. When compared to other GRF revenues such as sales taxes, which have averaged 30 percent of GRF receipts since FY 1975, and income taxes, which have averaged 34 percent, lottery profits do appear relatively small.

The lottery may be viewed as a kind of sumptuary or sin tax on gambling, comparable to liquor and cigarette taxes. In comparison to these excise taxes, lottery revenues seem somewhat more substantial. The lottery has raised more revenue than these two taxes combined since FY 1984. In FY 1988, liquor and cigarette taxes totaled $312 million, while net lottery income amounted to $488 million. Moreover, lottery profits increased at a much higher average rate than cigarette and liquor taxes combined from FY 1975

through the past fiscal year. This occurred despite absolute declines in lottery revenue from 1977 through 1979 and a 67 percent cigarette tax rate hike in 1985.

Unfortunately, lottery profits vary far more, and more unpredictably, than tax revenues. The flow of lottery sales, the base from which the state ultimately generates its profits, depends on the introduction and decline of new state lottery products, lottery activities in adjacent states, economic growth, and marketing efforts. These factors tend to produce instability of revenue flows and may effectively place an upper limit on the growth of lottery receipts. Chart 2 reflects the instability of lottery profits relative to other state sources of revenue. Net lottery revenue grew by approximately 26 percent in FY 1976 and then decreased over the next three fiscal years. From FY 1980 through FY 1987, profits increased every year, but by varying amounts. For example, FY 1981 lottery receipts grew by 148 percent while profits in FY 1987 were only .5 percent greater than FY 1986 profits. Net lottery revenue fell by 10 percent in FY 1988.

Chart 2. Year-to-Year Changes in Selected Illinois State Revenues, FY1976–FY1988 *(percent change over previous fiscal year)*
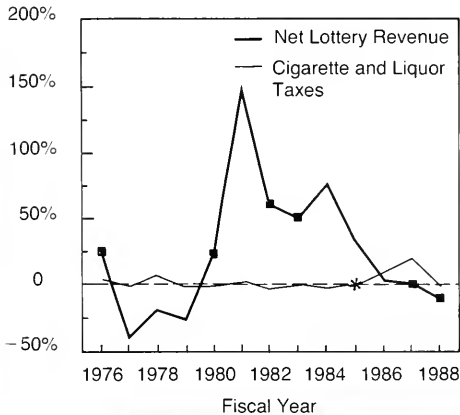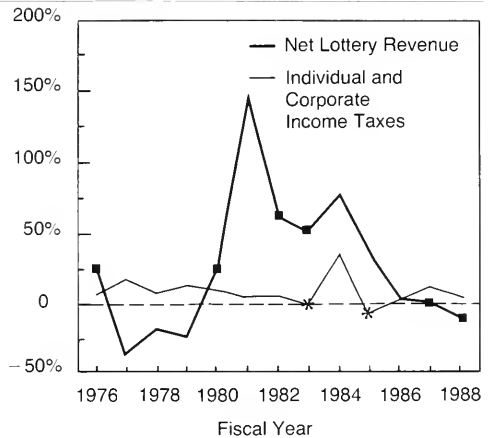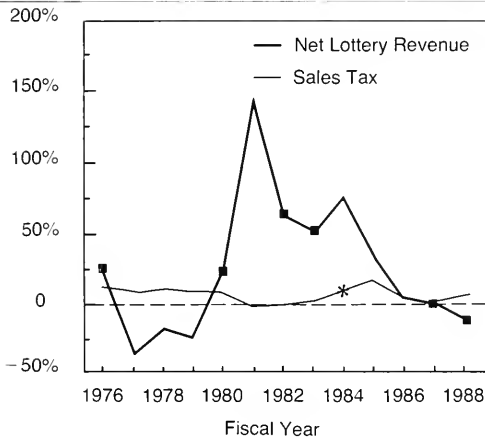
● Indicates the introduction of a new lottery game.

∗ Indicates a tax rate change.

Source: State of Illinois, Department of Lottery; Illinois State Budget, selected years.

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It should be noted that the lottery has operated in a relatively unstable environment. It is a comparatively new revenue source, and both lottery administrators and the public have gone through a period of learning and adjustment. Other states have also introduced lotteries that affect Illinois sales. The future may be somewhat less volatile than the past. As evidenced in Chart 1, total lottery revenue has remained fairly constant at a high level over the past four fiscal years. This may indicate that lottery participation has reached a plateau with a rather substantial revenue base.

Several states adjacent to Illinois recently authorized state-run lotteries. Iowa's lottery began operations in August 1985, Missouri's in January 1986, and Wisconsin started selling lottery tickets in September 1988. Voters in Kentucky recently approved a lottery that should begin operating by April 1989, and the Indiana Senate/House Finance Committee has also discussed establishing a state lottery. The lotteries in these border states could have a significant impact on Illinois ticket sales. In order to maintain Illinois' share of lottery sales, more resources may need to be devoted to greater prize winnings and marketing efforts, thereby reducing Illinois' lottery profits. Still, because border states have much lower populations than Illinois, they may be unable to pull players away from Illinois due to their inability to generate the jackpots that Illinois can offer.

Have neighboring state lotteries adversely affected Illinois receipts? During the last three fiscal years, ticket sales, and therefore lottery revenues, have shown the lowest growth rates since 1979. However, neither operating costs nor prize payouts as a percentage of total revenues have increased by a great deal over that time. It is not clear, then, that the lower growth rates result solely from border state competition. The recent trend may also be influenced by the other factors discussed earlier.

Research has shown that lottery sales are very sensitive to economic growth, increasing approximately 3 percent for each 1 percent increase in state personal income. The relationship between Illinois personal income and Illinois lottery sales indicates that a 1 percent rise in personal income is accompanied by a 3.04 percent increase in sales. However, this simple relationship may be misleading. The introduction of new games and new marketing and promotion techniques, designed to broaden the lottery's base and induce sales growth, have not been accounted for. A careful study of the determinants of lottery sales would allow for more accurate predictions about the effects of state competition and economic growth.

Where Does the Money Go?

Of the total Illinois lottery revenue collected each year since FY 1975, an average of 6.6 percent of the money has been paid as commissions and bonuses to ticket agents and vendors. Operating expenses, which include salaries, advertising, and telecommunications, have averaged 4.9 percent of total revenues, while prize winnings have averaged 46.6 percent. Residual revenues, or net lottery receipts, have averaged about 41.8 percent of total lottery revenues.

Table 1 shows the distribution of total lottery earnings by category from FY 1975 through FY 1988. Studies indicate that most state taxes can be collected at a cost of about 5 or 6 percent of collections, including both taxpayer and administrative costs. Compared to these figures, Illinois lottery collection costs are quite high, averaging 11.6 percent of total lottery proceeds when commissions and operating expenses are combined. However, the data also show that while commissions as a percentage of total revenues have stayed relatively constant since FY 1975, the share of total revenues directed towards operating costs has decreased over that period. Illinois has succeeded in raising larger revenues at a decreasing cost over the past 14 years of lottery operations.

Plans for new lottery games must first be approved by the Lottery Control Board. These plans include the share of the game's sales that are to be awarded as prizes. Prize payouts as a percentage of total receipts have remained fairly constant, although FY 1988 winnings jumped by almost 3.5 percent over FY 1987. Initially, the lottery law stated that net lottery revenue could never be less than 40 percent of the total revenue accruing from the sale of lottery tickets. This effectively prohibited a daily game since the combined administra-

Table 1. The Distribution of Illinois Total Lottery Revenue, FY 1975–FY 1988

Fiscal Year	Total Lottery Revenue	Commissions to Agents and Vendors	Operating Expenses	Prize Payouts	Net Lottery Revenue
1975	129,446,068	5.96%	4.39%	44.96%	44.69%
1976	164,020,049	6.12%	4.49%	44.97%	44.42%
1977	110,561,737	6.23%	7.52%	44.96%	41.29%
1978	83,498,570	6.61%	8.65%	40.30%	44.44%
1979	69,001,872	6.96%	11.31%	41.33%	40.40%
1980	98,356,471	7.43%	9.62%	46.58%	36.37%
1981	215,324,702	7.49%	4.66%	46.66%	41.19%
1982	334,782,404	6.83%	3.27%	47.20%	42.70%
1983	494,937,714	6.76%	3.06%	46.76%	43.42%
1984	887,969,263	6.71%	2.06%	48.45%	42.78%
1985	1,207,621,956	6.68%	1.87%	48.56%	42.88%
1986	1,287,092,023	6.55%	2.39%	49.08%	41.97%
1987	1,306,169,100	6.30%	2.59%	49.55%	41.56%
1988	1,303,815,325	6.34%	3.24%	53.00%	37.42%

Note: Columns 3-6 are expressed as a percent of Total Lottery Revenue in each year
Source: State of Illinois, Department of Lottery

tive costs and prize payouts would not have permitted fulfillment of the requirement. An exception to the rule was allowed for fiscal years 1979, 1980, and 1981, and the rule was repealed in 1981. Net revenue has only fallen below 40 percent in fiscal years 1980 and 1988.

The Lottery's Link to Education Spending

Since the lottery was originally established to help fund public primary and secondary schools, a 1985 law was passed requiring that all net lottery revenue be deposited into the Common School Fund. The intent was to assure the general public that lottery receipts were actually being earmarked for public education. Prior to 1985, lottery profits were deposited directly into the General Revenue Fund. Regardless of this accounting formality, lottery profits are mixed with other revenue available for state expenditures. Therefore, it is difficult to determine the exact impact that lottery revenue has had on public education funding. Critics maintain that lottery earnings merely replace other sources of revenue for education, implying that lottery profits do not enhance the education budget.

Ultimately the portion of the Illinois state budget directed toward elementary and secondary education depends on legislative appropriations. Although education appropriations have risen from approximately $1.2 billion in FY 1973 to $3.3 billion in FY 1988, appropriations over the intervening years have not followed a constant upward trend. In several years, they have actually declined. For example, FY 1988 state elementary and secondary education appropriations fell by 2.3 percent from their previous level.

It is also important to realize that lottery proceeds constitute a rather modest share of the revenues that finance education expenditures. Net lottery transfers have funded from 1.3 percent to 18 percent of education appropriations since the lottery's creation. In FY 1988,

lottery dollars supported 16 percent of elementary and secondary education appropriations, the GRF funded 65 percent, and various other state and federal funds accounted for the remaining 19 percent of education appropriations. Higher lottery yields, therefore, are funding a larger share of the education budget. However, additional lottery revenues do not necessarily guarantee greater education appropriations on a dollar-per-dollar basis.

The Illinois State Lottery has earned profits of approximately $500 million in each of the last four fiscal years, expanding the state's budget by this amount. This implies that $500 million in other state revenue was freed for government programs. Conversely, if the lottery did not exist, the state would have needed to draw $500 million from other revenue sources to meet its current elementary and secondary education needs. It is hard to imagine that the loss of this $500 million would not have a major impact on all state appropriations, including education.

Comparison with Other Lottery States

All states face the same difficulty of trying to maximize net lottery proceeds without incurring high promotional and administrative costs. How does Illinois compare with other lottery states? In FY 1986, Illinois ranked fifth in total lottery sales among lottery states and the District of Columbia. Illinois' net lottery income in FY 1986 amounted to 5.5 percent of its state tax collections (the third highest ranking state) and 3.9 percent of its own-source state revenue (the fourth highest ranking state).

Table 2 compares Illinois' lottery performance with that of selected states. Illinois raises lottery income of the same magnitude as California and New York. Yet on a per capita basis, Illinois enjoys an advantage over the other two states, with $105.47 per capita lottery

Table 2. The Distribution of Lottery Income for Selected States, FY 1985–FY 1987

	Lottery Income[a] (millions of dollars)			Per Capita Lottery Income		
	FY 1985	FY 1986	FY 1987	FY 1985	FY 1986	FY 1987
Total	$8,081	$11,055	$11,469	NA	NA	NA
California	NA	1,676	1,329	NA	$ 47.69	$ 48.04
ILLINOIS	1,123	1,200	1,222	$97.37	103.87	105.47
Iowa	NA	77	89	NA	27.09	31.27
Michigan	825	931	937	90.86	101.87	101.85
Missouri	NA	197	164	NA	38.81	32.22
New York	1,168	1,205	1,330	65.78	67.70	74.64
Ohio	807	888	1,009	75.14	82.65	93.60

	Prizes (% of Lottery Income)			Operating Expenses (% of Lottery Income)			Net Lottery Income (% of Lottery Income)		
	FY 1985	FY 1986	FY 1987	FY 1985	FY 1986	FY 1987	FY 1985	FY 1986	FY 1987
Total	52.1%	52.5%	52.5%	4.4%	5.0%	5.7%	43.4%	42.4%	41.9%
California	NA	53.0	48.3	NA	6.1	9.1	NA	40.9	42.5
ILLINOIS	52.2	52.7	53.0	2.0	1.9	2.8	45.8	45.4	44.3
Iowa	NA	50.9	53.3	NA	15.0	15.7	NA	34.1	31.0
Michigan	51.7	51.7	52.8	4.8	5.0	5.5	43.5	43.3	41.8
Missouri	NA	49.0	47.8	NA	10.3	14.9	NA	40.7	37.3
New York	48.0	49.7	50.7	3.1	3.2	3.1	49.0	47.1	46.2
Ohio	52.7	52.2	56.8	5.6	5.0	6.4	41.7	42.9	36.8

[a]Ticket sales excluding commissions.

Source: US Bureau of the Census, State Government Finances in (selected years).

income in FY 1987. Ohio, which has roughly the same population as Illinois, also had lower per capita lottery income of $93.60 in 1987. While Illinois' prize payout rates are close to the average rate, its operating costs run significantly lower than the other states represented in Table 2. Only New York consistently outranks Illinois in retaining a larger percentage of lottery income as profits (net income). Illinois, then, appears to be relatively successful in selling its products at a comparatively low cost.

Conclusion

For most of the 1980s, the Illinois State Lottery enhanced the growth in GRF receipts. However, continued growth of lottery sales appears to depend heavily on the introduction of new games and marketing techniques. Future increases in lottery income are not likely to be as robust as in past years. Furthermore, lottery profits have not provided a stable foundation for government revenue to date. Still, income, sales, and property taxes have been a part of the state's finances for a longer period of time. It is likely that lottery receipts will stabilize as the lottery matures.

Although Illinois lottery profits have not approached the magnitude of the major broad-based taxes on income, property, and sales, they are large relative to many excise taxes and do enlarge the state's revenue pool. Nevertheless, while lottery profits contribute significant sums to elementary and secondary education, they do not guarantee higher legislative appropriations. In any case, the state has clearly come to depend on lottery income, and its loss would have a major impact on a variety of state activities. The Illinois State Lottery fares well on a state-by-state comparison. Illinois has been able to generate high per capita ticket sales at a relatively low administrative cost.

This article, of course, does not exhaust the list of issues concerning the adoption and operation of a state-run lottery. Several other interesting questions might be asked with regard to the Illinois State Lottery: Could private firms operate lotteries more efficiently than the state? Should the state promote gambling? What factors influence lottery ticket sales? And what is the lottery's impact on business activity in Illinois? These are further topics that could be examined in light of Illinois' lottery experience.

Note

[1] Fiscal years run from 1 July to 30 June of the subsequent calendar years; e.g., FY 1988 ended on 30 June 1988

ROBERT P. HARTWIG

The Ratings Game: Will the Winner Please Stand Up?

Competition between states to attract new business investment has been markedly intensified in recent years. States compete on a number of fronts based on the availability and cost of resources essential for doing business as well as on issues concerning the quality of life. In addition, it is not at all uncommon for states to offer special tax and financial arrangements designed to entice the prospective investor or entrepreneur. Given that billions of investment dollars, thousands of jobs, and increased tax revenues are potentially at stake, states can be expected to continue to jockey for position in the race for the most favorable business climate.

While most states are eager to help facilitate broad-based business expansion, this is especially true in the so-called "Rust Belt" states of the Midwest and Great Lakes Regions. Hit particularly hard by the decline of American heavy industry over the past two decades, these states have sought to offset and adjust to these losses by attempting to attract new investment capital from both domestic and foreign sources.

States in these regions unavoidably suffer from an identity crisis. On one hand, they seek to shed their perceived image as being in a perpetual state of decline. On the other, a state in search of new sources of investment faces not only the task of creating a favorable self-image but also the additional problem of distinguishing itself from competing rival states.

The extent to which such distinctions are made is not limited to deals worked out between state officials and corporate executives during smokey boardroom discussions. A state's image to the public is equally important. Illinois, for example, in the past year mounted a television advertising campaign targeting the small business investor in which the state touted itself as fertile ground for the growing company. As evidence, these advertisements featured the testimonials of generations of family-owned and operated businesses.

On the foreign front, Governor Thompson has made trips to both Asia and Europe in hopes of conjuring up additional investment from abroad and joint partnerships with existing domestic firms. Illinois also maintains offices abroad for the express purpose of facilitating foreign investment within the state.

Competition is also keen for lucrative government contracts. Most recent was the unsuccessful bid by Illinois and several other states to attract the $4 billion Department of Energy supercollider project, ultimately awarded to Texas, and a successful bid to attract a research center on superconductivity.

In light of such spirited interstate competition, the entrepreneur or potential investor is almost certain to have his number of "best" locations identically equal to the number of states he chooses to investigate. Every state, each for its own reasons, will easily be able to justify to the potential investor why it alone is ideally suited to serve the special needs of his business. Thus, the question of location remains.

Ratings Agencies: Do They Remove or Introduce Bias?[1]

The gap created by the lack of impartiality by the states is filled in part by independent agencies that rate states on a variety of factors ranging from the number of companies experiencing rapid growth in the past year to the relative abundance of amenities affecting the quality of life.

Two of the leading agencies that evaluate states on a broad base of factors are the Corporation for Enterprise Development (CED), a nonprofit research group based in Washington, D.C., and Grant Thornton, a Chicago-based accounting and management consulting firm. The rival ratings firms do not, however, clearly resolve the question of which states provide the best business climates. Table I shows CED's[2] and Thornton's selections for the top and bottom ten business climates in the United States. The ratings for a third organiza-

Table 1. Top Ten Best and Worst Business Climates[a]

	Corporation for Enterprise Development[d]	Grant Thornton	Inc.
Ranking		State	

Best Business Climates

1	Massachusetts	North Dakota	Arizona
2	Connecticut	Nebraska	New Hampshire
3	New Hampshire	South Dakota	Maryland
4	Minnesota	Virginia	Florida
5	Maine	Colorado	Virginia
6	Wisconsin	Missouri	Georgia
7	Rhode Island	Arizona	Delaware
8	Vermont	Kansas	Nevada
9	California	North Carolina	California
10	Hawaii	Nevada	Tennessee

Worst Business Climates

41	Oklahoma	Oregon[b]	Nebraska
42	West Virginia	Washington	Louisiana
43	Arkansas[c]	Maine	Idaho
44	New Mexico[c]	Illinois	Iowa
45	Tennessee[c]	West Virginia	Oklahoma
46	Kentucky	Wyoming	Arkansas
47	South Carolina	Louisiana	South Dakota
48	Alabama	Montana	Montana
49	Mississippi	Ohio	North Dakota
50	Louisiana	Michigan	Wyoming

[a]According to most recently issued survey.
[b]Rankings are actually 39 through 48. Thornton does not rank Alaska or Hawaii.
[c]Arkansas, New Mexico, and Tennessee are tied at 43 and are, therefore, arranged alphabetically.
[d]Performance Index.

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tion, *Inc.*, are shown as well.[3] It would appear that CED and Thornton must either be evaluating states on a different set of criteria or have quite divergent opinions as to the relative importance of factors contributing to a state's final ranking.

The discrepancies between the CED and Thornton rankings are striking. All of Thornton's hot spots, save Virginia and North Carolina, are located west of the Mississippi, with North Dakota occupying the coveted number one position. On the other hand, all six New England states are represented in the CED top ten list. In fact, there is not a single state that CED and Thornton commonly rate as being among the top ten. And in the battle for the bottom ten, the only agreement is that West Virginia and Louisiana deserve such a dubious distinction.

Rankings of individual states also tend to vary substantially between the two indexes. North Dakota plummets to the 26th position under the CED criteria (and all the way to 49th in yet another set of ratings by *Inc.* magazine), while Maine falls 36 slots from a reputable fifth under CED to an abysmal 41st under Thornton.

What are the sources of these large discrepancies? There are essentially two factors contributing to the disparity between rankings. First, there is a marked difference in the scope of the two systems, with CED providing a much broader measure of both direct and indirect influences on the business climate. Thornton, on the other hand, in its own words, bases its rankings on "...measurement of 21 factors viewed by manufacturers as important to business success. Factors are oriented toward cost of doing business and availability of resources."

In fact, as compared with Thornton, CED incorporates nearly five times the number of categories in its analysis.

While the scope of factors brought under consideration is crucial to the determination of the final ranking, the second contributor to the ranking disparity problem is equally important and is implied by the quote from Thornton. This second factor is the focus taken by each agency. Thornton's emphasis is almost exclusively confined to those factors directly influencing business. This is easily seen in Table 2, which shows Thornton's 21 categories and the weight assigned to each. Note that cost and unionization criteria are given substantial weights.

Table 3 gives an overview of factors considered by CED. This ranking system is divided into four major indexes, each having various numbers of subindexes. These subindexes are, in turn, again subdivided. In all, CED ranks states on 100 different criteria. For example, under the performance index, there are five subindexes: Employment, Income, Job Quality, Equity, and Quality of Life. Subdivisions of these (not shown) are numerous. In the case of the Employment subindex, for example, one has employment growth, the unemployment rate, duration of unemployment, and status of displaced workers.

Table 2. Factors and Weights for Thornton Rankings

Category		Factor Weight (%)
A	State and Local Government Fiscal Policies	20.25
1	Taxes	4.44
2	Change in Taxes	4.18
3	Expenditure vs. Personal Income Growth	4.61
4	Debt Growth vs. Personal Income Growth	3.22
5	State Business Incentives	3.80
B	State Regulated Employment Costs	18.39
1	Unemployment Compensation Benefits	4.45
2	Unemployment Compensation Net Worth	4.17
3	Average Workers' Compensation Insurance Payment	4.39
4	Workers' Compensation Insurance Levels	5.38
C	Labor Costs	24.12
1	Wages	7.14
2	Change in Wages	5.36
3	Unionization	6.81
4	Change in Unionization	4.81
D	Availability and Productivity of Resources	20.71
1	Available Workforce	5.78
2	Manhours Lost	4.57
3	Value Added	5.13
4	Energy Costs	5.23
E	Selected Quality of Life Issues	16.53
1	Education	5.31
2	Health Care	3.69
3	Cost of Living	3.82
4	Transportation	3.71
		100.00

Table 3. Major Indexes and Subindexes for CED Rankings[a]

Index	Subindex
Policies	Improving Governance and Regulation
	Creating an Effective and Equitable Tax Code
	Mobilizing Capital
	Enhancing Technology and Business Development
	Building and Maintaining Public Works
	Investing in Human Resources
	Helping Distressed Communities
Performance	Employment
	Income
	Job Quality
	Equity
	Quality of Life
Business Vitality	Competitiveness of Existing Businesses
	Entrepreneurial Energy
Capacity	Human Resource Capacity
	Financial Resource Capacity
	Physical Infrastructure
	Amenities

[a]CED does not publish its weightings, nor does it publish an overall index

While it may be argued that the breadth of the CED ratings criteria tends to dilute the importance of factors that most directly influence business climates, the reality is that states presently experiencing the greatest economic growth are nevertheless better represented by that index. Robert Friedman, president of CED, was recently cited in the *Wall Street Journal* defending his rating system and criticizing Grant Thornton's. Friedman chides Thornton for too easily dismissing such factors as literacy rates, poorly maintained highways, and business ownership by women and minorities, leaving too narrow a measure of states' attitudes toward business.

Thornton's focus on costs necessarily leads to certain biases. In particular, states with a high degree of unionization, high wages, and/or larger state-mandated compensation benefits and payments, such as those located in the traditional industrial states in the Midwest and Great Lakes regions, do not rate favorably. This regional bias will be taken up in the next section.

Thornton's rankings promote states in which the business climate is ripe for growth only in a least cost sense. Friedman claims that Thornton is at odds with reality on this issue because the majority of recent manufacturing growth has occurred in existing industrial states like Ohio and Michigan (the two lowest ranked states under Thornton).

Focus on the Midwest and Great Lakes Regions

Of particular interest in this section are the ratings assigned to Midwestern and Great Lakes states. Here, both indexes again disagree, but not as radically as for those states found among the top ten. In general, states found in these regions do not rate well, with Thornton assigning rankings lower than those of CED. Table 4

shows the rankings of each state in these regions for the major categories under both Thornton and CED criteria.

With the sole exception of Missouri, low rankings for all categories predominate under Thornton. Because of these consistently poor showings, it is easy to understand why three of Thornton's worst ten and six of the bottom twenty business climates are located in these regions. Seven out of eight fall into the lower 50 percent.

Michigan, Ohio, and Illinois are the biggest losers. Michigan, dead last in the overall rankings, is also dead last in the Labor Cost category due to the predominance of organized labor in the state. Poor showings for state-regulated employment costs as well as availability and productivity of resources provide more than enough additional drag to pull Michigan down to last place.

Ohio, ranked second to the end, shares with Michigan the high labor cost and the problem of availability and productivity of resources, with an additional low ranking under the category of state and local government policies.

Illinois ranks the worst nation-wide under the category of state-regulated employment costs and a lowly 40th in the quality-of-life index, leading to a dismal overall ranking of 42.

All states in the region except Missouri fare better under the CED indexes. Michigan, Minnesota, Wisconsin, and Ohio all have rankings among the top ten for various categories. These are highlighted by the first, second, and third places received, respectively, by Michigan, Ohio, and Minnesota in the policies category.

The remainder of the Midwest/Great Lakes region is distinguished neither by high nor low rankings but rather by mediocrity. Illinois, Indiana, and Iowa receive

Table 4. Midwestern and Great Lakes States' Rankings

Category	Illinois	Indiana	Iowa	Michigan	Minnesota	Missouri	Ohio	Wisconsin
	Thornton Rankings							
Overall	42	36	27	48	32	6	47	3
State & Local Govt Policies	31	38	45	33	43	8	40	41
State Regulated Employment Costs	48	4	32	46	43	16	30	34
Labor Costs	23	45	10	48	14	15	47	24
Availability & Productivity of Resources	31	44	41	45	16	18	39	28
Quality of Life	40	22	3	35	9	17	27	10
	CED Rankings[b]							
Policy	15[a]	24	15[a]	1	3	15	2	8
Performance	34	22	29	25	4	28	30	6
Business Vitality	38	25	41	22	11	27[a]	27[a]	45
Capacity	14	40	25	35	6	29	28	20

[a]Tied with at least one other state
[b]CED does not publish an overall ranking.

middle-of-the-road marks, with Illinois showing some promise under the capacity and policies category.

Asking the Right Questions

Putting the conflicting results of the CED and Thornton surveys into perspective is a difficult task. While CED appears to give a clear picture of where business growth is presently taking place, Thornton gives preference to states where it seems that the potential for growth exists.

As previously mentioned, part of the disparity between the two indexes is rooted in the focus and scope of each survey. But beyond the issues of focus and scope are other matters. At a very basic level, one might ask whether the CED and Thornton ratings are completely relevant. In other words, are the right questions being asked? Here, one can only suggest additions or deletions for the rating agencies' criteria.

It is possible, however, to construct indexes based on somewhat different criteria. For example, a pure "bottom-line" criterion coupled with an overriding subjective criterion based on the response to the question: "But would you really locate there?" Thus, while the bottom line may still be largest in North Dakota, the potential investor may reject that option for no other reason than a distaste for cold weather.

Concluding Remarks

Most states would agree that the ratings game is a difficult one to understand, and the outcome is somewhat less than clear. Some states, such as the Dakotas and Nebraska, for obvious reasons, will prefer the Thornton rankings. Others, such as the Midwestern and New England states, will prefer the CED rankings for reasons that are equally obvious. Midwestern and Great Lakes states, however, fare poorly under Thornton and rise only to mediocrity with CED, suggesting that the truly best business climates are not located within those regions.

The inconsistency between Thornton and CED is nevertheless troubling and can only serve as an additional source of confusion for the potential investor or entrepreneur. The disparity between the two indexes is not limited to the scope or focus of the ratings criteria but may originate in the relevance of criteria or even in the format of the index itself.

In any case, both indexes do provide some detailed information on the particular determinants of the local business climate and, as such, do provide a useful service.

Notes

[1] Data were drawn from the Corporation for Enterprise Development publication *Making the Grade The Development Report Card for the States*: the Grant Thornton publication *The Annual Study of General Manufacturing Climates of the 48 Contiguous States*; and *Inc.* magazine's annual "Report on the States" (October issues).

[2] CED does not compile an overall rating for states Rather, ratings are given for individual indexes presented in Table 3 Rankings for the top and bottom 10 business climates in Table 1 are taken from the Performance Index

[3] *Inc.* ratings are included only for comparative purposes and are based on only six factors number of new jobs, growth in jobs, number of new companies, business birthrate, number of "fast-growth" companies, and percentage of fast-growth companies

WILLIAM R. BRYAN
Economic Outlook for Illinois

Economic activity in Illinois will quicken in the next two years according to the Illinois Econometric Model. The expansion in the Illinois economy is summarized chiefly in rising income, but it also is reflected by a gradual upward movement in employment. Continuing the trends of recent years, it is projected that the overall growth in the Illinois economy will be uneven. Rapid increases in incomes originating in services, finance, and trade will offset declines in mining and only moderate growth in construction and manufacturing.

Total personal income in Illinois will expand 7 percent in 1989, up sharply from the 3.6 percent growth during 1988. According to the forecast, the rate of personal income growth will rise further in 1990. The anticipated growth in income will exceed the increase in the general price level. Following a 4.5 percent rate of inflation during 1988, the forecast indicates that prices will rise 5 percent in 1989 and 5.2 percent in 1990. These data imply that real personal income in Illinois edged downward 0.9 percent in 1988; will expand 2 percent in 1989; and will rise 3.7 percent in 1990. In short, the forecast for Illinois indicates that there will be substantial improvement in the next two years.

The anticipated gains in Illinois employment do not include a recovery in manufacturing. Increases in employment will be centered in wholesale and retail trade; finance, insurance, and real estate; and services generally. Within Illinois manufacturing, the only anticipated gains will be in primary metals and in chemicals.

In any event, the total prospective expansions in nonfarm employment are minuscule: 0.1 percent in 1989 and 0.5 percent in 1990.

These state projections are tied to forecasts of future developments in the national economy. The underlying forecast indicates that the US economy will expand moderately in 1989, with employment rising sufficiently to bring about slight reductions in unemployment. At the same time, the national forecast includes an acceleration in the rate of inflation and some upward movement in interest rates.

The user of the Illinois forecasts must bear in mind their relation to the national forecasts. As future developments in the nation's economy depart from the forecasts upon which the Illinois projections were predicated, the Illinois forecasts become outdated. There is an additional important caveat. Even if developments in the nation as a whole turn out to be reasonably consistent with expectation, there is likely to be fairly large variance in the experience of the individual states. The variance of a whole is smaller than the variance of its constituent parts considered separately. As a consequence, the estimated relationships between the nation and Illinois are subject to substantial error.

Current Indicators

	1988 IV	1989 I	1989 II	1989 III	1989 IV	1990 I
Total personal income (millions)	$203,128	$206,385	$209,825	$213,511	$217,443	$221,728
Real personal income (millions)[a]	$168,571	$169,168	$169,898	$170,809	$171,892	$173,225
Private nonfarm employment	4,284,184	4,285,388	4,286,450	4,287,393	4,287,951	4,291,079

[a]1982 dollars

Illinois Business Indexes

The economic outlook for Illinois is unclear based on the BEBR's composite leading indicators. As shown in Chart 1, the trend indicator and the current indicator have been fairly close over the past few months, and, in fact, were identical in October. In November, the most recent month of available data, the trend indicator exceeded the current indicator. A continuation of this trend in the next several months would be interpreted as evidence of a slowing down in the Illinois economy. However, given the movement of the leading indicator series to date, there is not yet sufficient evidence to make such a determination.

Individual indicators for Illinois also convey mixed signals about the health of the state's economy. While nominal weekly earnings in the manufacturing industry have exhibited a moderate upward trend over the past two years, weekly earnings deflated by the Consumer Price Index (real earnings) have fallen during the same period (Chart 2). Real weekly earnings for November 1988 were 2.5 percent below the November 1987 level.

Further, 1988 monthly retail sales, measured in real terms, experienced virtually no growth over the previous year. Chart 3 shows both seasonal patterns and year-to-year changes in real Illinois retail sales. Real sales in 1988 generally matched 1987 levels, with November 1988 sales only 0.4 percent higher than in the comparable year-ending period.

In contrast, per capita income in both current and constant dollars has increased relatively consistently since the first quarter of 1985 (Chart 4). Nominal per capita income growth has exceeded the rate of inflation, indicating an expansion of the Illinois economy. Real per capita income for Illinois reached $14,724 in the second quarter of 1988.

Residential housing permits issued for September, October, and November 1988 were greater than their respective 1987 levels, reversing the earlier weak trend revealed in Chart 5. Finally, in the Illinois coal and petroleum industries, changes in 1988 output levels over 1987 levels fluctuated considerably (Chart 6). However, production in both of these industries rebounded in November 1988. Based on the contradictory signals relayed by recent Illinois data, then, future prospects for the economy remain unclear.
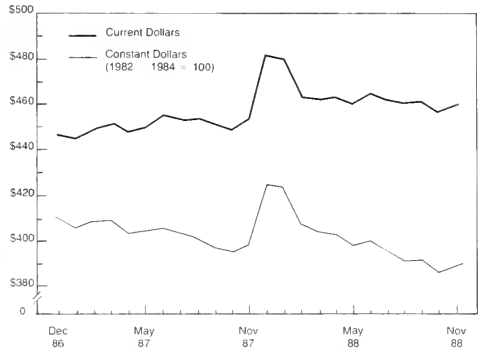
ILLINOIS BUSINESS INDEXES

	Percent change Nov. 1987-Nov. 1988	Nov. 1988	Oct. 1988	Sept. 1988	August 1988	July 1988	Nov. 1987	Oct. 1987
Leading Indicator (Current Indicator)	3.75[a]	13.38	13.37	12.79	14.46	15.27	9.63	9.69
Leading Indicator (Trend Indicator)	3.47[a]	13.82	13.37	13.61	13.77	13.72	10.35	9.85
Employment-manufacturing (in thousands)[b]	1.68	950	949	950	950	947	935	934
Average weekly hours-manufacturing[b]	−0.95	42	41	42	42	42	42	42
Weekly earnings-manufacturing[b]	1.45	$459.51	$456.50	$461.34	$460.65	$462.18	$452.94	$448.62
Help wanted advertising-Chicago (1967 = 100)[c]	−8.70	105	110	110	117	119	115	115
Help wanted advertising-St. Louis (1967 = 100)[c]	−5.63	67	78	68	64	74	71	68
Retail sales (in millions)[d]	4.45	$6,309	$6,224	$6,026	$6,267	$6,059	$6,040	$6,033
Coal production (in thousands of tons)	15.19	4,839	5,255	5,100	5,090	4,057	4,201	5,750
Petroleum products (in thousands of barrels)[b]	6.63	1,930	1,950	2,000	2,050	2,000	1,810	2,000
Vendor performance[c]	−15.15	56%	60%	64%	68%	68%	66%	70%
Building permits (in thousands)								
Residential housing units	45.18	3,300	4,262	4,373	4,246	4,112	2,273	3,008
Value of nonresidential construction	5.22	$290,926	$374,593	$361,047	$355,085	$348,018	$276,488	$336,511
Industrial buildings	−3.76	$38,612	$63,244	$27,897	$33,406	$30,471	$40,119	$33,111
Office, banks, and professional buildings	127.66	$81,475	$65,160	$71,098	$24,292	$43,233	$35,788	$80,276
Stores and other mercantile buildings	−14.66	$37,752	$56,098	$62,600	$37,820	$50,288	$44,238	$47,094
Other	−4.67	$5,248	$5,028	$4,728	$9,415	$11,870	$5,505	$8,077
Consumer price index (1982-84 = 100)								
North Central US	4.05	118.1	118.1	117.7	117.7	116.6	113.5	113.5
North Central/population more than 1,200,000	4.11	119.1	119.1	119.0	118.3	117.7	114.4	114.2
North Central/population 360,000 to 1,200,000	4.42	118.0	118.2	117.0	116.5	115.8	113.0	113.0
North Central/population 50,000 to 360,000	3.95	118.4	117.7	117.4	117.2	116.6	113.9	113.9
North Central/population less than 50,000	3.26	114.1	114.2	114.2	113.9	113.5	110.5	110.5
Chicago	4.58	121.0	121.6	122.0	120.1	119.8	115.7	115.1
St. Louis	4.60	118.3	—	117.3	—	116.0	113.1	—
		1988 II	1988 I	1987 IV	1987 III	1987 II	1987 I	1986 IV
Personal income (in millions)[b,f,g]	7.55	$201,474	$199,339	$197,917	$190,246	$187,332	$186,227	$181,782
Per capita personal income[b,f,g]	7.24	$17,325	$17,153	$17,043	$16,394	$16,155	$16,071	$15,698

[a]Represents absolute change (percent change not relevant) [b]Recent month is preliminary figure [c]The Conference Board, *Help Wanted Advertising*, November 1988 [d]Latest month projected by BEBR [e]Percentage of companies receiving slower deliveries [f]Seasonally adjusted at annual rates [g]Percent change between 1987 II and 1988 II
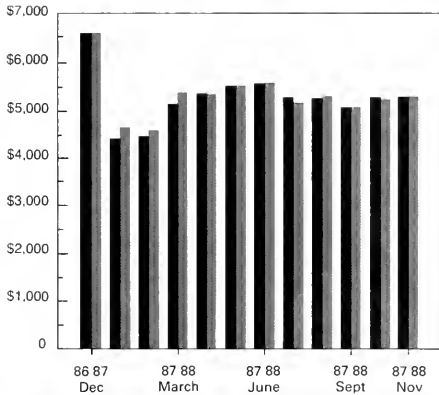
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Chart 1. Composite Leading Indicators *(average percent change in base indexes)*
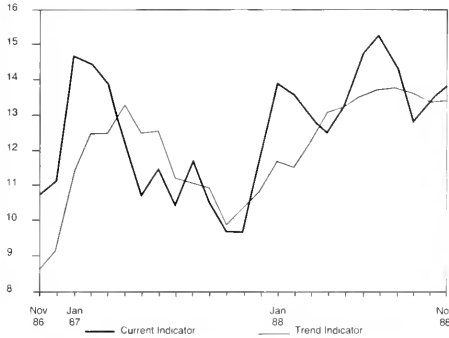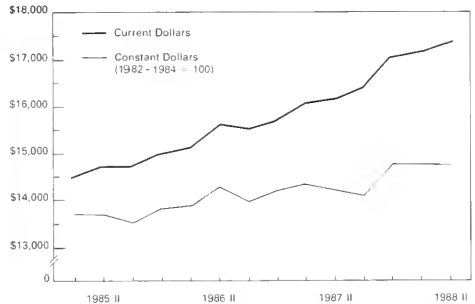

Chart 2. Weekly Earnings—Manufacturing
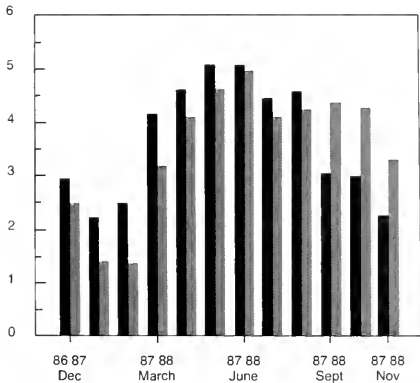

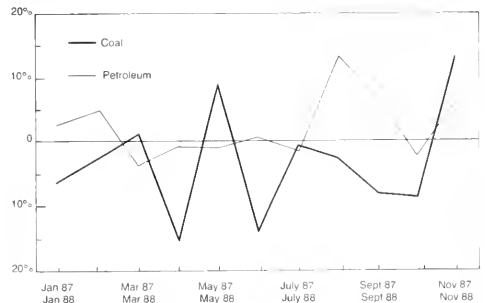**Chart 3. Real Retail Sales** *(millions of dollars)*

Chart 4. Per Capita Income

Chart 5. Residential Housing Units *(in thousands)*

Chart 6. Year-to-Year Changes in Coal and Petroleum Production
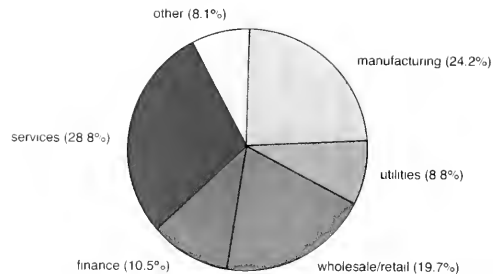

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Illinois Business Review

Illinois Economic Outlook

P̲ersonal income in Illinois will have grown by 6.6 percent in 1988 according to the Illinois Econometric Model. The model also forecasts a similar rate of growth for 1989. Adjusted for changes in the price level, the income annual increase is expected to be about 2 percent. The sectors that are forecasted to experience the greatest real growth in 1989 are services (5.4 percent) and finance (4.4 percent). Manufacturing is expected to continue its decline, with negative growth of about 2 percent.

The impact of a sector's growth on the overall economy depends on the size of the sector. The chart shows the size of each sector as a percentage of total income. Even a modest decline in manufacturing income has a relatively large effect. In contrast, growth in the financial sector has only a moderate overall impact. As Illinois' manufacturing base continues to erode, strong growth in services or financial industries will serve to moderate the adverse effect. At best, only a modest growth in total income is likely.

Illinois Personal Income *(percentage change from previous quarter)*

other (8.1%)
manufacturing (24.2%)
services (28.8%)
utilities (8.8%)
finance (10.5%)
wholesale/retail (19.7%)

Illinois Seasonally Adjusted Personal Income *(nominal, at annual rates)*

	History				Forecast			
	1987:III	1987:IV	1988:I	1988:II	1988:III	1988:IV	1989:I	1989:II
Total personal income (in millions)	$190,246	$197,917	$199,339	$201,474	$203,701	$207,520	$211,433	$215,097
Private nonfarm	121,204	125,151	127,447	130,896	132,405	134,582	136,766	138,792
Mining	953	953	936	956	937	915	900	889
Construction	8,196	8,428	8,726	9,132	9,214	9,341	9,444	9,529
Manufacturing	29,553	29,860	31,588	31,643	31,826	32,124	32,426	32,551
Durable manufacturing	18,126	18,289	19,866	19,827	19,882	20,057	20,260	20,297
Nondurable manufacturing	11,426	11,571	11,723	11,816	11,944	12,067	12,167	12,255
Utilities and transportation	11,073	11,171	11,243	11,457	11,761	11,955	12,135	12,300
Wholesale trade	11,257	11,506	11,587	11,928	12,104	12,276	12,442	12,607
Retail trade	12,997	13,470	13,484	13,846	14,060	14,231	14,399	14,572
Finance, insurance and real estate	12,160	12,569	13,570	13,805	14,114	14,435	14,766	15,110
Services	34,583	36,727	35,830	37,643	38,390	39,309	40,253	41,233

Bureau of Economic and Business Research

Illinois
Business

Review

DAVID F. LINOWES

Privatization for More Effective Government

Much of our nation has become entangled in its own power, stifling creativity and productivity. Government agencies responsible for serving the people have become muscle bound, almost to the point of paralysis when it comes to considering more effective performance. At the same time, other government agencies have reached out beyond the realm of governance by injecting themselves into business operations, to the detriment of both government and business. These trends cannot continue if our free enterprise, democratic society is to survive and thrive.

The issue of the role of government in a democracy has been raised and debated in the United States since our nation was founded over 200 years ago. That same debate has endured throughout the world, in every nation of every culture. It is that debate, raising essential political and economic questions, that has given birth to the privatization movement. Privatization is the transfer of government assets and/or operations to private business interests. As such, it is a recognition that government in any guise cannot be all things to all people. In many nations, it is a reaction against the socialist and Marxist vision that has exerted so much influence in the twentieth century.

The President's Commission on Privatization

To help resolve the question of the proper division of responsibility between business and government, 18 months ago President Reagan appointed a bipartisan commission. I was honored to be asked to chair that commission. In March of last year, I presented our report to the President and the Congress.

After six months of intensive reviews and deliberations during which we heard from 140 witnesses, we found that too many government agencies are trying to solve today's social problems with yesterday's solutions. We must break away from archaic traditional ways and apply constructive alternatives if we are to respond to the poor who need housing, to students who need better education, to prisoners who need rehabilitation, and to travelers who need efficient air traffic control.

A key constructive alternative to solve the problems that are overtaking our society is "privatization." Essentially, this involves three basic guidelines. First, government should reach out to opening its operations to bring in the creative talents and drive of entrepreneurs and executives in the private sector. They can help solve the major problems of our day. At present,

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only those who work for government can help solve the needs in medical care, education, poverty, transportation. Our nation is trying to cope with some of the most intractable problems with one hand tied behind its back. The creative talents and ingenuity of those in the private sector are excluded from direct participation unless they quit their jobs and move onto the government payroll. Yet, those active in the free enterprise system are among the nation's greatest resources. We should use them to achieve more effective government performance. We can do that by contracting out many of those operations. One-fourth of the government work force performs functions that compete with, and are similar to, work performed by private business. Cutting back this slice of the public bloat would contribute towards concentrating government on governance, where it more properly belongs.

Another guideline is that consumers who require government service should be given a choice, and not be captive of the particular agency—the public school, medical clinic, or housing project—to which they happen to be assigned. Such choice injects an environment of competition—the powerful force of the market place—in the delivery of social services. Public school students should be given education vouchers, freeing them to attend the public schools of their choice. The State of Vermont has used education vouchers for high school students since 1899. Last year over one-fourth of the high school population used education vouchers, with strong parental satisfaction.

Low income families should be furnished housing vouchers so they can select living accommodations of their choice. Housing for the poor has been a failure. For 50 years, our nation has attempted to satisfy the needs of low-income families by furnishing them public housing and some subsidized programs. Today we have 1.2 million public housing units. Two-thirds are in substandard condition requiring an outlay of $25,000 on average per unit, or $20 billion. Many of these housing projects are overrun by drug pushers and muggers. Others have been demolished after only 12 to 15 years, such as in the cases of Newark, New Jersey, New York City, and St. Louis, Missouri. These buildings had been constructed with a life expectancy of 50 years. Tenants living in substandard projects should be supplied with housing vouchers so they can go into the market place and successfully compete for the kind of housing accommodations they require. We can provide three housing units with vouchers for every one that can be provided by building public housing projects. Ten million low-income people need help, and they are not getting it. A shift in resources towards vouchers could help significantly.

A final guideline, government should not be in the business of business. Our nation should not be a $250 billion money lender. Government has set up large bureaucratic agencies to make direct loans to home owners, farmers, students, business persons. These same types of loans can be handled by banks who could be contracted to charge the same low costs to the borrowers, the government paying the difference between the charge and the market price.

We have a well-developed banking industry with established administrative procedures, well-qualified to take over this function and administer it efficiently. It would handle administrative detail only—not policy. Presently, the default rate for government administered loans is three times that of private operations.

Producing oil belongs in the private sector. Naval petroleum reserves in Elk Hills, California, and Teapot Dome, Wyoming, should be sold. The original reason that President Taft acquired them has long passed. We can realize some $4 billion from the sale of these assets. The many billions of dollars freed up by the sale of these and similar inappropriate government-owned assets could better be invested in reducing the deficit, or in better schools and housing.

In addition to these guidelines that I have described, two caveats are necessary. First, government must always be responsible for making policy and creating standards for traditional government functions, even when the operations of those functions are turned over to the private sector. Thus, if air traffic control were to be contracted out to private business, the Federal Aviation Administration would always have to be there to continue setting policies and monitoring standards. Secondly, current employees' rights should always be fully protected when implementing change. Such a policy would help assure both employee and public that even in private hands the performance of the function would not be drastically changed.

Democratic government must be responsive to citizens' changing needs, rather than be confined to inflexible ideologies. Better methods of meeting the requirements of the American people should be sought so that both public and private institutions deserve and receive the people's confidence.

There are a number of reasons a business enterprise in an economically free market environment produces goods and services in superior quality and quantity to that of a government institution. Government ownership or control often involves political influence. When business-type decisions are based on political expediency rather than business needs, the results can be, and too often are, destructive. When a government operation results in a monopoly, the impetus of market place competition is lost. Consumers become captives of a one-source supplier. Government agencies rarely strive to improve productivity. Government executives know they do not have to be concerned about being forced to go out of business. Losses are replenished by the federal treasury, an added burden to taxpayers.

We also have to consider that turning an operation over to business carries with it an increase of the tax base. The same function performed by private enterprise generates tax revenues. Government-owned operations often pay limited or no taxes.

It always had been assumed that government operation would give the people better goods and services at lower prices. Decades of experience have proved this to be an incorrect assumption. Without the competitive drive of the market place, performance suffers. In considering change, we are aware that the American people do not embrace initiatives that depart too widely from their traditional experiences. Therefore, we provide for incremental transfers to the private sector. Our approach is to build gradual successes. I shall describe a couple examples of how privatization can effectively be applied incrementally.

Postal Service

In the Postal Service, a number of functions cry out for private-sector involvement. Statutes mandating postal monopoly for first and third class mail should be repealed. When restriction on "Urgent" mail was lifted in 1979, we witnessed the dramatic growth of Federal Express, Purolator Courier, DHL, and others. The United States Postal Service now serves only 12 percent of the express market. It is ironic to note that the recent Postal Rate Commission's recommendation for increasing first class mail from 22 cents to 25 cents at the same time recommended that express mail be reduced from $10.75 to $8.75. The reason given was that the Postal Service wanted to be competitive in a market dominated by private delivery services. In the area where the Post Office has a monopoly, rates were raised. In the area that the private sector had been permitted to operate, the Post Office reduced the rates in order to compete. Why not give the private sector an opportunity to compete in first and third class as well so that the public is served to the maximum?

There should be greater economic use of assets owned by the Postal Service. For example, thousands of Post Office buildings throughout the country occupy valuable real estate. Often these buildings are no more than two or three stories high. We should lease out or sell the air space above the structures to entrepreneurs for the construction of 10-, 20-, or 30-story office buildings or apartment houses. The return to the postal operations could run into the hundreds of millions of dollars.

Local post offices in each community are essentially self-contained operating units. Each day the personnel receive bundles of mail that they sort and deliver to the residences. Give them an opportunity to set up their own businesses, contracting from the government for this function, but require them to deliver the mail twice a day instead of once; and keep the Post Office open six full days a week.

Each community postmaster's facility thereby becomes a franchise operation. Policies and standards would continue to be set by the government. Any savings resulting from improved efficiency would be

kept by the former employees, now owners of employee-stock-ownership plans. Employees of the Post Office, many of whom are in dead-end jobs, would find themselves as part-owners of a private business in which they share in the profits and the equity. After each employee-owned operation is established, then the government could welcome other bidders for the contract.

Air Traffic Control

Air traffic control is another government function of considerable public concern. Air traffic control officials revealed to us during our site inspections that it takes seven years from the time an administrator concludes that he needs a computer component until it arrives in place. By then the technology is already obsolete. Most computer equipment used by air traffic control is over 20 years old. Because of civil service restrictions, personnel practices are severely limited. For example, an air traffic controller in a small, low cost-of-living community earns the same as a controller in New York or Chicago.

The very nature of our democratic government with its checks and balances and procedures—the genius of our democracy—does not lend itself to managing a function requiring high technology and subject to a constantly changing marketplace. Such an operation requires an executive with full authority to act decisively. Air traffic towers should be contracted out or sold to competitive industry. Beginning with towers in smaller communities, as private organizations develop experience and organizational capacity, they should expand into larger airports. Such functions as training of air traffic controllers and the maintenance of control equipment should be contracted out. Over the years, the private sector should be given the opportunity to take over this operation fully.

There are those who argue that the public would not accept air traffic control by profit-oriented business interests because of concern about safety. The argument rings hollow when we recognize that airlines are owned and operated by private industry, and that the plane itself is manufactured by private business. We entrust our lives to the pilot, hired by business, and to airplanes manufactured and operated by private companies.

Worldwide Privatization

A worldwide trend toward privatization is accelerating dramatically. It has included governments of all political persuasions, even some communist countries. They are coming to appreciate the gains in efficiency that can be achieved by involving the private sector.

British Prime Minister Margaret Thatcher has made the sale of government commercial operations one of the principal themes of her administration. In addition, her government sold more than a million government-owned housing units to tenant residents. When I visited the United Kingdom and met with its top officials, I learned that by selling those properties directly to the tenants, the government divested itself of substantial money-losing real estate, eliminated costly operating subsidies, and is receiving income from mortgage payments. At the same time, it made independent homeowners out of dependent citizens.

Privatization in France has been a top priority since March 1986. Turkey, Italy, Japan, and several African nations have joined the movement. In my mission undertaken to Argentina, Chile, and Uruguay for the Department of State last July, I found considerable privatization activity in those countries, and they are eager to know how to do more (that is the reason I was there). Chile, in particular, in recent years has had a program that has transferred three-quarters of its government enterprises to private business. (I might add, unfortunately, political actions by Chilean President Augusto Pinochet have not yet fully responded to President Reagan's vital human rights demands.) In the People's Republic of China, workers are being allowed to buy shares in their enterprises, which are slowly being freed from state and party control. Even the Soviet Union is moving cautiously in the same direction.

It is interesting that when I discussed our report with President Reagan last March, he observed that in his meetings with heads of state, the subject of privatization constantly arose. It seems all governments with whom he had been meeting had expressed their desire to move forward aggressively with such programs.

Conclusion

For almost a century, the worldwide trend had been towards government growth, embodying the nationalization of industry. In the United States this movement took the form of subjecting industry to increasing government regulation. It has now been recognized everywhere that neither nationalization nor too much regulation work. In rethinking the proper relationship between government and the private sector, privatization has once again raised basic economic questions. Strong movements have emerged to remove government from many of its business-type activities. Interestingly enough, it was Supreme Court Justice William O. Douglas who counseled that if government powers are to be exercised wisely, it is up to business to take the lead.

These issues go to the very heart of the economic and political strength of our nation. The influence of our remarkable, free democracy on world affairs is directly tied to that economic and political strength. Recasting some of the outward concepts of division between government and business is most necessary at this time. This work has only begun. It is my hope that the kind of action initiatives that I have described will lay the framework for involving the talents of private entrepreneurs in performing what is now part of government. They can help meet the needs of all our people. The rewards for renewed national growth and increased economic power can be overwhelming.

PAUL C. BISHOP

Illinois Agriculture: The International Dimension

The agricultural sector of the US economy has undergone tremendous financial and structural stress in the last decade. Many of the causes and consequences of agriculture's problems can be attributed to excessive debt, weather conditions, and ineffective farm policy. Another aspect of the problem is the recent crisis in the international dimension of the farm situation. Although there are many contributing factors, the most important seem to be the sluggish demand for US farm exports and the intensified competition for export markets at a time when it is increasingly difficult to sell our products abroad. Since Illinois is a major contributor to the volume of US exports, the international aspects of agriculture are of major importance for the state as well.

From Boom to Bust

The robust growth in agricultural markets of the early seventies promised an end to the problems of oversupply and sagging farm income. Economic growth abroad and increased demand for US farm products supported a growing volume of farm exports. In 1970, agricultural exports, primarily wheat, soybeans, and feed grains, were about $7 billion; they jumped to $21 billion by 1974 and reached a peak of over $43 billion by 1981 (see Chart 1). The largest buyers were the developing countries. In 1970, 30 percent of exports went to developing countries, while by the early eighties it was almost 50 percent. This increase was fueled by growth in the world economy and the availability of credit from the industrial nations.

Agricultural Trade
(current dollars)
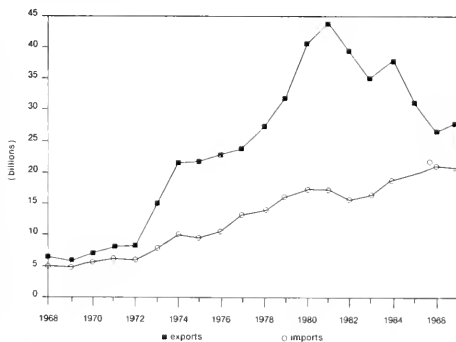
Such unchecked growth had several consequences. A consensus that the days of oversupply were gone emerged following a significant reduction in excess supplies. As farmers were encouraged to increase production, more land, much of it of marginal quality, was brought into production. Between 1972 and 1981 acreage used for crop production increased by almost 25 percent. Approximately one out of every three acres of farmland was used to produce crops for export. There was rapid inflation of land values, allowing farmers to borrow large sums and greatly to increase their debt burden. By the early eighties, the most highly leveraged producers, accounting for one-tenth of all farmers, owed over $23 billion to commercial banks. Farm income rose to a level not exceeded in the postwar period.

Even those not directly involved in agriculture recognized the significant contribution that exports made to the trade balance (see Chart 2). The agricultural trade surplus rose from about $1 billion in the late sixties to over $26 billion in 1981. Growth in agricultural exports was especially important at a time when the nonagricultural trade balance was steadily worsening.

Trade Balance
(current dollars)
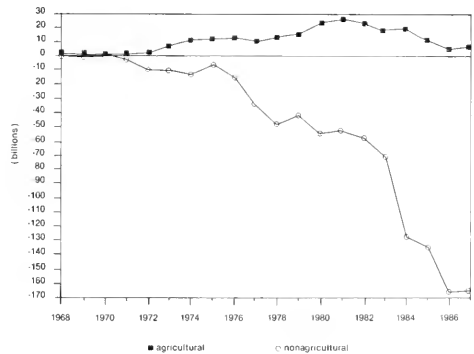
By 1981, the boom was beginning to falter. Exports began to decline, primarily due to the global recession and a strong dollar. As third world countries struggled under the burden of their enormous debt, demand for US farm products diminished at a time when other nations were increasing their share of export markets. As long as markets were growing, there was room for everyone to compete in the world marketplace. Once the recession began, the vexing problem of oversupply and sagging prices returned.

Market Share, Competition, and the Dollar

The international marketplace is now a much different place from what it was in the seventies. While the United States is still a dominant player in export markets, it is no longer the only player. There has been

a steady increase in the share of exports contributed by other nations. For example, the European Community was a net importer of wheat in the seventies but now exports about 15 percent of world export supplies. Similarly, Canada has almost doubled its market share in the wheat trade. In 1979, the United States had 80 percent of the corn market but now has only about 60 percent. Although still the largest exporter of soybeans, the United States has seen its market share decline in recent years as well.

The vigorous competition now facing the United States results from a fundamental change in world export supply conditions. Table 1 shows the results from a recent study of comparative costs across various countries. According to these results, the United States is not the lowest cost producer of certain commodities; even so, the United States is an important competitor.

Table 1. Costs of Production and Share of Exports
(1987, US dollars per metric ton)

	Wheat		Corn		Soybeans	
	Cost	Share[a]	Cost	Share[a]	Cost	Share[a]
United States	$129.80	33.2	$91.52	67.8	$165.06	75.9
Argentina	70.34	8.2	74.84	9.2	130.08	9.6
Brazil	—	—	—	—	229.64	8.2
Canada	137.39	18.4	—	—	—	—
Thailand	—	—	68.78	4.1	—	—
Australia	125.07	10.4	—	—	—	—

[a]Approximate percentage of total world exports.

Source: Cost data adapted from Table 1 of "Can U.S. and Great Plains Agriculture Compete in the World Marketplace?", *Economic Review* of the Federal Reserve Bank of Kansas City, February 1988.

Table 1 shows estimates of the costs to produce wheat, corn, and soybeans in the United States and in other competing nations. Argentina appears to be a very formidable competitor in cost terms. However, the amount that these countries produce for export is less than that produced by the US. For example, Argentina produces less than fifteen percent of the volume of corn and soybeans for export that the United States produces. The low-cost producers do not have the resources to produce these commodities in the volume necessary to sustain trade. Even so, given the very soft international markets, the United States is now exposed to two forms of uncertainty because it is a residual supplier rather than the primary supplier. First, there is the uncertainty about the volume of exports from other low-cost competitors. US exports will depend upon the amount produced abroad *in total* since our exports will make up any difference between output from other countries and total demand. Second, the United States is also exposed to the same demand conditions that other nations face. In periods of soft demand for farm products, the United States loses a larger share of its market than accounted for by the decrease in world exports. The reason is that other lower cost supplies are available, albeit at a level not capable of satisfying demand. For instance, world wheat exports fell by 9.7 million tons between 1981 and 1986, but US exports of wheat fell by 18.6 million tons for the same period. Data for corn and soybean exports reveal a similar disparity.

A second factor contributing to the decline in farm exports is the growth in agricultural productivity abroad. Producers such as Thailand and Brazil have growing agricultural labor forces necessary for labor intensive cultivation of food products. Similarly, the more industrialized nations have benefitted from improved production methods and technologies that have greatly increased production efficiency. Between 1975 and 1984 output per unit of labor input increased by about 30 percent in Brazil and Thailand, by over 40 percent in Argentina and Australia, and by more than 70 percent in Canada and the United Kingdom. In the United States for the same period, productivity increased by about 55 percent. Greater productivity allows countries that did not previously compete with the United States to apply pressure to our export markets by increasing supplies and aggravating the effects due to the previously mentioned decreasing market share.

A third important reason for the stagnant agricultural export picture is the strong agricultural exchange rate. Most indexes of the value of the dollar compared to other currencies use the volume of trade in manufactured goods to weight the relative importance of a specific country in the index. A more revealing method consists of dividing the volume of trade between agricultural and nonagricultural exports in the formulation of an exchange rate index. Table 2 shows such an index calculated for each year between 1973 and 1986. Column 1 is a general trade weighted index based on the volume of all trade between the United States and each country in the index. Column 2 is similar except that the volume of nonagricultural trade is used as a weight for each country, and Column 3 uses the volume of agricultural trade. Column 1 indicates that between 1979–80 and 1984–85 the value of the dollar increased by 39 percent for all traded goods.

Table 2. Trade-Weighted Real Exchange Rate Indexes for the US Dollar *(1979–80 = 100)*

Year	Total Exports (1)	Nonagricultural Exports (2)	Agricultural Exports (3)
1973–74[a]	85	86	79
1974–75	83	85	78
1975–76	85	86	80
1976–77	84	86	78
1977–78	81	83	73
1978–79	81	83	73
1979–80	100	100	100
1980–81	109	108	110
1981–82	121	120	124
1982–83	125	124	129
1983–84	135	134	140
1984–85	139	138	148
1985–86	130	129	140
Number of Countries	77	77	77

[a]Agricultural marketing years, 1 October to 30 September.

Source: "A Weaker Dollar and US Farm Exports: Coming Rebound or Empty Promise," *Economic Review* of the Federal Reserve Bank of Kansas City, May 1987.

Over the same period the value of the dollar increased by 38 percent in nonagricultural trade and by 48 percent for agricultural trade. In the last year of the index, the value of the dollar declined by about 7 percent for nonagricultural trade and by 5.7 percent for trade in farm products.

The reason for the difference can be traced back to the differences in the countries that import US manufactures and those that import farm products. The latter group is made up of a number of developing countries. Developing countries are more likely to have a fixed exchange rate regime rather than a floating or managed floating system. Under a fixed regime short-run market fluctuations are not translated into exchange rate movements as quickly as in a more freely floating regime. Therefore, it takes longer for a decline in the value of the dollar to have a significant effect on the demand for farm exports in these markets.

Illinois' Export Performance

Data on state agricultural exports routinely place Illinois near the top of the ranking. In 1987 the state was third behind California and Iowa in the dollar value of total exports, first in soybean exports, and second, behind Iowa, in exports of feed grains (see Table 3). Together, soybeans and feed grains made up slightly over 84 percent of the agricultural exports of Illinois compared to just over 37 percent for the nation as a whole.

Table 3. Leading Agricultural Export States
(1987, millions of dollars)

State	Rank 1987	Rank 1981	Value of Exports	Primary Products
California	1	3	$2,837.1	Fruits, vegetables, tree nuts, cotton
Iowa	2	1	2,263.6	Soybeans, feed grains, live animals and meats
Illinois	3	2	2,115.3	Soybeans, feed grains, live animals and meats
Nebraska	4	6	1,578.3	Feed grains, soybeans, hides
Texas	5	4	1,521.3	Cotton, hides, live animals and meats
Kansas	6	7	1,513.5	Wheat, hides, live animals and meats
Minnesota	7	5	1,368.4	Soybeans, feed grains, wheat
Indiana	8	8	1,011.9	Soybeans, feed grains, wheat
North Dakota	9	9	947.2	Wheat, feed grains, sunflower seed
Ohio	10	10	921.8	Soybeans, feed grains, wheat
United States			27,873.8	Soybeans, feed grains, wheat

Although Illinois is a top exporter, its share of total US agricultural exports declined from about 8.5 percent in 1981 to slightly more than 7.5 percent in 1987. The greatest portion of this decline can be attributed to the fall in exports of feed grains such as corn. Although Illinois' share of US feed grain exports has remained at 15 percent, the volume of US exports of corn and grains has plummeted from $11.1 billion in 1981 to $4.6 billion in 1987. Illinois exports of grains are now less than one-half their dollar value in 1981. At the same time, Illinois' share of the soybean market has shown only a mild increase in the last two years. The net result has been an overall decline in Illinois exports.

For the last three years, California has held the distinction of being the top exporting state after occupying third place for several years. The shift is a reflection of the changing demand for exports abroad. Brisk demand for cotton, fruits, vegetables, and nuts led to an increase in the value of California's exports of 19 percent between 1986 and 1987. With the exception of a token amount of vegetables and fruits, Illinois does not produce any of these commodities for export.

Because Illinois' range of agricultural exports is rather narrow compared to California's, for example, it has been particularly hard hit by the fall in the US exports of corn, wheat, and soybeans. As other states have learned, it may be in their best interest to promote their own products rather than to depend on efforts at the national level. Such a course of action would be more difficult for Illinois because its exports are rather homogenous. Aside from the results of differing growing conditions, it is difficult to make a case that Illinois soybeans are a different (better) commodity than Iowa soybeans. Soybeans or corn do not differ greatly in quality wherever they are grown. Such an approach may work with products that require some manufacturing or preparation before they are sold abroad. Products such as cheese from Wisconsin or wines from California can be more easily differentiated from similar products produced elsewhere. They differ in quality and variety and have marketable attributes that appeal to consumers with a broad spectrum of tastes and preferences. In the case of Illinois, corn and soybeans do not lend themselves to such forms of marketing.

Conclusion

Markets for US farm products have changed significantly in the last decade. Much of the change is the result of increased competition from abroad in the form of lower costs and increased productivity. As a consequence there has been a continuing period of difficult adjustment. The United States can no longer depend upon demand for grains to sustain its export position, but must instead expand into other markets. The shifting composition of state exports graphically illustrates this change. For many years the grain exporting states, including Illinois, were the chief exporters of farm products. Recently, California, with exports that include only a small amount of wheat, and no soybeans or feed grains, has taken the lead over the other states. Given Illinois' agricultural base and climate, it is difficult to identify the degree to which the state will be able to change the composition of its exports to meet changing world demands.

WILLIAM R. BRYAN

The Value of Low Automobile Interest Rates

The automobile buying consumer is frequently confronted with a choice between a rebate or a financing opportunity featuring a below-market rate of interest. Recently, I looked over several newspapers and was attentive to radio and television commercials. Within a short period I read, heard, and saw the following:

Rebates up to $1,000 or 4.9% A.P.R.

4.9% A.P.R. for 24 months

6.9% A.P.R. for 36 months

7.9% A.P.R. for 48 months

8.9% A.P.R. for 60 months.

How can a person know which alternative is most advantageous? Is it better to accept a rebate at the time of purchase? Or, is it better to accept a reduced rate of interest on borrowed funds? Is it better to borrow for a short period at a low rate of interest, or for a longer period at a somewhat higher rate of interest? As is so often the case, there is no generic answer. Instead, the advantageous choice depends upon the specific set of facts relating to the transaction at hand. But there are ways of analyzing the problem that can be of assistance in deciding among alternatives.

The Value of Favorable Financing

The value of favorable financing depends on three factors. The first consideration relates to a differential between the market interest rate and the favorable financing rate; the second relates to the length of the financing; and the third relates to the amount financed. I present tables, each corresponding to a different repayment period. Each table shows the value of financing subsidies corresponding to alternative market interest rates and alternative favorable financing rates. Each subsidy is stated per $1,000 financed.

Consider the 4 percentage point differential emerging from the combination of a 13 percent market interest rate and a 9 percent favorable financing rate, with a 60-month repayment period (Table 1). That combination of interest rates results in an $87.67 subsidy per $1,000 financed. Thus, for example, if the amount to be financed were $14,000, the total subsidy would be about $1,227 (14 × $87.67). The same 4 percentage point differential, but one resulting from an 11 percent market rate and a 7 percent financing rate results in a slightly larger subsidy ($89.28). The differences in the size of the subsidies among alternative interest rate combinations result from the fact that I have framed the problem in terms of discrete compounding intervals (in years); with continuous

compounding the differences among subsidies would disappear. Even with discrete compounding, the chief consideration relates to the size of the differential, not the specific combination of interest rates from which it is formed.

But the size of a subsidy declines sharply as the repayment period shortens to standardized maturities such as 48, 36, and 24 months. Consider the first example discussed above. The combination of 13 percent and 9 percent with a 48-month repayment period results in a $72.41 subsidy per $1,000 financed, down more than 17 percent from its value with a 60-month repayment period. The same combination of interest rates with a 36-month repayment period results in a $56.22 subsidy. And as the maturity shrinks to 24 months, the value of the subsidy falls to $39.06.

In the introductory paragraph several alternative financing plans were identified. Each successive plan involved a higher interest rate coupled with a longer financing period. Which of these plans would be best? To address this question it is convenient to assume that there is a single market interest rate. For these purposes, I assume that the market interest rate is 14 percent. It is also convenient to round the financing rates to those given in the tables. I round the 4.9 percent rate associated with the 24-month financing period to 5 percent; the 6.9 percent rate associated with the 36-month financing period is rounded to 7 percent; the 7.9 percent rate for the 48-month period is rounded to 8 percent; and the 8.9 percent rate for the 60-month period is rounded to 9 percent.

Given these convenient assumptions, it turns out that the most valuable combination of terms is the one with the longest financing period even though it carried the most narrow interest differential. The subsidy associated with the 5-percentage-point differential between the 14 percent market rate of interest and the 9 percent favorable financing rate for a 60 month financing period has a present value of $107.87 per $1,000 of borrowed funds. By comparison, there is only a $86.26 subsidy associated with the 9-percentage-point differential (a 14 percent market rate and a 5 percent financing rate) for the 24-month loan.

Perhaps it would be helpful to discuss a hypothetical example of a typical automobile transaction. Assume the following set of facts: One, the cost of an automobile in addition to a trade-in is $11,750; two, the market rate of interest for a 48-month installment loan is 14 percent, and the installment rate offered by the automobile dealer is 8 percent; three, the dealer

offers a $1,500 cash rebate as an alternative to the attractive financing package.

Which is the most financially attractive alternative? According to Table 2, the value of the subsidy corresponding to a 14 percent market rate and an 8 percent favorable financing rate is $106.62 per $1,000 financed. Hence, for the transaction at hand the present value of the subsidy would be about $1,253. Clearly, the cash rebate is more valuable.

If, however, the financing package were for five years, the comparison would be different. The present value of the subsidy would be $128.58 per $1,000 (Table 1), or a total value of about $1,511.

What the Consumer Needs to Know

The consumer needs to form judgments about three sets of facts: the cost of the automobile with and without favorable financing terms; the advantageous rate of interest along with the market rate of interest; and the amount to be financed along with the length of the financing.

The identification of the alternative set of prices is reasonably straightforward, but may involve tedious shopping around. Typically, there is an explicit choice between favorable financing terms and a rebate. It is possible that there can be additional differences relating to one-on-one bargaining. The identification of alternative financing terms is similarly straightforward, but may require shopping around. There will be a description of the favorable financing package at automobile dealerships offering such packages. The dealer is likely also to be in a position to arrange financing elsewhere at standard (or market) rates. Or, the consumer may wish to arrange for financing at a credit union, a commercial bank, or elsewhere (including the use of past savings). From these alternative sources the consumer can form an opinion regarding what I have referred to here as the market rate of interest. It is at this stage that the consumer is likely to have sufficient information to determine how much is to be financed and for what repayment period.

I do not mean to suggest that all of the factors just discussed can be identified unambiguously. For example, if an individual uses accumulated savings to finance a current purchase, the cost can be viewed as the lost earnings from the savings. But suppose the financial stress resulting from the purchase of the automobile turned out to be the chief factor in moving a household into persistent use of credit card lines of credit. Then might it not be reasonable to regard those

Table 1. Value of Financing Subsidy per $1,000 Financed, 60-Month Repayment Period.

Favorable Financing Rates (In Percent)	Market Interest Rates (In Percent)								
	7	8	9	10	11	12	13	14	15
3	$92.55	$113.81	$134.39	$154.30	$173.57	$192.22	$210.27	$227.76	$244.69
4	$69.93	$91.73	$112.81	$133.22	$152.97	$172.08	$190.59	$208.51	$225.87
5	$46.97	$69.30	$90.91	$111.82	$132.05	$151.64	$170.61	$188.97	$206.76
6	$23.65	$46.54	$68.67	$90.09	$110.83	$130.89	$150.32	$169.13	$187.35
7		$23.44	$46.11	$68.05	$89.28	$109.84	$129.74	$149.00	$167.66
8			$23.22	$45.68	$67.43	$88.47	$108.85	$128.58	$147.69
9				$23.00	$45.26	$66.81	$87.67	$107.87	$127.43

very high interest rates as the proximate result of the purchase?

In addition, it may be useful to take tax considerations into account. It may be possible to arrange financing through use of a line of credit based on equity in a home. Under certain conditions, interest payments can constitute a tax deduction. If this is the case, the appropriate interest rate for use in Tables 1 through 4 is an after-tax rate, not the market rate.

The consumer should bear in mind that there is a trade-off between the interest rate differential associated with the favorable financing rate and the period of time over which the financing is extended. Given any differential, longer financing periods result in larger subsidies. Given any financing period, wider interest differentials result in larger subsidies. Because of these trade-offs, the consumer must not be distracted by the glamour of low interest rates. For, as the examples given here demonstrate, it is easy to find very attractive subsidies with a combination of narrow interest differentials and long financing periods.

Concluding Remarks

The automobile industry has made artful use of attractive financial packages and rebates as a means of improving the marketing of automobiles. As in other marketing applications, a strategy has emerged in which the consumer has been presented with a bewildering array of choices. In some marketing applications, the choices involve explicit differences in quality; in other instances, nothing more is at stake than simple personal preferences. Sometimes the consumer is in a good position to evaluate alternatives; in other instances he or she is not. The consumer faces substantial difficulty in deciding among financing alternatives, or in choosing between a rebate or a favorable financing plan. Although there are explicit definable pecuniary implications, the necessary analysis is somewhat technical.

As is often the case, the superficially attractive alternatives do not necessarily hold the most value for the consumer. But each case must be considered separately, with the facts relevant to the individual consumer for the specific transaction at hand. The tables presented here can be useful in evaluating potential transactions.

Table 2. Value of Financing Subsidy per $1,000 Financed, 48-Month Repayment Period.

Favorable Financing Rates (In Percent)	Market Interest Rates (In Percent)								
	7	8	9	10	11	12	13	14	15
3	$75.67	$93.34	$110.54	$127.28	$143.59	$159.47	$174.94	$190.00	$204.68
4	$57.09	$75.12	$92.67	$109.75	$126.38	$142.58	$158.36	$173.73	$188.70
5	$38.29	$56.68	$74.57	$92.00	$108.96	$125.49	$141.58	$157.25	$172.52
6	$19.26	$38.01	$56.26	$74.03	$91.33	$108.18	$124.59	$140.57	$156.15
7		$19.12	$37.73	$55.84	$73.49	$90.67	$107.40	$123.70	$139.58
8			$18.97	$37.44	$55.43	$72.94	$90.00	$106.62	$122.81
9				$18.83	$37.16	$55.02	$72.41	$89.34	$105.84

Table 3. Value of Financing Subsidy per $1,000 Financed, 36-Month Repayment Period.

Favorable Financing Rates (In Percent)	Market Interest Rates (In Percent)								
	7	8	9	10	11	12	13	14	15
3	$58.16	$71.97	$85.49	$98.74	$111.72	$124.44	$136.90	$149.11	$161.09
4	$43.82	$57.84	$71.56	$85.01	$98.19	$111.11	$123.76	$136.16	$148.31
5	$29.35	$43.57	$57.51	$71.16	$84.54	$97.65	$110.50	$123.08	$135.42
6	$14.74	$29.18	$43.33	$57.19	$70.77	$84.07	$97.11	$109.89	$122.41
7		$14.66	$29.01	$43.08	$56.86	$70.37	$83.60	$96.57	$109.28
8			$14.57	$28.85	$42.83	$56.54	$69.97	$83.13	$96.03
9				$14.49	$28.68	$42.59	$56.22	$69.57	$82.66

Table 4. Value of Financing Subsidy per $1,000 Financed, 24-Month Repayment Period.

Favorable Financing Rates (In Percent)	Market Interest Rates (In Percent)								
	7	8	9	10	11	12	13	14	15
3	$40.01	$49.66	$59.18	$68.56	$77.81	$86.93	$95.93	$104.80	$113.55
4	$30.10	$39.85	$49.47	$58.94	$68.29	$77.51	$86.60	$95.56	$104.39
5	$20.13	$29.98	$39.69	$49.27	$58.71	$68.02	$77.20	$86.26	$95.19
6	$10.09	$20.05	$29.86	$39.53	$49.07	$58.48	$67.76	$76.90	$85.92
7		$10.05	$19.97	$29.74	$39.38	$48.88	$58.25	$67.49	$76.60
8			$10.01	$19.89	$29.62	$39.22	$48.68	$58.02	$67.22
9				$9.97	$19.81	$29.50	$39.06	$48.49	$57.79

The Value of a Below-Market Interest Rate

The value of a subsidy stemming from a below-market interest rate can be calculated as follows:

First, X_m, the monthly payment based on a market rate of interest, r_m, is given as

$$(1) \qquad X_m = \left[\frac{Fr_m}{\left(1 - \frac{1}{(1 + r_m)^n}\right)} \right],$$

where f is the amount financed and n is the repayment period.

Next, X_f, the monthly payment based on a favorable financing rate of interest, r_f, is

$$(2) \qquad X_f = \left[\frac{Fr_f}{\left(1 - \frac{1}{(1 + r_f)^n}\right)} \right].$$

The monthly subsidy, X_s, can be thought of as the difference between the monthly payment based on the market rate and the monthly payment based on the favorable financing rate—that is, $X_s = X_m - X_f$. The present value of the monthly subsidy is given by

$$(3) \qquad PV_s = X_s \left[\frac{1 - \frac{1}{(1 + r_m)^n}}{r_m} \right].$$

Substituting (1) and (2) into (3), we get

$$(4) \qquad PV_s = F \left\{ 1 - \left(\frac{r_f}{r_m} \right) \frac{\left[1 - \frac{1}{(1 + r_m)^n} \right]}{\left[1 - \frac{1}{(1 + r_f)^n} \right]} \right\}.$$

The subsidies in Tables 1 through 4 are calculated by setting F to \$1,000, then using alternative values for r_f, r_m and n. Consider, for example, the 13 percent market interest rate and the 8 percent favorable financing rate shown in Table 1.

$$(5) \qquad PV_s = \$1,000 \left\{ 1 - \left(\frac{.08/12}{.13/12} \right) \frac{\left[1 - \frac{1}{(1 + (.13/12))^{60}} \right]}{\left[1 - \frac{1}{(1 + (.08/12))^{60}} \right]} \right\}.$$

$$\approx \$108.85.$$

Illinois Business Indexes

The outlook for the Illinois economy remains unclear based on the BEBR's composite leading indicator series. The leading indicator series is constructed to provide early detection of upturns or downturns in the state economy. The behavior of the series since 1972 compared to the subsequent performance of the economy shows that a major change in economic activity can be predicted when the current indicator crosses the trend indicator for four or more months. However, as shown in Chart 1, the series recently crossed in October 1988 and again between November and December 1988. Since then the current indicator has been above the trend indicator. If the current indicator remains above the trend indicator in February and March, a continuation of the current economic expansion would be predicted. However, such an interpretation would be premature at this time.

Individual indicators document the recent health of the state economy. As shown in Chart 2, Illinois unemployment has been declining and is approaching the national level for the first time in several years. Manufacturing employment has grown steadily over the recent past as can be seen in the statistical table.

Per capita, inflation-adjusted, personal income has grown in each of the last four quarters. Construction remains strong and has been on an upward trend for the past six months (Chart 3).

As the length of an economic expansion grows, fears of inflationary pressures on the economy usually develop. To examine this possibility Chart 4 shows the recent time path of the Consumer Price Indexes for the north central United States urban areas under 50,000 in population and for the Chicago metropolitan area. The Chicago CPI remains below its September 1988 peak. However, other indexes reveal consistently increasing price levels. A key question regarding economic health is whether there has been an acceleration in price level increases. Over the past several years the rate has been rather steady. If prices begin to increase at an increasing rate, this would signal a meaningful change in economic conditions. As matters now stand, it is too early to identify a change in inflationary conditions. The Illinois economy has enjoyed a healthy expansion in the recent past, but the future of this expansion is unclear.
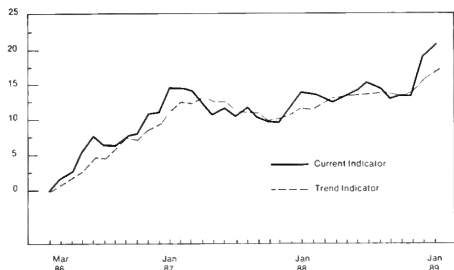
Charts 5 and 6 show the seasonal pattern of real tax revenues. The pattern for personal income taxes is relatively stable, while that for the sales tax shows considerable variation.
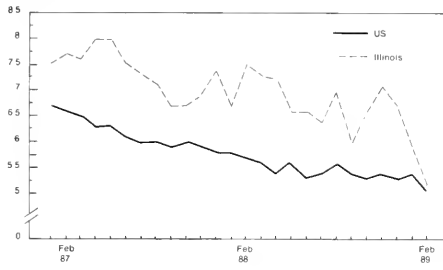
ILLINOIS BUSINESS INDEXES

	Percent Change Jan. 1988-Jan. 1989	Jan. 1989	Dec. 1988	Nov. 1988	Oct. 1988	Sept. 1988	Jan. 1988	Dec. 1987
Leading Indicator (Current Indicator)	6.19[a]	20.09	18.65	13.38	13.37	12.79	13.90	11.73
Leading Indicator (Trend Indicator)	4.91[a]	16.58	15.54	13.82	13.37	13.61	11.67	10.83
Employment-manufacturing (in thousands)[b]	1.74	976	978	950	949	950	959	937
Average weekly hours-manufacturing[b]	-2.14	41	42	42	41	42	42.0	42
Weekly earnings-manufacturing[b]	-1.79	$453.74	$461.20	$459.51	$456.50	$461.34	$462.00	$481.60
Help wanted advertising-Chicago (1967 = 100)[c]	-2.59	113	105	105	110	110	116	108
Help wanted advertising-St Louis (1967 = 100)[c]	10.00	77	74	67	78	68	70	68
Retail sales (in millions)[d]	5.11	$5,575	$7,730	$6,309	$6,224	$6,026	$5,304	$7,504
Coal production (in thousands of tons)[b]	-1.29	4,837	4,798	4,839	5,255	5,100	4,900	5,083
Petroleum products (in thousands of barrels)[b]	-12.20	1,800	1,900	1,930	1,950	2,000	2,050	2,100
Vendor performance[e]	N/A	N/A	56%	56%	60%	64%	68%	71%
Building permits (in thousands)								
Residential housing units	13.28	1.604	5.630	3.300	4.262	4.373	1.416	2.513
Value of residential housing	36.86	$164,107	$408,172	$290,926	$374,593	$361,047	$119,906	$205,704
Value of nonresidential construction								
Industrial buildings	429.12	$39,663	$94,037	$38,612	$63,244	$27,897	$7,496	$27,143
Office, banks, and professional buildings	61.97	$27,802	$136,165	$81,475	$65,160	$71,098	$17,165	$26,725
Stores and other mercantile buildings	107.63	$26,998	$77,815	$37,752	$56,098	$62,600	$13,003	$26,366
Other	93.65	$3,811	$3,610	$5,248	$5,028	$4,728	$1,968	$2,059
Consumer price index (1982-84 = 100)								
North Central US	4.67	118.7	118.2	118.1	118.1	117.7	113.4	113.3
North Central/population more than 1,200,000	5.00	119.8	119.2	119.1	119.1	119.0	114.1	113.9
North Central/population 360,000 to 1,200,000	4.41	118.3	118.2	118.0	118.2	117.0	113.3	113.0
North Central/population 50,000 to 360,000	4.76	118.8	118.2	118.4	117.7	117.4	113.4	113.6
North Central/population less than 50,000	3.44	114.4	114.0	114.1	114.2	114.2	110.6	110.9
Chicago	5.38	121.5	121.3	121.0	121.6	122.0	115.3	115.7
St Louis	4.41	118.4	—	118.3	—	117.3	113.4	—
		1988-III	1988-II	1988-I	1987-IV	1987-III	1987-II	1987-I
Personal income (in millions)[b,f,g]	6.56	$202,735	$200,993	$199,545	$197,917	$190,246	$187,332	$186,227
Per capita personal income[b,f,g]	6.26	$17,421	$17,283	$17,171	$17,043	$16,394	$16,155	$16,071

[a]Represents absolute change (percent change not relevant). [b]Recent month is preliminary figure. [c]The Conference Board, *Help Wanted Advertising*, November 1988. [d]Latest month projected by BEBR. [e]Percentage of companies receiving slower deliveries. Series revised after December 1988. [f]Seasonally adjusted at annual rates. [g]Percent change between 1987 III and 1988 III

Chart 1. Composite Leading Indicators
(average percent in base indexes)

Current Indicator
Trend Indicator

Mar
86
Jan
87
Jan
88
Jan
89

Chart 2. Unemployment Rates: Illinois vs. US
(seasonally adjusted)

US
Illinois

Feb
87
Feb
88
Feb
89

Chart 3. Residential Building Permits
(12 month moving average)

Thousands of Units

Jan
85
Jan
86
Jan
87
Jan
88
Jan
89
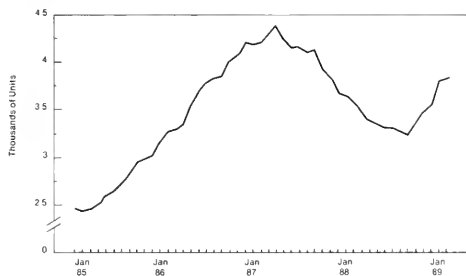
Chart 4. Selected CPI, Chicago vs. North Central US

Chicago CPI
North Central population < 50,000

Index

Aug
87
Nov
87
Feb
88
May
88
Aug
88
Nov
88
Jan
89
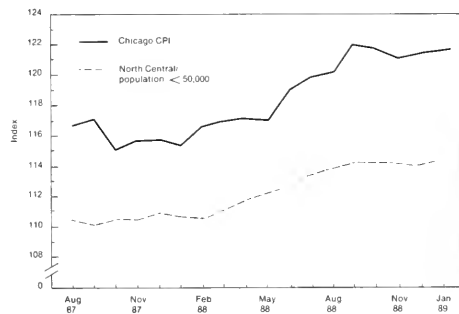
Chart 5. Illinois Retail Sales Tax Receipts
(in millions of constant 1967 dollars, rate adjusted)
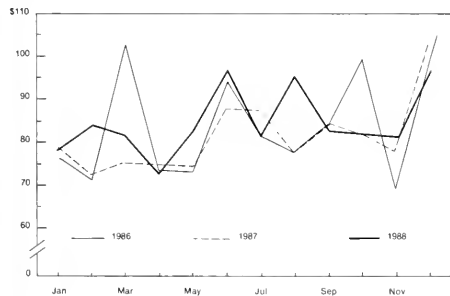
1986
1987
1988

Jan
Mar
May
Jul
Sep
Nov

Chart 6. Illinois Personal Income Tax Receipts
(in millions of constant 1967 dollars, rate adjusted)

1986
1987
1988

Jan
Mar
May
Jul
Sep
Nov

15
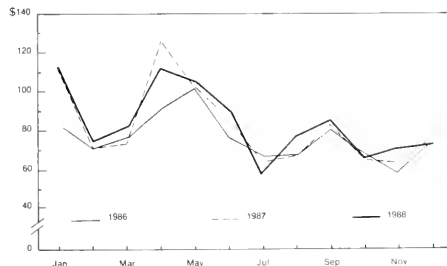
Illinois Business Review

Illinois Economic Outlook

A slowdown in Illinois employment growth is predicted by the Illinois Econometric Model. The total employment level for the state is expected to rise by less than 10 thousand during 1989, reflecting divergent growth rates among the sectors of the economy. Manufacturing is forecasted to lose about 27 thousand jobs while employment increases in finance, services, and wholesale and retail trade are expected to show offsetting gains.

The chart illustrates the relative shares of each sector in total private nonfarm employment in Illinois. Services and wholesale and retail trade are the largest employers, accounting for slightly less than 60 percent of all nonfarm employment. It is interesting to note that although wholesale and retail trade account for nearly 30 percent of employment, this sector receives only 20 percent of personal income. The presence of part-time workers and lower wages compared to other sectors account for this difference.

Illinois Employment
(relative share by sector)
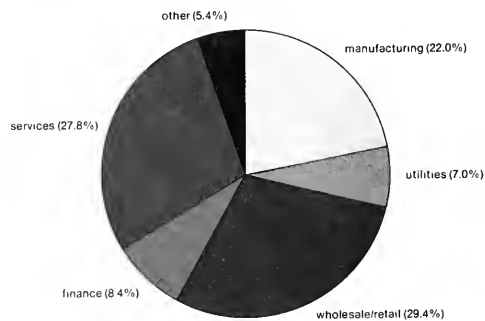
other (5.4%)
manufacturing (22.0%)
services (27.8%)
utilities (7.0%)
finance (8.4%)
wholesale/retail (29.4%)

Illinois Seasonally Adjusted Employment

	History				Forecast			
	88:I	88:II	88:III	88:IV	89:I	89:II	89:III	89:IV
Total private nonfarm (thousands)	4,250.9	4,279.0	4,307.8	4,327.3	4,334.7	4,336.7	4,337.0	4,336.4
Mining	24.1	23.9	23.5	23.2	22.9	22.8	22.8	22.8
Construction	202.0	206.2	206.1	208.6	206.3	202.6	198.3	193.7
Manufacturing	941.3	945.3	947.7	950.7	947.5	940.1	932.1	923.4
Durable	571.6	574.7	576.2	578.8	577.7	572.5	567.6	561.7
Primary metals	54.6	54.7	54.9	55.2	55.1	54.9	55.0	54.8
Fabricated metals	108.7	108.9	109.6	110.6	110.6	109.6	108.9	108.2
Nonelectrical machinery	137.7	138.8	140.3	140.2	141.9	141.6	140.3	137.1
Electrical machinery	121.9	122.4	122.2	122.9	121.7	120.0	118.8	118.1
Miscellaneous durables	149.1	150.2	149.3	149.6	148.3	146.4	144.5	143.5
Nondurable	370.0	370.5	370.9	372.1	369.7	367.6	364.5	361.7
Food products	91.2	90.9	89.9	90.1	90.1	89.6	88.9	88.1
Printing and publishing	108.9	109.6	109.9	110.0	109.9	109.7	109.1	108.5
Chemicals	57.8	58.1	58.5	58.7	58.5	58.1	57.8	57.6
Miscellaneous nondurables	111.4	112.1	112.7	112.3	111.2	110.1	108.7	107.5
Utilities and transportation	300.4	301.6	302.8	302.6	302.2	301.4	300.6	299.8
Wholesale and retail trade	1,245.6	1,255.8	1,268.5	1,272.5	1,274.8	1,276.8	1,278.9	1,281.1
Finance, insurance, and real estate	363.7	363.5	363.3	364.4	367.1	369.5	371.6	373.5
Services	1,174.4	1,183.5	1,195.3	1,204.2	1,213.9	1,223.3	1,232.7	1,242.1

Illinois
Business

Bureau of Economic and Business Research
College of Commerce and Business Administration
University of Illinois at Urbana-Champaign

Review

ROBERT P. HARTWIG

Life After Death of a Military Base:
The Case of Chanute Air Force Base,
Rantoul, Illinois

When Chanute Air Force Base, located in the small
east-central Illinois community of Rantoul, appeared
this past December on a list of bases suggested for
closure, the dominant response was one of gloom and
pessimism. At first glance, the depressing assessment
offered by village leaders and others might appear to
have been justified. During fiscal year 1988 (FY88)
alone, Chanute had a payroll of $123.6 million. Various
studies place the number of dollars pumped directly
into the local economy somewhere between $107
million and $135 million. A study by two University
of Illinois researchers, Geoffrey Hewings and Dan
Spiegel, cites the potential for Champaign County
population to decrease by as much as 9 percent, sales
volume by 7.4 percent, and a debasing of local property
values by 20 percent.

A local bank president expressed the view that the
proposed closing of the base is "the biggest negative
[financial impact] to hit Champaign County since the
Great Depression" and that "The effect on Rantoul is
the same as it would be to Champaign-Urbana if the
University [of Illinois] closed." Such discouraging
judgments are rampant throughout central Illinois as
members of the local communities mull over their
expected losses.

Rather than to lament the immediate losses that are
likely as closure proceeds, the goal of this article is to
consider the possibility that Chanute Air Force Base
can be shut down without inordinant economic
distress. Indeed, there is a view that the base itself is a
hindrance to long-term real economic growth. As
private industry occupies Chanute, the Village of
Rantoul can benefit from an enhanced and diversified
tax base. It is reasonable to believe that there would be
a larger income and employment multiplier as a less
transient, more stable population takes root in the
community.

The closure of a military base leading to the eventual
rejuvenation of a community is not without precedent,
as will be made clear by example below. In fact,
municipalities that were once dependent on military
expenditure for their livelihood now find themselves
enjoying economic growth and prosperity far exceeding
the levels experienced when they depended on a base.

This article begins with a brief overview of the
present economic and demographic conditions in the
Village of Rantoul and in the surrounding county. It
then examines various mitigating factors that are
expected to lessen the adverse impact of base closure
on the region. Finally, it presents various short- and
long-run economic scenarios for Rantoul and
Champaign county.

Overview of Rantoul and Champaign County

The Village of Rantoul is located in the east-central Illinois county of Champaign, 120 miles south of Chicago, 185 miles northeast of St. Louis and 100 miles west of Indianapolis. According to the most recent official census in 1985, the village population stood at 20,641. This figure includes the base population, both permanent party (a total of 3,250 persons, including dependents) and students (approximately 4,500).

The population of Champaign county in 1986 was approximately 171,100. The two largest communities within the county are the adjacent cities of Champaign and Urbana, with 1980 census enumerations of 58,133 and 39,676, respectively.

The unemployment rate in Rantoul has traditionally been low, usually between 5 and 6 percent. Champaign county as a whole has one of the lowest unemployment rates in the state at 4.2 percent for 1988, second lowest of all 102 Illinois counties, and is well below the state and national figures for March 1989 of 5.4 percent and 5.3 percent, respectively.

Rantoul is not entirely dependent on Chanute for employment. Table 1 presents a list of major nonmilitary, nonservice employers. These six industries along with Chanute (excluding military personnel) provided about 50 percent of the employment for Rantoul's average 1988 labor force of 5,972.

Table 1. Major Nonmilitary and Nonservice Employers in Rantoul

Employer	Major Product	Employees
Coradco	Windows/Doors	750
Rantoul Products	Chrysler Jeep parts	540
Bell/Vetter	Helmets	450
Eagle Wings Industries	Diamond Star supplier	250[a]
Iodent	Health & Beauty Aids	140
Combe Laboratories	Proprietary Toiletry	150

[a]Total employment expected as of summer 1989.
Source: *Rantoul Guide & Directory, 1988*

During 1988, Chanute employed 2,383 permanent party military personnel, 991 appropriated-fund civilians, 542 nonappropriated fund/base exchange personnel, 864 contract civilians, and 63 other civilians. In addition, there were, on average, 2,759 students enrolled during this period.

The vast majority (86.6 percent) of permanent party military and students, totaling 4,453, resided on base. Of the 13.4 percent (689 people) living off base, 85.5 percent, or 589, occupied residential housing in the village itself. This means that only a small minority of all military personnel claim the village as their residence. Moreover, this number is but 2.9 percent of the total Rantoul population (including the base) and still only 3.8 percent after adjusting for the 5,142 permanent party and students at Chanute. As for appropriated-fund civilians, only 48.9 percent (485 individuals) lived in Rantoul.

Immediate Impact

According to the most pessimistic views, Champaign County, in general, and the Village of Rantoul, in particular, will suffer a significant negative impact from base closure. It is asserted that the Commission on Base Realignment and Closure, which recommended Chanute for closure, is grossly mistaken in its claim that the closure would have only a "moderate" impact on the local economy.

"Moderate" is a relative term, depending on one's perspective, as was evidenced by the comments made by local business leaders. In what length of time will the period of "moderate" impact pass? Will this period be followed by another of greater decline or by revitalization of the community?

A report on the matter by University of Illinois researchers Geoffrey Hewings and Dan Spiegel entitled "Phase I: Report to the Village of Rantoul, Preliminary Impact Report of the Proposed Closure of Chanute AFB on the Village of Rantoul" states that the closure will have a "significant negative impact [on Champaign County]" and that the "economic and social impacts will be most severe in the Village of Rantoul." Below are highlighted some of effects cited by Hewings and Spiegel:

- Sales volume in Champaign County is projected to decline by 7.4 percent while local merchants estimate that sales in Rantoul will decrease between 20 and 50 percent.
- Population decline in the county may reach 9.0 percent while the decline in Rantoul could be greater than 50 percent.
- Municipal property tax base, sales tax revenues, and income tax reimbursements would all decline in the years following a base closure.
- Estimates indicate that nearly one-third of the village's 3,075 single-family homes would be for sale following a base closure.
- Local residential and commercial property values may decline more than 20 percent, which, after three-year averaging, would substantially reduce the village's tax base. Hardest hit would be Rantoul's 1,551 multifamily residences, which were built in large part to serve the base population.
- Rantoul derives 22.0 percent of its municipal revenues from a local sales tax. Two of the three biggest contributors to sales tax revenue expect decreases in sales of 20 percent to 50 percent.
- A substantial decrease in population before the 1990 Census would result in a sharp decline in the level of income tax revenues from the state, which in 1987 accounted for 14.5 percent of Rantoul's total revenues.
- The public schools may lose between 43 percent and 65 percent of attendance. Teaching staff and extracurricular activities will be reduced substantially.

According to Hewings and Spiegel, these are the most important of the immediate effects on the county and the village. Unfortunately, the study has been interpreted as suggesting that the effects of the closure are simultaneous and *irrevocable*. Such a conclusion is not necessarily justified.

Certainly the effects described above represent a worst-case scenario. Moreover, the scenario appears to have been played out in a world in which the village simply awakens to the realization that the base was abandoned overnight. Because of a heavy reliance on interviews with local retailers attempting to gauge the impact of closure, the economic impact estimates are likely to be overestimated. But in fact, the base closure will proceed over a period of several years and will thus be anything but sudden or unanticipated.

Additionally, the figures cited by Hewings and Spiegel are likely to over-estimate the true impact due to the terms of closure specified in the closure bill recently deliberated in Washington. Under these terms, no action toward closure can be taken at the affected bases before 1 January 1990, with closure to be completed by 30 September 1995. Because of the time required to construct facilities at other bases to replace those currently located at Chanute, the village is likely to find itself with nearly the full five year period in which to find and attract suitors to the base.

The closure will be staggered, with sections of the base withdrawing as facilities become available elsewhere. Because of the staged withdrawal by the Air Force, the immediate impact is unclear. It is even difficult to determine what or when the relevant "immediate period" is, given the length of the closure period. It is quite clear, however, that a staged withdrawal increases the adjustment period available to the community and county and can have the effect of substantially mitigating the impacts of closure.

Also because of the staged withdrawal, portions of the base will become available before the terminal date of 30 September 1995. As tracts become available, they may well be leased by replacement industries with the option to purchase after closure is complete. This would be beneficial from the point of view of both the village and the government. The village would have solved many of the problems listed above as those left unemployed by closure are employed by incoming businesses or retain their former positions (as might be the case for municipal employees). At the same time, the Department of Defense would collect rent as closure proceeded. Lessee arrangements would, thus, have a substantial buffering effect on the economic impact of the closure. Indeed, the village might experience a tax windfall after the tracts of land on what is now Chanute AFB become taxable.

Mitigating Factors: A Soft Landing

In the previous section it was stated that immediate impacts from the base closure would be substantially lessened by a staggered closure schedule at Chanute. The staged closure, however, is only one of numerous mitigating factors that will aid in softening the impact. Other factors, also cited by Hewings and Spiegel, are listed below:

- The 1990 Census will be complete long before closure has been effected. Because of this, the village (as well as all other affected communities) will continue to receive income tax disbursements from the state. In fact, Rantoul will receive phantom payments for the second half of the 1990s. That is, disbursements will be made on behalf of thousands of people who no longer even reside in Rantoul. Even now the village receives tax reimbursements based on a population of about 20,000 while providing municipal services to only about 10,000. The village can thus expect to retain most of the 14.5 percent of total revenues it receives from the state.

- As firms occupy vacant sections of Chanute, workers there will create a demand for housing and construction services in the community. In fact, because 100 percent of all employees of private industry will live "off-base", so to speak, an increase in demand is virtually guaranteed. Because of this 100 percent "off-base" percentage, compared with only 13.4 percent now, the market for available housing is likely to firm up quite rapidly.

- Rantoul's 1987 property tax levy (payable in 1988) was second lowest in Champaign County. The aggregate tax rate on property in Rantoul was 5.73 percent, 7.1288 percent in Champaign, and 8.2618 percent in Urbana. At this rate, a $70,000 home in Rantoul, assessed at one-third of value would pay only $1,337. This compares with nearly $1,700 in Champaign and over $1,900 in Urbana for a home of equivalent value.

- The opening up of relatively affordable housing in Rantoul may attract new residents (or even residents of other communities) of the county away from nearby Champaign-Urbana. The low tax levy is also likely to serve as an impetus to relocate to the village. The net effect is that new residents, who either are associated with incoming Rantoul industries or others outside of the community such as the nearby University of Illinois, will absorb much of the housing made available due to the closure. Once again, because housing will become available on a gradual basis as a result of the staged closing, it is unlikely that there will be a large stock of vacant housing at any given moment.

- Even in a worst-case scenario, that of unsalable properties, the Office of Housing and Urban Development would take control with the understanding that property taxes would continue to be paid by the Department of Defense.

- Rantoul stands to receive increased utility tax revenues derived from Rantoul Area Industrial Development Park as firms located there move toward operation at full capacity.

The list of mitigating factors is augmented by the present good financial standing of the community in terms of its net indebtedness and level of expenditures. Relevant factors in this regard include the following:

- The village does not provide municipal services to the base, nor is it obliged to do so until closure is completed and the base is converted for use by private interests.

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- According to the village Comptroller, Rantoul's infrastructure will not require any substantial capital outlays in the near future.
- While fire protection expenditures may need to be maintained at current levels for geographic reasons, there is no reason why police expenditures need to be maintained at current levels if there is substantial population loss.
- Rantoul's only major capital debt is a regional waste water treatment facility that the Air Force and Rantoul financed jointly. The Air Force is obligated to continue payment on this debt in the future. In addition, the village will be free to assess a sewer tax to occupants of the base following closure.

It may appear that this has been an overly optimistic assessment of the ability of the village to attract industry to replace Chanute AFB. However, it appears that optimism is justified in light of Rantoul's favorable locale; its friendly industrial environment and extant industrial base; its attractive tax climate; its successful adjustment to a substantial personnel loss at Chanute for the past several years (see Table 2); and historical precedent involving successful and lucrative transitions for communities having undergone similar closures in the past.

Table 2. Population Trend at Chanute AFB: FY84–FY89

	FY84	FY85	% Change 84–85	FY86	% Change 85–86	FY87	% Change 86–87
Permanent Party	2,304	2,351	2.0	2,467	4.9	2,447	−1.0
Students	4,009	4,607	14.9	4,711	2.3	4,227	−10.3
Civilians	1,223	1,208	−1.2	1,167	−3.4	1,094	−6.3

	FY88	% Change 87–88	FY89	% Change 88–89	% Change 86–89
Permanent Party	2,274	−7.1	2,206	−3.0	−10.6
Students	3,628	−14.2	2,759	−24.0	−41.4
Civilians	1,022	−6.6	972	−4.9	−16.7[a]

[a]This figure is −20.5% in the period between FY84–FY89.
Source: Modification of Table 1 in Geoffrey Hewings and Dan Spiegel, "Phase I Report on the Village of Rantoul. Preliminary Economic Impact Report of the Proposed Closure of Chanute AFB on the Village of Rantoul," 1 March 1989

With regard to locale, it has been pointed out that Rantoul is reasonably close to major midwestern cities such as Chicago, St. Louis, and Indianapolis. In addition, Rantoul is located on or near several major interstate highways. The village itself is located on Interstate 57, which provides a direct north-south route between Chicago and New Orleans. US Routes 136 and 45 also pass directly through town. Nearby, are Interstates 72 and 74, which merge with Interstate 57 in Champaign a few miles to the south. Also, rail service is provided by Illinois Central Railroad and Amtrak. Air service is easily accessed from the University of Illinois' Willard Airport, which is serviced by several major carriers such as TWA, United, American, Piedmont, and Midway Airlines.

The village can exploit its proximity to the Champaign-Urbana area, home to the University of Illinois. Not only will Rantoul provide an alternative housing market for those associated with the university, but vacant space at the base would provide an excellent low-cost locale for spin-off industries and for firms wishing to work in close association with university researchers.

The very existence of its present industrial base constitutes the second reason for maintaining optimism regarding the ability of the village to attract new industry. Partly through impetus generated by threatened closures in previous years, the village has successfully attracted and fostered a substantial and diverse industrial base for a community of its size (see Table 1). Because firms have elected to locate in Rantoul and because they have remained in the community as they have grown, it is evident that the business climate in the village is quite favorable toward industry.

Because Chanute AFB lies entirely within village boundaries, the village will gain 100 percent jurisdiction over land usage after closure is completed. As a result, it will be able to offer lucrative tax incentives as well as amicable zoning ordinances.

A fourth reason for maintaining optimism is the successful adjustment of the village to substantial declines in military personnel over the past few fiscal years. Despite losses of several thousand military personnel, unemployment remains low and the village government financially sound. The chart and Table 2 clearly show significant downward trends in permanent party, student, and civilian populations at Chanute for each of the last three fiscal years and for the past five years in the case of students. Since FY86, Chanute has lost more than 41 percent of its student population, nearly 11 percent of permanent party personnel, and since FY84 over 20 percent of its civilian work force.

Population Trend at Chanute AFB: FY84–FY89
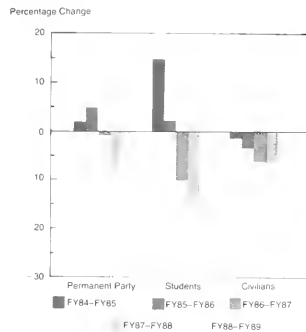
There is ample evidence from similar closures of military establishments to suggest that there truly is life after the death of a base. Below are examples chosen to emphasize the fact that communities far more isolated and far worse situated than Rantoul can and do prosper after closure.

Chippewa County, Michigan had been the home of Kincheloe Air Force Base until it closed in the 1960s. The year before closure the county had about 9,000 persons employed out of a labor force numbering around 12,000, with a 21 percent unemployment rate. Today, the county has an unemployment rate of only 7.4 percent with 13,425 of the 14,500 there employed. Another 400 to 500 people are expected to be added to payrolls during 1989. What made Chippewa County so successful in adjusting to life without the Air Force? It certainly is not because Kincheloe was located on high priced real estate in suburban Detroit or Ann Arbor. In fact, Chippewa County is located on the northeast tip of Michigan's Upper Peninsula, hundreds of miles from any major city.

In 1965 Schilling AFB in Salina, Kansas, shut down. Salina is an isolated community located 100 miles north of Wichita and 160 miles west of Kansas City and buried deep within the American wheat belt. Upon closure of the base, the community lost a large portion of its population. But today the community is thriving. More than 90 manufacturers have taken over what was once Schilling AFB. The manufacturers employ nearly 5,000 people.

Bangor, Maine, located in the east-central portion of the state, is another out-of-the-way spot. Bangor was home to Dow AFB until its closure in 1968. The community used its relative isolation in the extreme northeastern United States to its advantage. Today, 400,000 passengers per year pass through what is now an international airport located at the former site of the air base.

Bases that are located in heavily urbanized areas tend to have developers lined up to purchase property. This is typified by Fort Sheridan, the other Illinois installation marked for closure. Sheridan is located on 7.5 miles of lakefront property along Lake Michigan in the high-priced Chicago suburbs of Lake Forest and Highwood Park. According to one Wall Street Journal Report, at least one developer sees the property as an excellent opportunity to cash in. The developer has placed over half a million dollars in escrow as a proposed downpayment and has offered the Pentagon an unsolicited bid for the property of more than $52 million.

This is just a partial list of success stories from communities that have experienced a base closure. The first three were chosen to illustrate that even far-flung places can recover and actually benefit from closure. Most important is the fact that these communities are no longer dependent on a military base for their livelihood. They now benefit from a diversified and stable economic environment.

Success did not simply come unsolicited to the doors of these communities. Rather, the communities had to work hard to create workable solutions to their problems. All of the successful communities agree that initiative and quick action are key elements to survive closure and to benefit from it. The successful communities formed economic plans for base redevelopment immediately upon news of a closure. All emphasize the role of rapid mobilization of the entire community and the heavy marketing of the base as an asset.

Based on similar experiences with closures in the 1960s, the US Defense Secretary's Commission on Base Realignments and Closure cites five important steps for the redevelopment of military installations.

- Form a local organization to provide strong leadership and overall policy direction.
- Create a recovery action plan for redeveloping the former military facility and for attracting jobs.
- Focus an economic recovery effort on the entire community, taking into account the transportation network, public facilities and services, health care, housing and schools, and other attributes.
- Demonstrate a capacity to engage and sustain new business growth through intensive, ongoing, economic development programs.
- Obtain federal and state participation to buttress local efforts by responding on a priority basis to the key actions identified in the community recovery program.

A Long-Run Scenario

What can the Village of Rantoul expect in the years following closure? If the community is successful in attracting lessee-occupants for the base before closure, the long-run is not at all distant. As a result, the village can undergo a continual adjustment process as private enterprise supplants military operations. It is important to acknowledge that private expenditures do not need to replace military expenditures dollar for dollar. In fact, even if fifty cents were spent in Rantoul by new industry for each lost dollar of aggregate military expenditure, the village might be better off. Such a result averages by virtue of enhanced multiplier effects stemming from stable population (see the box). A privately based economy would be more property-asset intensive (a result of the previously mentioned fact that all those employed would be living "off base"). Enhanced multiplier effects can take several forms including income, employment, and taxation.

Income multiplier enhancement will be a result of a higher proportion of dollars being poured directly into the community. For example, if expenditures on Chanute totaled $100 million dollars and half of it were spent in the local economy, then the total income generated from both the direct and indirect effects of base expenditure, abstracting from taxes, would be $200 million (see Table 3). However, if 75 percent of income generated through private sources totaled $50 million, the net result obtained by adding all indirect effects to the direct effect would sum to the same $200 million figure.

Similarly, multiplier effects can be found for employment and taxation. Because a larger proportion of personal income is expended locally with an industrially based economy, a greater demand for local goods and services is generated as a result. In turn, this creates a larger number of employment opportunities than could ever have otherwise existed in a military expenditure dependent economy. With each additional purchase in the village, sales tax receipts too would accrue to previously unattainable levels.

The Multiplier Effect

When an airman walks into a local bar and lays down $1 for a bottle of beer, that same dollar now becomes income to the bar owner. The bar owner in turn keeps some part of that dollar as his profit and applies the rest toward expenses. A bartender, whose wages were partially derived from that one dollar spent by the airman, now uses it to buy, say, milk at the local grocery. The grocer retains some as profit and uses the rest to meet expenses, to the local dairy farmer, for example.

This cycle can be traced through an infinite number of rounds, with some proportion of the initial $1 in expenditure becoming another's income somewhere down the line. As a specific example, let us trace the effect of $100 million expended directly into the local economy. It is easily seen in Table 3 that when a larger proportion of income is spent in the community, that the net effect is a substantial gain in the gross income of that community. Similarly, a rise in the proportion of wages expended locally from 50 percent to 75 percent raises net income by $14,607 in the long run (exactly the average military wage). Because a larger proportion of military expenditures are likely to be spent on base and the fact that most airmen do not consume housing or other major expense items in the local market, the net effect for a given increase in military expenditure is smaller than for the same increase in private expenditure.

Table 3. Military vs. Nonmilitary Multiplier Effects[ab]

Round	Multiplier Effects if 50% of Expenditures are Local		Multiplier Effects if 75% of Expenditures are Local	
	Initial Expenditure	Aggregate Change	Initial Expenditure	Aggregate Change
1	$100.00	$100.00	$100.00	$100.00
2	50.00	150.00	75.00	175.00
3	25.00	175.00	56.25	231.25
4	12.50	187.50	42.19	273.44
5	6.25	193.75	31.64	305.88
All later rounds	6.25	200.00	94.92	400.00

Round	Multiplier Effects of Airman with Income of $14,607[c] (spending 50% of income locally)[d]		Multiplier Effects of Nonmilitary Employee with Income of $14,607 (spending 75% of income locally)	
	Initial Expenditure	Aggregate Change	Initial Expenditure	Aggregate Change
1	$7,303.50	$7,303.50	$10,955.25	$10,955.25
2	5,477.63	12,781.13	8,216.44	19,171.69
3	4,108.22	16,889.35	6,162.33	25,334.02
4	3,081.17	19,970.52	4,621.75	29,955.77
5	2,310.88	22,281.40	3,466.31	33,422.08
All later rounds	6,932.60	29,214.00	10,398.92	43,821.00

Total Difference = $43,821 − $29,214 = $14,607

[a]The effects of state and federal income taxes are not included here but would tend to have a dampening effect
[b]Assumes multiplier of 4
[c]Figure of $14,607 is from the US Army Construction Engineering Research Laboratory's Economic Impact Forecast System, maintained and operated through the Department of Urban and Regional Planning at the University of Illinois.
[d]For rounds other than the first, the proportion is 75%.

Concluding Remarks

The decision to go ahead with the closure of Chanute AFB and 85 other military installations was made on 18 April 1989. While legislators from Illinois have contended that the report urging the base closures was flawed, their cries have been lost in the sea of other lawmakers whose districts were unaffected and who saw the budget deficit as a more immediate concern. In any case, affected communities must take action quickly so that the transition from military dependence to economic independence can be a smooth one.

During Rantoul's more than 70 year dependence on military expenditure, its growth has been closely linked with that of Chanute. Until the first threats of closure were made over a decade ago, little growth outside of the service sector was in evidence in Rantoul. Now, it has an expanding industrial base and has begun to exploit the advantages of its location. Marketing Chanute as an asset will be the key to continued growth and successful transition in the village. As a direct result of the closure, the community will be forced to take its future into its own hands. It is plausible to believe, that given time, appropriate planning and effort, Rantoul faces a future much brighter and more prosperous than its past.

IVAN BULL and FREDERICK WINTER

Community Differences in Business Births and Growth

In April 1987, *Inc.* magazine ranked 154 metropolitan areas by growth criteria that aggregated growth in jobs, business birthrates, and the percentage of fast-growing companies into a single composite score. Austin, Orlando, Phoenix, and Dallas-Fort Worth headed the list. Last place went to Duluth, Minnesota-Wisconsin, preceded by Peoria, Illinois, then Huntington-Ashland in West Virginia-Kentucky-Ohio and Davenport-Rock Island-Moline in Illinois-Iowa. Why does one community prosper while another stagnates? What community attributes account for the differences? If the differences can be identified, can a community consciously change itself? If the differences cannot be satisfactorily identified, can a more specific model of business growth be developed? These and similar questions are addressed in this article.

A central theory of entrepreneurship has not yet been developed. A number of writers have offered theoretical insights to help explain and understand different areas of entrepreneurship, and some have made empirical studies to attempt to relate observable factors to some measure of entrepreneurship. One paper posits that the number of new businesses is a function of the number of entrepreneurs and the perceived level of opportunity.

Another relates the probability of entrepreneurship to attributes of the individual such as sex, race, age, and indications of prior success, plus community attributes. The relevant community attributes include stability or instability of the economy, uncertainty in the form of unpredictable events that accompany instability, barriers to entrepreneurship in the regional economy, lack of sufficient diversification, and gaps in the supply of various resources. Also cited was the appropriate climate and support for innovation in the community, culture, and government policy in the forms of taxes, regulation, and economic management.

A third writer holds that the entrepreneurial climate is shaped by three major influences—culture, information, and opportunity. A high level of entrepreneurship is produced when society's system of cultural rewards satisfy entrepreneurial motivations such as economic return, independence, prestige, and opportunity to follow interests.

Somewhat similarly, another believes that how an entrepreneur acts at a given time and place depends upon the rules of the game, that is, the reward structure that happens to prevail. Entrepreneurs are believed to be flexible and to do whatever it takes to achieve position, power, and wealth.

Others offer an entirely different theoretical and macro explanation for new business starts. They argue that the creation of new ventures is fairly regular and predictable, that new firms are primarily stimulated along industry lines because of new technology, new markets, and changes in government regulation.

Empirical researchers have studied a wide range of variables that they believe have some causal relationship to entrepreneurship. It is, however, sometimes difficult to separate causes from effects. Findings have provided evidence that:

- A nonsupportive developmental climate exhibited by the power elite of a community correlated with a low number of new incorporated businesses.
- A high percentage of entrepreneurs in successful growth firms had lived in their communities for a long period, and did not want to move.
- The location of a group of companies was influenced in a direct way by the relationship between the founder and/or CEO and a local college or university.
- University professors were directly or indirectly responsible for the creation of several firms.
- Such demographic characteristics as population mobility, urbanization, tax advantage, education, unemployment, being foreign born, and bureaucratic tradition accounted for a high percent of the variance in start-up rates among different states.
- Entrepreneurs in the software industry started a business to accomplish some significant task, not to accumulate wealth.

This Study

First, we provide an analysis of some variables that we believe relate to community entrepreneurship. Next, we propose a new model for the location of a start-up business that is based on some of the shortcomings of the first analysis. We believe that the new model will be helpful for policy development by communities. We also hope it will encourage additional research.

In the analysis of variables, we attempted to relate two measures of entrepreneurship taken from the *Inc.* April 1987 article (the composite score and the new business birthrate) to variables that were selected from other sources. Those other variables included demographic characteristics of the population, community attributes taken from the Rand McNally *Places Rated Almanac*, 1985, the responsiveness of the community to new businesses, community attitudes toward business and entrepreneurship, the infrastructure of the community, and the proximity to both four-year colleges and leading research institutions.

One should interpret the statistical findings cautiously. As in the case of previous studies, the presence of significant correlation does not mean causation. In fact, entrepreneurship may cause the cited effects, rather than vice versa.

Analysis of Variables Related to Community Entrepreneurship

The following factors were positively correlated to both the *Inc.* composite score and the business birthrate, for example, the higher the occurrence of the factor, the higher the measures of entrepreneurship:

- Percent of population that had moved from another state
- Percent Hispanic
- Percent with 16 years or more education
- Low unemployment (high employment)
- Number of four-year colleges within 20 miles
- Incidence of crime
- Quick mail response to letter of inquiry about locating a new business
- Favorable attitude of business development directors about city and state economic climate

A high percentage of white population was negatively correlated with both measures of entrepreneurship, that is, the higher the percentage of the population that was white, the lower the composite score and the business birthrate.

Three factors were correlated with the composite *Inc.* score, but not the business birth rate. The percent of business-related newspaper articles was positively correlated (growing businesses are newsworthy). Affordable housing was negatively correlated (demand probably causes price increases in growing communities); the percent spent by local government on highways (in lieu of other items) had a negative relationship.

Several variables were correlated with the business birth rate, but not to the composite growth score. A quick telephone response to an inquiry about locating a new business and an aggressive marketing attitude, both from business development directors, were positively related to the business birth rate. The supply of cultural facilities was also favorably related to the business birth rate.

The variables with a negative relationship to the business birth rate but not to the composite score included percent of population 65 years and older; percent with 12 years or more education (as opposed to 16 years); health care facilities; climate, terrain, and recreational opportunities; and the amount of advertising by the business development director.

Thus, it seems that the apparent desirability of a city is *not* an inducement for entrepreneurial activity—further evidence that entrepreneurs come from within, not from outside.

Overall Conclusions from Statistical Findings

Demographic characteristics, relatively unchangeable in the short run, account for a high percentage of the variance in the composite *Inc.* score and the business birthrate. Correlations with the factors listed in the *Places Rated Almanac* provide evidence that business births (which would include relocations) occur in locations that do not rate as the most attractive. There is also evidence that community culture and the attitudes of business development people positively influence business development. We conclude that a community cannot expect immediate results from any policy or practice, but that a nonretirement community can influence, over an extended period of time, the extent of entrepreneurship exhibited by its residents.

These conclusions generally support previous findings. And, like previous studies, they offer little help to a community that would like to change the level or pattern of its business growth. We believe that one facet of growth, business start-ups, deserves special attention. We therefore offer the following model upon which a community might base actions to encourage business births.

Model for Location of a Start-up Business

The model (see the chart) begins with generation of an idea, and then develops into a location decision.

The driving force behind an idea can originate in three different ways, or from some combination of the three. Some entrepreneurs start with the desire to achieve personal economic benefit, some with a problem needing a solution, and some with a technology that may or may not have commercial applicability (a solution looking for a problem).

Technology (know-how) and opportunity (problem) need to be matched in order for an exploitable idea to emerge: Neither a solution without a related problem, nor a problem without a solution results in a commercially exploitable idea.

An idea can be exploited in at least three different ways, that is, by licensing, selling, or using. If the entrepreneur chooses to use the idea by starting a business, the business location becomes relevant. He must decide whether to stay or to move.

Personal factors seem likely to be considered first. Some significant barriers must be overcome before the entrepreneur even considers moving. It would seem likely that many entrepreneurs never seriously consider moving, an exploitable advantage for a community that wishes to encourage start-ups.

If the entrepreneur considers moving, his location decision is likely to be influenced by the availability of the requirements that are critical to the success of his business and by the culture of alternative locations that he considers.

Requirements for success may include the availability of physical resources like a pool of adequately qualified potential employees, efficient access to a market, the ability to meet existing competition, a cost-effective production environment, availability of capital, a network of advisers, nearby technology, and similar factors. Obviously requirements differ for different kinds of businesses. Communities will differ in the specific attributes that they can offer to fulfill business requirements.

DRIVING FORCE...
ECONOMIC DESIRE | TECHNOLOGY | OPPORTUNITY

MATCHED WITH...
OPPORTUNITY and TECHNOLOGY | OPPORTUNITY | TECHNOLOGY

OUTCOME...
COMMERCIAL IDEA

DECISION...
EXPLOIT IDEA? — NO — END
YES

OPTIONS...
LICENSE | SELL | START BUSINESS

CONSIDERATIONS... AND THE LOCATION DECISION...
PERSONAL FACTORS
SUCCESS REQUIREMENTS
CULTURE
STAY or MOVE
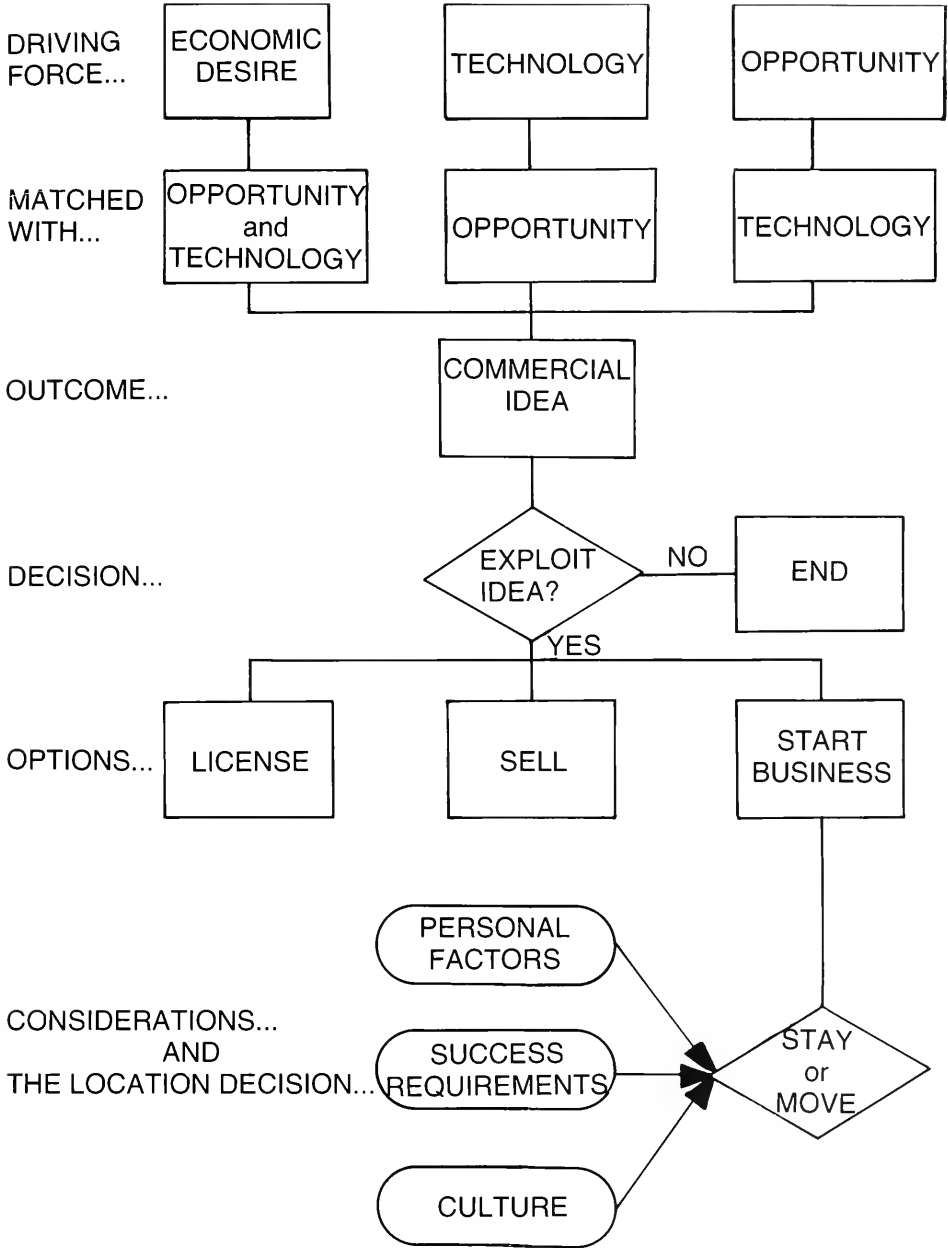
Community culture, defined as the commitment of the community to some common objectives and common values, is also hypothesized to be a significant variable in the location decision. Culture is likely to be judged by the entrepreneur from the indicators that are readily available. These indicators may include the helpfulness and attitude of business development people. They may also include the presence and visibility of role model entrepreneurs, the extent and tone of coverage of local businesses by the news media, and the perceived willingness of the community to respond to the needs of local businesses. Not every community will want each start-up. Each community will tend to give different signals about its culture. The entrepreneur will try to read these signals so that he will locate in a culture where he will feel comfortable and assured that the community will help, not hinder, his chances for success.

Community Choices

Communities that want to increase the level of entrepreneurship should obviously allocate effort and resources towards the controllable factors. Factors relating to infrastructure are the result of decisions by community leaders and are, therefore, considered to be controllable. The behavior of key people in the development process such as newspaper executives and business development people is changeable and can affect business growth. Cultural factors change slowly, not so easily as the behavior of key people, but culture can eventually change to encourage entrepreneurship. Other characteristics can possibly be changed over a long period of time.

The good news is that some of the nonchangeable variables like climate and terrain do not seem to dominate in the decision where to locate a start-up business. Lacking contrary evidence, we assume that entrepreneurial characteristics are randomly distributed among the new-born. If that assumption is valid, the community that is willing to take a long-term approach to encourage growth should build a culture that nurtures and rewards its resident, but possibly unidentified, would-be entrepreneurs.

Ivan Bull is Director of the Office of Business Innovation and Entrepreneurship, Professor of Accountancy and Finance. Frederick Winter is the Head and Professor of the Department of Business Administration. An expanded version of this article has been submitted for publication in the Journal of Business Venturing.

Bureau Publishes New Statistical Abstract

The Bureau of Business and Economic Research has published a new edition of its statistical abstract for Illinois. The *1989 Illinois Statistical Abstract* provides 600 pages of economic statistics, arranged by county, on such topics as personal income and nonfarm earnings; farm income; transfer payments; employment by industry, by labor force statistics, and by weekly earnings and weekly hours; gross state product; census of manufactures; census of services; census of population and housing; building permits; consumer price indexes and inflation rates; general revenue fund tax receipts; and estimated retail sales.

The abstract has been published in paperback form and, for users with a heavy demand for analysis, on 3.5- or 5.25-inch diskette. Prices are $27.50 for the paperback or $40.00 for the disk version. Both are available from the Bureau of Economic and Business Research, 428 Commerce West, 1206 South Sixth Street, Champaign, Illinois 61820.

Illinois Business Indexes

The outlook for the Illinois economy is indeterminate. The three-month moving average of the BEBR's leading indicator series fell below the six-month moving average in March after three months of exceeding it. The movement can be explained by changes in the component indexes from which the composite index is constructed. The housing index (Chart 4) declined sharply relative to its unusually strong performance in December and February. Such variability causes the three-month moving average and the six-month moving average to cross even though housing over the past six months has been very strong. The movements in the housing index may reflect a variation in the seasonal pattern of housing starts rather than a change in the overall trend. The index of vendor performance has declined below its historical average in the past three months depressing the composite index. The employment picture looks positive. Chart 2 shows Illinois maintaining its recent gains relative to the national unemployment rate. Chart 5 illustrates the neutral impact of help wanted indexes on this month's composite index. The Consumer Price Index does not provide evidence of an increasing rate of inflation. Although the Illinois leading indicator model fails to make a formal prediction, encouraging signals emerge from an informal analysis of the forces driving the model.

ILLINOIS BUSINESS INDEXES

	Percent Change Mar. 1988- Mar. 1989	Mar. 1989	Feb. 1989	Jan. 1989	Dec. 1988	Nov. 1988	Mar. 1988	Feb. 1988
Leading Indicator (MA3)[a]	− 0.55	12.44	19.57	20.09	18.65	13.38	12.99	13.57
Leading Indicator (MA6)[a]	3.24	15.48	16.32	16.58	15.54	13.82	12.24	11.48
Employment-manufacturing (in thousands)[b]	1.04	978	977	976	978	950	968	961.5
Average weekly hours-manufacturing[b]	− 0.48	42	42	41	42	42	41.8	42
Weekly earnings-manufacturing[b]	0 15	$460.93	$460.24	$453.74	$461.20	$459.51	$460.22	$460.22
Help wanted advertising-Chicago (1967 = 100)[c]	− 11.21	103	111	113	105	105	116	116
Help wanted advertising-St. Louis (1967 = 100)[c]	2.99	69	71	77	74	67	67	69
Retail sales (in millions)[d]	4.66	$6,463	$5,312	$5,575	$7,730	$6,309	$6,175	$5,234
Coal production (in thousands of tons)[b]	N/A	N/A	N/A	4,837	4,798	4,839	5,200	4,873
Petroleum products (in thousands of barrels)[b]	N/A	N/A	N/A	1,800	1,900	1,930	2,000	1,990
Vendor performance[e]	N/A	51%	53%	54%	53%	52%	57%	61%
Building permits (in thousands)								
Residential housing units	1.31	3.250	2.772	1.604	5.630	3.300	3.208	1.388
Value of residential housing	−9 95	$307,177	$206,798	$164,107	$408,172	$290,926	$341,112	$161,368
Value of nonresidential construction								
Industrial buildings	41.64	$19,000	$23,058	$39,663	$94,037	$38,612	$13,414	$17,734
Office, banks, and professional buildings	− 42.86	$52,442	$16,934	$27,802	$136,165	$81,475	$91,781	$124,263
Stores and other mercantile buildings	3.34	$39,083	$20,814	$26,998	$77,815	$37,752	$37,818	$28,496
Other	− 17.53	$4,126	$3,333	$3,811	$3,610	$5,248	$5,003	$1,565
Consumer price index (1982–84 = 100)								
North Central US	4.81	119.8	119.3	118.7	118.2	118 1	114.3	113.7
North Central/population more than 1,200,000	5 21	121 1	120.4	119.8	119.2	119.1	115 1	114.7
North Central/population 360,000 to 1,200,000	4.38	119.2	118 6	118 3	118.2	118.0	114.2	113.5
North Central/population 50,000 to 360,000	4 62	119 9	119 5	118.8	118.2	118.4	114 6	113.4
North Central/population less than 50,000	3 96	115.5	115 1	114.4	114.0	114 1	111 1	110.5
Chicago	5 22	123.0	122.2	121.5	121.3	121.0	116 9	116.6
St Louis	4.55	119.4	—	118 4	—	118.3	114.2	—
		1988:III	1988 II	1988 I	1987 IV	1987 III	1987:II	1987:I
Personal income (in millions)[b,f,g]	6.56	$202,735	$200,993	$199,545	$197,917	$190,246	$187,332	$186,227
Per capita personal income[b,f,g]	6 26	$17,421	$17,283	$17,171	$17,043	$16,394	$16,155	$16,071

[a]Represents absolute change (percent change not relevant). [b]Recent month is preliminary figure. [c]The Conference Board, *Help Wanted Advertising* [d]Latest month projected by BEBR. [e]Percentage of companies receiving slower deliveries Bureau of Economic Analysis [f]Seasonally adjusted at annual rates. [g]Percent change between 1987 III and 1988 III

Chart 1. Composite Leading Indicators
(average percent change in base indexes)
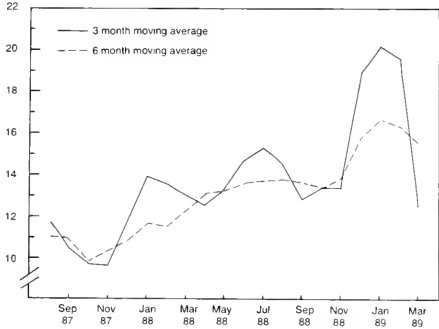
**Chart 2. Unemployment Rates: Illinois
vs. US** *(seasonally adjusted)*
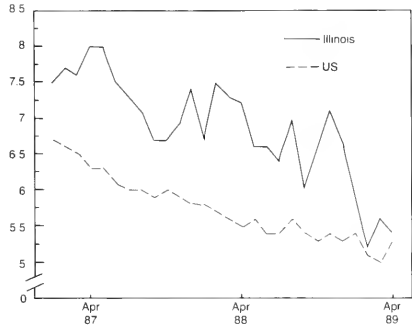
**Chart 3. Vendor Performance vs. Composite
Indicator** *(seasonally adjusted, January 1972 = 100)*
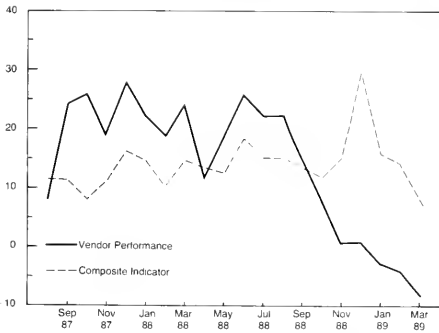
Chart 4. Housing Index vs. Composite Indicator
(seasonally adjusted, January 1972 = 100)
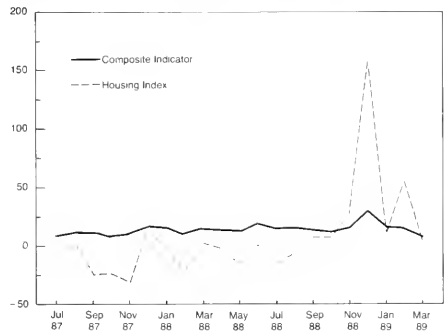
**Chart 5. Help Wanted Indexes vs. Composite
Indicator** *(seasonally adjusted, January 1972 = 100)*
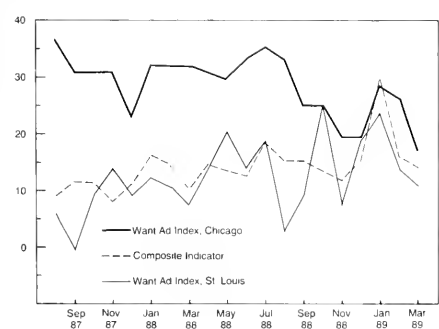
Chart 6. Selected CPI, Regional vs. Metropolitan
(1982–1984 = 100)
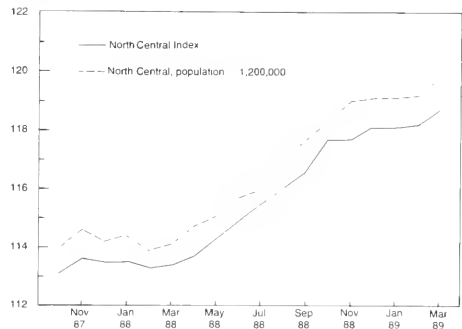
Illinois Business Review

Illinois Economic Outlook

Personal income in Illinois is expected to grow at a modest pace during 1989. In the fourth quarter of 1988, total personal income was nearly $208 billion but is expected to increase to slightly more than $222 billion by the fourth quarter of 1989. The largest portion of the growth in income is attributable to a $4 billion increase in income derived from services. If the expected level of inflation over the next year is considered, then the increase in the level of real income is approximately $4 billion.

The chart illustrates the quarterly percentage changes in income for the state and the national economy. In contrast to experience in the nation as a whole, real income in Illinois fell in the second quarter of 1988. Beyond that, growth in income in the state during 1988 was slower than in the United States. In 1989, however, it is expected that Illinois personal income will grow at a rate that exceeds that of the nation.

Real Personal Income *(percentage change from previous quarter)*
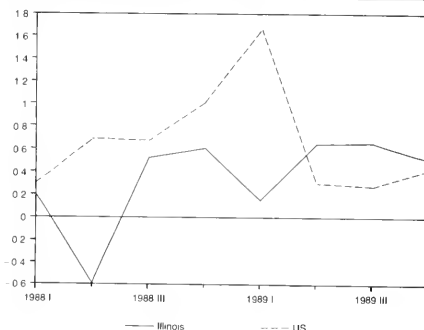
Illinois Seasonally Adjusted Personal Income *(nominal, at annual rates)*

	History				Forecast			
	1988:I	1988:II	1988:III	1988:IV	1989:I	1989:II	1989:III	1989:IV
Total personal income (in millions)	$199,986	$201,058	$204,345	$207,832	$210,910	$214,717	$218,576	$222,329
Private nonfarm	126,854	128,372	132,168	134,563	136,268	138,379	140,524	142,613
Mining	1,010	975	1,023	1,013	1,027	1,028	1,027	1,026
Construction	8,826	9,057	8,920	9,096	9,200	9,291	9,386	9,479
Manufacturing	31,661	31,364	32,773	32,669	33,152	33,407	33,636	33,792
Durable manufacturing	19,620	19,199	20,032	19,994	20,247	20,358	20,460	20,496
Nondurable manufacturing	12,041	12,165	12,740	12,674	12,905	13,050	13,176	13,296
Utilities and transportation	11,175	11,346	11,644	11,712	11,899	12,080	12,255	12,420
Wholesale trade	11,593	12,040	12,135	12,472	12,639	12,811	12,985	13,156
Retail trade	13,290	13,644	13,808	13,971	14,110	14,274	14,448	14,625
Finance, insurance, and real estate	13,222	12,778	12,934	13,275	13,560	13,859	14,165	14,476
Services	35,566	36,638	38,412	39,822	40,681	41,629	42,622	43,639

Bureau of Economic and Business Research

Illinois
Business

Review

WILLIAM R. BRYAN

A View of the Balance of Payments

A nation's balance-of-payments situation is nearly
always a matter of concern to someone for some reason.

We worry about an expansion in our exports and a
reduction in imports because such developments can
foster inflationary pressures; we worry that a reduction
in exports and an expansion in imports may contribute
to economic weakness. We worry about an expansion
in US lending and investing abroad because such
developments divert resources away from productive
domestic uses; moreover, foreign lending can lay the
basis for future debt problems in the event that, at
length, foreigners will be unable to meet their
obligations. We worry about an expansion in foreign
lending and investment in the US because it can lead
to the spread of unwanted foreign ownership of
domestic enterprises. We worry about devaluation of
the dollar because it may hurt importers; finally, we
worry about revaluation because it hurts exporters.

Defined in terms of exchange rate movements, there
have been three distinct time periods during the 1980s.
From 1980 through late 1984 the dollar price of foreign
currencies declined. In fact, during the 1984
presidential election campaign, there was great concern
over the strong dollar. The strength of the dollar was
blamed on high domestic interest rates. In contrast,
from early 1985 through late 1987 foreign currency
prices rose. By the time of the 1988 presidential election
campaign, there was concern over the weak dollar and
about exporting jobs, not goods. Currency prices
stabilized in 1988 and have moved sharply higher
during 1989. These three different periods also are
characterized by reasonably distinctive movements in
the nation's trade position. Although the current
account has been in deficit since 1975, there have been
marked changes in the size of the deficit. The deficit
grew rapidly from 1980 to 1984, adding $88.1 billion
over the four-year period (see Chart 1). During the next
three years, the growth in the deficit slowed, with
annual increases falling by about one-third. Since 1987
the current account has moved toward surplus.

Chart 1. Change in the Current Account

Billions of Dollars
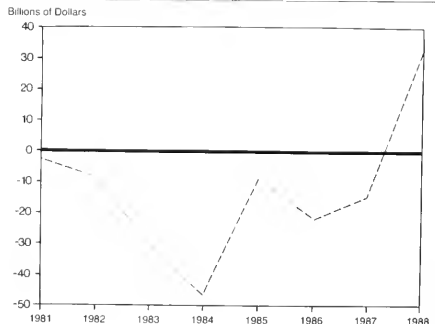
Balance-of-Payments Accounting

To understand the current account fully, it is helpful to see where it fits within the overall balance of payments. The first thing to understand about the balance of payments is that it always balances. Table 1 is a simplified balance of payments statement. In this table the current account consists only of exports and imports. According to this hypothetical table, there is a 50-unit excess of imports over exports. The current account deficit is funded by a net increase in US liabilities to foreigners. Of course, that net increase could have emerged from a variety of asset/liability configurations. For example, an import may be funded by an increase in accounts payable (that is, foreign holdings of accounts receivable); it may be funded by an increase in foreign holdings of deposits in US banks; it may be funded by a reduction in US holdings of deposits in foreign banks. Each funding technique maintains balance in the payments account.

It is common to regard an excess of imports over exports as negative, in the sense that the condition implies greater *uses* of foreign currencies than *sources*. Similarly, it is common to regard the excess of growth in US liabilities to foreigners over growth in US foreign-currency-denominated assets as positive, in the sense that the condition implies greater *sources* of foreign currencies than *uses*.

Table 1. Simplified Balance of Payments Statement

	Foreign Sources	Currency Uses
Current Account		
Exports	200	
Imports		250
Net Change in Capital Account		
US Assets		
Deposits in Foreign Banks		+ 100
Loans to Foreigners		+ 100
Holdings of Foreign Securities		+ 100
Accounts Receivable		+ 50
US Liabilities		
Foreign Deposits in		
US Banks	+ 100	
Borrowing from		
Foreigners	+ 100	
Foreign Holdings of		
US Securities	+ 100	
Accounts Payable	+ 100	
TOTALS	+ 600	+ 600

Exchange Rate Determination

As is the case with other prices, the price of foreign currencies is determined by supply and demand. The supply of foreign exchange is generated by exports and by increases in US liabilities to foreigners. Holding constant the multitude of factors affecting international trade and investment, it is believed that there are increases in the quantity of foreign currencies supplied as a consequence of an increase in the dollar price of foreign currencies. To the foreigner, an increase in the dollar price of currency implies a reduction in the price of dollars. Suppose that the cost of a French franc rises from 13 cents to 17 cents. From the perspective of the French, the franc price of a dollar will have declined

from 7.69 to 5.88. Hence, the French will observe that there have been declines in the cost of American goods. It is for this reason that, other considerations unchanged, the US will observe that the quantity of exports increases as a result of increases in the dollar price of foreign exchange (see schedule denoted by *E* in Chart 2). By similar reasoning, it is believed that there are declines in the quantity of imports as a result of increases in the dollar price of foreign exchange (see schedule denoted by *M* in Chart 2).

In explaining the impact of alternative exchange rates on net changes in the capital account, it is necessary to invoke other considerations. There is no reason to suppose that any given *level* of exchange rates, if it were to remain unchanged, would have an impact on an investor's willingness to place funds in a foreign country. But major problems emerge with shifts in exchange rates. For example, suppose an American invested $1,000 in France when the price of francs was 17 cents, then shifted back into dollars after the dollar price of francs had fallen to 13 cents. By virtue of the exchange rate movement that investor would have experienced nearly a 24 percent decline in his/her principal and in whatever earnings had been associated with the investment. Holding other factors unchanged, the higher a country's exchange rate, the more plausible is the belief that the rate is likely to fall. Such a state of affairs serves to inhibit investment in that country. Such considerations lead us to show declines in the quantity of US lending and investing abroad as a consequence of increases in the dollar price of foreign exchange (see the schedule denoted by *L* in Chart 2). By similar reasoning, increases in the dollar price of foreign currencies result in increases in foreign lending and investing in the United States (see the schedule denoted by *B* in Chart 2).

The supply schedule of foreign exchange, shown as a dotted line in Chart 2, is the sum of exports (schedule *E*) and net foreign investment (schedule *B*). The demand-for-foreign-exchange schedule, also shown as a dotted line in Chart 2, is the sum of imports (schedule *M*) and net US investment abroad (schedule *L*). Note that the market-clearing exchange rate results in a current account surplus but a net change in the capital account leading to a deficit in foreign currencies.

Chart 2. Supply and Demand for Foreign Currencies

Dollar Price of
Foreign Currencies

Foreign Currencies
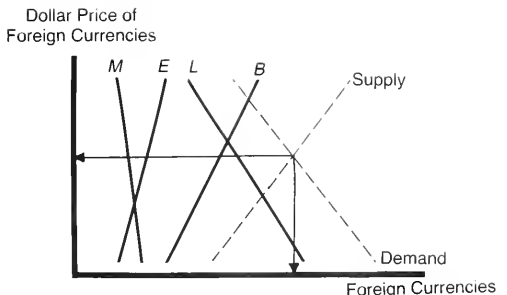
Up to this point, discussion has been limited to a description of the *shape* of the schedules. In so doing we consider movement along a supply or demand schedule as a consequence of changes in exchange rates only. I have taken care to use phrases such as "other things equal" or "holding other considerations constant." By such phrases, it has been my intention to hold constant all factors affecting supply and demand. I now want to change the focus of analysis, turning attention to the factors that *shift* supply and demand schedules. Once this is done, we can regard changes in exchange rates as a consequence of shifts in supply and demand.

A chief factor affecting US demand for imports and foreign demand for US exports falls under the general heading of productivity. A country's price performance or changes in the quality of goods relate in part to productivity developments. If French prices of goods and services entering into international trade rise less rapidly than comparable goods and services in the United States, there will be a tendency for an increase in US demand for French goods and services, whatever the exchange rate. Similarly, because of quality considerations or for ill-defined reasons, Americans may become enamored with Scottish cashmere, Iranian caviar, French cheese, or whatever. Such an intensification of interest could account for an increase in US demand for imports. Whatever the underlying explanation, an increase in demand for imports is denoted by a shift in the import schedule from $M0$ to $M1$ (see Chart 3).

As a result of an increase in US demand for imports, there would be a rise in the dollar price of foreign exchange. The movement into deficit on current account must be accommodated by a net foreign accumulation of dollar-denominated assets. That net accumulation is achieved by a movement up the schedules depicting foreign lending and investing in the U.S. and net US investing abroad (see Chart 3).
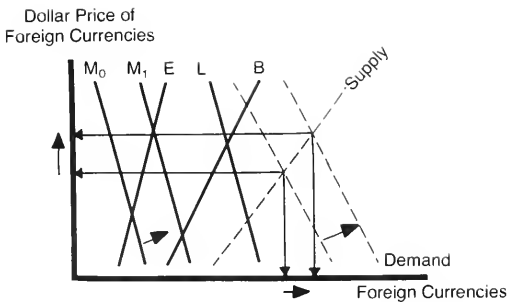
In the event of such a change in demand, the following combination of developments would be expected. (1) there would be an increase in the dollar price of foreign exchange. (2) the current account would move toward deficit. And (3) foreigners would increase their net holdings of dollar-denominated assets. These developments are summarized in Table 2. (An identical combination of developments would accompany a leftward shift in the export schedule; hence, that shift is not shown.)

One might imagine that there could be an increase in foreign demand for US goods and services. Such a change might reflect differential inflation rates, changes in tastes, and so forth. As a consequence of the change in foreign demand, the export schedule would shift from $E0$ to $E1$ (see Chart 4). Other things held unchanged, there would be a decline in the dollar price of foreign exchange. Because the current account has moved into surplus, the capital account must move to an accommodating use of foreign exchange. That movement is brought about by a movement down the schedules depicting US lending and investing abroad and foreign lending and investing in the United States (see the L and B schedules in Chart 4).

Chart 4. Increase in Exports

Dollar Price of
Foreign Currencies

Foreign Currencies
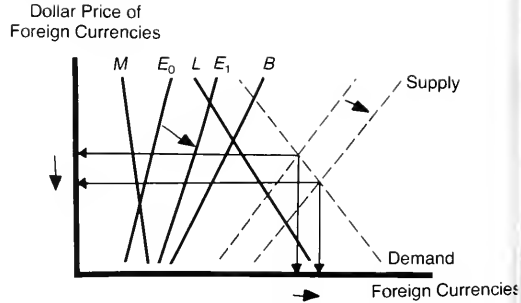
Developments accompanying the increase in foreign current account demand include: (1) a decline in the dollar price of foreign exchange; (2) a movement of the current account toward surplus; and (3) an increase in US holdings of foreign-currency-denominated assets. These developments are summarized in Table 2. (An identical set of developments would accompany a leftward shift in the M schedule; hence, that shift is not shown.)

Suppose that foreigners find investment in dollar-denominated assets to be increasingly attractive. It is quite clear that the US produces some of the world's finest debt. Foreigners are attracted by political stability in the US; they are attracted by the easy access to US financial markets; they are attracted by the massive strength of the US economy. Whatever the specific motivation, an increase in foreign demand for US assets would result in a shift in the foreign lending schedule from $B0$ to $B1$ (see Chart 5). Other things equal, the increase in supply of foreign currency would reduce the dollar price of foreign currency.

Chart 3. Increase in Imports

Dollar Price of
Foreign Currencies

Foreign Currencies

Table 2. Exchange Rates, International Trade and Capital Movements

Source of Change	Dollar Price of Foreign Currencies	Current Account[a]	Change in Capital Account[a]
Increase in US Demand for Imports	+	−	+
Increase in Foreign Demand for US Exports	−	+	−
Increase in Foreign Demand for Dollar-Denominated Assets	−	−	+
Increase in US Demand for Foreign-Currency-Denominated Assets	+	+	−

[a]Plus sign indicates that change involves an increase in (or source of) foreign currency holdings. Minus sign indicates that change involves a reduction in (or use of) foreign currency holdings.

The efforts of foreigners to shift resources to the US is accomplished by the movement of the US current account into deficit. That movement is accomplished by an increase in imports demanded and a reduction in exports demanded. These changed quantities involve movement along existing schedules (see M and E schedules in Chart 5). To summarize, the increase in foreign demand for dollar-denominated assets resulted in: (1) a decline in the dollar price of foreign exchange; (2) a movement of the current account into deficit; and (3) an increase in foreign holdings of dollar-denominated assets (see Table 2). (An identical set of developments would result from a leftward shift in the L schedule; hence, that shift is not shown.)

Chart 5. Increase in Foreign Lending and Investing in the United States

Dollar Price of Foreign Currencies
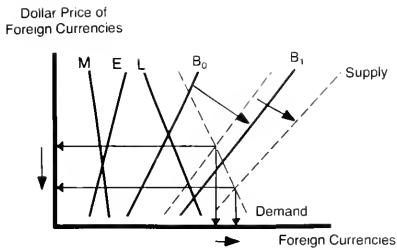
Finally, consider the consequences of an increase in US demand for foreign currency-denominated assets—that is, an increase in US lending and investment abroad. Because of the increase in demand, the schedule depicting US lending and investing abroad, a use of or demand for foreign currencies, shifts from $L0$ to $L1$ (see Chart 6). The current account counterpart of an effort to shift resources abroad is a movement toward a greater excess of exports over imports. This current account development results from the change

in exchange rates. An increase in the dollar price of foreign exchange serves to reduce imports and increase exports; these changes consist of movements along unchanged schedules (see Chart 6).

To summarize, the consequences of an increase in US demand for foreign-currency-denominated assets (lending and investing abroad) are: (1) an increase in the dollar price of foreign currencies; (2) a movement of the current account toward surplus; and (3) an increase in US holdings of foreign assets (see Table 2). (An identical set of developments would result from a leftward shift in the B schedule; hence, that shift is not shown.)

Chart 6. Increase in US Lending and Investing Abroad

Dollar Price of Foreign Currencies
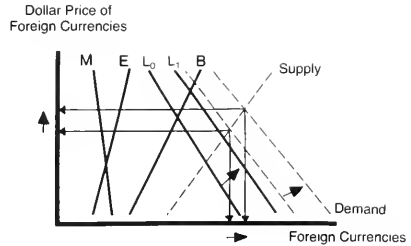
Interpreting the 1980s

By virtually any measure, the dollar was very weak as the decade of the 1980s opened. The US economy had stumbled through the stagflation of the late 1970s. The nation's political impotence had been highlighted by the occupation of the US embassy and the taking of hostages in Iran. The US was further frustrated by its inability to achieve cooperation in its efforts to mount a meaningful embargo against the Soviets in response to their invasion of Afghanistan.

But the dollar began to strengthen early in the decade, and the upward momentum was maintained for more than four years. The strong dollar was accompanied by sharp movements of the current account toward an enlarged deficit. The combination of developments characterizing the 1980–1984 period is consistent with a net increase in foreign demand for dollar-denominated financial assets. US interest rates rose markedly in 1980 and 1981, providing some basis for the increased foreign demand for US debt early in the decade. Subsequently, the recovery of the US economy, the diminution of US inflation, and the improvements in productivity combined to improve prospects for domestic investment. At the same time, the political stability in the US became increasingly attractive against the backdrop of election results in France, the spread of Muslim fundamentalism, and the Soviet occupation of and adventurism in Afghanistan, among other considerations. The strong demand for US debt drove the price of foreign currencies lower. As a consequence, imports expanded more rapidly than exports.

5

The dollar began to weaken in late 1984 and early 1985, then foreign currency prices rose steadily through early 1988. The growth in the deficit slowed during this period, but its absolute level reached unprecedented magnitudes. Such a set of developments is consistent with an increase in US demand for imports relative to foreign demand for US exports. In part, the demand shift can be related to the rise in US inflation relative to rates in most foreign countries. Even so, foreign demand for US debt remained strong.

The exchange rate movements over the past year have been striking. On balance the dollar has strengthened markedly. Following world-wide stock market collapses, there appears to have been a shift toward quality. As indicated, the United States produces very high-quality debt. At the same time, exports have grown relative to imports, and the current account has moved toward surplus. Such a set of developments argues that the most powerful ongoing change is an increase in foreign demand for US exports relative to US demand for imports. But the recent exchange rate developments are erratic and of short duration. Additional experience is necessary for a fully reasoned interpretation.

Economic Policy Considerations

The review of the sources of change examined above provides an occasion for several observations. (1) a strengthening dollar (that is, a declining dollar-price of foreign currencies) can result either by virtue of an increase in foreign demand for US exports relative to imports or by an increase in foreign demand for US debts, equities, or fixed investment relative to US lending and investing abroad. (2) as a result, a strengthening dollar can be associated with either a trade surplus or a trade deficit. Similarly, (3) a weakening dollar (that is, a rising dollar price of foreign currencies) can be associated with a trade surplus or a trade deficit. The combination of outcomes depends on the sources of change.

Which of these combinations of outcomes is most desirable? To the politician, the most popular combination consists of a current account surplus, a capital account change involving a build-up of US holdings of foreign-currency-denominated assets, and a strengthening dollar. Certainly, such a combination is what office holders and office seekers seem to be describing in media interviews. (Of course, no one wants the dollar to be *too* strong!)

But from the perspective of this nation's economic well-being, it can be argued that the desirable combination of outcomes includes a current account deficit and a capital account surplus. The benefits from foreign trade consist of goods and services brought into a country; the costs consist of goods and services sent away for the enjoyment of foreigners. Presumably a nation motivated to pursue its own interests would prefer to use the fruits of someone else's labors and to use up the resources of others. In so doing it conserves its own natural resources and can divert its own labor

to growth-enhancing activities. Unfortunately, it turns out that nearly all good things involve, or can involve, unwanted side-effects. Thus, for example, the unemployed US automobile worker takes little joy in knowing that Japanese workers had to exert themselves and that added labor is now available to engage in an increasingly productive activity. Indeed, the un-employed worker takes little joy in the introduction of any labor-saving device, whatever the prospects for the nation's long-term gains. And, as it turns out, workers vote.

As indicated, there is a financial counterpart to the current account. In particular, if the United States experiences a large and persistent trade deficit, the rest of the world must accumulate large and persistent net increases in their holdings of dollar-denominated assets—for example, US Treasury securities or common stock of US businesses. To all this a typical reaction is: "But what if foreigners don't want to hold our debt?" Such a question deserves a serious answer.

Limiting ourselves to practical considerations, once dollar-denominated debt or other financial assets get into the hands of foreigners there are only two ways for them to reduce their holdings. They can purchase US goods and services, or they can buy fixed assets in the US, chiefly real estate. As it turns out, the US produces a wide range of reasonably attractive goods and services. In addition, our laws and traditions facilitate foreign ownership of property in the US. Such considerations provide the underlying basis for the attractiveness of US financial assets.

But if a mood were to develop so that foreigners attempted to rid themselves of dollar-denominated debt or equities, their actions would place downward pressure on prices of debt and equity. Unless the Federal Reserve were prepared to permit upward movement of interest rates, the foreign selling pressure would be likely to induce open market purchases. As a consequence, there would be an acceleration in the rate of growth in monetary aggregates. Whether the accelerated growth in aggregates would be timely in the context of domestic cyclical developments is problematic.

The upshot of all this is that ours is not a problem-free world. There is probably no single combination of outcomes that is desirable in all respects. Certainly, there is no combination that is forever sustainable. Even so, it strikes me that the United States must be biased toward a capital account surplus. Our debt is simply too attractive to resist. If this is so, we need to rest easy with persistent trade deficits. Further, we need to develop better methods for mitigating the adverse effects of deficits on displaced American workers and businesses. Let them reap some of the advantages too.

PHILLIP RUSHING

What Are "Effective" Interest Rates?

A currently popular computer buzz word—"wysiwyg"—stands for "what you see is what you get." With interest rates, especially mortgage interest rates, the reverse is frequently true—what you see is not what you get. That is, the contract interest rate differs from the "effective" interest rate.

The difference between the contract rate and the effective rate is due to fees—sometimes called loan origination fees, or points—that must be paid in lump sum at the time a mortgage loan is obtained. The word "point" means one percentage point and is multiplied times the amount borrowed to determine the dollar amount of the fees. Thus, a $100,000 loan with three points would require a $3,000 lump sum payment by the borrower to the lender at the closing. The number of points charged by lending institutions varies with market conditions, but is generally in the neighborhood of zero to five. Any amount greater than zero has the effect of making the true, or "effective," interest rate greater than the contract rate.

Consider the purchaser of a $100,000 home who makes a $20,000 downpayment and is considering an $80,000 loan at 9.75 percent interest with monthly payments for 25 years. If two points are charged by the lender, the borrower must pay $1,600 to the lender at closing. This makes the effective loan to the lender only $78,400, even though the borrower must repay the full $80,000. The monthly payment for such a loan is calculated as follows:

$$\text{Payment} = \frac{i/12(1 + (i/12))^n}{(1 + (i/12))^n - 1} \times \$80,000.$$

Where: i = annual contract interest rate; n = term of loan, in months.

Using 0.0975 for i and 300 for n, the above calculation yields a monthly payment of $712.91. To determine the effective interest rate, one must calculate the rate of interest that will make the summation of the monthly payments equal to the effective loan of $78,400. The equation is as follows:

$$\$78,400 = \$712.91 \times \frac{(1 + i/12)^n - 1}{i/12(1 + i/12)^n}.$$

Solving the above equation for i yields an effective interest rate of 10.00 percent.

Unfortunately, the analysis is generally not this straightforward. The above calculations incorporate the rather subtle assumption that the mortgage is held for the full 25 years. While this is certainly true in some cases, there are many instances where it is not true. Job transfers, moving up to a larger home (or down to a smaller one), and a host of other socioeconomic events result in mortgages being paid off before the full term has expired. Many lenders report that the average life of a loan is approximately 7 years.[1] That is, after approximately 7 years lending institutions can expect, on average, to receive the balance then outstanding on a mortgage loan. Such early payment has the effect of exaggerating the impact of points and making the effective interest rate even larger. Consequently, lending institutions in relatively transient communities are likely to be more profitable than those in communities with lower rates of mortgage turnover.[2]

The sooner a loan involving points is paid in full, the higher the effective rate will be. Indeed, if a mortgage loan involving points was to be repaid immediately, the effective interest rate would approach infinity. The chart illustrates this concept. It shows effective rates for one, two, and three points. As can be seen, the effective rates approach the contract rate as the length of the holding period increases, but increase significantly above the contract rate as the time period decreases.

Effective Interest Rates
(9¾%; 1, 2, 3 points)
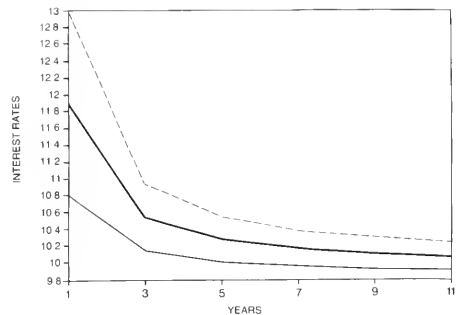
The table provides additional calculations for effective interest rates assuming contract rates varying from 8 percent to 11 percent, points varying from 1 to 3, and holding periods varying from 1 to 25 years. All calculations in the table assume an $80,000 loan with monthly payments over 25 years.

Let us return to the hypothetical example of an $80,000 loan at 9.75 percent interest with two points and monthly payments over 25 years. Assume that the balance of this loan is paid in full after seven years (84 months). The calculation for the balance due on a loan is as follows:

$$\text{Balance Due} = L \left[1 - \frac{(1 + (i/12))^t - 1}{(1 + (i/12))^n - 1} \right]$$

Where: t = the period of time, in months, that the mortgage will be held; L = the original amount of the mortgage. The above calculation, with $t = 84$, $L = \$80,000$, and $i = 0.0975$ yields a balance due of $72,401.67 after 84 payments have been made. The calculation for the effective interest rate is as follows:

$$\$78,400 = \$712.91 \left[\frac{(1 + i/12)^t - 1}{i/12(1 + i/12)^t} \right] + \frac{\$72,401.67}{(1 + i/12)^t}.$$

Solving the equation for i yields an annual effective interest rate of 10.17 percent—a significant increase of more than ⅓ of a percentage point over the contract rate of 9.75 percent. If the loan in this example were to be paid after five years, the effective rate would be 10.28 percent. If it were paid after three years, the effective rate would be 10.54 percent. If the loan were to be paid after one month, the effective annual rate would balloon to 34.44 percent.

A related issue involves choosing between a relatively low interest loan with relatively high points and the reverse—a relatively high interest rate with relatively low points. Such options are frequently made available by lending institutions. Rational decision-making requires the calculation of the effective rate, and the calculation is unique to each investor/borrower since it requires knowledge (or an assumption) about how long the mortgage will be held. In general, the higher the points and the shorter the time period for which the mortgage will be held, the higher the effective rate.

Interest Rates

	8%			9%			10%			11%		
	1pt	2pts	3pts	1pt	2pts	3pts	1pt	2pts	3pts	1pt	2pts	3pts
1	9.06	10.12	11.20	10.06	11.13	12.22	11.07	12.14	13.23	12.07	13.15	14.25
3	8.39	8.78	9.17	9.39	9.78	10.18	10.39	10.79	11.20	11.40	11.80	12.21
5	8.25	8.51	8.77	9.26	9.52	9.78	10.26	10.53	10.80	11.27	11.54	11.81
7	8.20	8.40	8.60	9.20	9.41	9.61	10.21	10.42	10.63	11.21	11.43	11.65
9	8.17	8.34	8.51	9.17	9.35	9.53	10.18	10.36	10.54	11.18	11.37	11.56
11	8.15	8.30	8.46	9.16	9.31	9.47	10.16	10.32	10.49	11.17	11.34	11.51
13	8.14	8.28	8.42	9.143	9.29	9.44	10.15	10.39	10.45	11.16	11.31	11.47
15	8.13	8.26	8.40	9.14	9.28	9.41	10.14	10.29	10.43	11.147	11.30	11.45
20	8.12	8.24	8.37	9.13	9.253	9.384	10.132	10.266	10.403	11.138	11.280	11.423
25	8.117	8.236	8.36	9.12	9.249	9.376	10.129	10.262	10.396	11.136	11.275	11.417

Notes
[1] The *Federal Reserve Bulletin* reports statistics assuming an average mortgage life of 10 years. Yields on Government National Mortgage Association mortgage backed pass-through securities are calculated assuming repayment in 12 years.
[2] Lending institutions are required by regulation Z (Truth in Lending) to report the "effective" rate to borrowers. They do so, however, by assuming the loan will be held for the full term.

JAMES R. BRUEHLER

Illinois and the National Economy

T he Bureau of Economic and Business Research at the University of Illinois, like similar institutions in other states, is interested in forecasting and analyzing the state economy. The economy of a state, however, cannot be understood apart from the larger economic community. A common money supply, labor and capital mobility, and unfettered interstate trade generally cause the economic fortunes of the states to rise and fall together. Prosperity cannot be enclosed within a state, nor can economic problems be halted at the border.[1] Forecasting and analysis of a state's economy, therefore, must be predicated upon beliefs about the national economy. In order to customize an analysis for the state, it is important to develop an understanding of the distinctive qualities that cause the state economy to behave differently from the national economy. A state's population demographics, educational trends, land use patterns, and industrial composition can help to explain the divergence of an area's economy from the national economy. This article investigates the divergence of state economic growth from national trends.

Chart 1 depicts gross state product (GSP) in constant 1982 dollars for Illinois and for the nation. GSP is the gross market value of the goods and services attributable to labor and property located in a state. It is the state counterpart of the nation's gross domestic product (GDP).[2] These estimates are provided by the Bureau of Economic Analysis (BEA) and are the most comprehensive measures of production available by state.

Chart 1. Real Total GSP *(millions of 1982 dollars)*
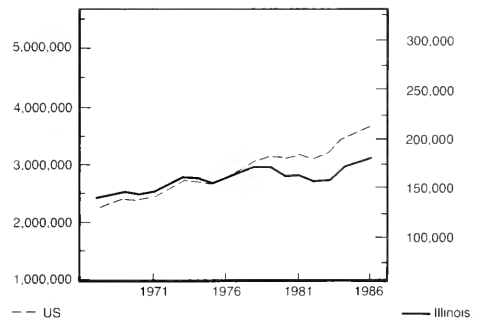
Chart 2 plots the percentage rate of growth of total GSP for Illinois and the United States over time. The similarity of the curves illustrates the extent to which the real growth of the Illinois economy mirrors the real growth of the national economy. Over the period shown, a change in the rate of growth at the national level is virtually always echoed by a movement at the state level in the same direction. This conformance is evidence of the dominance of national economic trends over the state economy.

Chart 2. Real Total GSP *(percentage rate of growth)*
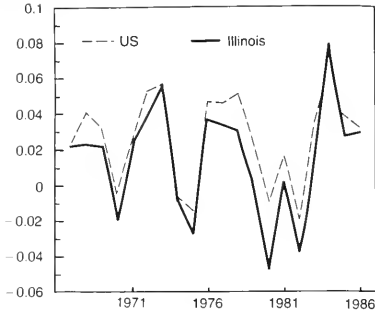
A striking difference can also be seen. Although the Illinois economy and the national economy expand and contract together, the magnitude of the movements is not identical. Over the 20 years shown, the Illinois economy experienced real growth of 32 percent and nominal growth of 318 percent compared to 69 percent and 453 percent for the nation. Some of this divergence can be explained by the sectoral composition of the Illinois economy and the Great Lakes region.[3]

Table 1, where GSP is segmented into 10 sectors for the United States, Illinois, and the Great Lakes region, shows that one-third of all output generated in Illinois and 39 percent of all output generated in the Great Lakes region in 1966 was in the manufacturing sector, and that this sector experienced much slower growth over the ensuing 20 years than the economy did in general. Since manufacturing was a larger part of the state and regional economy than of the national economy, the slow growth of the sector would likely have a larger relative impact on the state and region than on the national economy.

Manufacturing in Illinois and the Great Lakes region grew at an even slower pace than manufacturing nationally. Can this be explained by differences in the composition of the manufacturing sector in Illinois, the Great Lakes region, and the nation?

Table 2 presents the composition of manufacturing at the most disaggregated level available in the BEA estimates. It shows that primary metal industries, fabricated metal products, machinery (except electrical), and motor vehicles and equipment were a larger proportion of the state and regional economies than of the national economy. These industries experienced even slower growth than manufacturing in general. Since Illinois and the Great Lakes region have a relatively larger share of these industries, their economies are likely to be more affected by the depressed growth than the nation at large.

Table 1. Gross State Product by Sector

Industry	% Nominal Growth '66–'86			Sector % of Total, 1966		
	US	Illinois	G'Lakes	US	Illinois	G'Lakes
Total Gross State Product	453%	318%	311%	100.0%	100.0%	100.0%
Agriculture, Forestry, and Fisheries	267%	157%	192%	3.3%	3.1%	2.8%
Mining	551%	220%	331%	1.9%	1.0%	0.6%
Construction	422%	263%	219%	5.0%	4.7%	4.7%
Manufacturing	279%	157%	180%	28.7%	32.8%	39.3%
Transportation, Communication, and Public Utilities	481%	395%	369%	8.9%	9.1%	8.1%
Wholesale trade	476%	343%	360%	6.7%	8.0%	6.2%
Retail trade	459%	330%	339%	9.6%	9.1%	8.9%
Finance, Insurance, and Real Estate	550%	419%	415%	14.1%	14.1%	13.0%
Services	749%	606%	609%	10.9%	10.4%	8.9%
Government	499%	411%	424%	10.8%	7.7%	7.6%

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Table 2. Manufacturing Subsectors

Industry	% Nominal Growth '66–'86			Subsector % of Mgf., 1966		
	US	Illinois	G'Lakes	US	Illinois	G'Lakes
Manufacturing	279%	157%	180%	100.0%	100.0%	100.0%
Durable Goods	266%	119%	153%	60.2%	64.5%	73.8%
Lumber and Wood Products	350%	198%	323%	2.5%	0.7%	1.1%
Furniture and Fixtures	303%	82%	220%	1.5%	1.7%	1.4%
Stone, Clay, and Glass Products	277%	107%	175%	3.1%	2.5%	2.7%
Primary Metal Industries	91%	67%	90%	8.4%	8.6%	10.9%
Fabricated Metal Products	270%	166%	208%	7.1%	10.4%	9.8%
Machinery, except Electrical	273%	97%	122%	10.6%	18.0%	15.3%
Electric and Electronic Equipment	377%	125%	160%	8.5%	12.1%	8.9%
Motor Vehicles and Equipment	177%	132%	139%	8.2%	3.2%	18.7%
Transportation Equipment excl Motor Vehicle	315%	178%	267%	6.0%	2.3%	2.5%
Instruments and Related Products	449%	135%	249%	2.6%	2.9%	1.4%
Miscellaneous Manufacturing Industries	311%	184%	227%	1.6%	1.9%	1.1%
Nondurable Goods	299%	226%	257%	39.8%	35.6%	26.2%
Food and Kindred Products	229%	150%	176%	10.0%	12.6%	8.1%
Tobacco Manufactures	283%	-67%	-42%	1.5%	0.0%	0.0%
Textile Mill Products	163%	290%	114%	3.2%	0.2%	0.4%
Apparel and other Textile Products	181%	48%	203%	3.4%	1.4%	1.0%
Paper and Allied Products	336%	216%	298%	3.7%	2.6%	2.8%
Printing and Publishing	429%	248%	282%	4.7%	7.4%	3.9%
Chemicals and Allied Products	317%	327%	305%	7.1%	6.2%	4.8%
Petroleum and Coal Products	583%	393%	569%	2.6%	2.1%	1.4%
Rubber and Miscellaneous Plastic Products	382%	341%	251%	2.6%	2.3%	3.2%
Leather and Leather Products	38%	-25%	32%	1.0%	0.7%	0.0%

This is an inadequate explanation, however. It does not address, for example, why growth in machinery (except electrical) grew 273 percent for the nation but only 97 percent in Illinois. The answer must lie partially in the composition of the machinery (except electrical) subsector in Illinois versus the composition of that subsector at large. For example, a metal fabricator with very large machines and fixtures adapted to the production of frames for large earth movers would have faired very differently over the past 25 years from a metal fabricator with small flexible equipment easily adapted to the production of disk drive components. Both, however, would fall under the same subsector in the statistics. If the former were in Illinois and the latter in California, the impact on GSP growth for Illinois would probably have been very negative in the early 80s as the earthmover and combine industry fell on hard times while the impact on California's GSP growth would likely have been very positive as the micro-computer industry blossomed. Many effects of this type can not be captured by the statistics because it is in the nature of aggregation to neglect individual differences. At an informal level of analysis, one could suggest that:

- machine tools, automotive related, farm and earth moving equipment, and steel production dominated Illinois and Great Lakes manufacturing in the 60s and 70s;
- these areas all lost ground to foreign competition, experienced problems with aging capital stocks, and struggled with new production technologies over the period;
- as a result, manufacturing growth in Illinois was well below the national figure.[4]

If this was the case, the total GSP growth in Illinois would also be depressed below the national norm. Referring back to Table 1, we see that the other sector with growth conspicuously below average is agriculture. As a percent of GSP, agriculture is smaller in Illinois than in the nation, but this is a deceptive figure. As Table 3 shows, Illinois is the fourth largest farm producer in the country. The top six states combined produce over 35 percent of the farm output of this nation, but for four out of six, farming is less than 2 percent of their state production. The reason is that state boundaries actually encompass both rural and metropolitan economies. The location of the political boundaries causes figures from the two distinct types of economies to be aggregated. Table 4 presents the 10 states with the highest proportion of their total GSP generated by the farm sector. Some area economies in parts of Illinois far removed from metropolitan centers may have a proportion of farm production even higher than South Dakota; but, because their production is aggregated with Chicago, Rockford, and Peoria, a different statistical picture is presented. In these areas, agriculture has a tremendous impact on the local economy, and a common money supply, labor and capital mobility, and unfettered trade cause the impact to be spread to contiguous areas.

Table 3. Top Ten Agricultural Producers, 1986

	Total GSP			Farm			
	millions of $	% of US	Rank	millions of $	% of US	Rank	% of GSP
California	533,816	12.7351%	1	7,963	10.4244%	1	1.4917%
Texas	303,510	7.2407%	3	4,853	6.3531%	2	1.5990%
Iowa	43,836	1.0458%	29	4,574	5.9879%	3	10.4343%
Illinois	209,666	5.0019%	4	3,385	4.4313%	4	1.6145%
Minnesota	75,626	1.8042%	19	3,324	4.3515%	5	4.3953%
Florida	177,729	4.2400%	6	3,208	4.1996%	6	1.8050%
Nebraska	26,521	0.6327%	35	3,190	4.1760%	7	12.0282%
Wisconsin	76,922	1.8351%	17	3,093	4.0491%	8	4.0210%
Kansas	42,472	1.0132%	30	2,823	3.6956%	9	6.6467%
North Carolina	100,961	2.4086%	13	2,065	2.7033%	10	2.0453%

Table 4. Top Ten Agricultural States, 1986

	Total GSP			Farm			
	millions of $	% of US	Rank	millions of $	% of US	Rank	% of GSP
South Dakota	9,802	0.2338%	50	1,502	1.9663%	22	15.3234%
North Dakota	10,733	0.2561%	49	1,544	2.0213%	21	14.3855%
Nebraska	26,521	0.6327%	35	3,190	4.1760%	7	12.0282%
Iowa	43,836	1.0458%	29	4,574	5.9879%	3	10.4343%
Idaho	13,170	0.3142%	45	1,076	1.4086%	28	8.1701%
Montana	12,163	0.2902%	46	948	1.2410%	30	7.7941%
Kansas	42,472	1.0132%	30	2,823	3.6956%	9	6.6467%
Arkansas	31,633	0.7547%	33	1,758	2.3014%	17	5.5575%
Minnesota	75,626	1.8042%	19	3,324	4.3515%	5	4.3953%
Wisconsin	76,922	1.8351%	17	3,093	4.0491%	8	4.0210%

What does this tell us about the future of the Illinois economy? Table 5 presents the industrial composition of the state, regional, and national economies for 1986. The Illinois economy parallels the national economy in industrial composition much more closely than it did in 1966; therefore, growth and employment trends in Illinois will probably parallel national trends more closely than they did in the period included here.

Table 5. Gross State Product by Sector

Sector % of Total, 1986

Industry	US	Illinois	G'Lakes
Agriculture, Forestry, and Fisheries	2.2%	1.9%	2.0%
Mining	2.3%	0.8%	0.7%
Construction	4.7%	4.1%	3.6%
Manufacturing	19.7%	20.2%	26 8%
Transportation, Communication, and Public Utilities	9.3%	10.8%	9.2%
Wholesale trade	7.0%	8.5%	6.9%
Retail trade	9.7%	9.4%	9.5%
Finance, Insurance, and Real Estate	16.6%	17.5%	16.2%
Services	16.7%	17.5%	15.4%
Government	11.7%	9.4%	9.6%

Some trends in composition do suggest areas in which Illinois's economy may behave differently from the national economy. Services, finance, insurance and real estate combined represent over one-third of Illinois production, while manufacturing accounts for only one-fifth. Services, finance, insurance and real estate have grown to be larger shares of the Illinois economy than of the national economy while manufacturing's share in Illinois no longer exceeds the national share by the large measure it did in 1966 and is markedly below the regional share. Chart 3 traces these changes over a 20-year period. The trend suggests that services, finance, insurance and real estate will be the sectors whose characteristics will dominate the state economy in the coming years. From Chart 4, which graphs the real growth path of these industries and selected others for comparison, it can be seen that these industries are characterized by steady positive growth and resistance to recessions. One might expect to see these characteristics prevail in Illinois from 1986 to 2006.

Chart 3. Selected Industries as a % of Total GSP

Legend:
- IL Manufacturing
- US Manufacturing
- IL F.I.R.E.
- US F.I.R.E.
- IL Services
- US Services
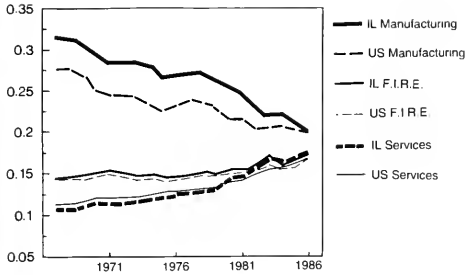
Notes

[1]Consider, for example, a high unemployment state contiguous to a low unemployment state: the unemployed laborers in the former will be inclined to commute or migrate to the latter and by so doing will tend to equalize the unemployment rates of the two states.

[2]The sum of GSP for all 50 states plus the District of Columbia will be presented throughout this article; it differs slightly from GDP due to differences in the handling of military personnel stationed abroad and due to the use of differing data sources.

[3]Illinois, Indiana, Michigan, Ohio, and Wisconsin.

[4]It is important to keep in mind that these statistics are affected by the movement of businesses into and out of the area. Hypothetically, if a very large manufacturer relocated to another state, GSP in total and for the appropriate sectors would appear depressed even if the remaining businesses individually experienced outstanding growth. The GSP figures track growth in aggregate production that can be affected by the growth or decline of the businesses of the state or by entry and exit of firms.

Chart 4. Annual Real National Growth Rates *(selected industries and an average)*

Average

F.I.R.E.

Services

Wholesale

Mfg.-nondurables

Farm

Trans. etc.

Mfg.-durables

Mining

13
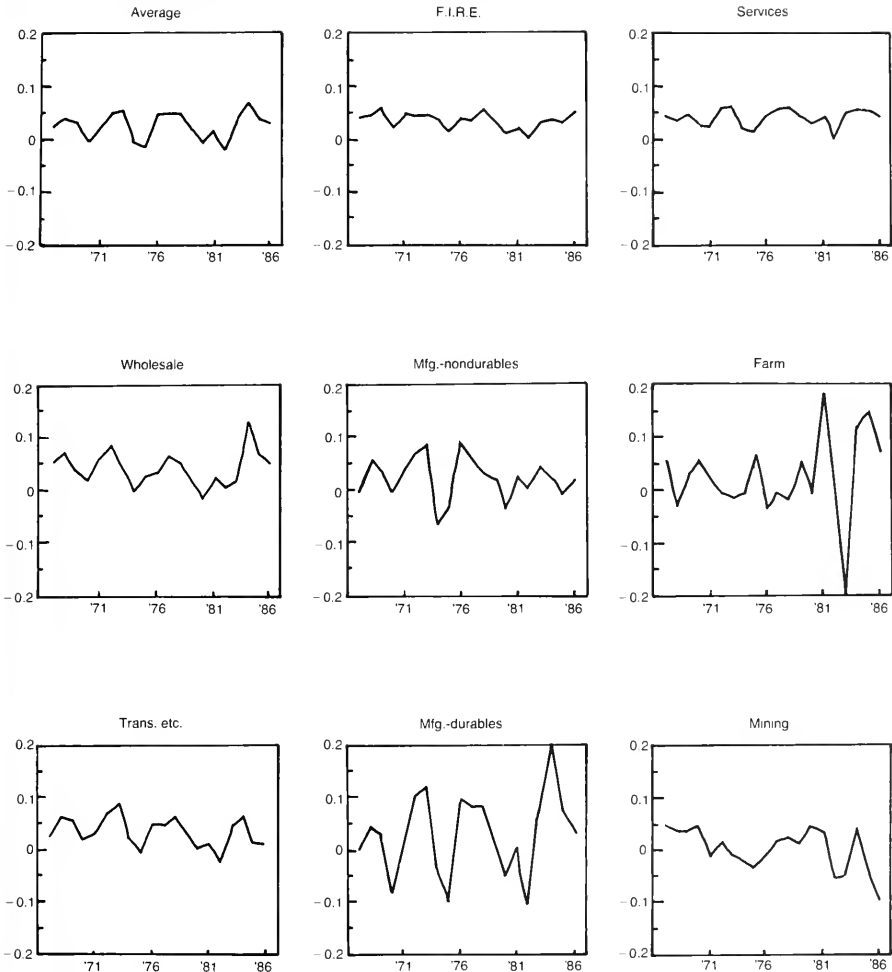
Illinois Business Indexes

This issue highlights developments regarding consumer price indexes. With the economy in the midst of the longest expansion in the period for which data are available, possible inflationary pressure on the economy is an appropriate topic for examination.

The consumer price index (CPI) provides a measure of the average change in prices over time in a fixed market basket of goods and services. The Bureau of Labor Statistics publishes CPIs for two population groups: (1) a CPI for all urban consumers (CPI-U), which covers approximately 80 percent of the total population and (2), a CPI for urban wage earners and clerical workers (CPI-W), which covers 32 percent of the total population. The CPI is based on prices of food, clothing, shelter, transportation, medical services, and other goods and services that people buy for day-to-day living.

Chart 1 plots the CPI-U annually from 1969 to 1988 and monthly from October 1987 to April 1989. From the annual data it is clear that the 80s have been characterized by annual inflation rates far below those

of the 70s. The monthly data do show a trend upward beginning in January 1989. Not too much can be made of a trend in four observations of monthly data: variations in seasonal patterns and data collection irregularities can create distortions to the representation. The odds are that the figures do represent a measurable increase in the rate of price increases, but there are other possible causes of the data pattern. Firm conclusions cannot be made until after the fact.

Chart 2 illustrates the relative importance of the expenditure categories as published by the Department of Labor. Annual inflation rates in these categories are then examined separately for selected years in Chart 3. Medical care is consistently among the higher rates of increase. It currently has a six percent share in importance but will become a larger portion of the typical market basket if prices for medical services continue to outstrip the other sectors, and if consumers are not able to decrease the quantity of these services consumed.

ILLINOIS BUSINESS INDEXES

	Percent Change May 1988– May 1989	May 1989	Apr. 1989	Mar. 1989	Feb. 1989	May. 1988	Apr. 1988
Leading Indicator (MA3)[a]	−3.35	9.97	12.50	12.44	19.57	13.32	12.50
Leading Indicator (MA6)[a]	1.44	14.69	16.11	15.48	16.32	13.25	13.08
Employment-manufacturing (in thousands)[b]	3.93	981	980	978	977	944	944
Average weekly hours-manufacturing[b]	−0.24	42	42	42	42	42	42
Weekly earnings-manufacturing[b]	0.93	$464.39	$465.50	$460.93	$460.24	$460.10	$463.14
Help wanted advertising-Chicago (1967 = 100)[c]	−7.89	105	112	103	111	114	115
Help wanted advertising-St Louis (1967 = 100)[c]	−4.00	72	78	69	71	75	71
Retail sales (in millions)[d]	4.39	$6,697	$6,441	$6,439	$5,338	$6,415	$6,135
Petroleum products (in thousands of barrels)[b]	−6.57	1,850	1,820	1,925	1,825	1,980	1,985
Vendor performance[e]	−25.30	49%	53%	51%	53%	66%	62%
Building permits (in thousands)							
Residential housing units	−5.70	4.368	4.818	3.250	2.772	4.632	4.112
Value of residential housing	−1.69	$377,644	$380,748	$307,177	$206,798	$384,122	$346,092
Value of nonresidential construction							
Industrial buildings	−0.59	$k30,406	$20,483	$19,000	$23,058	$30,585	$16,511
Office, banks, and professional buildings	−30.47	$45,638	$93,349	$52,442	$16,934	$65,638	$28,256
Stores and other mercantile buildings	34.75	$63,619	$39,739	$39,083	$20,814	$47,211	$33,886
Other	−18.34	$9,463	$7,221	$4,126	$3,333	$11,589	$5,127
Consumer price index (1982–84 = 100)							
North Central US	5.02	121.3	120.8	119.8	119.3	115.5	114.9
North Central/population more than 1,200,000	5.34	122.2	121.9	121.1	120.4	116.0	115.7
North Central/population 360,000 to 1,200,000	4.41	120.8	120.6	119.2	118.6	115.7	115.0
North Central/population 50,000 to 360,000	5.25	122.2	121.2	119.9	119.5	116.1	115.2
North Central/population less than 50,000	4.10	116.8	116.3	115.5	115.1	112.2	111.8
Chicago	5.90	123.9	124	123.0	122.2	117.0	117.1
St. Louis	6.49	121.5	—	119.4	—	114.1	—
		1988:IV	1988:III	1988.II	1988.I	1987:IV	1987:III
Personal income (in millions)[b,f,g]	1.70	$207,832	$204,345	$201,058	$199,986	$197,705	$190,015
Per capita personal income[b,f,g]	1.55	$17,846	$17,559	$17,289	$17,209	$17,025	$16,374

[a]Represents absolute change (percent change not relevant). [b]Recent month is preliminary figure. [c]The Conference Board, *Help Wanted Advertising*, November 1988. [d]Latest month projected by BEBR. [e]Percentage of companies receiving slower deliveries. [f]Seasonally adjusted at annual rates. [g]Percent change between 1987.IV and 1988.IV.

Chart 1. CPI-U, US City Average, All Items

Percent change annually, December to December

-- Percent change monthly
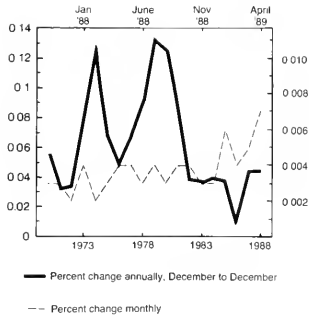
Chart 2. CPI-Expenditure Categories Relative Importance, December 1988

	Food, Beverages	17 7
	Housing	42 3
	Apparel, Upkeep	6 4
	Transportation	17 2
	Medical Care	6 0
	Entertainment	4 4
	Other	6 1
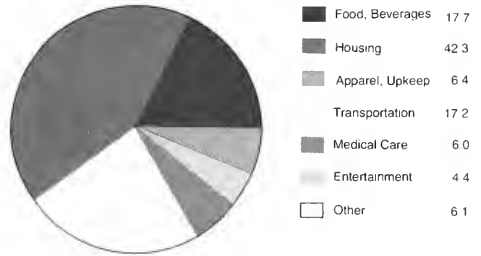
Chart 3. CPI-U, by Expenditure Category *(% change from previous year for selected years)*
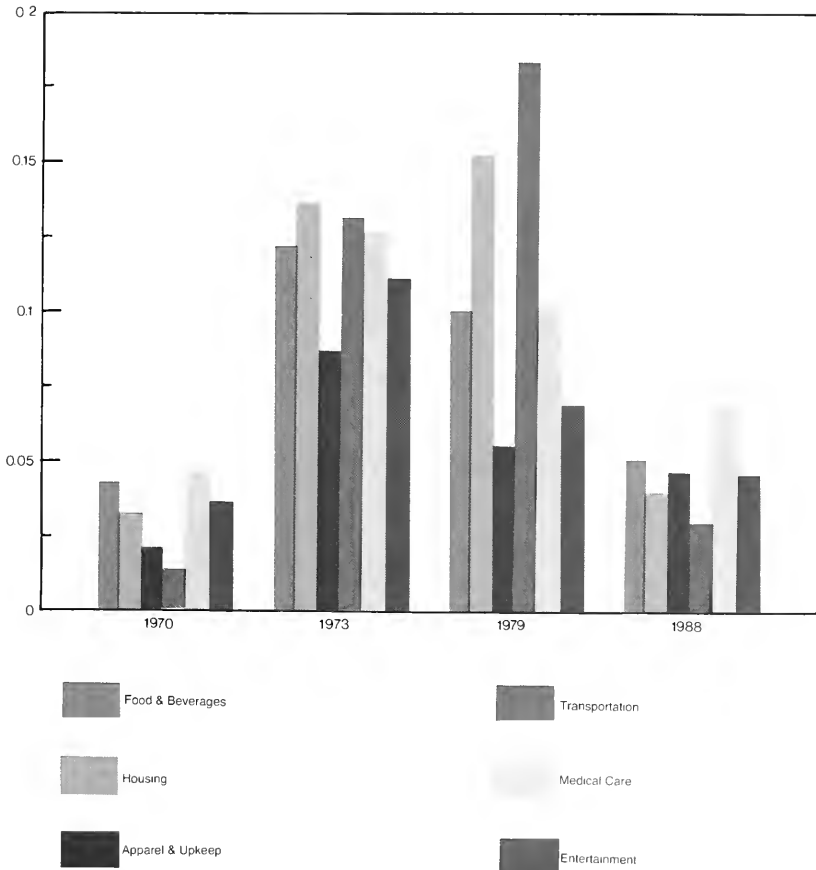
Food & Beverages

Housing

Apparel & Upkeep

Transportation

Medical Care

Entertainment

15

Illinois Business Review

Illinois Economic Outlook

The level of employment in Illinois is expected to stabilize. After a period of modest growth, employment in the state will remain approximately unchanged for the next four quarters according to the Illinois Econometric Model. This pattern is similar to the behavior of employment at the national level, as indicated by the chart. Job growth in the service and trade sectors is expected to offset declines in manufacturing employment, resulting in little change in the level of total employment. Changes in the composition of employment in Illinois are a reflection of the changes occurring at the national level. While total state employment may not change significantly over the next several quarters, the shifting importance of each sector will lead to uneven job growth across the state.

Private Employment Growth
(percentage change from previous quarter)
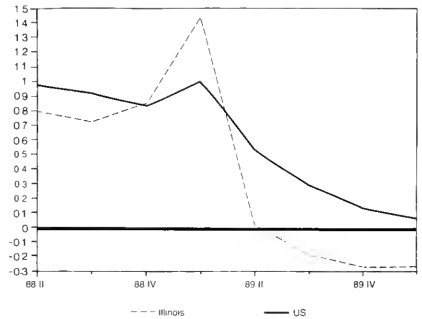
--- Illinois   — US

Illinois Seasonally Adjusted Employment

	History				Forecast			
	88:II	88:III	88:IV	89:I	89:II	89:III	89:IV	90:I
Total private nonfarm (thousands)	4,279.0	4,310.0	4,346.7	4,409.4	4,410.4	4,402.1	4,390.3	4,378.7
Mining	23.9	23.4	22.3	20.6	22.3	22.7	22.7	22.6
Construction	206.6	206.6	209.3	214.8	211.2	207.7	204.2	200.9
Manufacturing	945.4	948.5	960.0	977.5	964.8	950.9	935.2	919.7
Durable	574.7	576.9	586.1	600.4	590.0	579.3	567.0	554.6
Primary metals	54.7	54.9	55.3	55.9	55.7	55.5	54.6	53.7
Fabricated metals	108.8	109.6	111.1	112.0	110.6	108.4	107.3	105.7
Nonelectrical machinery	138.8	140.3	142.0	145.9	143.5	142.5	137.1	133.2
Electrical machinery	122.4	122.2	122.4	121.4	119.7	117.8	115.8	113.8
Miscellaneous durables	150.4	149.5	155.5	165.1	160.4	155.1	152.2	148.1
Nondurable	370.5	371.1	374.3	377.5	374.8	371.6	368.2	365.0
Food products	90.9	90.0	90.4	91.1	90.4	89.6	88.5	87.6
Printing and publishing	109.7	110.0	111.2	112.6	112.4	111.7	111.1	110.6
Chemicals	58.1	58.5	59.7	61.5	61.1	60.6	60.2	59.7
Miscellaneous nondurables	112.1	112.7	112.1	111.6	110.9	109.7	108.4	107.2
Utilities and transportation	301.7	302.8	302.1	300.5	299.4	298.4	297.1	295.8
Wholesale and retail trade	1,255.3	1,268.0	1,269.4	1,287.5	1,295.2	1,297.7	1,298.5	1,298.9
Finance, insurance, and real estate	363.6	363.5	366.5	370.4	372.0	373.5	374.9	376.1
Services	1,183.5	1,196.1	1,215.6	1,240.1	1,245.4	1,251.3	1,257.7	1,264.6

Bureau of Economic and Business Research

Illinois
Business

Bureau of Economic and Business Research
College of Commerce and Business Administration
University of Illinois at Urbana-Champaign

Review

Illinois
Business Volume 46 Number 5
Review

Substantial errors in the initial printing necessitated
revisions on pages 3, 4, 7, 12, and 16.

PAUL C. BISHOP

Chart 1. Total Tuition, Room and Board
(in thousands of 1982 dollars)
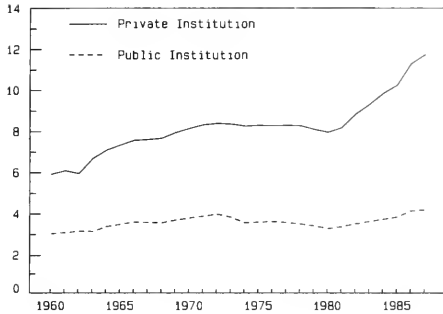
College Costs: Are You Prepared?

Few financial decisions confronting most parents are as difficult or intimidating as providing for a child's college education. Because of rapid and continuing increases in the cost of tuition, room, board, travel, and books, parents and students are finding it increasingly difficult to save enough money to fund an education. It is especially vexing to plan if the prospective college experience is in the distant future. Even so, it is important for parents to formulate an investment and savings plan that will be sufficient to cover unknown future education expenditures but that is realistic with respect to their current financial resources.

The purpose of this article is to clarify some of the issues surrounding financial planning for college and to highlight some of the uncertainties surrounding this issue. The first section examines the trend in college costs and the increasing burden these costs are placing on parents of all income levels. The second section illustrates the uncertainties of planning for the future by constructing a hypothetical example of future education costs and the resources necessary to establish a college fund. The third section highlights traditional funding alternatives that are currently in use. The last section outlines some recent financial innovations to assist in covering college expenses and details Illinois' education bond program.

Up, Up and Away

Beginning in the late seventies, costs at both private and public institutions increased dramatically. Since 1980 the average annual increase in tuition costs has exceeded 8 percent at public four-year institutions and 10 percent at private schools. The average annual inflation rate for this same period was approximately 6.5 percent. Taken together, these two facts imply that the cost of college has increased in real terms. Chart I illustrates the real cost of tuition, room, and board at public and private four-year institutions. While the changes in public school costs have been less dramatic than for private schools, the last several years have witnessed a steady increase in costs. After a period of decline during the seventies, real costs at public universities have risen to the highest level in 30 years. Costs at private institutions have followed roughly the same pattern over the period, but with even sharper increases since 1980.

3

Tuition costs vary greatly from one state to another. Table 1 indicates the states with the greatest average tuition costs at public and private institutions. From the table we can see that Illinois ranked 11th in average tuition levels among public schools.

Cost increases have varied considerably among states also. Table 2 ranks the 15 states with the greatest real tuition increases at public and private institutions between 1981 and 1986. Illinois ranked sixth, although the increase in public institution tuition costs was far below that of California and Hawaii. For the remaining states not listed in the table, the cost increases were generally between 20 and 50 percent. Only Delaware could boast a real tuition decrease. In terms of private institutions, Illinois ranked 30th in the nation, with an increase in real private tuition costs of about 20 percent, well below the large increases of the leading states listed in the table.

Table 1. States with Greatest Nominal Annual Tuition (1986)

Public Institutions		Private Institutions		
State	Average Tuition	State	Average Tuition	Rank
Vermont	$2,942	Maine	$9,032	1
Pennsylvania	2,496	Massachusetts	8,953	2
New Hampshire	2,190	Connecticut	8,534	3
Virginia	2,070	New Hampshire	8,401	4
Ohio	1,982	New Jersey	8,221	5
Michigan	1,877	Rhode Island	8,187	6
New Jersey	1,861	California	8,073	7
Rhode Island	1,845	Colorado	7,913	8
Minnesota	1,814	New York	7,364	9
South Carolina	1,733	Maryland	7,274	10
Illinois	1,708	Pennsylvania	7,140	11
Maryland	1,682	District of Columbia	7,128	12
Indiana	1,627	Oregon	7,122	13
Mississippi	1,603	Minnesota	6,843	14
Maine	1,561	Washington	6,837	15

While it is clear that the real cost of a college education has increased, to what degree have there been increases in the burden of providing for college expenses? After all, there have also been increases in real income. Within that broadened context, is it really more difficult today to provide funds for a college education than it was in 1970 or 1960? To derive some

Table 2. States with Greatest Increase in Real Tuition Costs (1981–1986)

Public Institutions		Private Institutions		
State	Percentage Change	State	Percentage Change	Rank
California	243.9	Idaho	179.0	1
Hawaii	160.8	New Jersey	57.8	2
Texas	93.4	Nevada	46.8	3
Virginia	93.2	Texas	45.5	4
Arizona	87.0	West Virginia	44.2	5
Illinois	79.3	Georgia	42.2	6
Louisiana	78.6	Montana	40.0	7
Mississippi	76.5	Maine	37.5	8
South Carolina	66.8	Colorado	36.2	9
Connecticut	61.6	District of Columbia	36.1	10
West Virginia	52.4	Massachusetts	35.8	11
New Jersey	52.1	New Hampshire	34.8	12
Washington	51.5	Maryland	34.7	13
North Carolina	49.1	Louisiana	34.3	14
Alaska	49.0	Minnesota	33.5	15

objective measure of the burden of college costs, consider the ratio of total costs to median family income. If family income is growing more slowly than college costs, then the relative portion of after-tax disposable income devoted to sending a child to school is larger. In that sense, we may say that the burden is greater. Charts 2 and 3 illustrate this measure and present an interesting picture. With a few brief exceptions, between 1960 and 1979 public school costs were a decreasing percentage of median family income. In 1960, tuition, room, and board accounted for approximately 16 percent of median family income. By 1979, college expenses were less than 13 percent of family income. However, the trend reversed in the late seventies and, for the most current figures available, total student charges account for about 15 percent of income. By this measure, it is no more difficult to fund a college education today than it was in the early sixties.

The story for private schools is quite different. From 1960 to 1979 the ratio of college costs to median family income fluctuated between 30 and 34 percent of income. However, between 1979 and 1987, the burden of college costs increased by more than one-third from

Chart 2. Total Public Tuition, Room and Board
(percent of median family income)
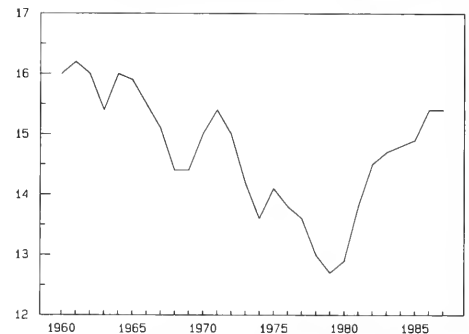
Chart 3. Total Private Tuition, Room and Board
(percent of median family income
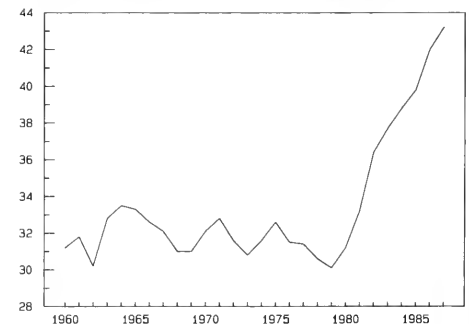
about 30 percent to 43 percent of income. Without a doubt, a private school education is far more expensive than it has been for the last three decades, both in real terms and relative to the resources most students and parents have available.

The recent increase in college expenses has been especially noticeable because it was preceded by a period of constant or decreasing costs. When real costs began to increase about 1979, financial plans of the preceding decade were suddenly insufficient to meet the requirements of a college education in the eighties. Students and parents found it necessary to increase current commitments to future education funds at a time when the deep recession of the early eighties increased the uncertainty surrounding family investment plans and hindered the ability of many to save for the future.

What if . . .

If the recent behavior of college costs is any indication of what the future holds, then the prospect of

formulating investment plans to assure a college education is quite intimidating. While a longer planning horizon lessens the immediate financial burden, it also requires that decisions today be made about events many years into the future. To formulate a concrete example, assume that the nominal costs of room, board, and tuition continue to increase at approximately the same rate as experienced over the last 10 years. For public and private schools, the annual increases have been approximately 8 percent and 10 percent, respectively. I purposely ignore the additional costs of books, travel, and other incidental expenses, not because they are insignificant, but rather, because these costs vary greatly among schools and individual students. In addition, the figures that follow can be interpreted as conservative estimates based on the assumptions given. Table 3 shows estimates of the average cost of room, board, and tuition at public and private institutions depending on the current age of the college-bound child. The older the child, the less the total expense, but the length of time available to make

Table 3. Annuity Requirements for College Funding

Age of Child	Total Nominal 4-year Cost	Public Schools (8 percent annual cost increase) Percentage Return on Investment							
		4%	6%	8%	10%	12%	14%	16%	18%
17	$27,020	$5,276	$5,213	$5,150	$5,088	$5,027	$4,966	$4,906	$4,847
16	29,181	4,653	4,550	4,448	4,348	4,250	4,154	4,059	3,966
15	31,516	4,220	4,083	3,950	3,819	3,692	3,568	3,448	3,331
14	34,037	3,907	3,740	3,578	3,422	3,271	3,125	2,985	2,850
13	36,760	3,674	3,479	3,292	3,112	2,940	2,776	2,620	2,472
12	39,701	3,497	3,276	3,065	2,864	2,674	2,494	2,325	2,166
11	42,877	3,362	3,115	2,880	2,660	2,453	2,260	2,081	1,914
10	46,307	3,259	2,985	2,729	2,490	2,268	2,063	1,874	1,701
9	50,012	3,181	2,880	2,602	2,345	2,109	1,893	1,698	1,520
8	54,012	3,123	2,795	2,494	2,220	1,971	1,746	1,544	1,364
7	58,333	3,081	2,726	2,402	2,111	1,849	1,616	1,410	1,228
6	63,000	3,053	2,669	2,323	2,015	1,742	1,501	1,291	1,108
5	68,040	3,037	2,623	2,254	1,929	1,645	1,398	1,185	1,003
4	73,483	3,030	2,586	2,194	1,853	1,558	1,305	1,091	909
3	79,362	3,033	2,557	2,141	1,783	1,479	1,221	1,005	825
2	85,711	3,044	2,534	2,094	1,720	1,406	1,144	928	750
1	92,568	3,062	2,517	2,053	1,663	1,339	1,073	857	683
0	99,973	3,087	2,506	2,016	1,610	1,277	1,008	793	622

Age of Child	Total Nominal 4-year Cost	Private Schools (10 percent annual cost increase) Percentage Return on Investment							
		4%	6%	8%	10%	12%	14%	16%	18%
17	$82,342	$16,064	$15,865	$15,667	$15,472	$15,279	$15,089	$14,901	$14,715
16	90,576	14,429	14,103	13,782	13,467	13,157	12,854	12,556	12,264
15	99,633	13,329	12,892	12,464	12,047	11,642	11,247	10,863	10,491
14	109,597	12,568	12,027	11,502	10,994	10,504	10,032	9,578	9,142
13	120,556	12,037	11,394	10,776	10,184	9,618	9,078	8,564	8,076
12	132,612	11,671	10,927	10,218	9,545	8,908	8,307	7,740	7,208
11	145,873	11,429	10,582	9,782	9,030	8,326	7,667	7,055	6,486
10	160,461	11,284	10,331	9,438	8,608	7,838	7,127	6,473	5,873
9	176,507	11,217	10,153	9,166	8,257	7,423	6,663	5,971	5,345
8	194,157	11,216	10,034	8,950	7,962	7,066	6,258	5,533	4,885
7	213,573	11,271	9,966	8,780	7,711	6,753	5,901	5,145	4,479
6	234,930	11,375	9,939	8,648	7,497	6,478	5,582	4,799	4,118
5	258,423	11,523	9,948	8,547	7,312	6,232	5,295	4,487	3,795
4	284,266	11,713	9,990	8,473	7,151	6,011	5,034	4,204	3,503
3	312,692	11,941	10,060	8,422	7,012	5,810	4,796	3,947	3,239
2	343,962	12,205	10,155	8,390	6,889	5,627	4,577	3,710	2,999
1	378,358	12,506	10,275	8,376	6,782	5,459	4,374	3,492	2,780
0	416,194	12,841	10,417	8,377	6,687	5,304	4,186	3,290	2,579

plans is also shorter. From the table we can see that the expected cost of college for a child born in 1989 is $99,973 at a public school and $416,194 at a private school.

The remaining entries in the table indicate the amount that must be invested each year at various after-tax interest rates to provide a fund sufficient to cover anticipated college costs, assuming that the future undergraduate begins college at age 18. For example, in the case of an after-tax yield of 8 percent per year and a child five years old, $2,254 must be invested at the beginning of each year for the next 17 years (13 years prior to, and for 4 years during, college) to meet expected public university expenses of $68,040. Similarly, with an investment that yields 10 percent per year, $6,687 must be set aside for the next 22 years if a child born in 1989 is to have a sufficient college fund to attend a private school. Other combinations of age and interest rates are interpreted similarly.

To illustrate the dynamics of saving for college, consider a specific example among the many possible ones given in Table 3. Suppose that a college fund is established for a child born in 1989 with the intention of providing financial resources for attendance at a private university. We know from Table 3 that an annual contribution of $6,687 is required if the after-tax return is 10 percent. Table 4 illustrates this scenario. The first column indicates the year and the second column lists the child's age in a given year. The third column indicates the size of the college nest egg at the beginning of each period and the fourth column shows the contribution made each period to the college fund. The fifth column illustrates the amount of after-tax

interest that has accumulated on the investment each period after any college expenses, shown in column 6, have been paid. Finally, the last column shows the ending balance for each period.

The advantages of a long planning horizon are evident in this example. First, contributions over the course of 22 years lessen the annual burden of funding an investment plan of the type illustrated in the table. Second, the length of time involved allows the investment to generate sizable returns relative to the total contributions over the many periods. It should also be emphasized that we are assuming after-tax rates of return. Uncertainties and miscalculations regarding the burden of taxes on investment returns could significantly reduce the effectiveness of any financial plan. Finally, although the example in Table 4 has used the longest planning horizon possible, similar comments apply to investment plans of parents with children that may attend college in the near future. However, the benefits of long-term investment gains are less.

The calculations presented in Tables 3 and 4 do not necessarily represent what will actually happen over the next two decades. Several factors could change over the next several years that would lead to either higher or lower college costs. Other funding and investment alternatives may reduce the burden on parents and students. Instead, the tables highlight the difficulty of saving for the future and, for many parents and students, the financial impossibility of formulating a plan that is sufficient, in itself, to provide for college expenses, if current trends continue.

Table 4. College Funding Illustration

(1) Year	(2) Age of Child	(3) Beginning Balance	Private School (4) Annual Contribution	(5) Interest Income[a]	(6) College Expense	(7) Ending Balance
1989	0	$0	$6,687	$669	$0	$7,355
1990	1	7,355	6,687	1,404	0	15,446
1991	2	15,446	6,687	2,213	0	24,346
1992	3	24,346	6,687	3,103	0	34,136
1993	4	34,136	6,687	4,082	0	44,905
1994	5	44,905	6,687	5,159	0	56,751
1995	6	56,751	6,687	6,344	0	69,781
1996	7	69,781	6,687	7,647	0	84,114
1997	8	84,114	6,687	9,080	0	99,881
1998	9	99,881	6,687	10,657	0	117,224
1999	10	117,224	6,687	12,391	0	136,302
2000	11	136,302	6,687	14,299	0	157,288
2001	12	157,288	6,687	16,397	0	180,372
2002	13	180,372	6,687	18,706	0	205,764
2003	14	205,764	6,687	21,245	0	233,696
2004	15	233,696	6,687	24,038	0	264,421
2005	16	264,421	6,687	27,111	0	298,218
2006	17	298,218	6,687	30,490	0	335,395
2008	18	335,395	6,687	25,240	89,678	277,644
2009	19	277,644	6,687	18,569	98,645	204,254
2010	20	204,254	6,687	10,243	108,510	112,674
2011	21	112,674	6,687	0	119,361	0
TOTAL			$147,106	$269,088	$416,194	

[a] 10 percent annual after-tax interest rate

Dear Mom and Dad, Send Money

The preceding discussion has illustrated the difficulty of paying for a college education simply by saving or investing. The fact that there are more than 12 million students currently enrolled in higher education suggests that there are important sources of funding other than a college nest egg. While the example of future college costs assumes that parents alone bear the burden of providing a college education, this assumption is not necessarily correct. Many undergraduates work during summer breaks or hold a part-time job during the school year. In addition, depending upon the requirements, certain students are eligible for scholarships and tuition and fee waivers, both because of financial need and scholarly merit.

Table 5 indicates the most frequent sources of funding for most college students. The second column indicates the percent of students that utilized the resource indicated in the first column. For example, 72 percent of college students relied upon some financial support from parents. The third column shows the percentage of college costs received from each resource.

Table 5. Average Resources Per Student (1986)

Resource	Percent of Students Utilizing Resource	Of Total Resources Available, Percent from Each Resource
Parental assistance	72%	40%
Pell (Basic) Grant	16	4
Supplemental Education Opportunity Grant	5	1
State Scholarship or grant	13	3
College scholarship or grant	17	7
Other scholarship or grant	7	2
Guaranteed Student Loan	25	10
National Direct Student Loan	6	2
College loan	4	1
Other loan	4	2
College Work-Study Program	9	2
Part-time employment	31	5
Full-time employment	3	1
Saving from summer work	51	11
Other savings	26	6
Other resource	7	3

Source: Based on data from *The American Freshman National Norms for Fall 1986*, A. W. Astin et al., American Council on Education and the University of California at Los Angeles.

From the table we see that parental assistance covered 40 percent of school expenses. After parental assistance, most students relied upon saving from summer work and part-time employment during the school year, although together these sources covered only 16 percent of annual college costs. One of the most significant changes to occur in recent years has been the tremendous growth in Guaranteed Student Loans to finance college expenditures. Approximately 25 percent of all students received some funding from these loans in 1986, compared to 7 percent in 1976.

As the table indicates, scholarships are also an important component in most students college financing plans. Funding for college-administered scholarships and fellowships increased by nearly 90 percent from approximately $2.2 billion to $4.2 billion between 1979 and 1985. If the change in scholarship monies is allocated between public and private schools, there is a marked divergence in funding increases. For public schools, scholarships and fellowships increased by 62 percent, while tuition at all public universities increased by 66 percent. Private universities have experienced the sharpest increase in tuition and fees, about 80 percent over the period. At the same time, scholarship funds grew by 110 percent. Private schools appeared to be more successful at capturing funds to offset tuition increases. However, if tuition increases were used to supplement scholarship funds, then an additional burden was placed on students that did not qualify for scholarships but were, nonetheless, charged higher tuition.

So What's New

The Tax Reform Act of 1986 made the task of establishing a sensible investment strategy increasingly difficult. Prior to tax reform, some parents funded a child's college education by contributing income-producing property to the Clifford trust. Income from such assets was usually taxed at the child's lower rate. The benefits from this funding alternative have been eliminated by the enactment of the "kiddie tax." Under current law, investment income of children in excess of $1,000 is taxed at the parent's higher rate until the child reaches fourteen.

For parents with more time to plan, there are several alternatives that may assist in meeting college expenses. One such strategy is investment in series EE savings bonds. The interest on these bonds is tax-exempt if the proceeds are used to pay college tuition. However, there are certain requirements that may diminish their appeal. First, only bonds issued after 31 December 1989 qualify for tax-exempt status. Furthermore, the full exemption applies only to those with modified adjusted gross income (adjusted gross income plus tax-deferred contributions to IRAs, Social Security benefits, or passive investment losses) of

$60,000 or less for a married couple filing jointly. The exemption is phased out as income approaches $90,000. In addition, the bonds must be issued to the person responsible for paying the future tuition bill. In most cases, this will be the parents, unless the student is the legal dependent of another family member.

Zero coupon bonds are a basic investment vehicle that may be used to offset college costs. These bonds are sold without interest coupons at a larger discount than other types of bonds. Their rate of return is known with certainty and, as with EE bonds, the maturities can be staggered to meet expected expenses as they occur.

With the elimination of the Clifford trust, many parents have established a 2503(c) trust, called the Minors' Trust. The advantages are that the trust qualifies for the $10,000 annual gift tax exclusion, and income of up to $5,000 from the trust is taxed at the lowest rate. A further consideration is that assets placed in the trust are removed from the parents taxable estate.

Another investment alternative that has received much attention is the prepayment of tuition when the prospective college student is still quite young. At certain institutions and state university systems, the parents may pay a fixed fee soon after the birth of a child. In return, the school assumes the risk of higher tuition costs by accepting the fee as payment in full for any future tuition bills attributable to the child. Such prepayment plans are not available in many states.

Before an investment in prepaid tuition is made, there are several considerations. What are the eligibility restrictions regarding student admissions to the candidate institution? Is the plan insured in the event that the institution ceases to exist? Does the plan cover all expenses or only tuition? How many years of school are covered by the plan? What are the residency requirements and what happens if the family moves to another state? Are there refund conditions in the event that the student is not admitted to the institution? Some of the most important points yet to be resolved are how plans of this nature will be taxed, now and in the future, and who pays any federal or state taxes that are due.

In January and October of 1988, Illinois held two public sales of state-backed zero coupon bonds as part of the State of Illinois College Savings Program. Under this program the state sold bonds, in $5,000 denominations, with discounts determined by the number of years to maturity. The bonds are exempt from both state and federal tax whether or not they are used for education expenses. If the bonds are held to maturity and the proceeds are used to meet education expenses at an Illinois higher education institution, a tuition credit of up to $400 per $5,000 of bonds is available. An additional advantage of the program is that the first $25,000 in bonds are not counted as part of a parent's assets in an application for financial aid. In the past, certain banks and brokerage houses have served as agents in the bond sales.

A Final Word

Financial planning for college is an increasingly complex subject. With the growing array of financial alternatives available and the uncertainty surrounding future cost increases, assistance of a competent financial planner may be useful. While this article has touched on a few of the financing alternatives, there are certainly others that are available and perhaps more appropriate given the different needs and resources of specific students and parents. Perhaps the only rule of thumb that applies to all parents is that early and prudent planning is required to avoid the disappointment of too few resources and too little time.

Financial Assistance for College: Sources of Information

The College Blue Book: Scholarships, Fellowships, Grants, and Loans. 21st ed. New York: Macmillan Publishing Co. 1987. Lists sources of financial aid for high school seniors and more advanced students.

The College Cost Book 1989–90. 10th ed. New York: College Entrance Examination Board, 1989. A guide that explains the process of applying for financial aid, with numerous examples, worksheets, and sources of additional information.

Financial Aid for Minorities in Business. Garret Park, MD: Garret Park Press, 1987. Sources of financial aid opportunities for minority students in the business field.

Loren Renz, ed. *Foundation Grants to Individuals.* 6th ed. New York: Foundation Center, 1988. Includes a variety of financial aid opportunities and scholarships offered by US foundations.

Higher Education Opportunities for Minorities and Women. Washington, D.C.: US Government Printing Office. 1986. Number 065-000-00252-3. General information about aid and educational opportunities for minorities and women by specific fields of study.

Willis Johnson, ed. *Directory of Special Programs for Minority Group Members: Career Information Services, Employment Skills Banks, Financial Aid Sources.* 4th ed. Garret Park, MD: Garret Park Press, 1985.

Oreon Keeslar, ed. *Financial Aids for Higher Education, 1988–89.* 13th ed. Dubuque, IA: Wm. C. Brown Company., 1986. A listing of more than 3,000 aid sources for college freshmen.

Gail Ann Schachter. *Directory of Financial Aids for Women, 1987–88.* Redwood City, CA: Reference Service Press, 1987. Lists a variety of financial aid sources, grants, and loans for women.

Student Aid Annual, 1988–89. Moravia, New York: Chronicle Guidance Publications, Inc., 1988. Financial aid sources sponsored by federal and state governments, labor unions, and other organizations not affiliated with postsecondary institutions.

The Student Guide: Five Federal Financial Aid Programs. Washington, D.C.: US Government Printing Office, 1988. Number 511T. Discusses five financial aid programs sponsored by the federal government.

9

MICHAEL P. GILVARY and JANE H. LEUTHOLD

Why Play the Illinois Lottery?

The Illinois lottery began selling tickets on 30 July 1974. By FY 1990, the net proceeds of the Illinois lottery are projected to be $580 million, making the lottery the fourth largest source of general funds income in the state.[1] During its lifetime, the lottery has distributed more than $4.6 billion in prizes and has created over 540 millionaires.

Currently, the lottery sponsors five games, Pick Four, Instant, Daily, Lotto, and Cash Five. By far, the largest gross sales are from the Lotto game that began in fiscal 1983 (see Chart 1). Gross sales from that game in fiscal year 1988 were over $600 million. In order to maintain player interest and encourage participation, the state is exploring new game possibilities. The Department of the Lottery is considering participating in a television game show structured around an instant ticket drawing and prize.

Chart 1. Illinois State Lottery FY 1988 Gross Sales by Game *(millions of dollars)*
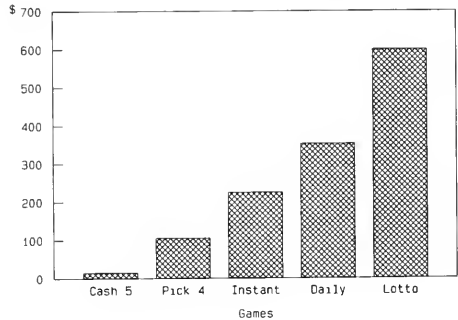
Net revenue from the lottery is computed by subtracting prizes, commissions, and operating expenses from gross revenue. As seen in Chart 2, approximately 52 percent of gross revenue in FY 1989 went for prizes. Another 5 percent went to commissions and 3 percent to operating expenses. This left 40 percent of the lottery dollar for net revenues.

Chart 2. How the Illinois Lottery Dollar is Spent, Fiscal Year 1989
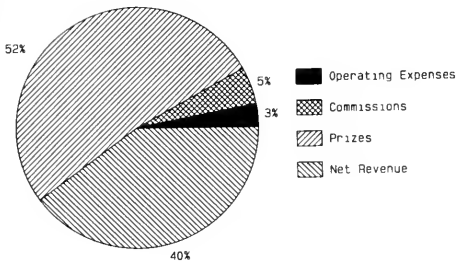
Although net revenue from the lottery has increased dramatically in the last 11 years, most of that growth occurred prior to 1985 (see Chart 3). Between 1979 and 1985, net revenue from the lottery increased from $28 million to $518 million, about eleven-fold. Since 1985, lottery revenues have leveled off.

Chart 3. Illinois State Lottery Net Revenue
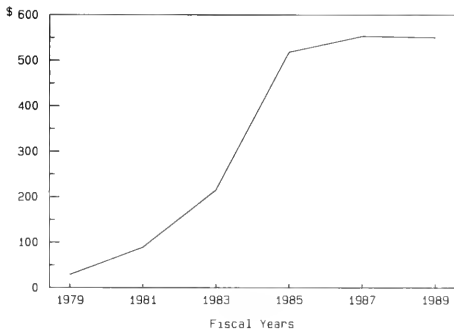
In an earlier issue of the *Illinois Business Review*, Mary Laschober provided a financial overview of the Illinois lottery. The purpose of the present article is to examine why Illinois citizens play the lottery. What motivates people to spend a dollar on a lottery ticket? Theory suggests several motives may be at work.

The Expectation of Coming Out Ahead

Some people play the lottery because they expect to come out ahead—the mathematical expected value of the ticket is greater than the nominal price of the ticket. Theoretically, it is possible for this to happen occasionally in games such as Lotto where the prize money is carried over from one drawing to the next when the first drawing did not produce a winner. However, it is rare for the carryover to be great enough to raise the expected value of the ticket above the price.

Consider a simple example in which 50 percent of sales are paid out to the winner (if there is one). If there is no winner, the prize is carried over until the next drawing. The expected value of a ticket is equal to payout divided by sales:

$$\text{EXPECTED VALUE} = \text{PAYOUT} / \text{SALES}.$$

Since payout is the probability that there is a winner times the prize pool, expected value can be rewritten:

$$\text{EXPECTED VALUE} = (P \times X) / \text{SALES},$$

where P is the probability of someone's winning and X is the current value of the prize annuity. The probability of someone winning is less than one since there is not always a grand prize winner.

However, since the prize, X, is 50 percent of sales plus any carryover from the previous drawing,

$$X = (.50 \times \text{SALES}) + \text{CARRYOVER},$$

and expected value further reduces to:

$$\text{EXPECTED VALUE} = P [.50 + (\text{CARRYOVER} / \text{SALES})].$$

The expected value of a ticket is a function of the probability of someone's winning the prize and of carryover as a percent of sales.

Note that even though 50 percent of sales is allocated to the prize pool for each drawing, the expected value of a ticket for a drawing without any prize money carried over from the previous drawing will be less than $.50 because P is less than one.

The expected value of a ticket can only exceed $1 (the price of a lottery ticket) in this example if carryover is more than 50 percent of sales. Because P is less than one, expected value will only be greater than one if the term in brackets is greater than one. For such a situation to emerge, it is necessary that CARRYOVER / SALES be greater than .50. Since this occurs only rarely in real games, in general the expected value of a lottery ticket is less than its price.

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Enjoyment from Gambling

The risk-loving gambler is willing to pay the implicit cost of the ticket (the difference between the nominal price and the probable return) for the chance to play the game because he receives more utility from the game than he loses from the predicted loss. The entertainment aspect of gambling has been overlooked by most of the psychologists who have studied gambling because they have assumed that the utility of gambling is zero.

The Anticipation of Sudden Wealth

The enjoyment of sudden wealth for its own sake has been acknowledged in the past. Charles Lamb's essay, *The Illustrious Defunct,* tells the story of a man who mistakenly believes that he has won 20,000 pounds in the lottery. One of the reasons that people buy lottery tickets is that they like to dream of being wealthy. "To be rich in our dreams is the only kind of riches most of us are ever likely to possess. Who, without a twinge of conscience, could grudge toiling mortals this handful of fairy gold?"

Misinterpretation of the Odds of the Game

In 1951 F. Mosteller and P. Nogee experimented with students and dice games and found that even after the probabilities had been explained to their subjects, they did not all make the bets that yielded the highest expected value: "In spite of extensive instruction . . . some take wagers which lead to losses in the long run."

Students aside, there is reason to believe that most people who buy lottery tickets are not fooled into thinking that the tickets have a positive expected yield. The lottery commission publishes its "take-out" ratio, and it is common knowledge that the state makes a profit on the lottery. Therefore, it is safe to assume that the players know that the game is stacked against them.

Furthermore, if they were fooled at first, players would eventually drop out of the game as experience taught them that the expected value of the ticket is less than the nominal price of the ticket. But the lottery has grown in popularity over the years. Although most players may not be able to figure out the exact mathematical expected value of a Lotto ticket when money is carried over from one drawing to the next, it would seem reasonable to state that misinterpretation of the risks plays a small role in explaining the volume of lottery playing.

Proceeds Go to a Worthy Cause

Although most lottery players would not simply donate money to the Common Education Fund, many players do rationalize that "even if their ticket is not a winner, the money will go to a good cause." Within this context, the state-run lottery is comparable to fund raisers of other charitable organizations. Most states, including

Illinois, play on the "good cause" aspect of the decision process by declaring that the proceeds will go to a special purpose within the budget. According to the most recent state budget, "Illinois school children reap the benefits of increased lottery sales, since proceeds from lottery revenues are deposited into the Common School Fund."

While it is true that since 1985 proceeds from the Illinois lottery have been deposited into the Common School Fund, it is not clear that Illinois school children have "reaped the benefit." The Table shows the allocation of lottery money to the common school fund over the past four years. Prior to 1985, all lottery money went into the general fund. Beginning in August 1985, lottery money was transferred into the education fund rather than the general fund. The table shows that even though lottery transfers averaged over $540 million per year over the past four fiscal years, general fund appropriations for elementary and secondary education increased by only $186 million over the period. Funds from the lottery appear to be replacing, rather than supplementing, general revenue funds in the financing of education.

Illinois Lottery Money *(millions of dollars)*

Fiscal Year	General Fund Appropriations for Elementary and Secondary Education	Lottery Transfers to State Common School Fund
1989	$2,823[a]	$550.0[a]
1988	2,696	524.4
1987	2,823	553.1
1986	2,637	551.7

Source: Illinois State Lottery Comptroller's Office, Springfield; Illinois State Budgets.
[a]Estimated

Compulsive Gambling

The problem of "pathological gambling" was summarized by Rena Nora, M.D.:

There is . . . a growing population of vulnerable, high-risk individuals estimated at between three million and ten million people who fit the criteria for "pathological gambling" as defined . . . (by) the American Psychiatric Association. Such persons are chronically and progressively unable to resist gambling which, ultimately, leads to the disruption or damage of family, personal and vocational pursuits.

Given that there is a segment of the population that has psychological problems related to gambling, the effect of the lottery on these problems can become an important policy issue. However, it still must be shown that the lotteries actually contribute to the problem of compulsive gambling.

The (British) Royal Commission on Betting, Lotteries, and Gaming, 1949–1951, found that compulsive gamblers tended to bet on wagers that were characterized by: a high probability of winning, a high level of bettor participation (handicapping), and/or a

quick turnaround on the wagers so that the gambler could immediately bet his winnings (or try to recoup his losses). Certainly, the Lotto and Daily type of game, with their delays between drawings, are relatively free of the habit-forming characteristics of the betting activities that are common to casinos and race tracks. Only the Instant type of lottery games would appear to present any hazards to the player's mental health.

Our Study

In an attempt to provide some insight into why people play the Illinois lottery, we analyzed some recent Lotto data for the period from 15 January 1986, through 26 September 1987. During that period, the Lotto-6 game had two drawings a week, Wednesday and Saturday, until the Wednesday drawings were replaced by the Lotto-7 game on 22 April 1987.[2] The Lotto games allow the players to pick their own set of numbers, either two sets of six out of 44 or one set of seven out of 39.[3] The prizes are determined on a parimutuel basis, and the grand prize pool is added to the next drawing grand prize pool if no one wins the grand prize.[4]

The data were used to estimate a simple lottery demand function relating sales to the expected value of a ticket, the structure of the game, the size of the jackpot, the probability of winning, the "freshness" of the game, the number of drawings since someone won the jackpot, and the day of the week. Here we present only the results.

As anticipated, the expected value of a ticket has a positive influence on lottery sales. Expected value was computed taking into account consolation prizes. The results show that people tend to buy more lottery tickets when the expected value of winning is high. It is interesting to note that over the period of this study, expected value ranged from $.30 to $.84. Never did expected value exceed $1, the price of a ticket.

We also found that people buy fewer tickets the more unequal the prize structure of the game. This is an unexpected result since people who buy lottery tickets for the love of gambling should respond by buying more tickets the more unequal the prize structure.

Our results also showed that the size of the jackpot has a positive influence on sales. This result is expected because of the direct relationship between the size of the jackpot and the expectation of gain. On the other hand, we found that the accumulation variable, measuring the number of drawings since someone won the jackpot, has a negative influence on sales. The size of the jackpot is apparently more important to ticket buyers than the number of days since a win.

We further found that the probability of winning influences ticket buying. For the Lotto-6 game, the

probability of winning is .003049, while for the Lotto-7 game it is .012048. People responded to this by purchasing more Lotto-7 tickets, other things being equal.

Our data did not show that the "freshness" of the game stimulates sales. If players become bored with the same game, sales should go up when the game is fresh and fall as the number of days since a change increases. Our results did not confirm this. We found that the farther away from a change, the higher the sales. It is possible that new interest in the lottery after a change is really caused by the advertising blitz that accompanies the change and not by the change itself. Thus, the advertising may induce some irregular players to buy a few tickets; at the same time, more regular customers, who might prefer a consistent set of rules may be discouraged by the change. If such behavior were triggered by changes, then we would see the type of results that are, in fact, shown in the data. Finally, we found that the day of the week makes a difference to ticket sales. As anticipated from general observation, the Saturday drawings were found to be quite significantly more popular than the Wednesday drawings.

Are players of the Illinois lottery behaving rationally when they buy an Illinois lotto ticket? While we found that ticket sales do increase as the expected value of a ticket goes up, at no time during the period of our study did the expected value of a ticket exceed the ticket price. Hence, there must be other explanations for people's behavior. We found little evidence that the love of gambling or the excitement of a change spurs lottery sales. Perhaps misinterpretation of the odds or mistaken notions about the use of the revenues explain some sales. Or maybe playing the lottery is just plain fun.

Notes

[1] A list of sources is available from the authors upon request.
[2] The Lotto-7 game was replaced by Cash 5 on 4 May 1988.
[3] Since 7 June 1988, players can choose two sets of six out of 54 or one set of five out of 39.
[4] Parimutuel betting means that the winners divide, in proportion to their wagers, the amount of the bet, minus the expenses of the operators.

Michael P. Gilvary recently completed his masters thesis in economics at the University of Illinois at Urbana-Champaign. Jane H. Leuthold is a professor of economics and Associate Dean for Academic Affairs in the College of Commerce and Business Administration at the University.

The outlook for the Illinois economy in the coming months is ambiguous. The BEBR's three-month moving average Leading Economic Indicator Series remains below the six-month moving average for the fourth consecutive month (see Chart I). Ordinarily, a series of three such months is considered a harbinger of recession. But there are reasons to doubt that such an outcome is likely.

Why did the leading indicator series fall so dramatically in July? The reason is that several major components of the series dropped, thereby exerting a strong negative influence on the overall series. Charts 2-6 also hint at stronger-than-average seasonal variation.

There was a sharper-than-usual decline in manufacturing employment earnings, both from the previous month and from a year earlier (Chart 2). Illinois residential housing permits have fallen 22.8 percent since May (Chart 3). July also saw a 15.1 percent increase in unemployment claims (Chart 4). Another drag on the leading indicator series was provided by the steady slide in retail sales through the first half of the summer (Chart 5). Finally, there was a $29 million decline in personal income tax revenue received by the state (Chart 6). Interpretation of the decline in tax revenues is difficult. The Illinois tax system was overhauled beginning with the new fiscal year. Thus, the drop may reflect factors other than generally lower earnings.

Is recession imminent? Most preliminary data for August show a rebound from their summer doldrums. Such an increase could represent a temporary upsurge, to be followed by a continuation of weakness. However, it is tempting to regard the most recent figures as evidence of renewed strength. We succumb to that temptation.

ILLINOIS BUSINESS INDEXES

	Percent Change July 1988– July 1989	July 1989	Jun. 1989	May 1989	Apr. 1989	July 1988	Jun. 1988
Leading Indicator (MA3)	− 12.33[a]	2.94	7.19	9.97	12.50	15.27	14.06
Leading Indicator (MA6)	− 6.02[a]	7.70	9.78	14.69	16.11	13.72	13.57
Employment-manufacturing (in thousands)[b]	3.31	978	987	981	980	947	950
Average weekly hours-manufacturing[b]	− 1.92	41	42	42	42	42	42
Weekly earnings-manufacturing[b]	− 0.95	$457.78	$470.25	$464.39	$465.50	$462.18	$464.67
Help wanted advertising-Chicago (1967 = 100)[c]	− 11.76	105	104	105	112	119	117
Help wanted advertising-St. Louis (1967 = 100)[c]	− 6.76	69	69	72	78	74	71
Retail sales (in millions)[d]	5.85	$6,413	$6,645	$6,697	$6,441	$6,059	$6,501
Petroleum products (in thousands of barrels)[b]	− 16.25	1,675	1,780	1,850	1,820	2,000	1,990
Vendor performance[e]	− 31.03	47%	48%	49%	53%	68%	70%
Building permits (in thousands)							
Residential housing units	− 17.97	3.373	3.436	4.368	4.818	4.112	4.991
Value of residential housing	− 11.92	$306,526	$329,703	$377,644	$380,748	$348,018	$419,199
Value of nonresidential construction							
Industrial buildings	36.74	$41,667	$50,955	$30,406	$20,483	$30,471	$32,728
Office, banks, and professional buildings	− 22.64	$33,443	$154,428	$45,638	$93,349	$43,233	$52,488
Stores and other mercantile buildings	− 15.01	$42,740	$59,292	$63,619	$39,739	$50,288	$59,009
Other	− 29.43	$8,377	$5,280	$9,463	$7,221	$11,870	$6,211
Consumer price index (1982−84 = 100)							
North Central US	4.63	122.0	121.8	121.3	120.8	116.6	116.0
North Central/population more than 1,200,000	4.93	123.5	123.0	122.2	121.9	117.7	117.0
North Central/population 360,000 to 1,200,000	4.23	120.7	120.9	120.8	120.6	115.8	115.6
North Central/population 50,000 to 360,000	4.63	122.0	122.1	122.2	121.2	116.6	116.1
North Central/population less than 50,000	3.52	117.5	117.4	116.8	116.3	113.5	112.8
Chicago	5.51	126.4	125.7	123.9	124	119.8	118.9
St. Louis	6.12	123.1	—	121.5	—	116.0	—
		1988:IV	1988:III	1988:II	1988:I	1987:IV	1987:III
Personal income (in millions)[b,f,g]	1.70	$207,832	$204,345	$201,058	$199,986	$197,705	$190,015
Per capita personal income[b,f,g]	1.55	$17,846	$17,559	$17,289	$17,209	$17,025	$16,374

[a]Represents absolute change (percent change not relevant). [b]Recent month is preliminary figure. [c]The Conference Board, *Help Wanted Advertising,* November 1988. [d]Latest month projected by BEBR. [e]Percentage of companies receiving slower deliveries. [f]Seasonally adjusted at annual rates. [g]Percent change between 1987:IV and 1988 IV

Chart 1. Composite Leading Indicators
(average percent change in base indexes)
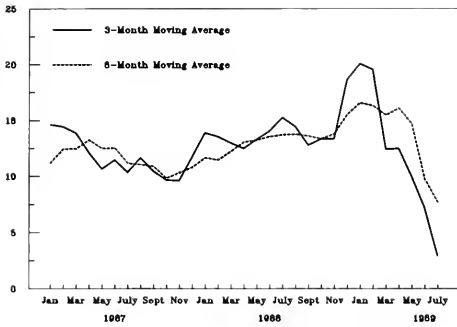
Chart 2. Average Weekly Manufacturing Earnings
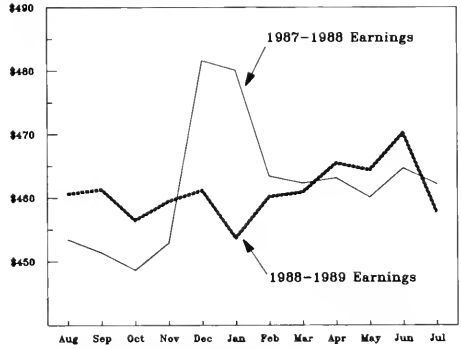
Chart 3. Illinois Residential Housing Permits
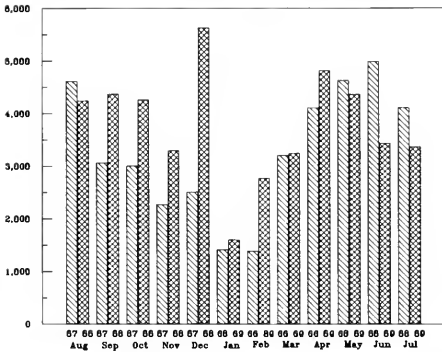
Chart 4. Illinois Initial Unemployment Claims
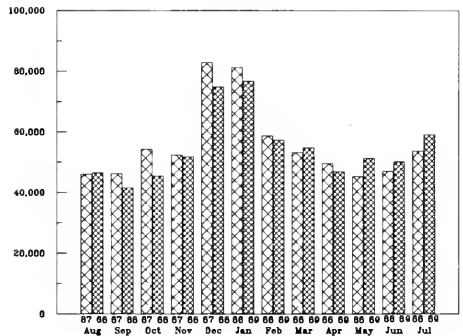
Chart 5. Retail Sales *(millions of dollars)*
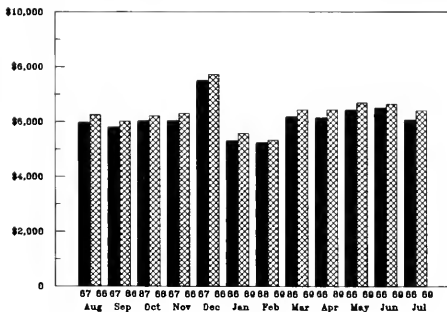
Chart 6. Illinois Personal Income Tax Receipts
(millions of dollars)
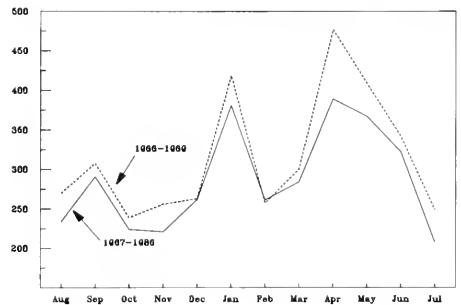
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Illinois Business Review

Illinois Economic Outlook

The latest forecast of the Illinois Econometric Model indicates that nominal personal income will grow 7 percent over the next 4 quarters. Rising from over $217 billion to more than $232 billion between the first quarter of 1989 and the first quarter of 1990, the growth in nominal income is due to large increases in income from services.

The chart shows quarterly changes in nominal income for each of the major sectors of the Illinois economy. The most noticeable feature is that increases in income from services, finance, and wholesale and retail trade are expected to offset the decline in manufacturing income. Given that national economic activity is important in determining the course of the state's economy, the forecast presented in the table assumes that the US economy will continue to grow about 1.2 percent each quarter. The degree of error in the Illinois forecast is, in large part, determined by the accuracy of the underlying national economic forecasts.

Personal Income *(percentage change from previous quarter)*
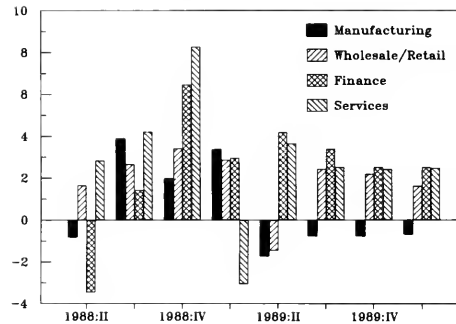
Illinois Seasonally Adjusted Personal Income *(nominal, at annual rates)*

	History				Forecast			
	1988:II	1988:III	1988:IV	1989:I	1989:II	1989:III	1989:IV	1990:I
Total private income (millions)	$200,668	$204,026	$210,569	$217,824	$221,438	$225,107	$228,832	$232,614
Total private nonagricultural income	127,419	131,313	137,492	139,480	140,640	143,163	145,330	147,313
Mining	975	1,023	899	899	957	1,048	1,072	1,079
Construction	9,059	8,970	9,636	10,322	10,281	10,606	10,772	10,835
Manufacturing	31,406	32,635	33,285	34,415	33,818	33,556	33,299	33,071
Durable manufacturing	19,238	19,957	20,736	21,342	20,869	20,450	20,083	19,758
Nondurable manufacturing	12,168	12,678	12,549	13,073	12,949	13,107	13,216	13,313
Transportation and public utilities	11,345	11,652	11,759	12,012	12,101	12,260	12,474	12,676
Wholesale trade	11,646	12,133	12,617	12,958	12,698	12,996	13,197	13,410
Retail trade	13,648	13,834	14,237	14,669	14,524	14,887	15,296	15,546
Finance, insurance, and real estate	12,763	12,945	13,781	14,190	14,784	15,286	15,671	16,064
Services	36,577	38,121	41,278	40,015	41,477	42,523	43,550	44,632

Bureau of Economic and Business Research

Illinois
Business

Review

Business Start-up and Closure
in the Last Three Years

Start-up
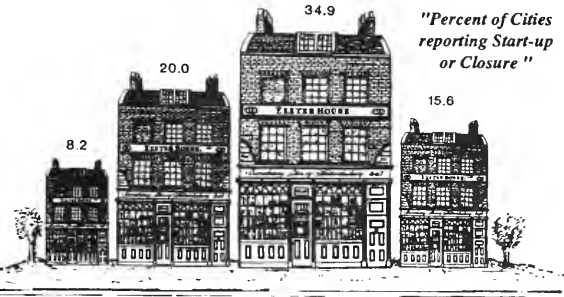
*"Percent of Cities
reporting Start-up
or Closure "*

YES
WE'RE
OPEN

8.2   20.0   34.9   15.6

Closure

SORRY
WE'RE
CLOSED

14.3   15.6   27.0   16.7

Population   <2,500   2,500-5,000   >5,000   Statewide

2

NORMAN WALZER

Economic Conditions and Prospects in Small Illinois Cities

Rural areas have lagged behind their metropolitan counterparts in income and employment changes. Many explanations have been offered, including dependence on routine manufacturing jobs with relatively low pay, poor performance of the farm economy, and low prices of energy input important in many rural counties.[1] The lagging rural economies have caused state governments to initiate public policies to promote rural economic development.

While agriculture is important in rural economies, it certainly is not the largest employment source. Nationwide, for example, service industries constitute 65 percent of the nonmetropolitan employment base, followed by manufacturing at approximately 17 percent and agriculture with less than 10 percent in 1979. Rural communities provide a major employment source for rural residents, and their condition is of vital importance in understanding the future of rural areas.

Of the 1,279 municipalities in Illinois, 871 have a population smaller than 2,500, the Bureau of Census criterion for urban place designation. In the past, these communities primarily served farm families and local residents with a basic level of services. With the exodus of farm population and loss of city residents, business thresholds no longer could be met, and the economies have declined further. Many smaller communities no longer provide economic services. They merely represent low-cost housing for commuters to nearby centers.

Residents in some communities may be satisfied with this role. To preserve jobs and a tax base, others are struggling to stabilize their local economies and to attract or initiate industrial development.

The Illinois Institute for Rural Affairs conducted a mail survey of mayors in Illinois communities with population less than 25,000 to identify the perceptions of recent trends and to determine policies underway to improve the quality of life. The sample was subdivided into cities of less than 2,500, those with between 2,500 and 5,000 inhabitants, and communities of more than 5,000 and less than 25,000 inhabitants. Statewide, 299 usable responses were returned.

Economic Conditions

City responses about economic status differ markedly by size. Statewide, 37 percent reported that their city economy was growing. The highest (65 percent) positive response is found in cities with more than 5,000, and the smallest (26 percent) is in communities with fewer than 2,500 residents (Chart 1). At the other extreme, 26 percent of communities with fewer than 2,500 reported economic declines,

while only 6 percent of cities of more than 5,000 are in this category.

Chart 2 shows that business start-ups in the past three years are more prevalent in cities of more than 5,000 residents (35 percent) than in communities of less than 2,500 (8 percent). This finding supports a traditional view that small communities are less attractive to new business. The loss of major employers differs less among communities by size than one might have thought. On average, 27 percent of cities of more than 5,000 population reported the loss of a major employer, compared with 14 percent in communities of less than 2,500. The lower number of large manufacturing installations in small communities is one explanation.

Manufacturing is an important source of employment and income for small community residents in Illinois. Mayors estimated that an average of 35 percent of the residents of communities of less than 2,500 are employed in manufacturing, compared with an average of 30 percent in cities with over 5,000 inhabitants. Farm employment also was reported for 21 percent of residents in communities of less than 2,500, compared with 12 percent for cities of more than 5,000. Small towns, especially those with high-quality services, are bedroom communities, especially if they are close to metropolitan areas. Manufacturing and services are important employment sources for residents in these communities even though employment is in nearby large cities.

The economic condition of small cities in Illinois is difficult to characterize because of wide regional variations. Statewide, 57 percent of mayors reported retail conditions as either prosperous and expanding or at least reasonably stable, but the picture differs by city size (Chart 3). Of communities of less than 2,500, 50 percent reported stable or growing conditions, compared with 71 percent of cities of more than 5,000. This finding supports the view that retail establishments in small cities have been hard hit by population losses and employment declines.

Chart 1. Status of City Economy

Chart 2. Business Start-up and Closure in the Last Three Years
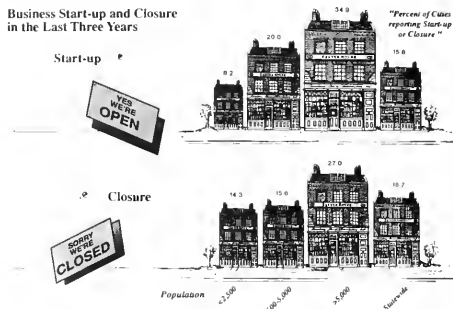
When queried about causes of decline in retail establishments, 44 percent reported that competition from neighboring large retail centers was the primary cause. Loss of manufacturing businesses in the area was the second most important factor according to 25 percent of the respondents. It is clear that the entry of major discount stores into cities as small as 15,000 has adversely affected retail stores in smaller surrounding communities. Specialized stores no longer can compete in price or selection. Increasingly, convenience stores are providing basic necessities in small communities, with other purchases being made in nearby larger centers. An unfortunate side-effect of this shift in purchasing patterns is the lost sales tax revenues needed to finance basic public services. This problem is not of recent origin; it has been a long-term trend that is not likely to be reversed.

The worst may be yet to come. The age of business owners in rural communities is such that retirement is on the horizon, and the financial returns from attempting to sell the business and retrain for alternative employment is not worth the cost. When current business owners reach retirement, many businesses will close permanently.

Economic Development Efforts

A majority (68 percent) of mayors responding in all city sizes are dissatisfied with the performance of their city's economy and employment base. This is not surprising. The fact that so many are dissatisfied suggests that they have not given up on finding solutions and may persist in development efforts.

The Illinois Department of Commerce and Community Affairs (DCCA) offers a wide variety of economic development programs through which cities can assist existing establishments, start businesses, or entice firms from other areas. DCCA also helps community leaders strengthen their ability to work with businesses on economic development projects through seminars and training programs. What often is missing, however, is a basic infrastructure within the
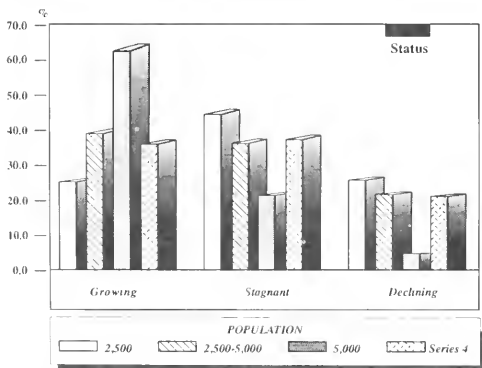
community to implement an economic development program. Economic development cannot be brought to a community, it must emerge from within.

Development efforts usually benefit from an economic development plan including an assessment of strengths and weaknesses with a method of directing scarce resources toward development objectives. A successful economic development program requires at least one person who serves as a spark to initiate the effort and to follow-up leads, whether these involve starting businesses from within or pursuing leads from outside the city. Follow-up is especially important and, often, is lacking.

Statewide, only one in five (21 percent) of the cities has an economic development plan in place. Development efforts may occur but not systematically. Communities of less than 2,500 were much less likely to have a plan (13 percent) than cities of between 5,000 and 25,000 (38 percent). A threshold size exists below which extensive economic development activities are difficult to maintain and may not even be worth the effort. Communities seeking to survive, however, must aggressively attempt to start businesses and encourage industries to continue, if not expand. These efforts require planning and coordination.

Small communities typically have limited management resources and experience. A part-time mayor, clerk, and council is the norm. When one considers the multitude of tasks confronting mayors and other public officials, it is easy to understand the relatively little time for economic development efforts.

It is not surprising that mayors in small communities are responsible for a majority of the economic development tasks. Responsibility in the mayor's office was reported by 24 percent of the cities reporting economic development efforts. This finding was most prevalent among the smallest communities (30 percent) and dwindled to 13 percent in cities of more than 5,000. In larger communities, an economic development committee (22 percent) or a city administrator (18 percent) replaced or assisted the mayor. Chambers of commerce were not reported by many cities as having primary responsibility for economic development. The sample sizes are small in several of these categories, however, and limit generalizations.

An alternative to maintaining an in-house staff is to contract with an economic development professional to provide the technical expertise missing in the community. This process is costly and may not bring results in the near future. Somewhat of a surprise, only 13 percent of the cities had hired an economic development consultant. Again, the smallest communities were less likely to have a consultant (7 percent) than cities of more than 5,000 (24 percent). The cutoff in size for hiring consultants seems to be 2,500 residents.

Nearly one in five cities (18 percent) reported no economic development efforts under way. As one might expect, the percentage was higher in the smallest communities (25 percent) than in cities of more than 5,000 (3 percent). Again, this is lack of staff, expertise, or even interest. The view may be that the economic base is insufficient to support long-term effects.

Development often takes several years before employment materializes. This long-term effort is frustrating and hard to maintain even in large cities.

Efforts by the Department of Commerce and Community Affairs are important but are apparently used less frequently in small cities. Statewide, 59 percent reported working with DCCA on development projects. The response increased with city size. The smallest communities were least likely to report activity (48 percent) and cities larger than 5,000 reported the most (83 percent).

Participation in DCCA programs by larger cities makes sense, given the greater resources available. Another view, however, is that small communities need the most technical assistance. When asked why they did not participate more in DCCA programs, the main response from the smallest communities was that they are unaware of the programs. This response is distinct from the claim that a DCCA representative is not available. The latter was not reported as a serious issue. One can only surmise that mailings about programs do not reach mayors in small communities or that they are too busy with daily activities to attend seminars or workshops.

Chart 3. Condition of Retail Establishments
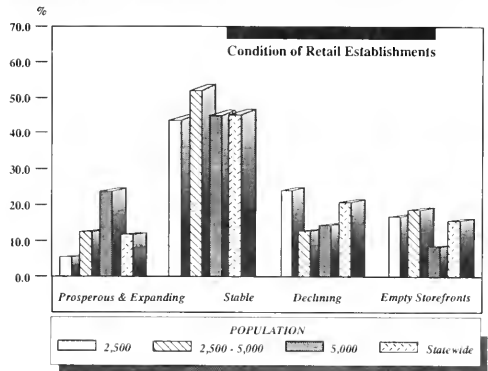
Condition of Retail Establishments

POPULATION
2,500   2,500 - 5,000   5,000   Statewide

Practical Examples

Small cities have responded to local economic development challenges in many ways. Prophetstown residents (pop. 2,047) raised sufficient local capital to purchase a furniture-making business and relocate it in their town. Funds were raised by selling stock to residents, and the effort involved virtually no financial assistance from the federal or state government. The company management moved with the purchase and has remained in the community. Reportedly, the company is doing well, and the economic development agency is seeking another venture. This endeavor shows local initiative and a willingness to build on local resources. It provides an excellent model for other small communities.

Mason City residents (pop. 2,370) perceived a need for a retirement center and raised local capital to construct a 100-bed long-term care facility. That facility employs 50 part-time and full-time workers and is an important asset both for Mason City and the surrounding area. It demonstrates an ability to assess local needs, develop an initiative, and cooperate with state agencies on financing and regulation.

Mt. Sterling (pop. 2,232) was successful in attracting a more than 700-cell state prison. They advanced a major marketing effort by enlisting assistance from nearby larger cities and from local officials in neighboring counties. An effective campaign and cooperative effort regionwide resulted in a major boost to economic development. Efforts to assist local businesses to expand have also been effective. Mt. Sterling is a good example of mobilizing residents to pursue major state investments for economic development.

These communities are but three of many in Illinois that have assessed their future and worked together to create employment. Not all of them have used state resources, but they have been effective in making available programs work for them. A thread common in these communities is local leadership, as well as risk-taking by residents, to improve the future of their communities.

Responses to Fiscal Conditions

Small communities, because of difficulties in the post-recessionary recovery period, have had to take corrective action. On average, one city in four (24 percent) reported furloughing or terminating employees (Chart 4). Surprisingly, a greater percentage (40 percent) of cities of more than 5,000 responded in this way than small communities (19 percent). One explanation is that there are fewer full-time employees in the smallest communities. Only 9 percent of the mayors reported discontinuing or significantly reducing services since 1984, and little variation exists in these responses by city size.

Contracting for services often is mentioned as a way to reduce costs of services in small communities. Part-time police protection, for instance, can be contracted with the county sheriff's office. Fire protection contracts (and mutual assistance pacts with larger cities) are common in rural areas. Refuse collection is commonly cited as a service to be provided at lower cost through the private sector. Contracts with private businesses are found in cities (55 percent) responding to the survey. Surprisingly, little difference is found by city size. Details were not provided on which services are contracted nor on the effectiveness of the arrangements. Further research is underway on contracting for police protection.

Beginning in 1987, cities lost Federal General Revenue sharing (GRS), a significant amount for some cities. In view of the fact that one-third of the cities reported assessed valuation declines since 1984, one might expect property tax rates to have increased in response to the lost revenues. In practice, 54 percent of the mayors responded that FY88 tax rates exceeded

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Chart 4. Policy Responses to Fiscal Conditions
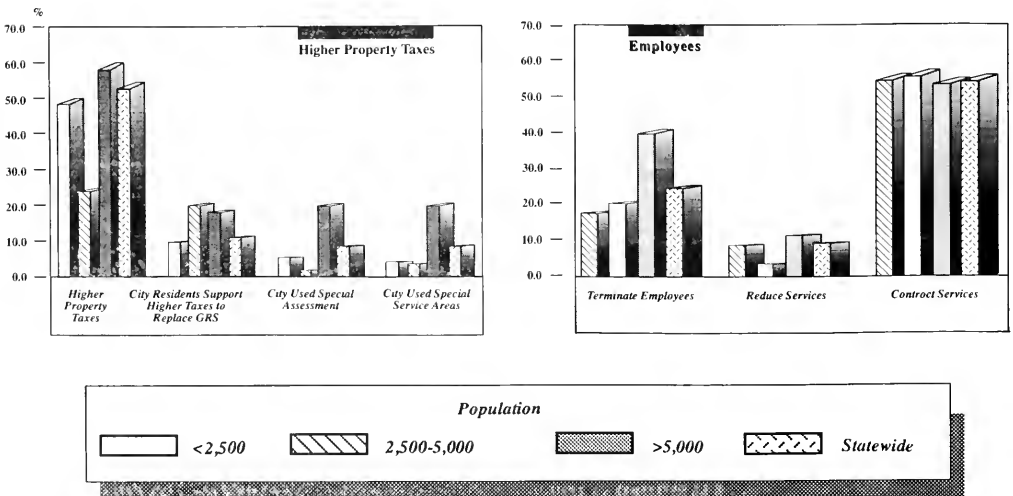
FY87 (Chart 4). However, only 13 percent reported that city residents would support higher property tax rates to replace lost GRS. This incongruity may pressure local officials to find ways to finance services with revenues other than property taxes. Fortunately, the temporary income tax increase and the increase in motor fuel tax came at an opportune time to assist in maintaining the infrastructure required for economic development.

Future of Local Finances

The future of local finances in many small communities is relatively uncertain. When asked about the prognosis for the next three years (FY88 is the base year), two-thirds (66 percent) reported adequate revenues for current and expected service requirements or that funds were adequate for current services but would not afford expected expansion. Only one in ten reported that a major tax increase is needed to maintain existing services. Additional services may require tax increases. One mayor in five expected to reduce services during the next three years. The questionnaire, of course, was prior to the 1989 income tax increase.

Concluding Observations

The survey of small Illinois cities prompts several broad observations. First, it is clear that many small communities apparently are not actively pursuing economic development or using available state resources. To economic development professionals working with officials in small communities, this is not news. Even so, it deserves additional attention. Seminars for rural local officials, support groups to assist and encourage local initiatives, and technical assistance are needed. Many efforts toward these ends are under way by the Cooperative Extension Service, Corridors of Opportunity programs, EDA University Center, and other agencies.

Second, it is reasonable to believe that retail establishments in communities surrounding a discount store or shopping center will continue to suffer. Small communities must recognize these trends and build on community strengths, such as historical or tourism potential, recreational opportunities, and other unique characteristics to attract additional traffic through the community.

Third, it is worth noting that some small communities, with no readily apparent special expertise, have been able to mobilize residents and businesses to invest in their local economies. These efforts involve strong leadership plus time and commitment to pursue economic development in an orderly fashion. Other community leaders can learn from these experiences and can use some of the techniques.

Fourth, it is recommended that officials in small communities examine the role of public services in their economic development efforts. Increasingly, capacity-building efforts will depend on institutions, such as schools, for talent and expertise. This has not been a major role for these institutions in the past, but they will be key in the future, both in the quality of education provided to the work force and in providing community leadership on economic development and other issues.

Many small rural communities are not faring well during the current economic transformation. Managing change will require local leadership with technical assistance. With these efforts, a strong local commitment, and some good fortune, the future for small rural communities can improve. But it will take work.

Notes

1. A list of sources for information in this article is available from the author, on request.
2. *Issues and Concerns of Small City Officials in Illinois* is available from the Illinois Institute for Rural Affairs at Western Illinois University. This report is part of a larger study of townships, counties, fire protection districts, sheriffs offices, and school districts. Reports of these studies will be published at a later date.

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CASE M. SPRENKLE

On Some Macroeconomic Myths

In recent years I have begun my macroeconomic
theory class each semester by picking students at
random to answer questions about the US economy. I
then have the whole class "vote" to select the best
answers. The votes show, and often with large
majorities, that the students are seriously misguided
about the US economy. The same can be said for the
educated layman—judging from my experiences at
various business seminars. Many observers have
lamented a decline in the quality of discussion about
the economy by the media and by politicians, so
perhaps this misinformation should not be surprising.
But the misinformation and the vehemence with which
it is sometimes held is discouraging and potentially
dangerous for a democratic society.

Since you subscribe to the *Illinois Business Review*
and have read this far, it is unlikely that you believe as
many economic "myths" as my students. But, to be on
the safe side, here is a sample of a baker's half dozen
of the more important and most often believed myths.
These seven myths are concerned with the roles of the
business and government sectors of the economy and
with perceptions of our recent economic performance.
The facts are easily obtainable from government
publications, *The Economic Report of the President* for
past years and current issues of *The Survey of Current
Business*, and, thus, are easily obtainable by anyone
interested—including, I might note, members of the
media and politicians.

Myth #1. Our current economic problems are caused
by a slowdown in investment in plant and machinery
in the 1970s and 1980s.

Fact #1. As a percentage of Gross National Product
(GNP), investment in plant and equipment averaged
10.7 percent in the late 1940s, was 9.5 percent in 1960,
10.4 percent in 1970, and 11.8 percent in 1988. If we
are underinvesting, we have been doing so for a very
long time. Since there has been no fall off of investment,
it seems hard to blame it for any recent difficulties,
including keeping up with the Japanese or, previously,
the Germans. It might be noted that these investment
figures cannot be compared with those for other
countries since US figures do not include government
investment.

Myth #2. Our current economic problems are caused
by the greed of businesses that make exorbitant profits.

Fact #2. Corporate after-tax profits as a percentage
of GNP was 5.3 percent in 1960, 4.1 percent in 1970,
5.6 percent in 1980, and 3.3 percent in 1988. Before-tax
profits follow a similar pattern. Because corporate
profits are quite cyclical, year-to-year variations are
substantial. Even so, it is hard to believe that such small

profit figures create a major problem. It might be noted that my students grossly overestimate profits as a percentage of selling prices. They apparently believe that a product they buy for $10 typically results in a net profit of about $3!

Myth #3. Our current economic problems are caused by ever-increasing taxation.

Fact #3. Other than contributions to social security, total taxes collected by federal, state, and local governments as a percentage of GNP were 23.0 percent in 1960, 24.1 percent in 1970, 23.1 percent in 1980, and 23.0 percent in 1988. However, both social security contributions and benefits have risen. Social security contributions increased from 4.2 percent in 1960 to 9.1 percent in 1988, and benefits rose from 2.2 percent in 1960 to 7.5 percent in 1988. Broader coverage and increased individual benefits added both to the contributions and benefits figures, and an aging population also added to the increased benefits figure. It might be noted that the supposed crisis in social security is difficult to identify since contributions have continually been substantially above benefits.

Myth #4. Our current economic problems are caused by exorbitant and increasing welfare payments.

Fact #4. Welfare payments of all types by all levels of government as a percentage of GNP were 2.1 percent in 1960, 2.9 percent in 1970, 4.1 percent in 1980, and 3.5 percent in 1988. Although generally increasing, it is hard to believe that these percentages can create major problems for the economy. Furthermore, much of the increase is caused by higher unemployment levels. In short, increased benefits in the 1980s are not of the type that are the typical concern of those worried about increasing welfare payments. My students put welfare payments at around 20 percent of GNP.

Myth #5. Our current economic problems are caused by excessive federal government spending in areas other than defense.

Fact #5. Federal nondefense spending on currently produced goods and services as a percentage of GNP were 1.8 percent in 1960, 2.2 percent in 1970, 2.4 percent in 1980, and 1.7 percent in 1988. An increase in government spending did occur, however, at the state and local level, rising from 8.9 percent in 1960 to 12.2 percent in 1988. If you are worried about government bureaucracy, Washington seems hardly the place to look! By the way, my students also put this figure at around 20 percent.

Myth #6. Our current economic problems are caused by exorbitant and increasing expenditures on national defense.

Fact #6. National defence spending as a percentage of GNP was 8.8 percent in 1960, 7.6 percent in 1970, 5.2 percent in 1980, and 5.4 percent in 1988. Not being an expert on national defense matters, I cannot really comment on whether these percentages are exorbitant or not, but they have clearly fallen rather than increased.

And now for a myth concerning our collective memory.

Myth #7. The 1970s were a decade of miserable economic performance, but the 1980s have shown dramatic improvement.

Fact #7. Consider the three measures of economic performance most often used: real growth, inflation, and unemployment. For the 1970s, the average real growth rate of GNP was 2.75 percent, the average inflation rate was 7.25 percent, and the average unemployment rate was 6.00 percent. For the 1980s, the real growth rate was 2.50 percent, the inflation rate was 5.00 percent, and the unemployment rate was 7.50 percent. These differences are hardly worth writing home about!

At the very least, what you have learned should enable you to be a "myth buster"and to increase your chances of becoming the most unpopular guest at the fewer and fewer parties to which you are invited. You may even be moved toward sympathy for the lot of the typical economist.

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ROBERT P. HARTWIG

Illinois Then and Now: No Sign of Recession

 T he US economy over the past months and even years has defied all the experts. Despite numerous tollings of its death knell, the economy has refused to die. In fact, it seems that the economy has emerged from each adversity with renewed strength and has held together under circumstances that during other periods would have sent it headlong into recession.

The economy in which we live today is remarkably resilient, much more so than a decade ago. Some credit this increased resiliency to improved inventory management by firms, higher productivity of the marginal worker, or successful restructuring in the American manufacturing sector. But whatever the reason, real growth has persevered through shock after shock over the past five years:

- 1985 saw a record appreciation of the dollar against major trading-nation currencies, yet the domestic manufacturing base was not decimated by foreign competition, as had been widely feared.
- 1987 brought the Black Monday stock market crash, rivaled only by the Black Friday crash of 1929. Some predicted a repeat of history, that is, that the nation and world would once again plunge into deep recession.
- 1988 was marked by the most severe drought in half a century. Not since the Dustbowl years of the 1930s had so little rain fallen in America's grain-producing regions. The drought, compounded by the savings and loan crisis, stubborn trade imbalances, and a mounting federal debt, combined with the tight monetary policy implemented to thwart inflationary pressures all signaled an end to the period of growth that had endured since 1983.
- 1989 transferred the problems of 1988 to a new president. Petroleum prices resurged, inflationary expectations soared, the stock market experienced a mini-crash, and the threat of a too restrictive monetary policy seemed to place the economy at the crossroads of recession and stagflation.

In light of these and other would-be harbingers of recession, why is the United States not suffering from high unemployment and accelerating inflation as it did during the late 1970s and early 1980s? There are many possible reasons; but if the economy can be compared to an athlete, it can be said without a doubt that it was (and is) in much better shape to weather adversity and to endure than it was a decade ago.

In the remainder of this article, I use the state of Illinois as a microcosm to illustrate this point. In the years preceding the last recession, Illinois was an economic basket-case, experiencing negative growth

rates, high unemployment, and even a net population loss. Ten years later, the state economy is strong and growing, in spite of the negative economic climate of the past five years. In short, there is a world of difference between Illinois then and Illinois now. Illinois shows no sign of recession.

Illinois Then

The Illinois economy in the years prior to and during the last recession was in a shambles. The state's paultry performance through this period is clearly indicated in the top portion of Table 1. Gross state product (GSP) declined at an accelerating rate between 1976 and 1980, with no real recovery until 1984. Illinois experienced negative real personal income growth in 1980 and 1982, and the value of contracts for future construction fell precipitously in the period from 1977 to 1982. Unemployment rose from a low of 5.5 percent in 1979 to a peak level of 11.4 percent in 1983, and in 1979 the state even suffered a net loss of population due in part to heavy out-migration.

Illinois Now

Few of the maladies that afflicted Illinois during the late 1970s and early 1980s are in evidence today. Years subsequent to 1982 show no negative growth in any of the series presented in Table 1, with the exception of a minor fall in the value of future construction contracts in 1988.

During the first quarter of 1989, the state's economy boasted a number of bright spots in a broad range of categories.

• The state is doing its part to bring down the nation's trade deficit. The value of Illinois exports increased by 29.3 percent while imports grew by only 15.4 percent.

• Illinois farmers appear to have gained a net financial benefit from the recent drought. Cash receipts from farm marketing were up 4.9 percent through November of 1988 over the same period the previous year. This reflects large increases in the price of existing supplies of grains.

• Near record levels for the value of contracts for future construction were recorded in 1988 with a total value in excess of $10 billion.

• Average state labor force for February was a record 5,976,000. Unemployment during the month reached a 9 1/2 year low at 5.2 percent.

• Retail sales also grew at a healthy pace, rising 4.6 percent in 1988 over the previous year.

• Expectations about the future also remained bright. The *Purchasing Manager's Survey for Chicago* remained positive for the 39th consecutive month, indicating that business activity in general was expanding.

Chart 1 illustrates the difference a decade makes. Gross State Product has grown at a much healthier pace since the last recession (1984–1988) than in the period preceding it (1976–1980). Based on a comparison between the these two five-year periods, there is little evidence to support the notion of a recession lurking around the corner.

Illinois: Land of Disparity and Despair

Illinois has come a long way since the recession in the first part of this decade. As indicated, its unemployment rate is nearing a 10-year low. Unfortunately, economic growth in recent years has not reached everyone. Table 2 shows that pockets of extremely high unemployment persist in the state. In fact, a surprisingly large number of counties have experienced only marginal gains in employment during

Table 1. Illinois Vital Signs[a] *(percentage change from previous year in constant 1982 dollars)*

Year	GSP	Total Personal Income	Value of Future Construction Contracts	Unemployment Rate	Population
1976	3.6	NA	95.5	6.5	0.5
1977	3.4	3.2	-35.4	6.2	0.4
1978	3.0	3.3	15.7	6.0	0.2
1979	0.0	0.7	-11.3	5.5	0.1
1980	-4.6	-2.9	-30.7	8.3	0.2
1981	0.2	1.2	-17.6	8.5	0.3
1982	-3.8	-2.1	5.3	11.3	0.0
1983	0.7	0.1	20.5	11.4	0.1
1984	7.9	5.0	16.0	9.1	0.3
1985	2.8	2.0	2.7	9.0	0.1
1986	3.0	2.9	22.7	8.1	0.1
1987	4.6	1.7	8.1	7.4	0.2
1988[p]	3.8	NA	-2.5	6.8	0.1
1989[b]	2.4	NA	NA	6.5	0.1

Source: *Illinois Bi-Monthly Economic Data Summary* Illinois Department of Commerce and Community Affairs and *1989 Illinois Statistical Abstract* Bureau of Economic and Business Research at the University of Illinois

[a]Gross State Product is the counterpart of Gross Domestic Product and is regarded as the most comprehensive measure of production for a state
[b]Estimates.

P = Preliminary.

the economic recovery of the past seven years. Note on the one hand that in every year at least one county experiences unemployment in excess of 20 percent. Counties such as DuPage and Champaign, on the other hand, have unemployment rates that are consistently below the state and national averages.

The persistence of high unemployment in southern Illinois throughout the longest sustained period of economic expansion in the post-war United States suggests that the Southern Illinois economy has been unable to adapt to today's dynamic economic climate.

Chronic Problems in Southern Illinois

Counties where unemployment remains high and per capita income low possess a common denominator— all are located in the extreme southern region of the state. Because these counties are not very populous, their statistics do not have a great deal of impact on the aggregate state figures for income and employment. For example, the population of Johnson and Pulaski counties, the two counties with the most chronic unemployment, are, respectively, 11,100 and 8,400 for 1987. By comparison, DuPage county, has nearly 3/4 of a million inhabitants, and incorporates many well-to-do Chicago suburbs.

Typically, low-unemployment counties incorporate affluent Chicago suburbs (for example, DuPage) or benefit from the presence of a major state or federal employer (for example, Champaign).[1]

Chart 2 graphically depicts the regional disparity in per capita personal income within Illinois. It illustrates the point that the gap between per capita income in well-to-do counties (for example, Lake and DuPage) and poor counties (for example, Johnson and Pulaski) historically has been large and continues to grow.

Equally interesting is a comparison of the per capita personal income figures for Illinois' poorest and

Chart 1. Pre-Recession vs. Post-Recession Growth in Gross State Product
(percentage change from previous year)

Chart 2. Per Capita Personal Income
(selected Illinois counties)

wealthiest counties with the national norm. Per capita personal income in Lake county, for example, in 1982 was 133 percent of the national average, rising to a high of 139 percent in 1986. Johnson county, by comparison, had a high of 60 percent in 1982, and actually saw a fall to 56 percent of the national norm by 1987.

Pockets of poverty and high unemployment are securely lodged in Illinois, as in any state. Generally, however, the state is performing quite well at the aggregate level and far better than it did a decade ago.

Concluding Remarks

The current strength of the Illinois economy yields benefits extending far beyond its borders. Certainly, high rates of growth in Gross State Product contribute directly to increases in Gross Domestic Product as its expanding export sector helps to improve the nation's poor trade balance, yet these direct influences alone cannot explain the success of the American economy in aggregate. It was (and continues to be) the ability of Illinois and other state economies to adjust to the fundamentally changed economic climate that emerged following the last recession that goes a long way in explaining the resiliency of the US economy today.

Notes

1. The state capital, Springfield, is located in Sangamon County, while the University of Illinois and Chanute Air Force Base are found in Champaign County.

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Table 2. Counties with Highest and Lowest Unemployment Rates in Illinois

	1984	Highest Rate		Lowest Rate	1985	Highest Rate		Lowest Rate
1	Alexander	25 1	Lake	5 8	Alexander	24 7	Champaign	5 5
2	Calhoun	19 6	Champaign	6.1	Pulaski	22.9	DuPage	5 8
3	Hamilton	17 1	DuPage	6 1	Calhoun	21 1	Lake	6 0
4	Johnson	17.1	DeKalb	6 7	Hamilton	19 5	McLean	6.3
5	Williamson	16.7	Kendall	6.9	Richland	17 8	Sangamon	6 7
6	Hardin	16.5	McHenry	7 1	Williamson	17 6	Menard	6 9
7	Pope	16 4	Sangamon	7 1	Lawrence	17 3	DeKalb	7 2
8	Franklin	16.3	Douglas	7 2	Wayne	16 9	Kendall	7 4
9	Wayne	15 4	Stephenson	7.3	Gallatin	16 7	Ford	7 8
10	Massac	15.3	Carroll	7.7	White	16 6	Moultrie	7 8

	1986	Highest Rate		Lowest Rate	1987	Highest Rate		Lowest Rate
1	Lawrence	20.2	DuPage	4 5	Hamilton	20 8	DuPage	4 1
2	Alexander	20.1	Champaign	4 6	Alexander	18 3	Champaign	4 5
3	Hamilton	20 0	Lake	5 4	Perry	17 4	Lake	4 6
4	Calhoun	19 2	McLean	5 5	Franklin	17 3	McLean	4 7
5	Richland	18 6	Sangamon	5 6	Pulaski	17 1	DeKalb	4 9
6	Pulaski	18 1	McHenry	6 1	Gallatin	16 7	Sangamon	5 2
7	White	18 1	DeKalb	6 2	Lawrence	16 5	Kendall	5 5
8	Gallatin	17.5	Woodford	6 4	White	15 6	McHenry	5 5
9	Wayne	17.5	Kendall	6 6	Jefferson	15 5	Woodford	5 8
10	Fayette	16.7	Livingston	6.8	Wayne	15 5	Livingston	6 0

	1988	Highest Rate		Lowest Rate
1	Hamilton	22.3	DuPage	3 8
2	Alexander	18 4	Champaign	4 2
3	Pulaski	18 0	Lake	4 3
4	Perry	16.8	DeKalb	4 4
5	Gallatin	16 7	Kendall	4 6
6	Franklin	15 6	Woodford	4 7
7	White	14 6	McHenry	4 8
8	Carrol	14 5	McLean	5 0
9	Johnson	14 5	Kane	5 4
10	Union	14.2	Livingston	6.0

Source: *Illinois Bi-Monthly Economic Data Summary* Illinois Department of Commerce and Community Affairs and *1989 Illinois Statistical Abstract* Bureau of Economic and Business Research at the University of Illinois

Table 3. Highest and Lowest Per Capita Personal Income *(Illinois, by County)*

					Highest				
	County	1984 Income	County	1985 Income	County	1986 Income	County	1987 Income
1	Lake	$17,773	Lake	$19,028	Lake	$20,265	Lake	$21,432
2	DuPage	17,742	DuPage	18,811	DuPage	20,024	DuPage	21,235
3	McHenry	14,867	McHenry	15,760	McHenry	16,673	McHenry	17,866
4	Cook	14,772	Cook	15,511	Cook	16,416	Cook	17,236
5	Kendall	14,293	Grundy	15,075	Grundy	15,366	Kendall	16,935
6	Kane	14,156	Kane	15,016	Kane	15,329	Kane	16,782
7	Monroe	13,967	Stark	14,891	Monroe	15,106	Grundy	16,729
8	Grundy	13,927	DeWitt	14,883	Sangamon	15,048	Monroe	16,551
9	Putnam	13,705	Kendall	14,746	Kendall	15,007	Sangamon	16,262
10	Piatt	13,644	Monroe	14,581	Stark	14,986	Stark	15,862

					Lowest				
	County	1984 Income	County	1985 Income	County	1986 Income	County	1987 Income
1	Pope	$7,844	Johnson	$ 7,740	Johnson	$ 8,053	Johnson	$ 8,763
2	Johnson	7,903	Pulaski	8,382	Pulaski	8,360	Pulaski	8 931
3	Pulaski	8,099	Pope	8,404	Pope	8,564	Hardin	9,402
4	Hardin	8,208	Hardin	8,605	Hardin	8,829	Alexander	9,419
5	Alexander	8,473	Alexander	8,859	Alexander	9,476	Pope	9,422
6	Fayette	9,387	Hamilton	9,531	Hamilton	9,990	Hamilton	10,789
7	Jackson	9,556	Fayette	9,728	Fayette	10,150	Fayette	10,809
8	Hamilton	9,602	Jackson	9,758	Cumberland	10,321	McDonough	10,971
9	McDonough	9,666	McDonough	10,102	Jackson	10,506	Greene	11,104
10	Cumberland	9,705	Cumberland	10,130	Massac	10,643	Massac	11,153

Source: *Illinois Bi-Monthly Economic Data Summary* Illinois Department of Commerce and Community Affairs and *1989 Illinois Statistical Abstract* Bureau of Economic and Business Research at the University of Illinois

ROBERT P. HARTWIG

Fiscal Impact on Illinois of Military Base Closures

On 29 December 1988, a commission of the Secretary of Defense made public a list of 86 military installations it had earmarked for realignment or closure. Among these installations were two Illinois facilities, Chanute Technical Training Center (formerly Chanute Air Force Base), located in Rantoul, and Fort Sheridan Army Garrison in Highwood.

A great deal of attention has been focused on the economic impact of closure on the affected communities. One study of Rantoul by University of Illinois researchers Dan Spiegel and Geoffrey Hewings cites numerous effects on the local community, including decreases in property value, business volume, population, and the village's tax base. In the June *Illinois Business Review*,[1] the severity of the impact of closure was challenged. It was noted the effects of closure may be substantially mitigated by the area's favorable business climate and affordable housing, factors that bode well for Rantoul's prospects for the future. Less attention has been focused on the local economic impact of the Fort Sheridan closure because its location on high-priced lakefront property lends itself easily to alternative uses.

This article focuses on the effects of the closure of both Chanute and Fort Sheridan in terms of their impact on the State of Illinois. As a direct result of the closures, the state can expect declines in virtually every source of tax revenue. The bases are responsible for hundreds of millions of dollars of federal government expenditure within the state; still larger sums are expended indirectly through the multiplier process;[2] these too will be lost. Moreover, expenditures can also be expected to increase as a consequence of increases in unemployment and welfare programs.

Illinois: A History of Regional Military Dependence

Illinois has a well-diversified economic base. Hence, the state is not highly dependent on the flow of funds from military bases. Between 1979 and 1986, the state's share of nonfarm personal income derived from military sources increased 23.3 percent, as shown in Chart 1. Even so, despite the rapid increase in income derived from military sources, the overall share of military income in the state has remained relatively small, fluctuating in the range of four-tenths of one percent to six-tenths of one percent annually. But this observation is deceiving because most military influence in the state is concentrated in only a few counties. Table 1 documents this observation for the decade ending in 1987. Of Illinois' 102 counties, just

two, Champaign and Lake counties, accrued as much as 62.7 percent of Illinois total military earnings (see Chart 2).

During this same period, almost 50 percent of all military employment in Illinois was concentrated in these same two counties. An increasing dependence on federal civilian government employment is also in evidence. Employment in that sector has risen 17.7 percent since 1978 in Lake county and 5.5 percent in the state, while falling in Champaign county.

At a glance, one-half of one percent does not appear to be a large amount of income derived from any single source. Illinois Gross State Product (GSP) in 1988 was over $241.3 billion and is the nation's fourth largest economy by this measure. A one-half of one percent change in this amount is equal to $1.2 billion. It is apparent why state legislators are reluctant to see the military presence in Illinois be diminished.

How the Base Closures Will Affect Tax Receipts

This section describes the revenue and expenditure categories that will contribute to the state's losses, if the closures proceed.[3] Table 2 and Chart 3 show the major sources of revenue and expenditure in the state. Table 3 and Chart 4 detail the changes in revenue and expenditure that can be expected over the period from fiscal year 1989 to fiscal year 1994.

In addition to decreased revenue and increased expenditure, one needs to consider the potential cost of attracting firms to replace the military employment in the Rantoul area. These costs are extremely high by historical standards. For example, Illinois offered Sears, Roebuck and Company an incentive package worth nearly $30,000 per job during the summer of 1989. Several years ago, Diamond-Star (Mitsubishi/Chrysler) received incentives worth $40,793 per job. The record subsidy is held by Kentucky, which attracted a Honda plant after offering a $108,333 per job incentive. A $30,000 per job incentive to replace direct and indirect employment at Chanute alone could cost nearly $65 million.

It is important to note that the above are not net costs. They are estimates of the immediate costs to the state to attract new industries. Governments would not undertake such expenditures unless they expected to recoup them at some point in the future.

The single largest area in which revenues can be expected to slacken is that of the personal income tax. This conclusion might seem unusual since military personnel do not pay the state income tax. Even so, a substantial portion of a serviceman's income is spent in the local economy. Fiscal Year 1988 estimates of this proportion for Chanute are 47.2 percent for those living on base and 56.4 percent for off-base personnel. With the military payroll at $87 million dollars for FY88, about $42.5 million reached the local (state) economy for the Chanute case alone. Because these dollars become income in the local economy for civilians supplying goods and services to servicemen, taxes are paid on some proportion of them.

Civilians spend an estimated 80.6 percent of their income locally. During FY88, the civilian payroll was $36.9 million, and income taxes are paid on this

Chart 1. Military Earnings in Illinois as a Percentage of Nonfarm Earnings
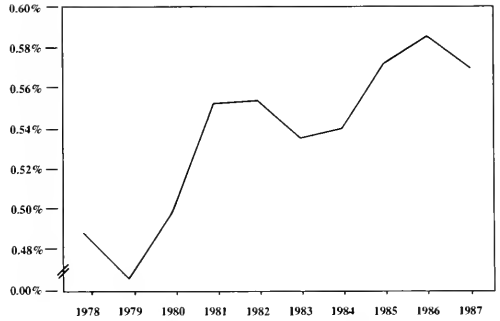
Chart 2. Military Earnings in Champaign and Lake Counties as a Percentage of Illinois Total
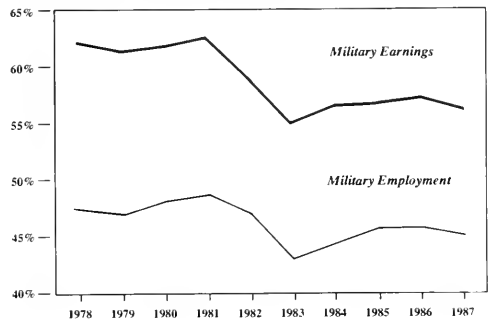
Table 1. Percentage of Total Illinois Military Earnings and Employment Concentrated in Champaign and Lake Counties

Year	Military Earnings	Military Employment
1978	62.4%	47.5%
1979	61 7	47 1
1980	62 0	48 2
1981	62 7	48 6
1982	59 4	47 1
1983	55.7	43 4
1984	57.1	44 7
1985	57 3	45.8
1986	57 7	45 9
1987	56.8	45 2

Source *1989 Illinois Statistical Abstract*, Bureau of Economic and Business Research, University of Illinois

Table 2. Important Revenue and Appropriation Categories for the State of Illinois Fiscal Year 1990 *(millions of dollars)*

Source	Revenue Collected	Expenditure Categories	Appropriation
Sales tax	$ 3,976	Education	$ 5,899
Income tax	4,338	Transportation	4,151
Federal aid	3,976	Public aid	3,714
Road taxes & fees	1,446	Health & human services	2,622
Bond proceeds	361		
Lottery	904	Public protection and justice	1,311
All other sources	3,072		
		Environment & natural resources	1,092
		Other	3,059
TOTAL	$18,073		$21,848

Source *Illinois State Budget Fiscal Year 1990*, Office of the Governor

amount. These amounts, plus others derived through construction, service, and supply contracts awarded locally by the Defense Department, also translate into taxable income for the state. $65 million of the estimated $78 million (83 percent) in lost income tax revenue are due to these indirect effects.

Why Most Tax Losses Are Not the Direct Result of Closure

The average dollar changes hands many times within the local economy. For this reason, the number of people who depend on military expenditure for their livelihood is substantially larger than the number of people who actually draw a military paycheck. In the case of Chanute, for example, the Air Force estimates that in the Chanute economic impact region alone, 3,991 jobs were supported by FY88 operation expenditures.[4]

The Air Force estimate for the income multiplier in Rantoul and surrounding area is 2.5122 on total expenditures of $135.6 million for FY88. Thus, the total effect of Chanute alone on the impact region is a staggering $340.7 million cash flow supporting 3,991 jobs. Using an analogous line of reasoning, it is obvious that the estimated losses of income tax revenue are principally due to indirect effects and not to initial payroll expenditures by the military. This number is pushed substantially upward by the inclusion of Fort Sheridan. It will suffice to say that the state will sorely miss the opportunity to tax these dollars. In addition, estimates need to be increased substantially in the event that the two-year temporary increase in the personal income tax rate from 2.5 percent to 3.0 percent is made permanent, as is anticipated.

It is expected that the $48.5 million state sales tax will be the revenue category experiencing the second largest decline. All items purchased anywhere in the state, inside and outside of the impact zones, whether purchased by military or civilian personnel, are subject to the sales tax. Sales tax losses resulting from the loss in sales of durable goods (appliances, for example) and automobiles will be substantial. Tax receipts from items such as motor fuel, cigarettes, and liquor will also decline. Losses due to the Fort Sheridan closure are likely to be larger than for those of Chanute, however, due to a higher percentage of personnel living off base and a higher average income.

To a lesser degree, losses are also expected for the corporate income tax, as the local service industry declines, and for the corporate replacement tax. Miscellaneous losses will occur in the form of lost lottery revenues and automobile licence and registration fees.

How the Base Closures Will Affect Government Expenditures

Increases in government expenditure are much more difficult to gauge since so much depends on the future actions of the General Assembly. Some areas, such as unemployment compensation, welfare, and medicaid, are likely to increase substantially if there is a sustained increase in the unemployment rate. Whether or not there is such a sustained increase depends upon two

factors: one factor relates to the rate at which replacement firms enter the affected communities; and the second factor turns on the extent to which the nonappropriated fund civilians and others who are either directly or indirectly dependent on military expenditure remain in the community (especially Rantoul).

Because of substantial declines in the number of students enrolled at area schools, expenditures on state school aid will actually fall by an estimated $7.34 million.

It is possible that the single largest cost the state will need to absorb is a $64.6 million charge from retraining and incentive costs associated with the Chanute closure. If, as discussed earlier, the state attempts to attract industry into the Rantoul area to replace the nearly 2,400 civilian military positions, the incentive costs may be extremely high.[5]

Chart 3. Illinois Revenues and Appropriations *(FY90)*

Revenues by Source

- ☐ Income Taxes
- ▨ Sales Taxes
- ▩ Bond Proceeds
- ▨ Road Taxes & Taxes
- ☐ Federal Aid
- ■ Lottery
- ☰ Other Sources

Table 3. Estimated Revenue Losses and Expenditure Increases to the State of Illinois Due to Base Closures *(millions of 1989 dollars)[a]*

Revenue Losses		Expenditure Increases	
Personal income tax	$78.22	Additional state tax	$ − 2.74
Direct	13.02	disbursements to	
Indirect	65.20	Champaign & Lake	
Sales tax lost	48.54	Counties	
Corporate income tax	2.65	State school aid	− 7.34
Corporate replacement tax	1.25	Unemployment compensation	1.94
Other losses	5.77	Medicaid & welfare	46.53
		Retraining programs and	64.65
		incentives to attract	
Total revenue loss	$136.43	new businesses)	
Total losses	$239.47	Total expenditure increase	$103.04

[a]Losses shown are the net present cash value as of 1 October 1989 for the period FY89 to FY94. The discount factor used is the actual historical real rate of interest on ten-year US Treasury bills for the period 1960 to July 1989.

Appropriations

- ☐ Education
- ▨ Health & Human Services
- ▩ Public Protection & Justice
- ▨ Transportation
- ☐ Environment & Natural Resources
- ■ Public Aid
- ☰ Other Sources

The Total Loss: $240 Million

The sum of all estimated changes in revenues and expenditures, including job-replacement costs is $240 million. It represents the net present cash value of all losses incurred during the period beginning with FY89 and ending in FY94 in 1989 dollars.[6]

The analysis was not extended beyond that point. What the future holds for what once was Chanute AFB and what will remain of Fort Sheridan over a distant time horizon is unclear. For example, if Chanute were to remain completely vacant, as might occur with a protracted environmental clean-up, then still larger losses would accrue to the state beginning with FY95. Then again, if new jobs are created, then the state can expect to begin to recoup some of the losses incurred during the closure phase.

Note that from the point of view of the state, only new jobs will help to increase tax revenues. Transferring a few thousand jobs from Chicago to Rantoul makes absolutely no difference in Springfield. The state must seek businesses from other states or foreign investment. Another possibility is to promote new, small businesses.
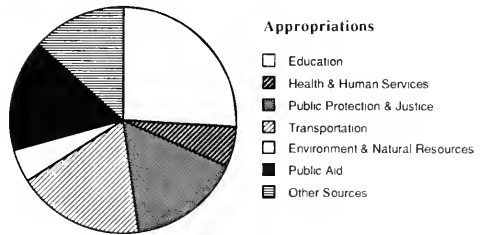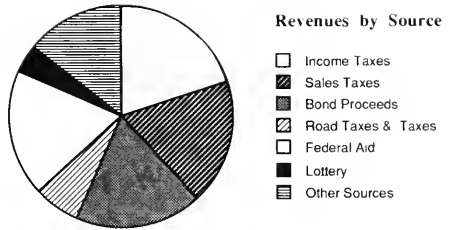
Chart 4. Estimated Revenue Losses and Expenditure Increases *(millions of 1989 dollars)*
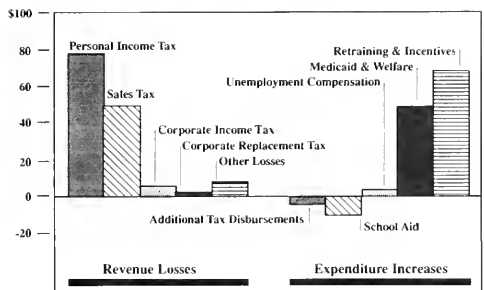
Conclusion

$240 million dollars is a substantial loss. Whether this amount is deemed significant in terms of the state's total tax resources or whether it is likely to cause "damage" to the state is up to a federal judge to decide.

Notes

1. A list of sources used in this article are available from the author on request.
2. I briefly describe the multiplier process here. If, on average people spend 75 percent of their income in the state economy, then the multiplier is calculated as $1/(1 - .75) = 4$. This means that for each $1 of expenditures I make in the state, a total of $4 of income are created economy-wide (see my June 1989 article for more detail).
3. During the summer of 1989, Professor Walter McMahon and I were commissioned by the Office of the Attorney General of the State of Illinois to analyze the economic effects of the closures of Fort Sheridan and Chanute AFB on the State of Illinois. At this writing (early November 1989), a federal judge is determining the state's standing in a lawsuit filed by Illinois Attorney General Neil Hardigan to block the closure. Our report is an element of the state's defense, and therefore no details may be revealed at the present time.
4. This figure does not include the military personnel themselves. The estimate for total number of jobs supported in the entire United States is 5,823.
5. Multiplying the number of jobs lost by the incentive cost would yield a deceptively large estimate. Our analysis assumes the loss of jobs and, thus, replacement costs to be streamed out over a five-year period. These costs are then discounted back to the present, producing a smaller figure than a casual inspection might suggest.
6. Presenting losses in constant 1989 dollars means that estimates were not adjusted for inflation. Had we done so, total losses would have been higher.

Robert P. Hartwig is a Ph.D. student in economics at the University of Illinois and a research assistant in the Bureau of Economic and Business Research.

New Publications Available from the Bureau

1990 Illinois Economic Outlook

The *1990 Illinois Economic Outlook*, the latest in the series of *Outlooks* by the Bureau of Economic and Business Research, will be available in mid-December. This year's *Outlook* examines trends in Illinois agriculture, financial institutions, education, energy, personal income, health care, real estate, and employment. It also looks at Illinois' place in the Great Lakes economy, the growth of small businesses in the state, and changes in state revenues and expenditures for the coming year. The publication will be $5.00 per copy.

1989 Illinois Statistical Abstract

The *1989 Illinois Statistical Abstract* is currently available from the Bureau of Economic and Business Research. The *Abstract* is the most comprehensive source of Illinois data available, providing over 350 tables for the following areas:

Personal Income & Nonfarm Earnings
Farm Income
Transfer Payments
Employment: By Industry
　　　　　　　Labor Force Statistics
　　　　　　　Weekly Earnings & Hours
Gross State Product
Census of Manufactures
Census of Services
Census of Population & Housing
Building Permits
Consumer Price Indexes & Inflation Rates
Commercial Banking Statistics
General Revenue Fund Tax Receipts
Estimated Retail Sales

The *Abstract* is available in paperback (615 pages) for $27.50 and on diskette (Lotus format) for $40.00 (3.5" and 5.25" disks available).

Further information and copies of the *Outlook* and *Abstract* are available from the Bureau of Economic and Business Research, 428 Commerce West, 1206 S. Sixth Street, Champaign, Illinois 61820.

New Decade, New Look
for *Illinois Business Review*

Beginning in the new year, the *Illinois Business Review* will inaugurate a new look and a new publication schedule. The design by College of Commerce staff artist Barbara Burch will feature two colors and a three column format for a more interesting and attractive presentation of our usual informative articles and statistics.

The changes will also extend to a quarterly rather than bimonthly publication schedule to fit more closely the issuance of data from government agencies used within our statistical models. The first issue of the new year will be April 1990.

The *Review* is taking this opportunity to update our subscription lists as well. On the back page of this issue you will find a subscription form to be filled out and returned to the Bureau of Economic and Business Research. If you wish to continue to receive the *Review*, please complete and return the form to the Bureau by 1 March 1989. *Unless we receive the subscription form, your name will be removed from the mailing list.*

New Format

With this issue of the *Illinois Business Review* we begin a new format for our statistics pages. Emphasis will be placed on forecasts for the Illinois economy generated by the Illinois Econometric Model. The model has been developed by the Bureau of Economic and Business Research at the University of Illinois. Sectoral forecasts for gross state product, personal income, and employment will be included in each issue. Special forecasts for series such as building permits, retail sales, and price indexes are under development and will be presented at regular intervals.

Gross State Product and Personal Income

Growth rates for both Gross State Product (GSP) and Gross National Product (GNP) have been erratic during the past two years (Chart 1). Successive predictions for

the future have also oscillated, ranging from moderate growth with a "soft landing" to recession. Our forecasts show that 1990 will mark the beginning of a sustained growth period. The forecast bodes especially well for Illinois through 1991:I since GSP growth is expected to exceed growth in GNP. Personal Income (Chart 2) will grow more rapidly than its national counterpart through much of the next two years.

Chart 3 identifies the composition of growth in GSP from 1989:IV through 1991:IV. Growth will be highest in the service industry, accounting for 28.1 percent of total growth, distantly followed by wholesale and retail trade, and finance, insurance, and real estate. Manufacturing is expected to comprise only 13.3 percent of growth over the forecast period. Chart 4 shows that manufacturing is expected to lag behind services for the foreseeable future.

FORECAST STATISTICS

Personal Income *(millions of dollars, seasonally adjusted at annual rates)*

	1988	1989 I	1989 II*	1989 III	1989 IV	1990 I	1990 II	1990 III	1990 IV	1991 I	1991 II	1991 III	1991 IV
Total personal income	$203,812	$217,824	$220,169	$221,766	$225,505	$229,486	$233,376	$237,142	$241,405	$246,021	$250,679	$255,392	$260,306
Total private nonfarm	130,642	139,480	141,050	142,072	144,468	147,019	149,511	151,923	154,654	157,611	160,596	163,615	166,763
Mining	977	899	993	1,014	1,011	1,006	1,007	1,008	1,006	1,003	1,002	1,000	998
Construction	9,123	10,322	10,050	10,058	10,238	10,534	10,672	10,751	10,963	11,263	11,419	11,548	11,776
Manufacturing	32,247	34,415	34,860	34,067	34,317	34,567	34,866	35,159	35,504	35,913	36,413	36,918	37,419
Durable	19,888	21,342	21,776	20,840	20,949	21,048	21,186	21,323	21,514	21,761	22,090	22,422	22,751
Nondurable	12,359	13,073	13,084	13,227	13,368	13,519	13,680	13,836	13,990	14,152	14,323	14,496	14,668
Transportation & utilities	11,483	12,012	12,118	12,256	12,450	12,653	12,846	13,035	13,282	13,504	13,773	14,055	14,290
Wholesale trade	11,997	12,958	13,021	13,186	13,393	13,610	13,824	14,038	14,296	14,534	14,810	15,097	15,349
Retail trade	13,752	14,669	14,464	14,666	14,916	15,113	15,364	15,591	15,858	16,083	16,360	16,627	16,907
Finance, insurance, & real estate	13,178	14,190	14,074	14,332	14,620	14,934	15,248	15,564	15,898	16,264	16,630	17,011	17,396
Services	37,886	40,015	41,470	42,493	43,523	44,602	45,684	46,777	47,847	49,047	50,189	51,359	52,628

*forecast begins

Gross State Product *(millions of dollars, seasonally adjusted at annual rates)*

	1988	1989 I*	1989 II	1989 III	1989 IV	1990 I	1990 II	1990 III	1990 IV	1991 I	1991 II	1991 III	1991 IV
Total	$241,358	$252,503	$258,288	$260,257	$264,413	$267,709	$272,242	$276,706	$281,488	$285,744	$291,242	$296,662	$302,336
Agriculture, & fishery	2,815	2,648	2,750	2,816	2,858	2,885	2,902	2,913	2,919	2,924	2,926	2,928	2,929
Mining	1,709	1,257	1,298	1,271	1,225	1,177	1,145	1,118	1,086	1,058	1,034	1,010	990
Construction	10,213	10,368	10,747	11,122	11,201	11,065	11,421	11,778	11,868	11,773	12,137	12,486	12,593
Manufacturing	47,474	50,634	51,693	50,172	50,505	50,854	51,313	51,776	52,316	52,988	53,834	54,683	55,539
Durable	25,802	27,872	28,479	26,706	26,774	26,826	26,954	27,096	27,324	27,658	28,139	28,620	29,109
Nondurable	21,672	22,762	23,214	23,466	23,731	24,028	24,359	24,680	25,330	25,695	26,063	26,430	
Transportation & utilities	25,232	27,355	27,900	28,436	28,988	29,551	30,129	30,721	31,321	31,937	32,565	33,202	33,857
Wholesale trade	20,406	20,832	21,476	21,748	22,047	22,347	22,654	22,965	23,312	23,662	24,059	24,493	24,928
Retail trade	22,473	24,049	24,622	25,032	25,607	25,877	26,439	26,871	27,437	27,802	28,380	28,889	29,524
Finance, insurance, & real estate	44,508	44,868	45,722	46,182	46,803	47,463	48,188	48,974	49,803	50,673	51,612	52,576	53,568
Services	44,492	47,558	48,821	50,090	51,236	52,368	53,612	54,961	56,262	57,568	68,960	60,423	61,893

*forecast begins

Chart 1. Growth of Gross National Product vs. Gross State Product
(percentage change from previous quarter)

2.5%
2.0%
1.5%
1.0%

— *Gross State Product*
— *Gross National Product*

II III IV I II III IV I II III IV I II III IV
1988   1989   1990   1991
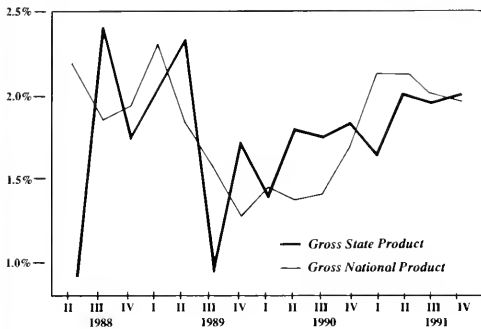
Chart 2. Growth in Illinois Personal Income vs. US Personal Income
(percentage change from previous quarter)

4.0%
3.5%
3.0%
2.5%
2.0%
1.5%
1.0%
0.5%
0.0%

— *Illinois Personal Income*
— *Us Personal Income*

II III IV I II III IV I II III IV I II III IV
1988   1989   1990   1991
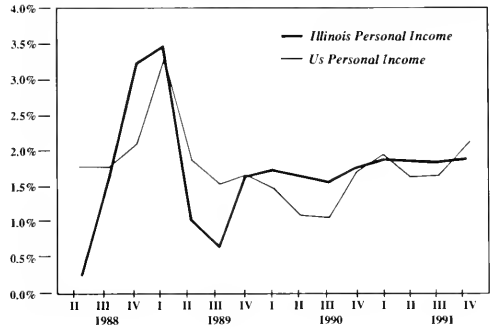
Chart 3. Composition of Growth in Gross State Product *(1989:IV to 1991:IV)*

☐ Manufacturing
▨ Services
▨ Finance/Insurance/Real Estate
▨ Transportation & Utilities
☐ Wholesale & Retail Trade
■ Goverment
▤ Other Sources
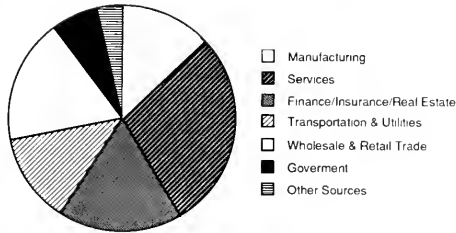
Chart 4. Manufacturing vs. Services Sector Growth *(1989:IV to 1991:IV)*

10%
8%
6%
4%
2%
0%
-2%
-4%

— *Manufacturing Growth*
— *Service Growth*

II III IV I II III IV I II III IV I II III IV
1988   1989   1990   1991
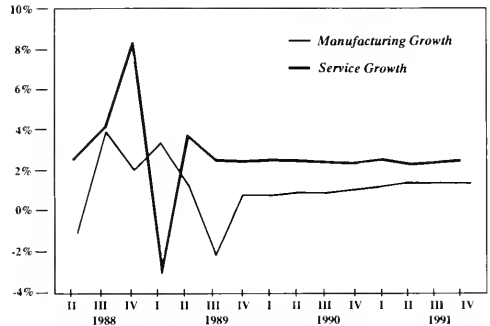
Historical Statistics

	Percent Change Sept 1988 Sept 1989	Sept 1989	Aug. 1989	July 1989	June 1989	May 1989	Apr 1989	Sept 1988
Building permits (thousands)								
Residential housing units	−18 07	3,583	3 973	3 373	3 436	4 368	4 818	4 373
Value of residential units	−12 00	$317,723	$345,958	$306,526	$329,703	$377,644	$380,748	$361,047
Value of nonresidential housing								
Industrial buildings	7 89	$30,098	$54,696	$41,667	$50,955	$30,406	$20,483	$27,897
Office, banks, and professional buildings	−14 89	$60,508	$91,753	$33,443	$154,438	$45,638	$93,349	$71,098
Stores and other mercantile buildings	27 78	$79,991	$36,933	$42,740	$59,292	$63,619	$39,739	$62,600
Other	−5 69	$4,459	$10,094	$8,377	$5,280	$9,463	$7,221	$4,728
Consumer price index (1982–1984 = 100)								
North Central US	4 08	122.5	122.0	122 0	121 8	121 3	120 8	117 7
North Central/population more than 1,200,000	4 29	124 1	123 5	123 5	123 0	122.2	121 9	119 0
North Central/population 360,000 to 1,200,000	3 42	121 0	120 9	120 7	120 9	120 8	120 6	117 0
North Central/population 50,000 to 360,000	4 09	122 2	122 1	122 0	122 1	122 2	121 2	117 4
North Central/population less than 50,000	3 15	117 8	117 1	117 5	117 4	116 8	116 3	114 2
Chicago	4 18	127 1	126 4	126 4	125 7	123 9	124 0	122 0
St. Louis	5 63	123 9	—	123 1	—	121 5	—	117 3

21

Total employment in Illinois will register moderate growth through the first half of 1990, according to the Illinois Econometric Model. Private nonfarm employment is expected to be slightly less than 4.5 million by mid 1990. However, there will be markedly different growth rates across various sectors of the economy (Chart 1). Most notably, the decline in manufacturing employment and the strong growth in the service sector is expected to continue. Shrinking job opportunities in durable goods manufacturing at the state level are a reflection of the large employment decreases occurring at the national level. It is expected that there will be 180 thousand fewer jobs in US durable good manufacturing by the second quarter of 1990. Similarly, Illinois is part of a national trend of increasing growth in service employment and moderate expansion in the financial sector.

Illinois Employment *(percentage change from previous quarter)*

Legend: Manufacturing | Wholesale/Retail | Finance | Services
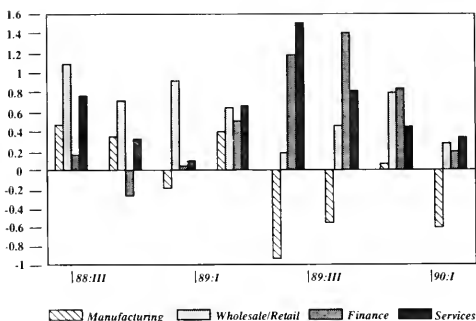
Illinois Seasonally Adjusted Employment

	History				Forecast			
	1988:III	1988:IV	1989:I	1989:II	1989:III	1989:IV	1990:I	1990:II
Total private nonfarm (thousands)	4,365.8	4,384.0	4,396.1	4,418.4	4,441.5	4,461.9	4,488.3	4,488.2
Mining	20.9	20.6	20.3	20.5	20.7	20.8	21.2	20.8
Construction	206.3	208.7	210.6	209.5	215.3	217.5	220.7	218.8
Manufacturing	974.8	978.4	976.8	980.7	971.5	965.9	966.6	960.3
Durable	598.1	600.8	599.4	601.1	594.9	591.3	593.9	589.3
Primary metals	55.3	55.4	55.6	55.8	54.9	54.6	53.7	52.9
Fabricated metals	111.0	111.9	111.8	112.1	108.6	108.8	107.6	107.1
Nonelectrical machinery	145.4	145.8	145.6	146.0	140.8	138.7	136.4	134.3
Electrical machinery	120.5	121.1	121.3	120.8	121.6	122.3	122.7	123.3
Nondurable	376.7	377.6	377.4	379.6	376.6	374.6	372.7	371.0
Food products	90.8	90.9	91.0	91.9	91.8	91.2	90.6	90.1
Printing and publishing	112.9	113.3	113.1	112.9	112.4	111.8	111.4	111.1
Chemicals	61.2	61.4	61.6	62.1	62.0	62.0	61.7	61.5
Utilities and transportation	301.1	301.5	301.4	302.9	303.6	305.0	307.8	307.9
Wholesale and retail trade	1,260.4	1,269.1	1,280.3	1,288.4	1,291.0	1,297.2	1,307.3	1,310.8
Finance, insurance, and real estate	370.3	369.4	369.6	371.5	375.7	381.0	384.1	384.9
Services	1,232.0	1,236.3	1,237.1	1,245.0	1,263.7	1,274.6	1,280.6	1,284.8

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About the Authors

Hans Brems is professor of economics at the University of Illinois. For computational assistance he is indebted to Murray Simpson, a graduate student at the University of Illinois.

Paul C. Bishop is a graduate student in economics and a research assistant for the Bureau of Economic and Business Research.

Hans Brems

The Mix of the Mixed Economy--
A Cross-Country Perspective

The mix of the mixed economy has several dimensions each of which displays considerable variation among Organization for Economic Development countries. At the one extreme one usually finds Japan, at the other, Sweden.

The purpose of this article is to use such variation for a cross-country analysis of the effects of the size of government. I shall examine the effects on inflation, the labor force participation rate, gross saving, and economic growth.

Putting conclusions first, we find that countries with larger governments are likely to have higher inflation, slightly higher participation, lower gross saving, and slower economic growth than countries with smaller governments.

I use the following definitions:

$E \equiv$ total employment
$e \equiv$ government employment
$F \equiv$ labor force
$g \equiv$ rate of growth of real gross domestic product
$i \equiv$ rate of inflation
$P \equiv$ population from age 15 to 64
$R \equiv$ government current receipts
$r \equiv$ before-tax nominal rate of interest
$\rho \equiv$ after-tax real rate of interest
$S \equiv$ gross saving
$T \equiv$ tax rate
$Y \equiv$ gross domestic product

Government, Large and Small

The size of government can be measured along at least four dimensions. One measure of size is in terms of the number of workers government employs relative to total employment. A second measure of government is in terms of income it transfers from one group to another. Third, government can be viewed in terms of the portion of

the economy's resources it consumes. And fourth, the size of government can be measured in terms of the taxes it raises in relation to domestic income.

For 1980–1986 the OECD[1] reports government employment as a percentage of total employment, e/E (see first column of table). The Swedish percentage is the highest and the Japanese one the lowest among OECD countries. The cross-country range is very wide: the Japanese percentage is a mere 20 percent of the Swedish one.

The OECD reports the 1980-1986 social-security transfer payments as a percentage of gross domestic product (see second column of table). Here the Swedish percentage is not the highest among OECD countries and the Japanese one not the lowest. Between them the cross-country range is moderate: the Japanese percentage is 60 percent of the Swedish one.

For 1980–1986 the OECD reports government final consumption as a percentage of gross domestic prod-

uct (see third column of table).The Swedish percentage is the highest and the Japanese one the lowest among OECD countries. The cross-country range is now wider: the Japanese percentage is merely 35 percent of the Swedish one.

Government transfers, subsidies, interest payments, final consumption, and gross capital formation must be financed. For 1980–1986 the OECD reports government receipts as a percentage of gross domestic product, R/Y (see fourth column of table).The Swedish percentage is the highest and the Japanese one the lowest among OECD countries. The Japanese percentage is 50 percent of the Swedish one.

Statistical Work

Such wide variation tempts one to use cross-country regression analysis to illuminate the effects of

Alternative Measurements of Government Size

	Government Employment	Transfer Payments	Government Consumption	Tax Receipts
Sweden	32.2%	18.3%	28.3%	59.2%
European Community	17.1	18.2	18.9	43.2
United States	16.2	11.3	18.1	31.1
Switzerland	11.0	13.3	13.1	33.9
Japan	6.6	10.9	9.9	29.8

Note: Government employment is stated as a percent of total employment; transfer payments, government consumption, and tax receipts are stated as percents of gross domestic product.

Chart 1. Inflation and Government Employment

Rate of Inflation Percent per Annum

10
9
8
7
6
5
4
3
2

F · UK · A · S · CND · DK · US · J · CH · O

$I = 0.7214(e/E)^{0.7446}$

6 7 8 9 10   20   30   40   e/E

Government Employment
Percent of Total Employment

Chart 2. Participation Rate and Tax Burden

F/P

Labor Force Population 15 to 64

1.0
0.9
0.8
0.7
0.6
0.5

US · CND · UK · DK · S · J · A · CH · O · F

$F/P = 0.4767(R/Y)^{0.1161}$

30   40   50   60   70   R/Y

Government Receipts
Percent of Gross Domestic Product
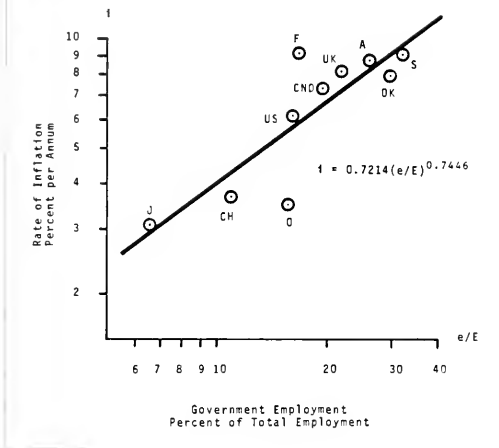
the size of government. My regressions will use a small sample of 10 advanced North American, Northwestern European, and pacific-rim countries, that is, Australia (A), Canada (CND), Denmark (DK), France (F), Germany (D), Japan (J), Sweden (S), Switzerland (CH), United Kingdom (UK), and the United States (US).

Inflation and Government Employment

For our 10 countries 1980–1986 Chart 1 shows the rate of inflation as a function of government employment: a country with a 1 percent higher government employment will typically have a 0.74 percent higher rate of inflation. The effect is powerful enough to be statistically significant. Why should there be such an effect?

Private industry produces for a market, often an international market with price-elastic demand. Private industry can and will go bankrupt after a protracted profits squeeze not relieved by devaluation. In contrast, government does not produce for a market but produces public goods and is required by law to deliver them. Government cannot go bankrupt but can

always tax and borrow. As a result government resistance to wage demands can be expected to be weaker than the resistance of private industry.

Swedish experience is illuminating. Swedish civil servants won the right to strike in the 70s and in the 80s became increasingly militant. Until 1975 industry traditionally opened collective bargaining. But after 1975 the rapidly growing public sector has increasingly assumed the role of a wage leader.

We shall understand the role of government as a wage leader even better if we look at wage differentials *within* government: government wage differentials are traditionally narrower than private ones. At the top end of the scale the highest-paid government employees are paid less than the highest-paid private ones. As a result government finds it difficult to keep its best computer experts, tax experts, professors, or airforce pilots. At the opposite end of the scale the lowest-paid government employees are paid more than the lowest-paid private ones. The private sector finds it difficult to keep skilled blue-collar workers, and wage drift results.

All this leads us to expect high
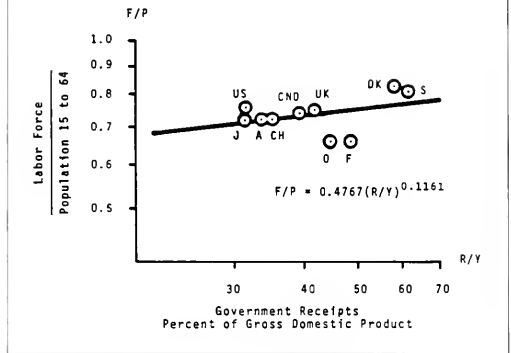
government employment to make an economy more inflation-prone.

Participation Rate and Tax Burden

By the participation rate we mean the labor force as a fraction of the population of approximate working age (15 through 64 years). By the tax burden we mean government receipts as a percent of the gross domestic product. Taxes include direct as well as indirect taxes. A flat direct tax rate of T percent will reduce after-tax real income by reducing money income by T percent at unchanged prices. A flat indirect tax rate of T percent will reduce it by raising all prices by T percent at unchanged money income.

For our 10 countries 1980–1986 Chart 2 shows the participation rate as a function of the tax burden: a country with a 1 percent higher tax burden will typically have a 0.12 percent higher participation rate. But the effect is not powerful enough to be statistically significant, and the reason is not difficult to see.

Let income and leisure be substitutes. At a high tax rate another breadwinner adds less after-tax real income and may not be worthwhile: the substitution effect upon the participation rate is negative. But at a high tax rate the household can also afford less of everything

and may try to keep up after-tax real income by adding another breadwinner: the income effect upon the participation rate is positive. The substitution effect and the income effect pull in opposite directions. Their balance may be small and precarious and go either way. In Chart 2 it is small and goes positive: the income effect is winning--a finding not inconsistent with conventional findings on the labor supply of wives.

Saving and Tax Burden

For the 10 OECD countries 1980–1986 Chart 3 shows the gross saving rate as a function of the tax burden: a country with a 1 percent higher tax burden will typically have a 0.61 percent lower gross saving rate. The effect is powerful enough to be statistically significant. Why should there be such an effect?

On the macroeconomics of saving and taxes Adam Smith (1776) said succinctly: "[Kings and ministers] are themselves always, and without exception, the greatest spendthrifts in the society." Do such eighteenth-century observations apply to modern welfare states?

To begin with, not only may modern governments fail to save; they typically dissave. As reported by the OECD, for 1980–1986 all the governments of our 10 countries except the Swiss had outlays in excess of receipts.

Next, not only may governments fail to save, they may also dissuade their private citizens from saving. Perhaps the most important incentive to private saving is the fact that income dries up following retirement. To the extent that social security removes that incentive, it tends to reduce private saving. Does it replace the lost private saving by government saving? As Martin Feldstein pointed out in 1974, the answer depends on how social security is financed.

The actuarial principle would require social-security contributions to be paid into a fund placed in interest-earning assets. Upon retirement a participant would be receiving an annuity whose size would depend upon the size of his past contributions and the interest earned on them. Like the voluntary contributions of a private insurance scheme the mandatory contributions of a government scheme

would be saved: government saving would indeed replace the lost private saving.

It would remain true, as often observed, that current annuities are taken from current output. But current output is a function of current labor and current accumulated capital stock. Whether accumulated as the result of government or private saving, the accumulating fund would be invested in an accumulating physical capital stock giving the economy a larger current output than would have been possible without the fund.

By contrast the pay-as-you-go principle requires social-security contributions to be collected in the form of a tax instantly spent on annuities in the form of transfer payments. No accumulating fund would be invested in an accumulating physical capital stock. No government saving would replace the lost private saving. Lawrence J. Kotlikoff in 1987 estimated capital stock to be 20 to 30 percent less under pay-as-you-go social-security schemes on the scale common in advanced economies of the 1980s.

At their origins in 1889 and 1935, respectively, both German and US social-security legislation embraced the actuarial principle. But these systems shifted to the pay-as-you-go principle in 1957 and 1939, respectively. Sizable funding of social security is found in Japan, Sweden, and Switzerland--all three lying above the regression line of Chart 3.

In the case of private lending or borrowing, consider a lender and a borrower in a capital market in which money may be placed and borrowed at the before-tax nominal rate of interest r. Let the rate of inflation be i and the tax rate T. If savers have neither money nor tax illusions, then their supply of saving will depend solely on the after-tax real rate of interest

$$\rho \equiv (1 - T)r - i.$$

Here consider a higher tax rate. A higher tax rate T will reduce $(1 - T)$, and ρ can stay the same only as

Chart 3. Saving and Tax Burden
S/Y

$$S/Y = 190.8(R/Y)^{-0.6073}$$

R/Y

Government Receipts
Percent of Gross Domestic Product
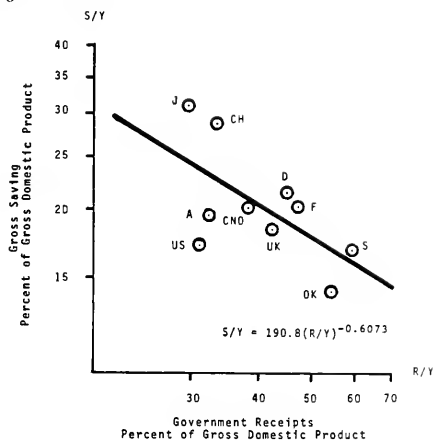
Chart 4. Rate of Growth and Tax Burden

Rate of Growth of Real Gross Domestic Product, Percent per Annum (vertical axis, g)

5
4
3.5   J
3
2.5   A   CND   US   DK   CH
2
1.5   F   S   UK   O

$g = 52.47(R/Y)^{-0.8724}$

R/Y

30   40   50   60   70

Government Receipts
Percent of Gross Domestic Product

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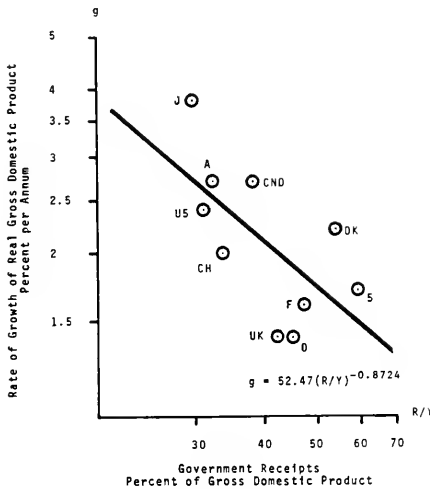
long as the before-tax nominal rate of interest r is in inverse proportion to $(1 - T)$. For example, at an inflation rate $i = 0.07$ the after-tax real rate of interest can stay the same at, say, $\rho = 0.05$ only if at tax rates $T = 0.2, 0.4,$ and 0.6 the before-tax nominal rate r were $0.15, 0.20,$ and 0.30, respectively, and indeed would be rising without bounds for T approaching one--the Feldstein (1976) effect. Can borrowers afford such rates?

Borrowers will borrow until their after-tax rate of return equals the after-tax real rate of interest at which they are borrowing. A higher tax rate T will reduce their after-tax rate of return, hence their demand for funds. Their demand for borrowing will then meet the supply of saving at a lower after-tax real rate of interest ρ. Saving and investment will both be down.

Rate of Growth and Tax Burden

Chart 4 shows the rate of growth as a function of the tax burden for our 10 countries 1980–1986. A country with a 1 percent higher tax burden will typically have a 0.87 per-

cent lower rate of growth. The effect is powerful enough to be statistically significant. Why should there be such an effect? Some of our earlier findings may help us interpret Chart 4.

International competitiveness implies a low rate of inflation and is one prerequisite for a high rate of growth. If, as in Chart 1, a higher rate of inflation will go with higher government employment so will, in Chart 4, a lower rate of growth.

Technological progress is the dominant source of growth. In the real world, technology itself must be produced before technological progress can make its way into actual production. The research and development involved in producing new technology takes time. Such research and development is one part of gross investment financed by gross savings. In turn, once produced such technological progress must be embodied in new producers' goods, physically different from those replaced. Such embodiment and replacement is another part of gross investment financed by gross saving.

In short, a high gross saving ratio is another prerequisite for a high rate of growth. If, as in Chart 3, a lower gross saving ratio will go with a higher tax burden so will, in Chart 4, a lower rate of growth.

Summary and Conclusions

The wide variation of the mix of the mixed economy among OECD countries has enabled us to do a cross-country analysis of the effects of the size of government. The effect upon the rate of inflation was found to be positive and statistically significant. The effect upon the participation rate was found to be slightly positive but not statistically significant. The effect upon gross saving was found to be negative and statistically significant. The effect upon growth was also found to be negative and statistically significant.

No attempt was made to estimate the effects, not directly[1] observable, upon the size of the underground economy.

The 10 OECD countries constituting our sample were all advanced capitalist economies to which standard economic theory ought to apply. The signs, sizes, and statistical significance, or lack of it, of the four effects were inconsistent neither with standard economic theory nor with empirical findings using domestic US data.

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[1]Such effects may be indirectly observable: Bruno Frey and Hannelore Weck observed in 1983 and 1984 the increase between 1960 and 1978 of determinants and symptoms of an underground economy and ranked 17 OECD countries according to such increase. Sweden was always at or near the top, Japan or Switzerland at or near the bottom of the list.

Paul C. Bishop

Making the Grade:
Education Expenditures in Illinois

One of the lasting effects of the 1980s will be the renewed concern on the part of the general public for the quality of education in the United States. Through a series of well-publicized studies, the nation was reminded that successful public education programs require vigilance and innovation by educational professionals, support from funding authorities, and responsiveness to the needs and concerns of the public. However, proposals for improvement and support of schools are soon met with the practical realities of the legislative and budgeting process. For residents of Illinois, controversy over the funding of education has become an all too familiar subject.

The purpose of this article is to examine the performance and the trends in state and local funding of Illinois public schools. The second section considers education expenditures by state and local authorities for all levels of education. The third section briefly examines the funding levels and sources for elementary and secondary education. The fourth section surveys the level of expenditures by local authorities for elementary and secondary education. The fifth section considers expenditures by states in support of institutions of higher education. The last section offers conclusions.

Total Education Expenditures by State and Local Governments

An all-inclusive measure of the level of education spending in Illinois is the level of expenditures by the state and local governments for all types of public education. Between 1978 and 1987,[1] expenditures by state and local governments in Illinois increased from $5.9 billion to $10.3 billion, representing an average annual growth rate of 6.4 percent. At the national level, growth in expenditures averaged about 8.2 percent per year over the same period.

To compare expenditure levels among states, it is necessary to compare them on equal terms. Tables 1-3 show comparisons of expenditure levels for each state in per capita amounts and per thousand dollars of personal income. For each indicator, the level of spending in 1987 is given as well as the average level of spending for the years between 1978 and 1987. Based on the resulting calculations, each state is ranked from highest to lowest level of expenditure.

Table 1. Per Capita State and Local Education Expenditures

State	1987	Rank	10-year Average	Rank	State	1987	Rank	10-year Average	Rank
U.S.	987.26		893.65						
Ala.	857.74	42	736.46	45	Mont.	1,073.75	15	981.05	14
Alaska	2,177.13	1	3,071.57	1	Nebr.	1,013.51	21	866.88	28
Ariz.	1,127.98	9	950.32	19	Nev.	868.47	40	950.68	18
Ark.	817.90	47	656.80	51	N. H.	890.58	37	746.51	42
Calif.	1,008.62	22	1,005.37	9	N.J.	1,081.17	14	947.53	20
Colo.	1,067.19	1	961.09	16	N. Mex.	1,044.52	18	1,000.48	10
Conn.	1,015.57	20	890.04	26	N. Y.	1,213.47	5	1,188.13	4
Del.	1,218.83	3	1,051.28	6	N. C	951.90	29	736.62	44
D.C.	977.32	27	1,374.36	3	N. D.	1,110.58	11	992.65	12
Fla.	808.87	48	761.38	40	Ohio	938.33	32	807.71	33
Ga.	910.74	35	774.75	39	Okla.	869.07	39	791.15	36
Hawaii	804.06	50	975.97	15	Oreg.	1,125.84	10	1,011.98	7
Idaho	818.74	46	742.19	43	Pa.	904.11	3	788.96	37
ILL.	885.94	38	845.24	29	R. I.	982.71	26	924.89	23
Ind.	965.60	28	757.81	41	S. C.	935.08	33	726.71	46
Iowa	1,071.58	16	910.61	25	S. D.	834.28	44	838.31	31
Kans.	989.03	24	875.33	27	Tenn.	941.20	3	683.65	50
Ky.	804.92	49	717.28	47	Tex.	984.38	25	806.89	34
La.	767.52	51	843.80	30	Utah	1,082.96	13	940.61	22
Maine	944.19	30	794.92	35	Vt.	1,216.11	4	941.70	21
Md.	998.06	23	952.78	17	Va.	1,015.91	19	813.03	32
Mass.	922.50	34	916.94	24	Wash.	1,090.24	12	986.92	13
Mich.	1,188.88	6	1,005.59	8	W. Va.	867.40	41	775.00	38
Minn.	1,171.91	7	1,071.23	5	Wisc.	1,165.56	8	993.59	11
Miss.	842.81	43	708.37	48	Wyo.	1,594.44	2	1,464.78	2
Mo.	830.21	45	698.50	49					

[1] All years refer to the academic year beginning at the indicated date.

Table 2. Education Expenditures as a Percent of Total Expenditures

State	1987	Rank	10-year Average	Rank	State	1987	Rank	10-year Average	Rank
U. S.	34.6		41.8						
Ala.	38.5	15	42.4	25	Mont.	38.2	16	43.0	16
Alaska	22.8	50	36.7	50	Nebr.	39.0	11	43.1	14
Ariz.	37.8	22	43.9	5	Nev.	29.6	46	39.9	47
Ark.	42.0	4	43.1	13	N.H.	36.5	30	41.9	34
Calif.	31.1	43	41.3	39	N. J.	32.8	40	40.9	42
Colo.	36.9	27	43.9	4	N. Mex.	36.8	29	43.5	10
Conn.	31.1	44	40.7	43	N. Y.	28.9	47	39.4	49
Del.	37.0	26	43.6	9	N. C.	41.9	5	44.2	3
D. C.	16.9	51	34.9	51	N. D.	38.0	18	42.3	26
Fla.	31.7	42	41.5	38	Ohio	36.4	31	42.2	28
Ga.	35.1	35	41.1	41	Okla.	37.7	23	43.0	18
Hawaii	27.1	49	40.1	46	Oreg.	38.0	19	43.0	20
Idaho	36.8	28	43.2	11	Pa.	35.9	32	42.1	29
ILL.	33.9	37	42.0	30	R. I.	32.2	41	40.3	45
Ind.	42.1	2	45.0	2	S. C.	40.8	7	43.7	6
Iowa	40.4	8	43.7	7	S. D.	35.4	34	42.6	24
Kans.	38.6	13	43.0	19	Tenn.	42.0	3	41.8	35
Ky.	35.4	33	41.9	32	Texas	40.0	9	43.7	8
La.	30.4	45	40.5	44	Utah	42.7	1	45.7	1
Maine	35.1	36	41.3	40	Vt.	41.5	6	43.1	15
Md.	33.8	38	42.0	31	Va.	38.5	14	43.0	17
Mass.	28.1	48	39.5	48	Wash.	38.0	21	43.2	12
Mich.	38.1	17	42.7	23	W. Va.	38.0	20	42.3	27
Minn.	33.8	39	41.6	37	Wisc.	39.5	10	42.9	21
Miss.	37.5	24	41.9	33	Wyo.	37.3	25	41.8	36
Mo.	38.8	12	42.9	22					

Table 1 indicates the per capita education expenditures by state and local governments. We see that Illinois has spent less per capita on education than the national average in the most recent year and, on average, for the preceding 10 years. In 1987, Illinois ranked 38th in the nation with education expenditures totalling $885.94 per capita. The state ranked 29th in average spending over the previous 10-year period with expenditures of $845.24. Although it is not evident from the table, the difference between the national average and spending in Illinois has increased steadily since 1978. Prior to 1978, Illinois followed the national level of spending closely, with occasional increases or decreases relative to the national average. However, by 1987 Illinois state and local governments spent over $100 per capita less than the national average.

It is also instructive to compare the level of expenditures to the total direct expenditures of state and local governments. Table 2 indicates the percent of direct expenditures of each state devoted to education. In 1987, Illinois ranked 37th in the nation. Over the preceding 10-year period, 29 states spent a larger percent of total direct expenditures on education than did Illinois. States with lower per capita personal income tend to spend a greater percentage of total state and local expenditures on education than do states with higher per capita income. This may represent a higher priority given to education expenditures than to other social and public service functions of government when fiscal resources are scarce.

Table 3 (page 9) compares the total level of education spending by state and local governments to the level of personal income. We would expect that states with high levels of personal income, such as Illinois,[1] could more easily finance all types of government expenditures. Therefore, comparing expenditures relative to personal income accounts for such differences in financial resources and allows comparison of expenditure levels among states with varying fiscal resources.

The table indicates that Illinois spent $54.18 per thousand dollars of personal income in 1987 on all levels of public education, compared with a national average of $64.44, placing Illinois 44th in the nation.

In terms of average spending levels for the preceding 10-year period, the state spent $54.21 per thousand dollars of personal income or about $9.40 less than the national average on education. Among neighboring states, Illinois ranked behind Minnesota, Wisconsin, Iowa, Michigan, Indiana, and Kentucky.

State and Local Funding of Elementary and Secondary Education

Elementary and secondary education funding nationwide has increased in both nominal and real terms for the last several years.

[1] In 1987, Illinois ranked fourth in total personal income and twelfth in per capita personal income.

Revenues of the nation's schools have increased from $40.2 billion in 1969 to $176.2 billion in 1987. In real dollars the increase has amounted to approximately 40 percent. The Chart (page 10) indicates the percent of all revenues contributed by federal, state, and local authorities over the period. Most noticeably, the federal government has traditionally taken a relatively small role in the direct funding of education in the United States. As a result, the burden of financing education has fallen to the state and local governments. Furthermore, even the relatively small contribution of the federal government has declined from 9.8 percent in the late 1970s to 6.4 percent by 1987. Reduced contributions by the national government have necessitated increased contributions by state and local authorities. However, the relative burden has shifted between the local and state governments as well. State governments' share of education funding has increased from less than 40 percent to nearly 50 percent over the period, as local funding percentages have dropped from over 52 percent to less than 44 percent.

In Illinois, transfers from state governments account for only 40 percent of total school district revenues, while the share from local funds, primarily from property taxes, is over 45 percent. From these figures we see that Illinois depends relatively more heavily on property taxes derived from local sources than state income taxes or sales taxes. However, on a regional basis, dependence on local tax revenue varies greatly. Table 4 (page 10) shows a breakdown of funding sources for the three major regions of Illinois. The Chicago city schools depended least on local taxes, while the Chicago area suburban districts received over two-thirds of their revenue from this

source. For the rest of the state, local taxes accounted for less than half of all revenues. Also given are the revenues of each region per student enrolled in public schools in that region. Chicago suburban school districts receive the greatest revenue per student, $4,625, and the area outside of Chicago averaged $3,296 per student.

A portion of state transfers to local school districts is from proceeds of the Illinois State Lottery. During fiscal year 1988, lottery sales of $1.3 billion generated $524.4 million in net proceeds. Since the institution of the lottery in 1973, its profits have been made available to public schools through the Common School Fund, reducing the burden on the General Revenue Fund for education spending. The lottery

proceeds account for approximately 19 percent of the state's contribution to the funding of elementary and secondary education.

Education Expenditures at the Elementary and Secondary Levels

Table 5 (page 11) compares selected measures of education expenditures by local governments on elementary and secondary education per pupil in average daily attendance[1] and per thousand dollars of personal income in 1987 and on average for the period 1978 to 1987. In 1987, the average expenditure per student in average daily atten-

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[1] Average daily attendance refers to the average number of pupils attending when schools are in session.

Table 3. State and Local Education Expenditures per Thousand Dollars of Personal Income

State	1987	Rank	10-year Average	Rank	State	1987	Rank	10-year Average	Rank
U. S.	$ 64.44		$ 63.61						
Ala.	71.56	21	72.44	18	Mont.	86.82	5	86.06	5
Alaska	117.85	2	129.89	1	Nebr.	72.24	18	71.32	20
Ariz.	80.81	10	79.64	9	Nev.	55.61	43	52.52	47
Ark.	71.82	20	69.17	23	N. H.	50.59	48	50.85	49
Calif.	58.12	39	58.50	39	N. J.	53.65	45	54.56	43
Colo.	68.22	28	68.26	25	N. Mex.	88.53	4	95.36	4
Conn.	48.09	51	46.90	51	N. Y.	67.91	29	66.66	29
Del.	76.15	16	75.04	14	N. C.	72.17	19	72.41	19
D.C.	49.68	49	47.88	50	N.D.	86.02	7	83.72	6
Fla.	53.22	46	52.80	46	Ohio	64.61	34	62.11	35
Ga.	64.47	35	61.82	36	Okla.	68.57	26	68.13	26
Hawaii	52.41	47	57.06	41	Oreg.	82.26	8	79.84	8
Idaho	69.63	24	67.80	27	Pa.	59.79	38	55.88	42
ILL.	54.18	44	54.21	44	R. I.	63.09	36	64.37	34
Ind.	69.36	25	64.91	32	S. C.	78.43	12	76.18	12
Iowa	76.69	15	74.46	15	S. D.	67.55	30	71.22	21
Kans.	66.08	33	66.25	31	Tenn.	57.59	40	58.35	40
Ky.	67.17	31	64.80	33	Texas	71.38	22	66.88	28
La.	66.11	32	68.79	24	Utah	94.51	3	97.41	3
Maine	68.56	27	66.26	30	Vt.	86.78	6	81.58	7
Md.	55.83	42	60.22	38	Va.	62.48	37	61.19	37
Mass.	48.49	50	51.76	48	Wash.	71.37	23	70.32	22
Mich.	76.71	14	72.79	16	W. Va.	77.87	13	76.95	11
Minn.	75.32	17	72.60	17	Wis.	80.22	11	77.49	10
Miss.	81.69	9	75.96	13	Wyo.	121.50	1	110.96	2
Mo.	57.12	41	54.08	45					

Revenues for Public Schools (by source of funds)

sonal income. As the average level of expenditures indicates, below average spending is not a new trend in the state.

Funding of Higher Education

For the nation's public institutions of higher learning, the state governments provide the major source of funding. A small amount of support is provided by local and federal sources, with the remainder derived from tuition and fees. For the 10 years ending in 1987, funding of higher education by state governments has increased by over 8 percent each year at the national level and in Illinois. However, more revealing measures of differences in spending of state governments on higher education are per capita expenditure levels and spending relative to personal income [Table 6 (page 12)].

In 1987, Illinois spent $161.63 per capita, $53.68 less than the national average. Only Florida, Pennsylvania, and the District of Columbia spent less. Illinois state government spent $9.86 per thousand dollars of personal income in 1987 compared to $13.92 nationwide. This ranked Illinois 45th in the nation. For the period 1978 to 1987, spending at the national level averaged $13.99, while in Illinois the comparable figure was $9.74. The difference in funding levels represents a 43.6 percent shortfall by the state relative to the national average.

dance for the United States was $4,279, while in Illinois the comparable figure was $4,285. Overall, Illinois ranked 22nd in the nation by this measure. For the previous 10-year period, Illinois local authorities spent $3,255 annually per student compared with $3,109 for the nation as a whole.

The average expenditure per student does not adequately reflect the differences in expenditures across counties and school districts within the state. On a county level, Cook county spent the most with expenditures of $4,967 per student during 1987, while DuPage county was second with expenditures of $4,573 per student. At the other end of the spectrum, Bond county spent the least, $2,876 per student.

The inequality is greater at the school district level. In Cook county, Niles Elementary School District incurred expenses of $8,452 per student. Sandridge School District spent the least in Cook county with expenditures of $2,737 per student. In DuPage county, McAuley

School District incurred the greatest expenditure in the state with spending of $12,866 per student. The school district with the lowest spending is Dalzell School District in Bureau County with expenditures of only $2,085 per student.

The last section of Table 5 ranks local expenditures relative to statewide personal income. Illinois ranked near the bottom of the distribution of states by this measure, 47th in 1987, with spending of $37.51 per thousand dollars of per-

Table 4. School District Revenues by Region (1988-89)

Revenue Source	Chicago	Suburban Chicago Area*	Rest-of-State	Total
Local Taxes	$ 704	$2,125	$1,086	$3,915
Other Local	79	306	190	575
General State Aid	579	439	763	1,781
Other State	232	176	194	602
Federal	218	71	130	419
Total (millions)	1,812	3,117	2,363	7,292
Revenues per Student	$4,314	$4,625	$3,296	$4,027

*DuPage, Kane, Lake, McHenry, Will, and Suburban Cook counties

State	Expenditures per Student in Average Daily Attendance				Expenditures per $1000 of Personal Income			
	1987	Rank	10-year Average	Rank	1987	Rank	10-year Average	Rank
U. S.	4,279		3,109		45.06		43.97	
Ala.	2,869	47	2,164	47	38.46	43	40.99	38
Alaska	7,091	1	6,767	1	89.87	1	96.09	1
Ariz.	3,451	39	2,683	36	53.80	11	50.43	10
Ark.	2,618	50	2,117	49	48.45	22	46.52	22
Calif.	3,916	27	2,956	25	38.38	45	38.29	45
Colo.	4,462	15	3,307	16	47.49	25	46.41	23
Conn.	6,423	4	3,943	6	36.64	49	35.68	50
Del.	5,138	9	3,762	9	44.42	33	42.81	32
D. C.	5,843	5	4,438	3	42.58	36	39.55	42
Fla.	4,356	20	2,880	27	40.53	41	38.88	43
Ga.	3,715	33	2,408	43	48.59	21	43.84	29
Hawaii	3,859	28	3,141	21	33.43	51	34.33	51
Idaho	2,778	48	2,141	48	46.52	27	43.84	31
ILL.	4,285	22	3,255	18	37.51	47	37.91	46
Ind.	3,650	35	2,658	38	45.24	31	42.47	34
Iowa	4,313	21	3,124	22	46.92	26	46.86	21
Kans.	4,275	23	3,119	23	44.62	32	43.86	30
Ky.	3,444	40	2,241	45	41.63	38	40.07	41
La.	3,166	44	2,584	40	43.79	34	46.02	25
Maine	4,427	18	2,757	33	49.35	19	47.19	18
Md.	4,895	12	3,671	10	38.40	44	40.58	39
Mass.	5,680	6	3,786	7	35.91	50	40.45	40
Mich.	4,433	17	3,455	14	50.54	16	49.39	14
Minn.	4,390	19	3,287	17	51.32	14	50.49	9
Miss.	2,716	49	2,043	51	53.89	10	47.05	19
Mo.	3,641	36	2,668	37	40.83	40	38.80	44
Mont.	4,217	24	3,362	15	63.43	3	63.87	3
Nebr.	3,600	38	2,993	24	48.21	23	47.53	17
Nev.	3,626	37	2,716	34	39.49	42	37.55	47
N. H.	4,087	25	2,892	26	38.34	46	37.04	48
N. J.	6,933	3	4,417	4	41.10	39	42.00	35
N. Mex.	3,788	30	2,823	31	58.17	5	63.11	4
N. Y.	7,046	2	4,939	2	52.27	13	49.93	12
N. C.	3,720	32	2,441	42	46.17	30	46.01	26
N. D.	3,390	41	2,799	32	51.19	15	51.00	8
Ohio	3,825	29	2,864	28	47.74	24	44.81	28
Okla.	3,130	45	2,645	39	46.22	28	44.82	27
Oreg.	4,661	14	3,575	12	56.93	6	55.07	7
Pa.	5,052	10	3,597	11	46.21	29	42.66	33
R. I.	5,376	8	3,785	8	41.99	37	41.74	36
S. C.	3,382	42	2,374	44	52.70	12	48.68	16
S. D.	3,173	43	2,529	41	49.58	18	49.36	15
Tenn.	3,092	46	2,179	46	36.94	48	36.97	49
Texas	3,722	31	2,692	35	50.43	17	46.34	24
Utah	2,442	51	2,058	50	58.19	4	61.55	5
Vt.	4,791	13	3,231	20	54.59	8	49.40	13
Va.	4,436	16	2,860	29	43.02	35	41.47	37
Wash.	4,023	26	3,234	19	48.66	20	47.02	20
W. Va.	3,692	34	2,825	30	56.74	7	55.31	6
Wisc.	4,943	11	3,461	13	54.12	9	50.11	11
Wyo.	5,503	7	4,031	5	85.49	2	79.62	2

Such differences in expenditures do not necessarily imply lower educational quality at Illinois public universities and colleges. Many other factors are also important, including the availability of funds from the private sector, federal authorities, and student charges. However, with lower levels of state funding, pressures to increase tuition charges intensify, resulting in greater educational costs for college students. There is an obvious trade-off between lower taxes for many and high, and sometimes prohibitive, educational costs at state supported universities.

Conclusion

The primary conclusion that may be drawn from the data examined here is that spending in Illinois on education, whether for elementary, secondary, or post-secondary programs, is near the national average. However, in certain cases, Illinois' performance ranks it among the worst in the nation. Most notably, this conclusion emerges if expenditures for education are compared to personal income. Such a result should be quite disturbing, given that Illinois is a relatively wealthy state, as measured, for example, by personal income.

Perhaps, the situation is not as dire as the data indicate. Suppose that each state were spending the "optimum" amount on education. Then we would expect that as personal income increased, the education expenditures necessary to maintain the "right" amount of spending per pupil would not increase as fast as income. Under these conditions we would, in fact, see wealthier states spending less than poorer states relative to personal income.

The flaw in the foregoing argument is the assumption that states are currently spending the optimum amount on education. There is no evidence that states are over-spending on education; quite the

Table 6. State Expenditures for Higher Education

State	Per Capita Expenditures				Expenditures per $1000 of Personal Income			
	1987	Rank	10-year Average	Rank	1987	Rank	10-year Average	Rank
U. S.	215.31		166.51		13.92		13.99	
Ala.	274.98	15	214.72	16	22.84	7	23.32	7
Alaska	440.09	1	484.91	1	23.84	6	29.88	2
Ariz.	279.22	14	220.24	13	19.50	15	20.22	12
Ark.	206.27	37	158.10	39	18.06	20	17.52	27
Calif.	229.54	27	175.73	31	12.92	40	12.71	40
Colo.	292.00	10	241.50	9	18.62	18	19.48	14
Conn.	182.30	43	126.74	44	8.58	47	8.37	47
Del.	422.34	2	328.82	2	25.90	4	26.68	5
D. C.	0.00	51	0.00	51	0.00	51	0.00	51
Fla.	104.95	50	86.67	49	6.73	50	7.50	49
Ga.	193.71	38	159.00	37	13.46	39	15.19	37
Hawaii	279.79	13	260.25	7	17.97	21	21.63	9
Idaho	215.24	32	186.17	23	18.25	19	19.18	17
ILL.	161.63	48	125.48	45	9.86	45	9.74	44
Ind.	284.80	12	209.07	18	20.36	11	19.11	18
Iowa	297.02	9	221.65	12	21.17	9	19.63	13
Kans.	228.25	28	197.43	22	15.13	35	16.69	32
Ky.	237.57	22	182.89	26	19.80	14	19.46	15
La.	216.84	31	182.99	25	18.85	17	18.50	22
Maine	227.64	29	158.53	38	16.26	32	15.53	35
Md.	208.25	36	161.34	36	11.43	42	12.12	42
Mass.	189.49	39	119.90	46	9.91	44	8.68	45
Mich.	308.54	7	202.74	20	19.83	13	16.74	31
Minn.	273.28	16	223.46	11	17.31	25	18.60	21
Miss.	169.46	46	146.65	42	16.45	31	18.26	24
Mo.	175.14	44	130.64	43	11.97	41	11.53	43
Mont.	210.43	33	173.59	32	17.10	27	17.11	29
Nebr.	249.80	21	198.37	21	17.72	23	17.68	26
Nev.	233.29	24	173.36	33	14.26	38	13.36	39
N.H.	189.02	40	148.63	41	10.45	43	12.23	41
N. J.	169.16	47	113.74	48	8.34	48	7.70	48
N. Mex.	302.92	8	274.97	6	25.48	5	28.83	3
N. Y.	169.89	45	117.00	47	9.47	46	8.61	46
N. C.	237.53	23	181.07	28	17.79	22	18.37	23
N. D.	407.82	3	304.03	3	31.80	1	28.68	4
Ohio	209.21	35	171.12	34	14.35	37	14.92	38
Okla.	256.78	18	219.84	14	20.37	10	20.60	11
Oreg.	229.71	26	181.83	27	16.52	30	16.31	33
Pa.	110.90	49	82.98	50	7.30	49	7.04	50
R. I.	232.27	25	180.74	29	14.81	36	15.71	34
S. C.	256.05	19	205.27	19	21.20	8	22.55	8
S. D.	189.01	41	184.95	24	15.23	33	19.31	16
Tenn.	217.55	30	162.86	35	16.76	29	16.75	30
Texas	210.08	34	178.09	30	15.18	34	15.47	36
Utah	355.72	5	299.31	4	30.85	2	32.31	1
Vt.	380.29	4	279.08	5	26.66	3	26.63	6
Va.	285.61	11	209.49	17	17.27	26	17.29	28
Wash.	314.54	6	254.46	8	20.12	12	20.67	10
W. Va.	187.38	42	157.93	40	17.01	28	17.69	25
Wisc.	258.95	17	217.01	15	17.65	24	18.97	20
Wyo.	250.14	20	225.25	10	19.49	16	19.06	19

opposite is probably true. Therefore, as personal income increases, we should see spending on education increase in proportion to income if states are striving to increase expenditures to the optimum level. Reference to the tables in this article suggest that there is a great difference in spending levels across states relative to personal income. Therefore, we must conclude that many states, including Illinois, are not doing as much as they could to support public education.

Star Series Lectures

The Bureau of Economic and Business research at the University of Illinois at Urbana-Champaign has begun a "Star Series," a program to provide speakers on topics of interest to citizens around the state. Since the series' inception, groups in Evergreen Park, Monticello, Decatur, and Peoria, have heard University experts speak on the economic outlook for the nation and for Illinois, along with discussions of interest rate developments and the real estate outlook. On April 5, the Marine Bank of Springfield sponsored a program for UI alumni and friends featuring Bureau Director, William R. Bryan speaking on the economic outlook and Professor Case Sprenkle debunking some common economic myths. On May 17, First Busey Corporation is hosting a program at the U of I Beckman Institute in which Professor Larry Neal will discuss the issues and implications of economic unification of Europe in 1992.

Anyone who would like further information on arranging such a program for a group (see the sidebar for a list of possible topics) should contact William R. Bryan, Director, Bureau of Economic and Business Research, 428 Commerce West, 1206 South Sixth Street, Champaign, Illinois, 61820.

Star Series Topics

Inductive knowledge acquisition for developing business systems
New product marketing
Defensive marketing strategies
International market segmentation
Marketing research
Real estate
Investments
International finance
Is Cash Flow the Bottom Line?
The Rise and Fall of Junk Bonds as a Financing Alternative
Managing Financial Institutions in a Period of Rapid Change
Internationalizing Business Education
What Are the Significant (Vital!) Issues for Business as We Enter the 90s?
Economic Issues of the Day--And Age
Managing, Japanese Style
Cost of Capital for Nonpublicly Traded Firms and Divisions
US-Latin American Economic Relations
The Latin American Debt Crisis
Current challenges to US foreign economic policies
Inflation in Latin America
Property taxes in Illinois
The business climate and economic development in the state
National tax policy issues
Coal markets
Acid rain regulation
The Economic Implications of this Culture in Transition
Europe 1992
China's development
Issues in Law and Economics
Problems in the airline industry since deregulation
Macroeconomic policy issues and events
US-Japanese relations
Comparative US-Japanese Management Systems

Illinois Business Statistics

The Illinois economy dropped sharply in early 1989 but recovered as the year progressed (Chart 1). However, last year's growth is not expected to continue. It is anticipated that growth in both the gross state product (GSP) and gross national product will have declined to 1.2 percent during the first quarter of this year and will increase only slightly thereafter. Factors contrib-

uting to this moderate forecast include higher interest rates and a rapidly appreciating dollar. By making US-made goods more expensive abroad and foreign goods less expensive domestically, a strong dollar could damage the Illinois economy. Illinois exports, which benefitted greatly from the depreciating dollar, rose nearly 20 percent in 1989.

Prices jumped 4.6 percent during the year ending December 1989 and have continued to move higher (Chart 2). Nearly all urban price indexes have increased since December. The increase can be attributed to higher costs for energy and food resulting from record cold temperatures. Rates of inflation are expected to moderate through the rest of 1990.

Forecast Statistics

Personal Income (millions of dollars, seasonally adjusted at annual rates)

	1989	1989:IV	1990:I*	1990:II	1990:III	1990:IV	1991:I	1991:II	1991:III	1991:IV
Total personal income	$220,415	$226,661	$230,347	$233,911	$237,893	$241,758	$246,291	$250,350	$254,803	$259,148
Total nonfarm	160,466	165,124	167,218	169,901	172,503	175,512	178,551	181,688	184,768	188,208
Total private nonfarm	140,528	144,351	146,137	148,480	150,794	153,391	156,110	158,879	161,642	164,651
Mining	961	1,010	1,049	1,052	1,053	1,056	1,059	1,059	1,059	1,059
Construction	9,744	9,841	10,084	10,187	10,312	10,492	10,744	10,867	11,020	11,234
Manufacturing	33,791	34,525	34,234	34,450	34,734	35,043	35,394	35,783	36,191	36,595
Durable	21,027	21,457	21,088	21,159	21,301	21,477	21,689	21,927	22,187	22,450
Nondurable	12,764	13,068	13,146	13,291	13,434	13,566	13,705	13,856	14,004	14,145
Transportation & public utilities	11,881	12,138	12,432	12,565	12,684	12,834	12,992	13,160	13,322	13,516
Wholesale trade	13,562	13,762	13,999	14,208	14,410	14,637	14,869	15,109	15,348	15,612
Retail trade	14,469	14,642	14,720	14,885	14,997	15,242	15,406	15,612	15,776	16,053
Finance, insurance, & real estate	14,153	14,941	15,197	15,565	15,933	16,304	16,688	17,087	17,490	17,892
Services	41,445	43,492	44,423	45,566	46,671	47,784	48,959	50,202	51,437	52,690
Government	19,939	20,773	21,080	21,422	21,708	22,121	22,441	22,809	23,126	23,557

Gross State Product (millions of dollars, seasonally adjusted at annual rates)

	1989	1989:IV*	1990:I	1990:II	1990:III	1990:IV	1991:I	1991:II	1991:III	1991:IV
Total	$260,568	$270,359	$273,911	$278,052	$282,546	$287,157	$291,985	$296,819	$301,923	$307,121
Total private nonagric.	233,077	241,797	245,056	248,856	252,981	257,216	261,651	266,095	270,789	275,570
Mining	1,531	1,301	1,350	1,316	1,277	1,249	1,228	1,197	1,170	1,144
Construction	11,100	11,245	11,370	11,538	11,739	11,968	12,115	12,291	12,494	12,726
Manufacturing	50,167	52,295	52,048	52,335	52,765	53,256	53,899	54,470	55,069	55,693
Durable	27,743	28,962	28,420	28,472	28,621	28,810	29,036	29,298	29,585	29,873
Nondurable	22,425	23,334	23,628	23,863	24,144	24,446	24,863	25,172	25,484	25,820
Transportation & public utilities	26,511	28,191	28,753	29,269	29,791	30,323	30,879	31,443	32,023	32,614
Wholesale trade	22,875	22,997	23,275	23,620	23,962	24,308	24,674	25,038	25,414	25,795
Retail trade	23,966	24,830	25,292	25,737	26,203	26,657	27,149	27,622	28,114	28,599
Finance, insurance, & real estate	47,926	49,603	50,526	51,360	52,214	53,118	54,100	55,076	56,100	57,150
Services	49,001	51,337	52,442	53,681	55,031	56,338	57,607	58,958	60,405	61,848
Government	23,022	23,612	23,847	24,267	24,527	24,850	25,095	25,536	25,824	26,187
Agriculture	4,469	4,950	5,008	4,930	5,037	1,091	5,239	5,189	5,311	5,364

*Forecast begins

Illinois Employment Forecast (in thousands, seasonally adjusted at annual rates)

	1989	1989:1V	1990:1*	1990:11	1990:111	1990:1V	1991:1	1991:11	1991:111	1991:1V
Total nonfarm employment	5,179.5	5,205.4	5,214.2	5,207.7	5,206.9	5,224.4	5,249.8	5,245.6	5,256.2	5,270.5
Total private nonfarm emp.	4,441.8	4,466.2	4,475.2	4,467.4	4,466.3	4,484.1	4,511.6	4,504.8	4,510.1	4,528.5
Mining	19.8	19.5	21.3	20.7	20.5	20.6	21.1	20.5	20.3	20.3
Construction	209.7	212.6	219.6	216.9	218.0	219.8	229.3	224.8	225.0	227.5
Manufacturing	981.5	982.0	955.0	946.8	942.0	939.0	938.5	936.3	934.8	934.3
Durable	598.3	598.3	578.3	572.5	569.7	568.5	568.6	568.4	568.9	569.8
Primary metals	56.3	56.0	53.9	52.8	52.3	52.1	51.8	51.6	51.6	51.7
Fabricated metals	107.2	106.8	102.7	102.6	102.3	102.2	102.1	101.5	101.3	101.2
Nonelectrical machinery	154.2	155.7	144.1	141.3	139.8	138.7	137.6	137.5	137.1	136.8
Electrical machinery	118.4	117.8	118.8	119.8	121.4	123.0	124.9	126.8	128.7	130.7
Nondurable	383.2	383.7	376.7	374.3	372.3	370.5	369.9	367.9	365.9	364.5
Food & kindred products	90.2	90.7	89.9	89.3	88.8	88.8	88.5	87.5	86.7	86.8
Printing & publishing	112.8	112.7	112.1	111.6	111.1	109.9	109.8	109.5	109.1	108.4
Chemicals & allied products	61.1	61.2	60.7	60.2	59.9	59.7	59.3	58.9	58.6	58.2
Transp. & pub. utilities	1,304.5	305.8	307.0	305.7	305.3	304.0	304.8	304.4	304.8	304.9
Wholesale trade	374.1	375.6	378.5	378.0	377.1	378.8	380.4	380.2	380.0	381.5
Retail trade	900.9	906.2	914.0	911.4	907.2	911.2	915.9	914.9	914.0	914.3
Finance, ins., & real estate	372.4	374.6	377.6	378.4	379.5	383.8	385.4	385.6	386.1	388.5
Services	1,279.0	1,290.0	1,302.4	1,309.6	1,316.7	1,327.1	1,336.1	1,338.2	1,345.2	1357.2
Government	737.7	739.2	739.0	740.3	740.6	740.3	738.2	740.9	746.1	742.1

*Forecast begins.

Chart 1. Growth of GNP and GSP (at annual rates)

Chart 1. Growth of GNP and GSP (at annual rates)

Chart 2. Selected Urban Price Indexes (1982-1984=100)
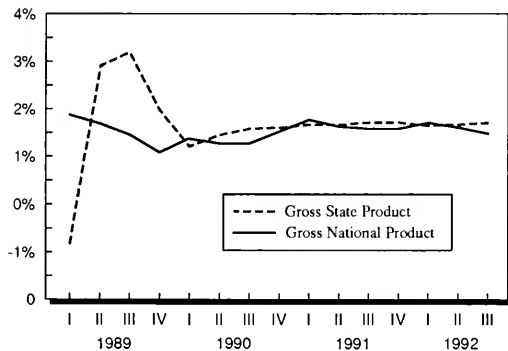
Chart 2. Selected Urban Price Indexes (1982-1984=100)
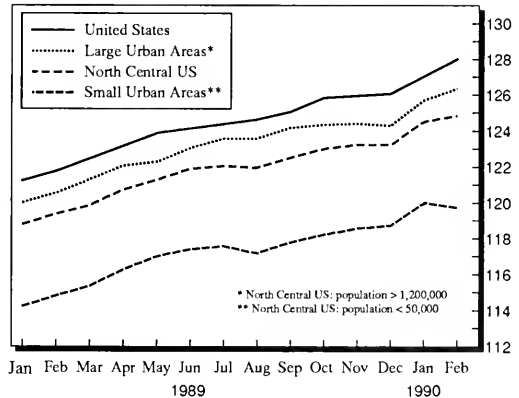
Historical Statistics

	% Change Jan. 1989 Jan. 1990	Jan. 1990	Dec 1989	Nov. 1989	Oct. 1989	Sept. 1989	Aug. 1989	Jan. 1989
Building permits (thousands)								
Residential housing units	2.43	1.643	1.432	2.408	3.093	3.583	3.973	1.604
Value of residential units	36.34	$223,737	$190,536	$282,081	$384,805	$317,723	$345,958	$164,107
Value of nonresidential housing								
Industrial buildings	-47.51	$20,819	$36,222	$32,883	$24,234	$30,098	$54,696	$39,663
Office, banks, and professional buildings	14.48	$31,828	$19,817	$33,361	$62,069	$60,508	$91,753	$27,802
Stores and other mercantile buildings	39.40	$37,636	$75,891	$32,009	$45,440	$79,991	$36,933	$26,998
Other	22.49	$4,668	$2,354	$7,065	$7,272	$4,459	$10,094	$3,811
Consumer price index (1982-1984=100)								
North Central US	4.89	124.5	123.2	123.2	123.0	122.5	122.0	118.7
North Central/pop. more than 1,200,000	4.92	125.7	124.3	124.4	124.3	124.1	123.5	119.8
North Central/pop. 360,000-1,200,000	4.99	124.2	123.0	123.0	122.0	121.0	120.9	118.3
North Central/pop. 50,000	4.88	124.6	123.2	123.3	122.9	122.2	122.1	118.8
North Central/pop.less than 50,000	4.90	120.0	118.8	118.6	118.2	117.8	117.1	114.4
Chicago	5.43	128.1	126.5	126.7	126.8	127.1	126.4	121.5
St. Louis	5.66	125.1	——	123.1	——	12 3.9	——	118.4

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Illinois

Business

Review

Contents

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William R. Bryan

Perspectives on the Economy

E conomic activity has weakened in 1990, continuing a moderation that began more than a year earlier. The slowdown in the economy has been reflected in most major measures of activity. The growth in real output has fallen; job growth has declined; housing markets have slumped; and household spending has weakened. Whereas the unemployment rate drifted downward from the end of 1982 to early 1989, it has since stabilized.

It may be premature to conclude that the current expansion is at an end, but it is timely to look back and evaluate some of our past economic achievements and disappointments. In particular, it is of interest to draw comparisons between the decade just ended and the decade of the 1970s because of the substantial differences in perceptions regarding the two decades. There is a widely held view that economic growth in the 1980s was robust, benefiting from the supply-side initiatives of the Reagan administration. In contrast, we recall that the 1970s were characterized by stagflation and economic malaise.

Major Indicators

The performance of the economy may be evaluated both in terms of the achievement of positive outcomes and the avoidance of negative ones. On the positive side, the creation of real output, the growth of fixed investment, and job creation may be regarded as primary goals of the economy. Looking toward the avoidance of negative outcomes, we may focus on the ability of the economy to avoid such unwanted develop-

ments as unemployment and inflation. These positive and negative indicators of economic performance are shown in Table 1 and Chart 1.

A cursory glance at Table 1 or Chart 1 suggests that the two decades were reasonably similar. That finding is a story in and of itself. For, such an interpretation differs substantially from widely held perceptions. It is reasonably clear from the data that economic developments during the 1970s were stronger than is popularly believed. Growth rates in real gross national product (GNP), fixed investment, and employment were greater in the decade of the 1970s than during the 1980s. The economic miracle of the 1980s must be found somewhere else, if at all.

There are two chief differences between developments during the 1980s and those in the 1970s. First, the

Chart 1. Major Indicators of the Economy

1969 = 100
1979 = 100

——— Decade of the 1970s
·········· Decade of the 1980s

rate of inflation was markedly lower in the past decade (see lowest tier of Chart 1). Although prices continued to rise during the 1980s, after the first several

Table 1. Performance Comparisons		
	Decades	
	1980s	1970s
Main Indicators	(annual rates of growth)	
Real GNP	2.6	2.8
Fixed investment	2.3	3.8
Employment growth	1.7	2.4
Unemployment growth	0.6	8.0
Consumer Price Index	5.5	7.1

years inflation rates moderated. Second, labor markets weakened during the mid-1970s with the number unemployed rising at an 8 percent annual rate. Unemployment again moved higher in the early 1980s. Even so, joblessness generally decreased. Although a great deal of attention is paid to the number of jobs added during the Reagan-Bush administration, employment actually grew more rapidly in the 1970s.

Demand and Supply Shifts

One way of looking at developments relating to the economy is to attempt to distinguish among the various sources of demand and supply. Unhappily, the data emerge from market activities involving demand and supply shifts coupled with price movements (including exchange rate changes). What is observed are takings from markets. Consequently, in such backward-looking attempts at analysis it is easy to become confused between causes and results.

One way of viewing purchases is to identify what may be referred to as final demand, eliminating intermediate or temporary demand

Table 2. Alternative Sources of Demand		
	Decades	
	1980s	1970s
Final demand	2.6	2.9
Domestic demand	2.8	2.6
Federal demand	3.6	-1.3
Government demand	2.8	0.6
Imports	6.2	5.9
Exports	5.1	8.0

such as that relating to the accumulation of business inventories. Final demand expanded at a 2.9 percent annual rate during the 1970s, little different from, but somewhat stronger than, the 2.6 percent rates in the 1980s (Table 2).

Another perspective is given by focusing on the generation of domestic demand without regard to the means by which that demand was satisfied. In terms of raw numbers, real domestic demand strengthened to a 2.8 percent annual rate of growth in the 1980s compared with a 2.6 percent rate in the 1970s. But such a small difference is consistent with the view that there was no meaningful change in domestic demand.

Yet another perspective emerges from the identification of public, or government, demand rather than private demand. Presumably, the government is less sensitive to price changes than is the private sector. One of the hallmarks of the Reagan Administration was its commitment to cut the growth in the economic role of the federal government. As it turns out, real federal purchases of goods and services (the portion of total federal expenditures entering the spending side of the GNP accounts) expanded at a 3.6 percent annual rate in the 1980s. Such purchases had actually declined in the 1970s following the end of the Viet Nam War (see Table 2). Adding state and local governments, total government purchases of goods and services rose very slowly during the 1970s (registering a 0.6 percent annual rate of increase). But during the 1980s, total government spending on goods and services expanded at a 2.8 percent annual rate.

Although it is unclear whether aggregate demand changed from the 1970s to the 1980s, it is clear that there was a shift away from domestic production. Imports satisfied a somewhat greater share of aggregate demand during the 1980s than

in the preceding decade. During the 1970s imports rose at a 5.9 percent annual rate, then increased to a 6.2 percent rate during the 1980s. Coupled with the minor redirection of domestic demand from the US economy was a diminution of foreign demand. Exports expanded at an 8 percent annual rate in the 1970s, but at only a 5.1 percent rate during the 1980s (Table 2).

Economic Policy

In looking back, it is plausible to suppose that economic developments may have been shaped to some extent by monetary and fiscal policies. Certainly, the political parties are quick to claim and quick to blame. Each party claims credit for every real or imagined benefit and blames the other for every adverse development. Can we account for the moderation in inflation during the 1980s by a clear change in economic policy?

Even as the question is raised, bits and pieces of doctrinal positions and disputes come to mind. I am reminded of the view that inflation is a monetary phenomenon. As it turns out, an examination of monetary data reveals neither major differences nor differences that would explain the changed rate of inflation. As Table 3 indicates, the nominal money stock (M1) grew

Table 3. Economic Policy Variables		
	Decades	
Monetary Indicators	1980s	1970s
M1	7.7	6.6
M2	8.0	10.0
M3	8.7	11.5
Fiscal Indicators		
Expenditures	3.8	2.0
Receipts	2.7	1.3

more rapidly in the 1980s than in the 1970s (7.7 percent compared with 6.6 percent). Such shifts are inconsistent with the observed change in inflation rates. Moreover, the timing of rapid money supply

Chart 2. Money Supply Growth and Inflation

Annual Rates
of Change
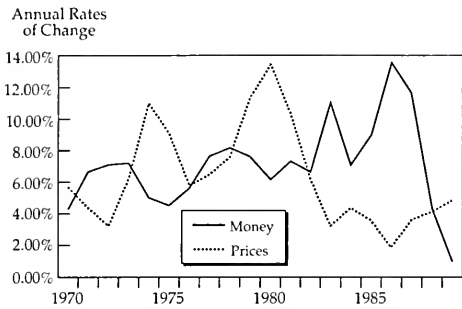
growth was out of phase with the 1973-1975 and 1978-1980 accelerations in inflation (see Chart 2). As money supply measures are broadened to include additional financial instruments (for example, M2 and M3), it turns out that monetary growth rates in the 1970s exceeded those of the 1980s. Such shifts are consistent with the direction of change in rates of inflation. But acceleration and decelerations in growth rates in those monetary aggregates are also out of phase with shifts in inflation.

In order to explain the acceleration in inflation in the second half of the 1970s on the basis of monetary considerations, it would be possible to argue that there are dynamic processes at work, creating variable lags between changes in monetary growth and changes in inflation. Alternatively, it might be argued that other factors caused the public's demand for money to fall relative to the supply. Such an explanation could suggest that there were spasmodic diminutions in the public's demand for real money balances during the 1970s. Although such arguments can be made, their articulation is beyond the scope of this article.

Was there a meaningful fiscal policy shift? It can be argued that fiscal developments tended to offset one another in their impact during the 1980s. The rate of growth in federal expenditures rose from 2

percent in the 1970s to 3.8 percent in the decade just ended. Presumably such developments would serve to expand aggregate demand. At the same time, the rate of growth in federal receipts more than doubled, from 1.3 percent to 2.7 percent (Table 3). One might argue that such developments are restrictive, or reflect restrictive tax changes.

To some extent, fiscal developments are themselves a reflection of shifts in the underlying economy and cannot be viewed wholly as independent causal agents. But even if this were not the case, there is a missing link between the fiscal restrictions and the reduced rate of inflation. Fiscal developments exert their influence by affecting aggregate demand. As suggested, there are no meaningful differences between the rates of growth in real product, nor any of the other measures of demand, during the two decades. That is, the final takings from the markets were about the same; but during the 1980s these takings occurred within a milieu of smaller price increases.

The most widely held explanation of accelerated inflation in the 1970s relies upon supply shocks. It is quite true that energy prices were driven sharply higher by OPEC in 1974 and again in 1979. Presumably, as a result of the shift in relative

prices, upward price pressures were set into motion throughout the economy. Although this view has substantial common sense appeal, it does not agree well with economic theory in the context of the specific accompanying monetary environment.

We are left without a fully satisfactory explanation for differential rates of inflation in the two decades under review.

Economic Problems

Year in and year out, there is a limited menu of economic problems that occupies the attention of the public and of politicians. Moreover, the menu seldom changes. The perennial problems have been inflation, high interest rates, unemployment, and the federal deficit. In recent years, the persistent international trade deficit has been added to the litany of concerns. It is of interest to review the past two decades in terms of these problems.

Inflation began moving higher again in the late 1980s and into early 1990. Chart 3 shows the actual rate of inflation during the 1970-1990 period (year-over-year percent changes in quarterly values of the Consumer Price Index).

There is a view that the public generates expectations regarding inflation. Also shown in Chart 3 is a representation of expected inflation (a weighted 8-quarter moving average). According to this representation, expected inflation rises and

Chart 3. Actual Inflation and Expected Inflation

Annual Rates
of Change
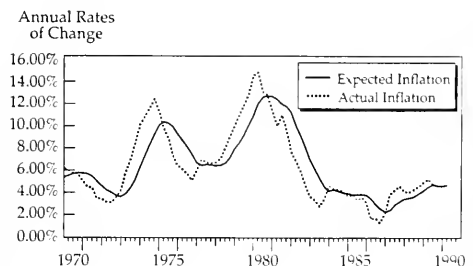
declines more slowly than actual inflation.

It is noteworthy that expected inflation has been moving higher in 1990. In view of the fact that its current values are based on the past, expected inflation will rise throughout the remainder of the year. Even though actual rates of inflation were moderating at this writing, expected inflation will be virtually unaffected by such developments in the short run.

There is a view that the nominal rate of interest is the product of the real rate of interest and expected inflation. Chart 4 shows the expected inflation data from Chart 3 along with the yield on one-year US securities. The lower tier of Chart 4 shows an estimate of the real rates of interest (the nominal rate less expected inflation). According to this representation, real interest rates fluctuated around zero during the 1970s and into the early 1980s, then rose sharply from 1982 through 1984. Although real rates have drifted lower since late 1984, they have not fallen below 3.0 percent.

The recent and current upward movements in expected inflation suggest that interest rates are likely to move higher. Such a view is inconsistent with typical developments during a period of economic weakness. As the economy weakens, real rates of interest fall. Indeed, it can be argued that declines in anticipated rates of return on prospective investment outlays are an aspect of economic weakness.

Concerns about the federal deficit are perennial. Without a doubt, the federal deficit has risen persistently during the past two decades (Chart 5). Stating the deficit in real terms (1982 dollars), it fluctuated between a low of $12.1 billion in 1973 and a high of $121.4 billion in

Chart 4. Expected Inflation and Interest Rates
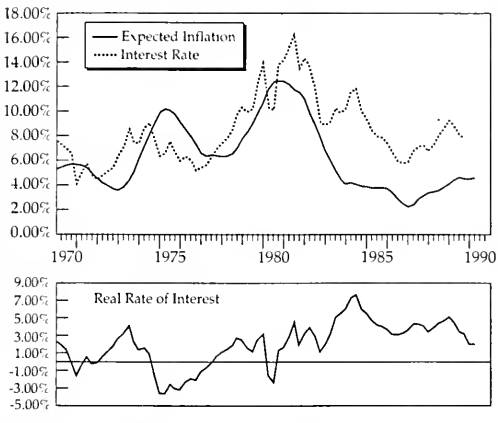
1975, averaging $50.7 billion during the 1970s and $54 billion in the 12 years ending in 1981. After 1982 the deficit rose markedly (see Chart 5), then fluctuated between a low of $125.1 billion in 1989 and a high of $188.6 billion in 1986. A comparison of the average of the 1970-1981 period with the average of the 1982-1989 period, indicates that the deficit tripled (even stated in constant dollars).

A less dramatic interpretation emerges if the size of the deficit is adjusted to the size of government operations. The lower tier of Chart 5 shows the deficit as a percent of federal expenditures. By this measure, the deficit averaged 8.3 percent of the budget in the 12 years ending in 1981 and 17.4

percent in the 1982-1989 period. Looked at in this way, the deficit more than doubled after 1981. While this too represents a substantial growth in the federal deficit, it is meaningfully smaller than suggested by dollar figures.

Similarly, there has been an increase in the nation's real current account deficit in international trade. If measured in terms of dollars, even held at constant value (see upper tier of Chart 6), the growth in the deficit is substantial. During the decade of the 1970s and through 1983, the real current account registered seven surpluses (the largest being $57 billion in 1980) and six deficits (the largest being $49.4 billion in 1972). On average over the fourteen-year period the deficit averaged $0.6 billion. But in the 1984-1989 period, there were no surpluses, and the real deficit averaged just over $94 billion.

It is of interest to review the same time periods but with data

Chart 5. Federal Deficits

Billions of 1982
Dollars

```
100
 50
  0

-50

-100
```

Surplus or Deficit
as a Percent of Exports

```
 20.0
 10.0
  0.0
-10.0
-20.0
      1970      1975      1980      1985
```
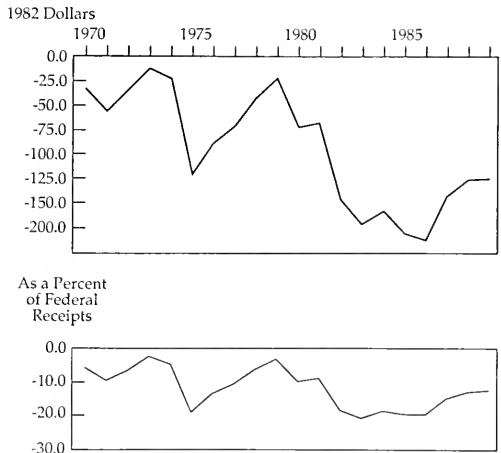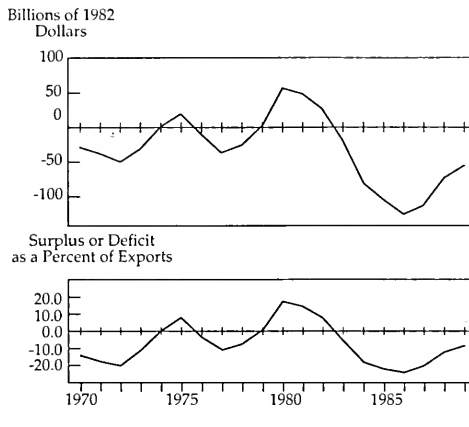
arranged differently. Expressed as a percent of exports, the deficit averaged 3.2 percent during the 1970-1983 period, and 17.8 percent in the 1984-1989 period. Hence, that part of the picture remained qualitatively unchanged: because there have been no surpluses, there has been a substantial increase in the average current account deficit. But other parts of the picture are markedly different. The magnitude of the fluctuations has remained substantially unchanged over the two decades. Recent deficits are not larger than earlier ones.

We sometimes forget that the unemployment rate has been below 5 percent. In fact, in 1969 unemployment averaged 3.5 percent of the labor force. But the mild slumps in the early 1970s coupled with the sharp 1973-1975 recession drove unemployment to an 8.5 percent average in 1975. The slow growth in unemployment during the 1980s (summarized in Table 1) is partly an illusion. Unemployment was relatively high as the decade opened, and although it fell during the 1980s, by 1989 the unemployment rate had declined only to 5.3 percent, well above its level two decades earlier.

The higher unemployment rate is partially explained by pointing to the increase in participation rates. There has been a persistent and substantial rise in the rate at which the working-age population has chosen to participate in the labor force. Throughout the 1950s and 1960s, the participation rate was relatively stable, remaining at or just under 60 percent. But participation rates began edging higher during the 1970s and continued to move up during the 1980s, registering decade-long increases of 6 percent and 4.5 percent, respectively.

Labor force shifts are an important aspect of developments relating to household income. Per capita income rose on balance in the 1970s and 1980s. It is important to note that these increases were made possible, in part, by the rising participation rates. Indeed, the increased participation rates, chiefly resulting from a movement of women into the work force, may be viewed as an adjustment of households to economic forces that would otherwise have driven their incomes lower. Even after making a rough adjustment for changes in participation rates, real per capita income would have risen over the past two decades. But the growth would have been cut by about one-fourth.

Concluding Remarks

As 1990 unfolds, I anticipate that the economy will weaken, unemployment will rise, inflation and interest rates will decline, the federal deficit will rise, and the international trade deficit will fall. There is no reason to suppose that any of these developments will constitute a marked departure from the experience of the past two decades. These shifts are part of what is typically referred to as a cyclical process. At the same time, there is very little regularity in this process, nor does the process carry with it elements of inevitability. Rather, it is simply a fact that the economy does not expand evenly. It tends to move in fits and starts.

Mary A. Laschober

The State of the State from a Tax Revenue Perspective

Developments relating to tax revenues can reveal information about the strength or weakness of the economy. If current year receipts appropriately adjusted for changes in tax laws and inflation depart from the previous year's receipts, the departure must relate to a corresponding change in the real base upon which the tax revenues are collected. For example, adjusted personal income tax receipts for the state of Illinois are lower in fiscal year 1990 (FY90)[1] than in FY89. Such a shortfall implies that there has been a decline in personal income, the base upon which the receipts are levied. Changes in individual tax receipts, therefore, provide strong signals about the performance of certain sectors of the economy. Moreover, because tax receipts in Illinois are published on a monthly basis, the information they provide is relatively up-to-date.

True changes in the tax base can be inferred from changes in tax receipts only if tax rates and other factors are directly comparable. To achieve comparability between FY89 and FY90 receipts, FY89 Illinois corporate and personal income tax receipts were artificially inflated to account for the 20 percent increase in tax rates implemented in FY90. The corporate income tax rate was increased from 4.0 to 4.8 percent, while the personal income tax rate was raised from 2.5 to 3.0 percent, both effective July 1, 1989. In addition, FY89 net tax receipts were adjusted for the accounting changes that occurred in FY90. In FY89, an Income Tax Refund Fund was created in order to pay tax refunds to corporations and individual filers. Whereas 18 percent of

Chart 1. Nominal Net Corporate Income Tax Receipts (not rate adjusted for FY89)

(millions of $) — FY 1989 / FY 1990
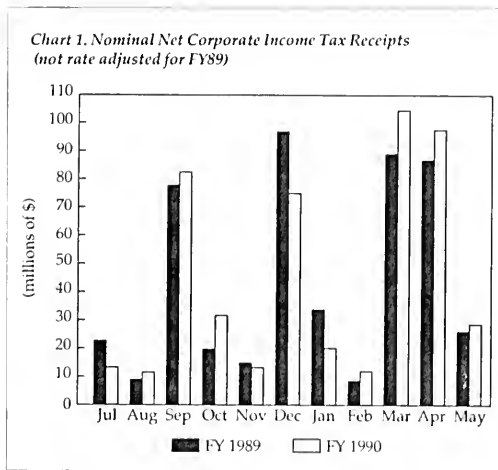
gross corporate income tax receipts was allocated to the newly established Income Tax Refund Fund in FY89, the amount diverted to this fund in FY90 was increased to 20.1 percent. Similarly, 6 percent of gross personal income tax receipts was diverted to the Refund Fund in FY89, compared to a 6.4 percent diversion in FY90. Finally, in FY90 5.9 percent of corporate and personal income tax receipts was deposited in the Income

Tax Surcharge Local Government Distributive Fund to be allocated among Illinois counties and municipalities for aid to local governments. FY89 net tax receipts were artificially decreased to reflect the greater amount of gross receipts diverted in FY90. If FY89 receipts had not been adjusted for these accounting changes, low receipts in FY90 might have been attributed to a declining tax base.

[1] The State of Illinois fiscal year runs from July 1 to June 30 of the subsequent calendar year; that is, FY90 ends on June 30, 1990.

Chart 2. Real Net Corporate Income Tax Receipts (rate adjusted for FY89)

(millions of $) — FY 1989 / FY 1990
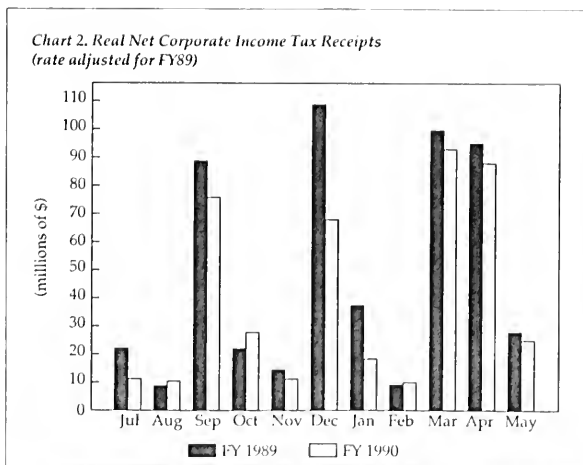
Chart 3. Before Tax Corporate Profits
(seasonally adjusted at annual rates)
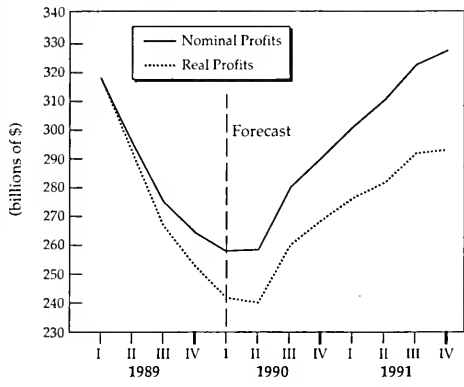
Chart 4. Nominal Net Personal Income Tax Receipts
(not rate adjusted for FY89)
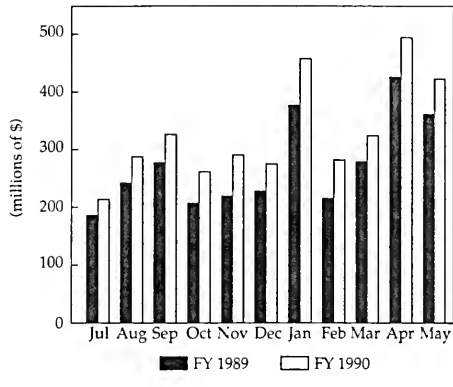
Corporate Income Tax

If FY89 net corporate income tax receipts in Illinois are not adjusted for rate increases and inflation, FY90 receipts are greater than the previous year's receipts in 7 of the first 11 months of the fiscal year (see Chart 1). However, FY90 nominal net corporate income tax revenues were approximately 16 percent lower than rate-adjusted FY89 revenues. With a 5 percent rate of inflation in FY90, it can be inferred that there was a 21 percent decline in the real corporate income tax base (consisting of the adjusted taxable income of corporations, associations, joint-stock companies, and cooperatives). FY90 net corporate income tax receipts adjusted for inflation fell short of real rate-adjusted FY89 receipts in every month except August, October, and February—all relatively low receipt months (see Chart 2). Developments in Illinois are consistent with falling national corporate profits over the past fiscal year (see Chart 3). The 20 percent tax rate increase prevented a

real decline in corporate income tax receipts this past year.

Based on Data Resources, Inc., (DRI) projections of future corporate profits, the Bureau of Economic and Business Research at the University of Illinois, Urbana-Champaign (BEBR) predicts that corporate profits will rebound to 1989 levels in FY91. Even so, such revenues imply a shortage for the state of Illinois in FY91 since FY90 state expenditures did not fall to match the decrease in tax receipts.

Personal Income Tax

Personal income tax receipts performed somewhat better than corporate income tax revenues. In terms of raw tax dollars, personal income tax revenues were 21 percent higher than in the previous year. FY90 receipts were greater than unadjusted FY89 receipts in all 11 months of the fiscal year (see Chart 4). After adjusting for both rate and accounting changes, however, nominal net personal income tax receipts were essentially unchanged from their year-earlier pace. This means that the personal income tax base (consisting of the adjusted taxable income of individuals, trusts, and estates) expanded only marginally in FY90 and did not keep pace with the 5 percent rate of inflation (see Chart 5). Personal income tax receipts mirrored the Illinois economy, shown by the downward trend in Illinois real personal income over most of FY90 (see Chart 6).

The BEBR forecast for FY91 indicates that personal income tax

Chart 5. Real Net Personal Income Tax Receipts
(rate adjusted for FY89)
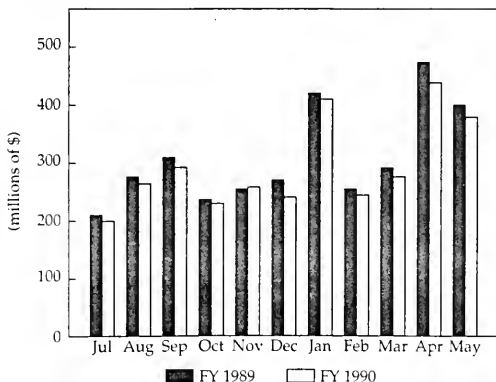
Chart 6. Real Illinois Personal Income
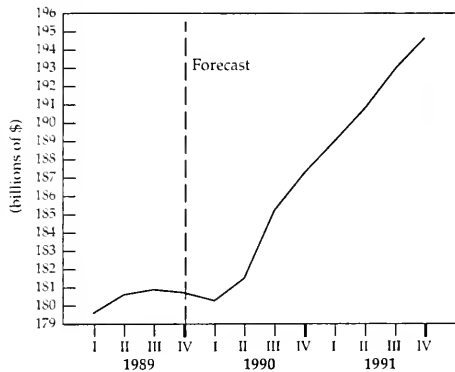
Chart 7. Nominal Net Retail Sales Tax Receipts
(unadjusted for Build Illinois Fund diversions)
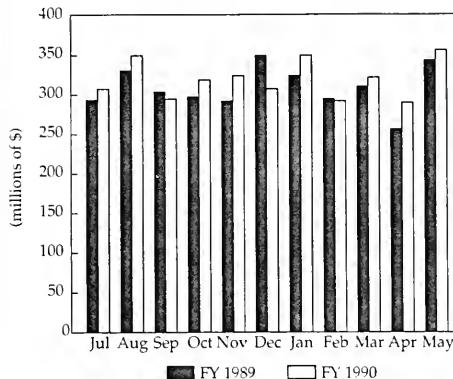
revenues will rise by about 6 percent. The increase reflects real growth in the state economy of approximately 2 percent, plus a 4 percent rate of inflation over the next fiscal year.

Retail Sales Tax

Nominal retail sales taxes in FY90, levied mainly on the gross receipts of Illinois retail sellers after exemptions for such items as food, medicine, and most services, increased by 3.5 percent over the previous year. FY90 receipts were greater in every month except September, December, and February (see Chart 7). However, as in the case of gross corporate and personal income tax receipts, a portion of gross retail sales taxes are allocated to special state funds. In FY89, these diversions amounted to 4.35 percent of gross receipts. The allocation to one of these funds, the Build Illinois Fund, was increased from 2.2 percent to 3.8 percent in FY90, raising the total retail sales tax diversion to 5.95 percent of gross

receipts. Accordingly, FY90 nominal net retail sales tax receipts were actually greater by 5.3 percent over adjusted FY89 receipts, indicating an expansion of the retail sales tax base. Part of this growth resulted from the inclusion of computer software in the base, effective as of July 1, 1989. The other component consisted of an upward trend in nominal retail sales, mostly in the durable sales sector of the Illinois economy (see Chart 8).

BEBR predicts that FY91 retail sales tax receipts will increase by the nominal rate of growth.

Chart 8. Total Illinois Retail Sales

However, net sales tax receipts will grow by a smaller amount if Build Illinois Fund diversions are again raised, from 3.8 percent to 4.3 percent, as proposed by Governor James Thompson.

Other State Taxes

A majority of the other Illinois taxes produced a greater amount of revenue in FY90. After adjusting for various accounting changes, the public utilities, liquor, corporate franchise, inheritance, and other miscellaneous taxes increased FY90 nominal receipts by an average of 7.7 percent, outdistancing the rate of inflation over the period. Investment income, the product of market interest rates and the amount of state funds available for investment, produced 18 percent more revenue for the state in the first 11 months of FY90. Interest rates over that period were relatively high, as were the state's available balances. In contrast, both the cigarette tax and the insurance tax bases shrank during FY90. The approximately 38 percent increase in nominal cigarette tax receipts resulted

from a 50 percent increase in the cigarette tax rate, effective July 1, 1989. Cigarette sales have consistently declined over the past few years, as evidenced by the 8 percent decrease in the cigarette tax base in FY90. FY90 lottery receipts were also 1.3 percent lower.

Total Tax Receipts

Total tax receipts for FY90 were only 1.8 percent greater than FY89 receipts, after adjusting for all rate and accounting changes. The overall Illinois tax base did not expand sufficiently to match the rate of inflation. Without the tax increases implemented in FY90, the state's

fiscal condition would have been much worse than it is. Although the major shortage in FY90 revenues came from low corporate profits, the slow growth in the overall Illinois tax base will present the state with difficult choices in the coming fiscal years.

Ownership of the US Federal Debt

T he Federal debt consists of securities issued by the US Treasury (referred to as public debt securities) plus those issued by other Federal agencies. At the end of March 1990, the Federal debt had reached $3.1 trillion, 11.5 percent higher than one year earlier. Public debt securities make up more than 99 percent of the outstanding Federal debt.

A small portion of the debt ($52.4 billion) has matured and is no longer bearing interest. More than $1 trillion of the public debt is not marketable. Rather, it is simply held, awaiting maturity. The bulk of the nonmarketable debt consists of issues held by various government accounts (the largest of which are the Federal employees retirement funds, the Federal old-age and survivors insurance trust fund, and the Federal hospital insurance trust fund), and US savings bonds.

Our chief interest attaches to that portion of the public debt that is interest bearing and is marketable. Within this portion, there is a periodic focus of attention on ownership. Foreigners own 17 percent of the public debt, according to estimates based on what we know about the investment of foreign balances and international accounts in the US. According to the accom-

panying chart, foreign ownership represents the largest readily identifiable group, although the published data show that other investors hold 33.4 percent of the debt. Included among other investors are savings and loan associations, credit unions, nonprofit institutions, mutual savings banks, and

corporate pension trust funds. It is of interest to note that state and local governments are major holders of US Treasury debt; the chief investing units in this category are the state and local pension funds.

Ownership of Public Debt
March 1990

US Government 1.0%
Federal Reserve 11%
Other 33.4%
Commercial Banks 8%
Individuals 4.4%
Insurance Companies 4.8%
Money Market Funds 1.4%
Corporations 4.2%
State and Local Governments 14.9%
Foreign and International 17%

David T. Whitford

Recent Trends in First Class Stamp Prices
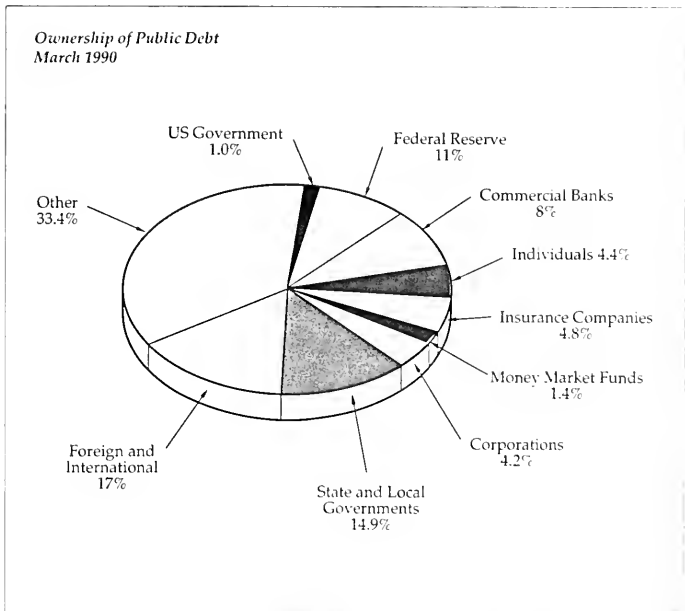
T he recent announcement by the US Postal Service regarding its intention to increase the cost of a first class postage stamp from 25¢ to 30¢ has received widespread attention. Concern over the proposed price increase has been expressed by individuals in both the public and private sectors. Given the public's concern over this issue, it seems fair to ask whether the increases in first class stamp prices have been reasonable.

How Have Stamp Prices Changed?

Table 1 shows the annual percentage increases of end-of-year first class stamp prices since 1968. The bottom row of the table is calculated under the presumption that the 30¢ price will be in effect by the end of 1990. An example can aid in interpreting these figures. If one takes the 1968 year-end price of 6¢ as a base (that is, uses the 1968 column), stamp prices grew at an annual rate of 10.06 percent through year-end 1971, 8.89 percent through year-end 1974, and 11.68 percent through year-end 1975. Alternatively, if one looks across the 1990 row in Table 1, one can observe the potential annual percentage increases in first class stamp prices that will occur by year-end 1990. For example, by the end of the year, the price of a first class stamp will have grown annually at 7.59 percent since December 1968, 5.73 percent since December 1975, and by 9.54 percent since December 1988.

Real Stamp Price Increases?

Although fears of double-digit inflation have subsided recently, the inflationary impact of the 1970s and 1980s was significant. Table 2 adjusts the annual percentage price changes in Table 1 for changes in the Consumer Price Index. The rates in Table 2 provide an interesting contrast to their counterparts in Table 1. If one selects either the 1968, 1971, 1974, or 1985 prices as a base, the various real (inflation-adjusted) annual price increases have been almost universally positive. In contrast, for the 1975, 1978, and 1981 base price, real stamp

prices have actually declined. At times this represents real price decreases as well as increases. Finally for the 1978 year-end base price, real stamp prices have actually gone down.

Ability (Willingness?) to Pay

Given this general trend of real price increases for first class stamps, one can reasonably ask why individuals have not reacted more strongly. It appears that the political and economic pressures

Table 1. Annual Nominal Percentage Increases in First Class Postage Stamp Prices

Year	1968	1971	1974	1975	1978	1981	1985	1988	1st Class Stamps
1968									6¢
1971	10.06								8¢
1974	8.89	7.72							10¢
1975	11.68	12.91	30.00						13¢
1978	9.60	9.40	10.67	4.89					15¢
1981	9.70	9.60	10.41	7.44	10.06				20¢
1985	7.94	7.49	7.43	5.40	5.62	2.41			22¢
1988	7.40	6.93	6.76	5.16	5.24	3.24	4.35		25¢
1990	7.59	7.20	7.11	5.73	5.95	4.61	6.40	9.54	30¢

Source: *1989 Economic Report of the President*

Table 2. Annual Real Percentage Increases in First Class Postage Stamp Prices

Year	1968	1971	1974	1975	1978	1981	1985
1971	4.88						
1974	2.91	0.95					
1975	5.26	5.55	20.87				
1978	3.12	2.36	3.43	-1.73			
1981	2.04	1.18	1.28	-1.69	-1.65		
1985	1.08	0.26	0.08	-1.78	-1.80	-1.90	
1988	1.09	0.42	0.31	-1.09	-0.90	-0.60	1.14

Source: *1989 Statistical Abstract of the United States* and *1990 Economic Report of the President*

brought on by these rate increases have been inadequate to get the Congress to act. First, members of Congress have "free" mail and are, in large part, insulated from these postal price changes. Second, the direct impact of a real increase in postage rates has a relatively minor impact on the typical family's budget. As a consequence, there is little incentive for individuals to lobby against postal rate increases. By contrast, organizations that rely heavily upon third class postage, that is "bulk mailers," do have an increasingly strong set of economic incentives to lobby for favorable third class rates. Third class mail volume *has* increased dramatically compared with first class volume. For example in 1970 the US Postal Service delivered 50.174 and 19.974 billion pieces of first and third class mail, respectively. For 1987, these figures had risen to 78.933 and 59.734 billion for annual percentage increases of 2.7 percent for first and 6.7 percent for third class mail.

In addition to these factors, a powerful set of economic forces have tended to dampen the public's reaction to recent increases in postal rates.

Table 4. Increases in First Class Postage Stamp Price Versus Per Capita Disposable Income

Year	1968	1971	1974	1975	1978	1981	1985
1971	-2.88						
1974	-0.75	1.37					
1975	-3.43	-3.84	-21.02				
1978	-0.94	-0.10	-1.21	4.73			
1981	-0.77	-0.13	-0.77	2.30	-0.19		
1985	0.40	1.10	1.03	3.01	2.27	4.02	
1988	0.59	1.19	1.16	2.68	2.07	3.00	1.62

Source: 1989 Statistical Abstract of the United States and *1990 Economic Report of the President*

increases in first class stamp prices by a considerable margin.

Table 4 compares the changes in the price of first class stamps with changes in per capita disposable income. By subtracting the percentage changes in stamp prices (Table 1) from the percentage changes in disposable income (Table 3), Table 4 shows when (and by how much) stamp prices have risen faster (or slower) than disposable income. If the figure in Table 4 is negative, stamp prices rose faster than per capita disposable income; if the figure is positive, income rose faster than stamp prices.

For example the ratio or the cost

that the increases in postal rates was 21.02 percentage points bigger than the corresponding increase in per capita disposal income. While stamp price increases tended to exceed changes in per capita disposable income during the late 1960s and early 1970s, since then postal rates have lagged behind increases in US per capita disposable income. By raw count, 16 of 28 entries in Table 4 are positive, indicating that income growth exceeded stamp price increases. The divergences between income growth and stamp price increases are even more dramatic if one considers the dollar magnitude of a typical family's disposable income relative to its direct expenditures for first class stamps.

Will the 30¢ stamp be a reality? Almost certainly. According to the St. Louis Federal Reserve, aggregate disposable income has grown at an annual rate of 8.1 percent from January 1988 through April 1990. If this trend in income growth continues, we can "afford" 30¢ stamps. Further, the direct per capita dollar magnitude of the increase is relatively small.

Table 3. Annual Percentage Increases in Per Capita Disposable Income

Year	1968	1971	1974	1975	1978	1981	1985	Disposable Income
1968								$3,037
1971	7.19							$3,740
1974	8.13	9.09						$4,855
1975	8.25	9.06	8.98					$5,744
1978	8.66	9.30	9.45	9.61				$6,968
1981	8.94	9.47	9.63	9.74	9.88			$9,243
1985	8.34	8.59	8.46	8.41	7.90	6.43		$11,861
1988	7.98	8.13	7.92	7.84	7.31	6.24	5.97	$14,116

Source: *1990 Economic Report of the President*

Table 3 is similar to Table 1, but instead of first class stamp prices, Table 3 provides information on US per capita disposable income. With few exceptions, the annual percentage growth in disposable income usually exceed the corresponding

of first class stamps rose 30 percent from 1974 to 1975; in contrast per capita disposable income rose 8.98 percent during the same period. Thus the -21.02 percent entry at the intersection of the 1975 row and 1974 column in Table 4 indicates

Michael H. Cosgrove

Does the Federal Reserve Have a Mission?

The idea of missions and strategies is age-old. The Chinese classic, *The Art of War*, written around 500 B.C., focused on military strategy. Introduced to the West only shortly before the French Revolution, its ideas have found their way into modern business strategy. In fact, the notions of strategies are now central to developing successful businesses as such academic business strategists as Michael Porter testify.

Businesses and the military utilize strategy by asking and answering versions of the same four generic questions. For a company these include:

1. Where are we now? Assessment of the current competitive environment and a company's position in that environment relative to its customers, competitors, and suppliers.

2. Where do we want to go and when? The process of defining a company's mission and time frame.

3. How do we get from the first answer to the second? This is the strategy.

4. Can we do it? The iterative process of deciding if available resources and responses of customers and competitors allow achievement of the mission.

In today's business environment each question is difficult to answer, and answers must constantly be reevaluated as the business environment changes. Some companies may deny going through this iterative process but whether it is a company, an individual making a life plan, a general thinking about positioning his troops, or governmental institutions planning for the future, the same questions tend to be asked and answered.

One exception seems to be the Federal Reserve, which appears to behave in a reactive manner rather than a strategic one when attempting to achieve its goal of price stability. Recent events suggest that perhaps the Federal Reserve may be slowly moving toward the idea of a mission.

Record

Data on price levels suggest that price stability, as a mission, has only been given lip service by the Federal Reserve. For instance, inflation, as measured by the implicit price deflator, averaged 2.4 percent, 2.6 percent, and 6.5 percent, respectively, in the 1950s, 1960s, and 1970s. From 1980 through 1988 inflation averaged 4.0 percent. A 4.0 percent annual inflation rate implies the price level increases by nearly 50 percent every ten years.

In its battle against inflation, the Federal Reserve took a nonstrategic approach. It reacted to changes in the economic environment. Instead of asking and answering the four questions outlined here, the Federal Reserve took the approach characterized by William McChesney Martin, Jr., Chairman of the Federal Reserve from 1951 to 1970, as "leaning against the wind."

"Leaning against the wind" is nonstrategic and, in a sense, passive, as it allows the economic environment to determine monetary policy. Being strategic would imply utilizing monetary policy to determine the economic environment; in particular, monetary policy could create an economic future characterized by price stability.

Inflation numbers, then, suggest that the Federal Reserve is not on a price stability mission if price

stability is defined as the elimination of long-term inflation. People at the Federal Reserve, past and present, all say that the Federal Reserve does not follow or have a price-stability mission.

People

Lawrence K. Roos, president of the Federal Reserve Bank of St. Louis from 1976 to 1983, a period covering portions of the Burns and Volcker regimes, provides this perspective in the Winter 1986 *Cato Journal*.

> *There are no clear, achievable goals promulgated by monetary policymakers. Never once in my participation in meetings of the Federal Open Market Committee [FOMC] do I recall any discussion of long-range goals of economic growth or desired price levels. It was like trying to construct a house without agreeing upon an architectural design. Instead of seeking a few achievable goals, the Federal Reserve is supposed to solve all sorts of problems, including inflation, unemployment, lagging real output growth, high interest rates, balance of payments disequilibrium, volatile exchange rates, depressed stock prices, a sagging housing industry, and the world debt crises. Now, asking monetary policymakers to do all this is sheer nonsense.*

Roos continues:

> *I do not think that the leaders and the staff of the Federal Reserve actually feel that money growth can be controlled, even over a one- or two-year period. I can tell you without violating any confidences that more than once when we met, when the*

money growth M1 figure was disclosed since the previous FOMC meeting, someone would say that we lucked out this time. There is not a serious belief that this machine can be guided by controlling money. Indeed, I do not believe that the control of money growth ever became the primary priority of the Fed. I think that there was always and still is a preoccupation with stabilization of interest rates.

W. Lee Hoskins, the current president of the Cleveland Federal Reserve Bank and rotating voting member of the Federal Reserve Open Market Committee, provides a perspective very similar to that of Mr. Roos in the November 1987, April 1988, and February 1989 Cleveland Federal Reserve Bank Economic Commentaries.

November 1987—Clarifying objectives and obtaining support for pursuing them should be the order of the day for policymakers. Stating goals and setting priorities for the monetary policy process would be a very useful step. It would promote discussion of these goals and assist in the formulation of a broader consensus on the primary responsibility of monetary policy....
I [Hoskins] believe that a more forthcoming statement of monetary policy objectives can make a material contribution to reducing market uncertainty by making an inflation-free environment our primary goal, and also by specifying a time path, perhaps three to five years, over which we will achieve it.
April 1988—The basic objective of monetary policy should be to stabilize the price level.... When central banks lose credibility by failing to commit to a zero-inflation objective and following through with credible actions to achieve it, they create uncertainty.... When central banks stabilize price levels, they create a healthy environment for private

decision-making and resource allocation.
February 1989—The Federal Reserve's monetary policy can best promote an efficient economic system by establishing a stable price level environment.... But a 4 to 5 percent inflation rate means that the overall price level increased by 30 percent during the last six years.... I am deeply disappointed by this performance.... I am far more interested in providing some information that is not public—indeed, that does not really exist.... I [Hoskins] sense that something even more valuable is missing: a clear message about the Federal Reserve's inflation goals, stated in a way that the public can actually use for its own decisions.

Hoskins and Roos both seem to be saying that the Federal Reserve operates without a mission—no goal, no road map for going anywhere, and no timetable.

What is the significance of the Federal Reserve operating without a mission? Take a business entity without a mission and strategy and compare it to a goal-directed business. Most people would sooner bet the ranch on a company with a mission and strategy, because such a company is more likely to perform better.

The same is true for the Federal Reserve. One might expect better performance (performance measured by changes in the price level) from a central bank with a mission and strategy for achieving that end.

Mission

Perhaps the real mission of the Federal Reserve ought to be to provide a stable economic environment for business and consumer sectors of the economy. Movement toward that end can be accomplished by the Federal Reserve clearly defining its monetary strategy. With a well-defined strategy and timetable for implementation,

uncertainty is reduced for business and consumers. Hoskins is pushing for that clear statement about the Fed's inflation goal in order to reduce uncertainty and have a stable economic environment. He wants the Federal Reserve to define as its mission the elimination of long-term inflation. And he may have found a listener and supporter for that mission—Federal Reserve Chairman Alan Greenspan.

Chairman Greenspan in a March 14, 1989 response to a question from the Senate Committee on Banking, Housing, and Urban Affairs, wrote,

I have emphasized the importance of reducing the rate of inflation to a level at which it no longer has economic significance—that is, one so low that people no longer feel the need to make any allowance for inflation in their decisions about purchasing real or financial assets. I am not sure what, in terms of our conventional price indexes, that translates into quantitatively, but I think we must at this point take as our working assumption that it is a number approximating zero. As to a timetable, it is clear that we cannot achieve price stability overnight without undue wrenching of the economy; however, if we do not have at least a rough sense that we want to achieve this objective within several years, it will lose operational significance and have little, if any, of the favorable expectational effect that it might otherwise have.

Chairman Greenspan provided an approximate answer to the second of the four generic strategy questions; Where do we want to go and when? Greenspan knows the answer to the first question: Where are we now? So he has taken a major strategic step forward compared with past chairmen by specifying a mission.

What would an inflation-free environment mean? Hoskins

stresses the reduction of the uncertainty caused by the misallocation of resources associated with variable interest rates. Inflation causes a host of problems, including economic distortions of the existing tax system as taxes on the return to capital are not adjusted for inflation, misallocation of capital across sectors of the economy, and understatement of depreciation expense during inflationary periods.

Other obvious benefits of an inflation-free environment include significantly lower interest rates. Longer-term treasury bonds, for example, would likely fall to 5 percent (see Greenspan's March 14 letter). Zero inflation, using the past-10-year real average interest rate, implies nominal long-term treasury bond interest rates at 5 percent or less. Achieving price stability suggests sizable price appreciation for current bondholders.

The cost of capital for businesses would decline dramatically suggesting higher levels of investment, leading to higher levels of productivity and output. Higher productivity would greatly assist in maintaining an inflation-free environment and improving American global business competitiveness.

The present value of future earnings would also be worth more in an environment of sharply lower interest rates implying significantly higher stock market valuations. In addition, mortgage interest rates would be lower, suggesting more affordable housing. The benefits of price stability are many.

Problems

The problems for the Federal Reserve, however, center on questions three and four: How do we get from where we are now to zero inflation, and can we do it? These problems are extremely difficult for the Federal Reserve to attempt to solve because of the relationship among the national economic goals of price stability, high employment, and economic growth, as well as the role of the US economy in the global economy.

Historically, to slow or reduce the price level, the Federal Reserve has created—through slower money growth and higher interest rates—a slowdown in economic growth. Achievement of price reduction has, therefore, in the short run, been in conflict with achievement of high employment and economic growth. The 1981–1982 recession, engineered by the Federal Reserve, was successful in reducing the inflation rate from double digits, as measured by the consumer price index in 1979 and 1980, to an inflation rate of 3.8 percent in 1982. But the cost was very slow economic growth in 1980, negative growth in 1981, and an unemployment rate averaging 10.4 percent by the first quarter of 1983.

The Federal Reserve's answer to question three (How do we get to zero inflation?) is likely to be the creation of a prolonged period of slow economic growth.

Reducing inflation from current levels by use of monetary policy is likely to have sizeable short-term costs. The Federal Reserve has to weigh those against the longer-term benefits of price stability in developing an answer to question four: Can we do it? Perhaps the question for the Federal Reserve should be: Can we afford the necessary economic and political costs?

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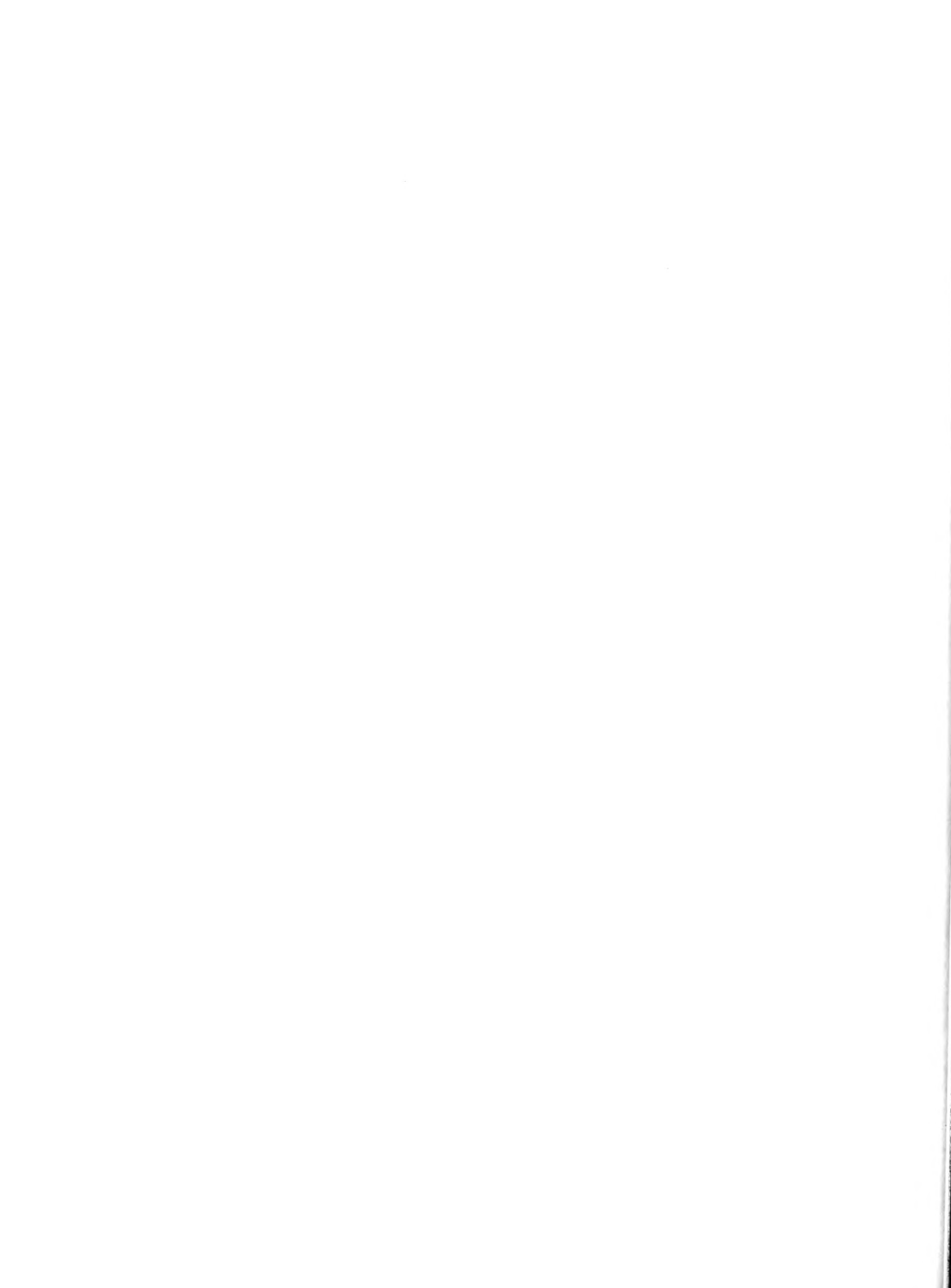
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Illinois Business Statistics

otal personal income in Illinois grew 7.3 percent in 1989, roughly in line with the national increase. Because of Illinois' relatively lower rate of inflation, real income grew somewhat more rapidly than nationally. The Illinois Econometric Model (IEM) forecasts of personal income emerge in part from predictions of future hourly rates of compensation and of hours

to be worked. For job categories studied, we predict 1991 hourly wages for construction workers and miners will be the highest ($19.57 and $18.18, respectively) (Chart 1). Fabricated metals workers will earn the median hourly wage ($11.39); leather products workers will earn the least, $7.06.

Of categories estimated by IEM, the construction workweek was

among the shortest at 38.7 hours per week on average. In fact, only textile mill workers can expect a shorter average workweek.

The prospect of continued moderate growth in personal income plus the state's ability to create new jobs (a record 5,772,000 persons were employed in April 1990) indicate an overall favorable economic prediction for the state.

Forecast Statistics

Personal Income (millions of dollars, seasonally adjusted at annual rates)

	1989	1990:I*	1990:II	1990:III	1990:IV	1991:I	1991:II	1991:III	1991:IV	1992:I
Total personal income	$219,838	$231,305	$234,817	$238,926	$242,831	$247,502	$251,567	$256,184	$260,472	$265,559
Total nonfarm	160,067	167,604	170,368	173,048	176,029	178,903	182,059	185,163	188,420	191,592
Total private nonfarm	140,010	146,429	148,864	151,262	153,837	156,393	159,203	161,994	164,826	167,668
Mining	947	976	1,031	1,032	1,025	1,020	1,024	1,021	1,019	1,016
Construction	9,597	10,029	10,216	10,369	10,531	10,722	10,883	11,061	11,259	11,489
Manufacturing	33,921	35,592	35,905	36,274	36,590	36,955	37,403	37,864	38,261	38,669
Durable	21,266	22,390	22,565	22,791	22,976	23,199	23,489	23,798	24,050	24,306
Transportation & public utilities	12,656	13,202	13,341	13,483	13,614	13,756	13,914	14,066	14,210	14,363
	11,721	12,180	12,412	12,575	12,753	12,916	13,105	13,277	13,442	13,611
Wholesale trade	13,396	13,776	14,009	14,219	14,438	14,663	14,895	15,131	15,348	15,583
Retail trade	14,285	14,615	14,713	14,827	15,074	15,188	15,423	15,586	15,802	15,924
Finance, insurance, & real estate	13,813	14,822	15,104	15,403	15,727	16,062	16,400	16,749	17,118	17,498
Services	41,618	44,439	45,473	46,563	47,699	48,867	50,071	51,305	52,577	53,877
Government	20,057	21,175	21,504	21,786	22,192	22,510	22,856	23,168	23,595	23,924

Gross State Product (millions of dollars, seasonally adjusted at annual rates)

	1989	1990:I*	1990:II	1990:III	1990:IV	1991:I	1991:II	1991:III	1991:IV	1992:1
Total	$258,153	$272,228	$275,866	$280,301	$284,745	$289,366	$294,031	$299,048	$304,114	$309,033
Total private nonagric.	230,736	243,333	246,663	250,745	254,826	259,082	263,377	267,999	272,672	277,200
Mining	1,609	1,325	1,364	1,312	1,270	1,233	1,216	1,184	1,155	1,130
Construction	10,921	11,274	11,443	11,652	11,892	12,031	12,201	12,415	12,667	12,814
Manufacturing	49,946	53,502	53,948	54,520	55,015	55,583	56,218	56,889	57,510	58,101
Durable	27,836	29,880	30,082	30,365	30,580	30,844	31,191	31,566	31,871	32,174
Nondurable	22,109	23,622	23,866	24,156	24,435	24,738	25,027	25,323	25,638	25,928
Transportation & public utilities	25,787	26,762	27,015	27,587	27,948	28,487	28,954	29,503	30,056	30,487
Wholesale trade	22,666	23,187	23,431	23,731	24,092	24,431	24,781	25,135	25,510	25,881
Retail trade	23,471	24,636	25,038	25,490	25,895	26,342	26,740	27,196	27,626	· 28,087
Finance, insurance & real estate	47,103	50,061	50,700	51,394	52,339	53,310	54,242	55,185	56,227	57,326
Services	49,234	52,586	53,724	55,060	56,375	57,665	59,026	60,492	61,922	63,374
Government	23,286	24,217	24,670	24,948	25,293	25,530	26,036	26,334	26,694	26,983
Agriculture	4,131	4,678	4,534	4,608	4,626	4,754	4,619	4,714	4,749	4,850

*Forecast begins

Illinois Employment Forecast (in thousands, seasonally adjusted at annual rates)

	1989	1990:I	1990:II*	1990:III	1990:IV	1991:I	1991:II	1991:III	1991:IV	1992:I
Total nonfarm employment	5,179.2	5,209.8	5,214.4	5,217.3	5,229.9	5,246.6	5,241.1	5,248.2	5,254.7	5,274.3
Total private nonfarm emp.	4,441.5	4,466.0	4,468.9	4,469.7	4,481.7	4,499.2	4,494.0	4,493.9	4,502.8	4,526.6
Mining	19.9	19.8	20.1	19.8	19.7	20.4	19.5	19.2	19.3	20.0
Construction	209.7	215.8	214.2	214.0	213.8	217.2	214.0	211.9	210.9	216.9
Manufacturing	981.5	978.7	971.4	968.8	964.9	962.8	961.3	961.3	960.0	959.2
Durable	598.3	595.8	591.1	589.7	587.1	585.5	584.8	585.4	584.6	584.0
Primary Metals	56.3	56.0	54.6	54.1	53.6	52.9	52.6	52.7	52.5	52.0
Fabricated Metals	107.2	106.0	104.6	104.4	103.8	103.3	102.6	102.2	101.7	101.1
Nonelectrical Machinery	154.2	155.4	154.5	155.1	155.1	155.1	156.4	158.0	158.7	159.3
Electrical Machinery	118.3	117.9	118.2	118.0	117.8	117.8	117.9	118.2	118.5	118.9
Nondurable	383.2	382.8	380.4	379.0	377.8	377.3	376.5	375.8	375.4	375.2
Food & kindred products	90.2	90.0	89.5	88.9	88.8	88.5	87.6	86.7	86.7	86.7
Printing & publishing	112.8	112.6	112.2	111.9	111.2	111.3	111.4	111.4	110.8	110.7
Chemical & allied produc	61.1	61.5	61.4	61.4	61.3	61.0	60.9	61.0	61.0	60.8
Transportation & pub. utilities	304.5	306.2	306.7	306.5	306.2	306.8	306.3	306.4	305.8	306.4
Wholesale trade	374.1	375.7	374.2	373.6	375.0	376.6	376.0	375.4	376.5	378.0
Retail trade	900.7	904.7	906.4	903.6	907.4	909.3	909.9	909.0	908.7	911.0
Finance, ins. & real estate	372.4	373.7	375.7	377.5	380.1	381.9	381.4	381.3	383.0	384.7
Services	1,278.9	1,291.5	1,300.1	1,305.9	1,314.5	1,324.2	1,325.6	1,329.4	1,338.5	1,350.4
Government	737.7	743.8	745.5	747.7	748.2	747.4	747.1	754.2	752.0	747.6

*Forecast begins.

Chart 1. Forecast of Average Hourly Wages for 1991

Hourly Wage
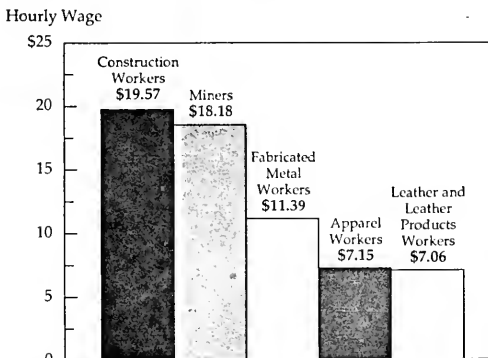
Chart 2. Forecast of the Number of Hours Worked per Week for 1991

Weekly Hours
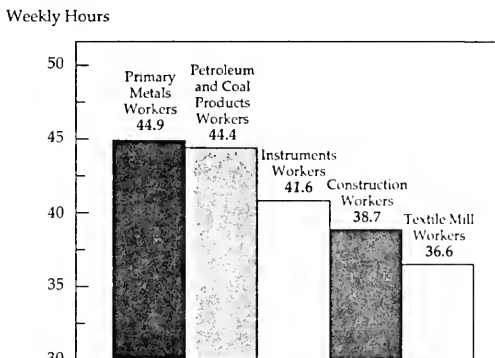
Historical Statistics

	% Change April 1989 April 1990	Apr. 1990	Mar. 1990	Feb. 1990	Jan. 1990	Dec. 1989	Nov. 1989	Apr. 1989
Building Permits								
Residential housing units	-23.16	3.702	3.479	2.539	1.643	1.432	2.408	4.818
Value of residential units	-8.99	$346,504	$317,335	$226,860	$223,737	$190,536	$282,081	$380,748
Value of nonresidential housing								
Industrial buildings	-9.38	$18,562	$18,396	$12,119	$20,819	$36,222	$32,883	$ 20,483
Office, banks, and professional buildings	-77.22	$21,268	$55,825	$25,619	$31,828	$19,817	$33,361	$ 93,349
Stores and other mercantile buildings	-30.12	$27,770	$54,288	$28,440	$37,636	$75,891	$32,009	$39,739
Other	-19.68	$5,800	$4,589	$3,393	$4,668	52,354	$7,065	$7,221
Consumer price index								
North Central US	4.14	125.8	125.5	124.9	124.5	123.2	123.2	120.8
North Central/pop. more than 1,200,000	4.43	127.3	126.9	126.4	125.7	124.3	124.4	121.9
North Central/pop. 360,000-1,200,000	3.48	124.8	124.7	124.4	124.2	123.0	123.0	120.6
North Central/pop. 50,000 to 360,000	3.63	125.6	125.3	124.5	124.6	123.2	123.3	121.2
North Central/pop. less than 50,000	4.13	121.1	120.8	119.8	120.0	118.8	118.6	116.3
Chicago	5.16	130.4	129.5	129.2	128.1	126.5	126.7	124
St. Louis								

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Review

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Contents

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Robert P. Hartwig

Public Utilities and Their Regulation in Illinois

Customers of Illinois' electric and natural gas utilities complain about exorbitantly high rates, citing numerous large rate increases with no perceptible improvements in service. In response to their perceived mistreatment, they have formed consumer advocacy groups such as the Citizens Utility Board (CUB) and Citizens Against Illinois Power. As a consequence, it is rare for a utility's rate increase request to go unchallenged. In several instances courts, including the state supreme court, have been persuaded to overturn rate increases.

Frustration with high rates and frequent power outages has caught the attention of many Chicago-area governments. Thirty-four suburban communities in Cook, DuPage, and Lake counties with approaching expiration dates for electrical service have banded together in order to increase their bargaining power against Commonwealth Edison. In Chicago, the Daley administration gave notice to Comm Ed that the city will terminate its current franchise agreement with the utility when it expires in 1991, but eventually decided on a one year extension of the current agreement pending the outcome of an investigation of the company.

This article will present a set of facts about public utilities, the rates they set, the regulation of those rates, and the actual costs to consumers of natural gas and electricity

in Illinois. The role of market structure is also considered as are some reasons why monopolies exist at all.

As we shall see, it is difficult to place the blame for high energy costs squarely and singly on the state's utilities. It is true that most public utilities are monopolies, but with appropriate regulation they may be the least-cost and most efficient method for providing energy service. An evaluation of public utilities must also take into account the actions and rulings of the Illinois Commerce Commission (ICC), the state regulatory agency having jurisdiction over all public utilities in Illinois. Moreover, the franchise agreements that communities enter into with public utilities also play a role in determining user costs. Most franchise agreements are exclusive and often run well into the 21st century, an arrangement that encourages high rates.

How Illinois Electric Costs Rank Nationally

Table 1 compares the cost of electricity in Illinois with other midwestern states; for reference, the

nation's ten most expensive and ten least expensive states are also included. States are ranked according to their cost relative to other states. The cost of electricity in Illinois is the highest among neighboring states. Costs in 1989 were 31 percent above those in Minnesota, which has the lowest rates in the region. Electricity costs in Illinois were nearly 15 percent above Michigan, which has the second highest rates in the midwest. Moreover, Illinois is one of the most expensive states in nation, ranking an abysmal 41st out of the 50 states. Illinois' high cost per kilowatt hour (kWh) is anomalous in the midwest. Such charges are more typical of costs found in the energy-starved northeast.

Illinois Utilities: Institutional Arrangements

Like most public utilities in the United States, Illinois' power generating companies have local monopolies in the sale of natural gas and electricity. As the sole supplier of those products, the utility is able to set its own price, subject to ICC approval. There is a view that such

Table 1. Electric Costs for Selected States (cents per kWh)

Midwestern States			10 Least Expensive			10 Most Expensive		
State	Cost	Ranking	State	Cost	Ranking	State	Cost	Ranking
Illinois	7.77	41	Washington	3.30	1	Illinois	7.77	41
Michigan	6.62	33	Idaho	3.69	2	Vermont	7.81	42
Missouri	6.53	32	Montana	3.83	3	Massachusetts	8.00	43
Iowa	6.46	27	Oregon	4.39	4	Rhode Island	8.16	44
Indiana	6.06	24	Wyoming	4.41	5	Hawaii	8.26	45
Ohio	5.77	16	W. Virginia	5.02	6	Connecticut	8.28	46
Wisconsin	5.60	13	Kentucky	5.19	7	New Hampshire	8.32	47
Minnesota	5.36	9	Nebraska	5.29	8	New Jersey	8.58	48
			Minnesota	5.36	9	New York	8.73	49
			Oklahoma	5.38	10	Alaska	8.85	50

Source: *The 1989 Development Report Card for the States*, The Corporation for Enterprise Development, Washington, DC.

a system leaves ratepayers feeling helpless and contributes to the perpetuation of an ages-old distrust of monopoly.

Compounding the problem is the fact that the utility's monopoly is guaranteed by local governments for extended periods. Table 2 gives the utility service expiration dates for natural gas and electricity for selected Illinois communities. Clearly, many of them have compromised their bargaining positions with gas and electric utilities. With franchise agreements lasting up to 40 years, consumers are legally bound to pay whatever set of rates emerges in the future. The increases can include costs reflecting mismanagement and poor planning, a common charge against utilities owning nuclear power plants. No community entering a franchise agreement in the 1940s could have foreseen the experience with nuclear plants of the 1970s and 1980s.

Illinois Utilities: Profiles and Prices

Illinois has nine major private suppliers of natural gas and the same number for electricity. There are also many smaller municipally owned facilities. All have exclusive contracts to provide service to communities in the state. Charts 1 and 2 show the average price of electricity and natural gas, respectively, for each of the private utilities from 1983 through 1988.

Chart 1 shows that the citizens and businesses of the city and suburbs of Chicago, who are served by Commonwealth Edison, paid the highest average electrical cost in the state throughout the period. Comm Ed's 1988 rates averaged nearly 60 percent higher than those of Union Electric, based in St. Louis, Missouri, which serves about 70,000 customers in southwest Illinois and has the lowest average cost per kWh anywhere in the state. There is a view that businesses serving a large market enjoy economies of scale. If this is the case, it is difficult to understand why Commonwealth Edison's rates are so high. It provides service to millions (see *Why Monopolies Exist*, page 6). Even

Table 2. Utility Service Expiration Dates (selected communities)

City	1980 Population	Service	Utility	Expiration Date
Chicago	6,060,387	electric	Comm Ed	1991
Champaign	58,133	electric	IP	2018
Decatur	94,081	electric	IP	2010
E. St. Louis	55,200	gas	IP	2014
Joliet	78,000	gas	NIGas	2030
Naperville	79,800	gas	NIGas	2029

Source: *Moody's Public Utility Manual,* various issues.

South Beloit, a tiny utility along the Wisconsin border that provides service to 5,500 customers, sold electricity at three-fourths the cost charged by Comm Ed.

Chart 2 details Illinois residential natural gas prices. Prices moved sharply upward for all utilities from 1980 to 1983, then remained relatively stable in 1983 and 1984. Natural gas prices have generally declined since 1985, due, it is believed, to a nationwide natural gas surplus, regulatory changes allowing gas utilities wider access to other suppliers, and the development of a spot market for gas in the midwest. Two notable exceptions to the trend are Illinois Power Company (IP) and Central Illinois Public Service Company (CIPS). CIPS was the only gas utility with increasing gas costs from 1986 to 1988. In 1980 it had the second least expensive rates, but by 1988 had the second most expensive. IP's rates rose in 1987, then declined only very slightly in 1988. By 1988 IP's rates were the highest in the state by a large margin, exceeding CIPS by 12.7 percent and Northern Illinois Gas (NIGAS) by 52.3 percent.

It is interesting to note that the two utilities with the most rapid gas price increases were IP and Central Illinois Light Company (CILCO), both of whom have had difficulties with power plants. Of course, it is not permissible to subsidize the costs of electric facilities with gas revenues. Even so, it is interesting to note that CILCO has recovered its costs in the canceled

Chart 1. Illinois Electric Rates by Utility

¢/kWh

Legend:
— Commonwealth Edison
- - - - Central Illinois Light
·········· Central Illinois Power
— — Iowa-Illinois
—··— Interstate Power
—··— Illinois Power
·---·- Mt. Carmel
- - - S. Beloit
······ Union Electric
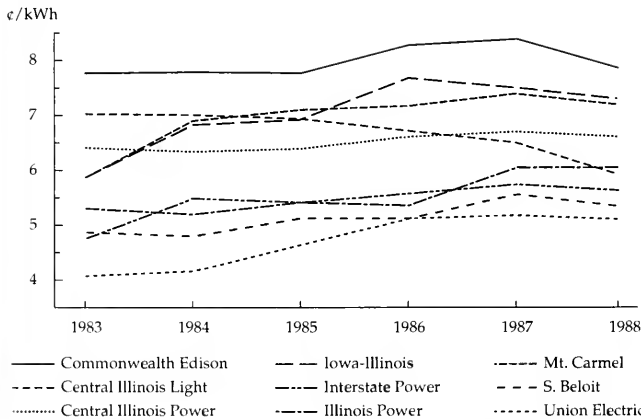
Source *Annual Report on Public Utilities*, various issues, Illinois Commerce Commission, Springfield, IL.

Chart 2. Illinois Residential Natural Gas Prices, 1980 -1988

Cents per Therm

Legend:
— Central Illinois Light
– – – Central Illinois Public Service
·········· Illinois Power
–·– Northern Illinois Gas
– – – – North Shore Gas
–––– Peoples Gas, Light

Source: Illinois Commerce Commission Comparative Statistics of Gas Utilities, 1980 - 1988, reprinted from *1990 Illinois Economic Outlook*

Table 3. Rate Requests and Illinois Commerce Commission Rulings (millions of dollars)

Company Date Filed	Date Effective	Amount Requested	Amount Granted	Percent Change
Illinois Power				
NA	4/89	$256.0	$60.5	6.9%
7/89	a	265.0	a	28.2
2/90	b	215.0	b	23.0
Commonwealth Edison				
NA	2/80	NA	389.6	NA
NA	7/81	NA	503.6	NA
NA	12/82	NA	660.7	NA
10/83	7/84	4623.0	282.5	6.6
11/84	11/85	583.0	494.8	11.0
8/87	1/89	1419.9	235.0	4.7
4/90	3/91c	982.0	b	17.0
Central Illinois Light				
2/80	1/81	32.9	31.0	NA
8/81	7/82	46.2	43.6	NA
NA	12/83	NA	NA	5.3
7/87	9/87	-16.4	-16.4	-6.0
11/87	12/87	-3.0	-3.0	NA
11/87	12/87	-3.4	-3.4	NA
8/88	9/88	-9.6	-9.6	NA
Peoples Gas				
NA	1984	NA	62.0	NA
12/87	1/88	-8.9	-8.9	NA
North Shore Gas				
1/88	NA	-1.1	-1.1	NA
NA	9/84	NA	8.1	NA
12/87	1/88	NA	NA	NA
Northern Illinois Gas				
NA	11/74	NA	62.6	11.2
NA	11/78	NA	40.8	3.7
NA	1/80	NA	3.7	0.3
NA	7/82	NA	114.4	6.9
NA	1/87	NA	-7.4	NA
NA	1/88	NA	-14.3	-1.2

Source: *Moody's Public Utility Manual*, various issues, and the *Chicago Tribune*, various issues.
aRuling from the ICC due in June 1990.
bNo rule date set as of April 1990.
cProposed.
NA-Not Available.

(December 1983) Duck Creek II project, and its natural gas prices have fallen sharply since 1985. In contrast, IP has had continuing problems at its Clinton nuclear site, and its natural gas prices remain very high. Moreover, utilities in the US that provide both gas and electric service have electric costs that are, on average, 6 percent higher than electric alone and produce 15 percent less output. The issue of cross-subsidization between natural gas and electric service deserves careful study.

Regulation: The Illinois Commerce Commission

The Illinois Commerce Commission (ICC) is the government entity entrusted with regulation of the state's utilities. The ICC, created by the Illinois General Assembly for the purpose of regulating utilities and commercial transportation, describes its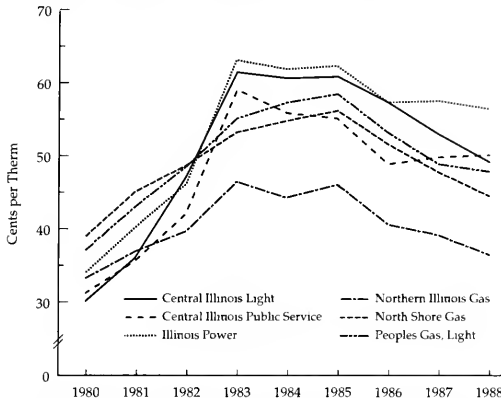 mission as follows: "...to continue providing for safe, efficient, and reliable public utility service within Illinois at the least cost to ratepayers, while allowing the utility the opportunity to earn a fair rate of return."

A partial history of ICC rate change rulings for major utilities

(see Table 3) reveals that Illinois utilities are quite diligent in filing rate-increase requests and that their diligence is usually rewarded. For example:
•Commonwealth Edison has asked for the greatest increases, ranging from a low of $282.5 million in 1984 to a high of $660.7 in 1982. Cumulatively, the company received increases in excess of $2.5 billion in the 1980s. In April 1990, Comm Ed filed for a 17.7 percent, $982 million increase, its second largest ever. In June 1990, the Illinois Supreme Court ruled that the ICC had improperly granted a $480 million increase and ordered the refund of all money collected.
•Illinois Power, which serves 550,000 customers in the central part of the state, has been very active in seeking rate adjustments to cover building costs of the Clinton nuclear plant. Plagued by cost overruns and mechanical problems, its Clinton experience led IP to suspend dividend payments in April 1989 and to declare losses of $4.34

per share of stock for the year 1989, the first time IP has suspended dividend payments in 42 years. In April 1989, IP was successful in obtaining a $60.5 million rate increase. It had requested $256 million. What is unusual about this increase is that the ICC staff that studied the request recommended a $60 million *decrease* in rates. Voting members of the ICC, however, overruled the staff and granted an increase. IP's most recent increase was approved by the ICC in June 1990. The company received a $75 million (7.7 percent) increase, though it had requested $216 million. Since 1986, IP's rate increases have exceeded those of all

other Midwestern utilities. IP insists that its requests are justified because the ICC had earlier deemed the Clinton plant to be "100 percent used and useful," thereby allowing the full cost to be reflected in the rate base and requiring that all costs be passed along to consumers. In making the most recent rate decision, however, the ICC found the plant to be only 60.9 percent "used and useful."

Table 4. Illinois Electric Utilities Revenue per kWh by Class of Service by Company (cents) (1988)

Class of Service	CILCO	CIPS	Comm Ed	Illinois Power	Inter-St Pwr	Iowa-Ill	Mt. Carmel	South Beloit	Union Elec
Residential Sales	7.58	7.99	10.75	8.45	6.97	9.38	7.82	6.96	8.05
Large (Industrial)	4.15	4.82	5.75	4.21	4.25	4.95	6.48	4.66	3.69
Small (Commercial)	6.84	7.27	7.69	7.33	6.80	7.47	8.92	6.31	6.05
Public Street and Highway Lighting	6.53	5.68	5.99	10.04	12.65	7.40	0.00	11.00	9.60
Other Sales to Public Authorities	6.07	5.67	6.41	5.50	4.75	6.23	6.62	0.00	0.00
Sales to Railroads and Railways	0.00	0.00	6.17	0.00	0.00	0.00	0.00	0.00	0.00
Total Sales to Ultimate Customers	5.88	6.61	7.85	6.10	5.51	7.21	7.10	5.52	4.88
Sales for Resale	5.14	4.55	4.19	3.84	2.97	0.00	3.41	-0.37	0.00
Interdepartmental Sales	6.06	2.68	0.00	0.00	17.51	0.00	0.00	2.20	0.00
Total Sales of Electricity	5.88	6.53	7.78	6.01	5.50	7.21	7.01	5.33	4.88

•Central Illinois Light Company sought frequent rate increases in the early 1980s but has actually been reducing its rates by small amounts since 1987. Its 1981–1983 rate increases were largely to meet proposed plant construction costs.

Costs would have increased further, but CILCO canceled its Duck Creek II project in 1983. The $9.6 million decrease in rates effective in 1988 reflects the completion of recovery costs associated with that project. The other decreases are the result of reduction in federal tax rates or lower capital costs.

•NIGAS has had several large rate increases since the mid 1970s, ending with a $114.4 million increase in 1982. Since 1988, NIGAS has been forced to pass along $14.3 million in federal tax savings to its customers.
•CIPS has had no increases in its retail electric rates since 1982 nor are any pending.

Why Monopolies Exist

Monopolies can arise for a variety of reasons. First, a firm might own all existing supplies of a resource or possess an exclusive patent. For example, at one time Alcoa controlled nearly all the world's known reserves of bauxite, while Xerox had exclusive patent rights to produce photocopiers, resulting in monopolized markets for each.

Second, some monopolies are sanctioned by governments. The post office is one example as is the monopoly on liquor stores in some states. Neither is a *natural monopoly*, because they exist only through government prohibition of competition.

Third, economies of scale in production can exist. This means that a firm's average cost of production falls over a very large range of output. The result is that a single firm can provide a product more cheaply than could two or more firms. Firms that operate under such conditions are called *natural monopolies*. Public utilities like Commonwealth

Edison and Illinois Power are examples. If IP and Comm Ed were allowed to compete for customers, their distribution systems would overlap and become redundant, an inefficiency that would lead to higher per-unit costs.

Monopolies, if left to their own devices, will charge a price that is higher than if the market were competitive. One way to offset the high prices is for the government to set a price for the monopolist that is less that what would be charged in the absence of regulation but which still leaves the firm with a fair rate of return. The result will be greater output at lower prices, since the firm is obliged to sell more output to maintain the same level of profit. In Illinois, the approval of public utilities' prices is entrusted to the Illinois Commerce Commission. Whether or not the ICC fulfills its mission is a debatable issue.
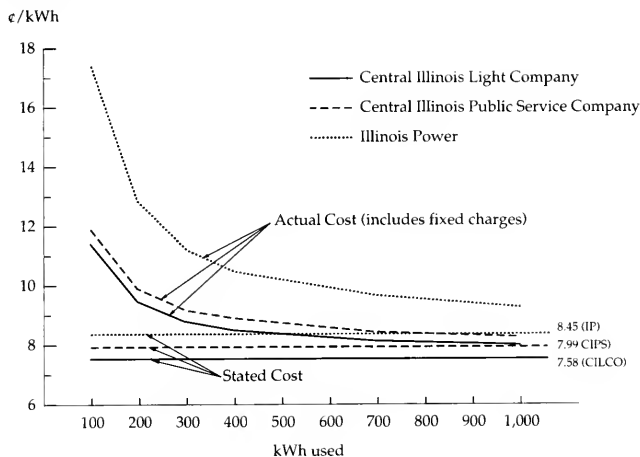
Other Costs

Comparisons between companies using averages over all rate classes can be deceiving. Utilities have complicated rate structures, with an individual customer's rates depending on the type and volume of service provided. As Table 4 shows, Commonwealth Edison's 1988 residential rates are almost three cents per kWh (38 percent) higher than the class-wide average. Illinois Power's residential electric rate exceeds its average by 40.6 percent, while its residential gas customers are charged up to 78 percent more than the average and over three times as much as some commercial and industrial customers.

Residential customers are the source most often tapped for additional revenue, but by no means the only source. Some utilities charge extremely high rates for public street and highway lighting. Examples are Interstate Power, Illinois Power, and South Beloit (Table 4). Why cities and towns are unable to obtain the same low rate as large industrial consumers is unclear, especially since the demand for street and highway lighting is highest at off-peak hours. Paradoxically, Comm Ed's price for such service is the second lowest in the state. Though at first it might appear that there could be cross-subsidization, between different classes of customer, such cross-subsidies are not permitted.

Utilities can bolster revenues through the use of facility charges, fixed fees that must be paid even if no gas or electricity is consumed. Chart 3 shows the 1988 cost per kWh for the first 100 to 1,000 kWh used for three utilities, CILCO, CIPS, and IP. Clearly, the per unit price of electricity is much higher for those using minimal amounts than for those who use substantial quantities of power. (The inclusion

Chart 3. Actual vs Stated Cost per Kilowatt Hour

¢/kWh

— Central Illinois Light Company
--- Central Illinois Public Service Company
.... Illinois Power

Actual Cost (includes fixed charges)

8.45 (IP)
7.99 (CIPS)
7.58 (CILCO)

Stated Cost

kWh used

of local, state, federal, and regulatory taxes would raise the true cost still further.) Facility charges are designed to offset the cost of the physical distribution system (for example, such things as transmission lines) used to deliver electricity (similar charges exist for gas service, so many customers must pay both). Although the physical distribution systems for all utilities are similar, IP charges two to three times as much for the same service. According to a recent survey of public utilities by the Citizens Utility Board, Illinois Power has the highest facility charges in the United States with Commonwealth Edison coming in second. Franchise fees paid by the utility to municipal governments constitute a hidden tax that must also be borne by ratepayers. Chicago residents will pay $70 million to Comm Ed that will then be transferred to Daley administration coffers in exchange for the privilege of a single-year extension of Comm Ed service.

Conclusion

It is reasonably clear that Illinois electric rates are the highest in the midwest and among the highest in the nation. It is also clear that companies providing both gas and electric service tend to have higher gas prices. However, there may be a variety of reasons for this tendency. Finally, because of facilities charges, taxes, and franchise fees, the actual user cost of energy can be much higher than the stated price.

Charles W. Calomiris and
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Cooperative Arrangements for the Regulation of Banking by Banks

G overnment is today the pri-
mary regulator of the US
banking system. The Federal Re-
serve System, the Federal Deposit
Insurance Corporation (FDIC), and
corresponding state organizations
formulate the rules by which banks
compete for loans and funds. In the
wake of the savings and loan crisis,
many observers have begun to
question whether government can
police the system properly. In this
article we suggest an alternative
system for banking regulation: vol-
untary, cooperative arrangements
among banks for self-policing and
self-insurance.

Although it may seem odd to
imagine voluntary banking leagues
assuming a regulatory role, there
are numerous examples of volun-
tary regulatory arrangements in the
United States today. Many profes-
sional organizations in this country
accredit members. The American
Bar Association and the American
Medical Association substitute for
government agencies as regulators
of their industries. In organized
stock and futures markets, the ex-
changes themselves handle a major
portion of the regulatory work and
standard-setting.

Although self-regulation is not
currently a major part of the US
banking system, American banking
history is full of examples of volun-
tary and cooperative arrangements.
Bankers have organized themselves
into leagues or entered into agree-
ments with a view to specifying the
rules by which banking was to be
conducted. Examples of such ar-
rangements include correspondent
relationships between banks, clear-
ing houses among banks in large
cities, self-insurance schemes that
encompassed whole states—and the

earliest arrangement, the so-called
Suffolk System of New England.

We will outline some of the com-
mon arguments for and against self-
regulating banking institutions. We
will consider what the nineteenth
century experience can teach us
about the possibilities today for
self-regulation of banks.

Cooperative Regulation versus Government Regulation

Regulation of banking by gov-
ernment serves three distinct and
potentially separable functions:
First, government agencies serve as
insurers; second, they are *policers of
bank quality and safety*; and third,
they function as *macroeconomic
policymakers*. The first two of these
roles, insuring and policing, can
also be carried on through private
arrangements among the banks
themselves. The third role, macro-
economic policy, is properly the
province of the federal government.

Government as Bank Insurer

Most insurance in the United
States is carried out through the
private sector. Government insur-
ance of banks is a notable exception.
The government insurance takes
two forms: the deposit insurance
schemes of the FDIC and similar
organizations, and the lender-of-
last-resort role of the Federal Re-
serve Bank.

The best justification for the gov-
ernment's insurance role actually
stems from macroeconomic consid-
erations. Widespread bank failures
in this country have been associated
with widespread economic disrup-
tion. Thus, widespread bank fail-
ures have costs well beyond the
financial system. Moreover, when

such failures are economy-wide, no
private system will have the assets
to make good on the resultant
claims. The government has the
biggest coffer of funds (and can
always print more if necessary).
Thus, it is the natural guarantor
against economy-wide banking
crises. Such guarantees build confi-
dence. Indeed, to the extent that
economy-wide crises result from
lack of confidence in the banking
system as a whole, the knowledge
that the government will step in if
necessary ensures that economy-
wide disruption will not occur.

But these macroeconomic consid-
erations do *not* justify the specific
forms of insurance that have actu-
ally come into place. The govern-
ment's role as a backup in the face
of cataclysmic failures does not im-
ply that government needs to be the
guarantor of individual depositors
in the face of isolated bank failures.

Government as Quality Police

The second role of government
regulation, setting and policing
standards, is also problematic.
Through various (sometimes over-
lapping) agencies, the government
formulates restrictions on the activi-
ties in which banks can engage and
the types and proportions of assets
that they may hold. Ancillary to this
function are the tasks of inspecting,
auditing, and enforcing the restric-
tions that have been devised.

In fact, the government's role as
setter of standards for banking is, in
large part, a side-effect of its role as
insurer. Federal deposit insurance
and the privileges of the discount
window are attractive subsidies
that distort the risk-taking decisions
of bankers and reduce the care with
which depositors choose their

banks for soundness. The structure gives banks the incentive to engage in excessively risky lending; the insurer therefore finds it necessary to take on the role of monitor and standard setter.

In this role the government faces natural constraints. When a regulator contemplates closing a troubled institution, a speedy decision is essential, because an institution's incentive to engage in risky practices increases as its problems increase. Recent experience demonstrates that regulators are likely to be slow in responding to crises, showing excessive forbearance. At the same time, government agencies by their nature tend to be inflexible in responding to innovation, restricting new and useful forms of financial arrangements by forcing conformity to the old, and possibly inappropriate, regulatory standards.

Private Insurance and Policing

In contrast, private organizations have natural advantages in policing and standard-setting. If the private organization is acting as the insurer, its incentives are to set standards that are in line with the insurance it provides. The bottom-line profitability of the insurance operation precludes excessive forbearance to troubled institutions; competition of other insuring groups forces rapid adjustment to innovation in the financial system and fosters the provision of new forms or levels of insurance as appropriate. Competition among insurance schemes provides an enriched menu of types of insurance and enables the institutions seeking insurance to provide

The Suffolk System: The Earliest Cooperative Arrangement

The earliest and most successful arrangement for bank cooperation was the Suffolk System, a network for clearing bank notes in early nineteenth century New England. Under the Suffolk System, virtually all New England banks maintained correspondent relationships with one or another of the Boston banks, which agreed to redeem peripheral banks' notes on prespecified terms. At the same time, Boston banks as a group agreed to make markets in each other's correspondent banks' notes on similar terms.

In the Suffolk System, a peripheral bank paid fees to its correspondent in Boston, usually in the form of zero interest on interbank balances, with extra charges for overdrafts. Each Boston bank was charged with regulating the circulation and monitoring the operations of its correspondents, and each Boston bank was liable to the other Boston banks for any losses they incurred in clearing the notes of its correspondents.

This privately organized system was the first clear example in US financial history of an organization in which the authority to regulate banks had been put in alignment with the incentives for maintaining standards and policing them. Boston banks undertook the risk of making markets in other banks' notes. To avoid creating perverse incentives for excessive leverage and risk-taking by correspondents, market makers kept track of correspondent banks' activities, required interbank deposits as collateral, and developed means for returning excessive issues of bank notes rapidly. The common knowledge that excessive issues were not feasible under the discipline of the Suffolk System made bank notes of members more readily accepted as a medium of payment and kept exchange rates uniformly at par.

The system began in 1819 as the scheme of Boston's Suffolk Bank. The bank agreed to make a market for peripheral banks' notes in Boston. In some cases, peripheral banks were given favored treatment in return for agreeing to deal exclusively through the Suffolk Bank. Seeking to expand its hold on the market, in 1824 the Suffolk Bank appealed to all Boston banks to finance a joint effort to return the currency of New England banks that had not agreed to its terms.

Clearly, the Suffolk Bank's intentions were not altruistic; its initial goals were to limit competition from peripheral banks and to profit from forced deposits. In its 1824 appeal to other Boston banks, it argued that Boston banks could increase their share of the loan market by forcing the contraction of the country banks. The 1824 redemption campaign prompted a "bank war" in New England in which the Suffolk Bank used the threat of random redemptions of large amounts of notes to coerce banks to join its system. In some cases, the Suffolk Bank clearly was selling "protection" against its own threats, and many country banks clearly resented the monopoly power the Suffolk Bank enjoyed.

On the other hand, the system effectively made New England a uniform currency area, with all bank notes trading at par throughout New England as early as the late 1820s. Many sanguine observers commented that the discipline brought by the Suffolk Bank increased the demand for country banks' notes, by reducing default risk and enhancing note liquidity. Some commentators argued that the increased demand for country banks' notes more than offset their expenses from membership in the system. Banking commissioners in Connecticut and Maine in fact praised the Suffolk System for its discipline and stability during the Panic of 1837.

an enriched menu of financial instruments to their depositors.

If these privately arranged insurance schemes take the form of co-insurance by banks, there are additional benefits from the relationship. There is an inherent economy in having banks monitor each other. Banks specialize in information-gathering: a bank's profitability depends on the officers' ability to make sound judgments about the credit-worthiness of borrowers and the riskiness of asset portfolios. Who could be better qualified to judge the solvency of a bank than other banks? Indeed, banks are constantly making such judgments in their day-to-day dealings with other banks. And if those banks engage in arrangements for mutual insurance, who has better incentive? The speed with which coalitions of bankers can and do act against individual member banks contrasts with the deliberateness typical of public regulation in this country.

In short, if normal deposit insurance is privatized, there will be a tendency for the standard-setting aspects of regulation to be taken on by the insurers. And given the specialized skills of banks in monitoring the soundness of portfolios of illiquid loans, the setting of standards and their monitoring will produce a natural advantage for mutual insurance schemes among banks. In such an environment, the policing of bank adherence to standards can also become the job of private agents: Where the government ensures compliance with its standards through legal sanctions, a mutual insurance scheme can ensure compliance through the threat of being dropped from the coalition.

The Remaining Role for Government

This is not to say that cooperative arrangements among banks can be *entirely* self-regulating. The government, through the courts, must remain the ultimate enforcer of such contracts as bank charters, or the insurance agreements established by

cooperatives. For example, it will still be the government's role to enforce the rules for bankruptcy or for taking over a bank that is unable to meet its depositors' demands for liquidity. As in the case of any other business, in banking there will still remain a possibility of fraud, and government must provide sanctions against it. But in all of these situations, the government ceases to be an active player on the day-to-day level. Instead, the government becomes a force in the background, whose very presence makes its actual intervention unnecessary.

One aspect of regulation in which government must maintain an active role is antitrust policy. Under a system of cooperative agreements among banks, government will need to ensure the continued existence of several competing cooperatives, in order to prevent monopolization of the banking sector from robbing society of the benefits of competition.

Protecting the Public?

Politicians often argue that the real role of government in banking is "protecting the public." They make the analogy with the role of government consumer protection programs, which inspect products and certify their safety and quality. But the importance of such a role for government would be greatly reduced in markets in which private groups organize to certify quality and set standards. Coalitions of banks will have incentives to maintain their reputation by enforcing their own standards and making them publicly known. Banks would compete for customers through the quality of the insurance they provide and through their membership in the standard-setting organization most attractive to their depositors. Unlike the current regulatory situation, this would foster greater diversity, allowing depositors with diverse needs and preferences to bank with institutions conforming to different standards.

The Debate about Self-Regulating Coalitions

Given the advantage inherent in self-regulating coalitions of banks, we might have expected the advent of inter-bank agreements and institutions to meet with general support. In fact, nineteenth century observers of cooperative self-regulatory banking arrangements were sharply divided in their views of the effectiveness of these relationships. Some observers took a sanguine view, emphasizing the stability and efficiency of these arrangements. Others took a jaundiced view, arguing that they were primarily coercive and exploitive. According to the jaundiced view, the profitability of banking coalitions derived from their ability to limit supply and engage in monopoly pricing. Any gains were at the expense of the public as a whole and accrued in particular to the large banks in the cooperative arrangement at the expense of the smaller banks.

The opinion of the public at large was also divided. Many of the dramatic instances of regulatory changes in nineteenth century banking were fueled by the jaundiced view of cooperative arrangements among banks. For many champions of federal government intervention into the banking system, the primary goal was the elimination of the power of city banks through their clearing houses, their correspondent relations, and their concentration of reserves.

The sanguine and jaundiced views of bank coalitions were well represented in the qualitative evidence collected by contemporary accounts of the Suffolk System. Observers have agreed that the system was effective in creating an area of uniform currency throughout New England and in promoting stable banking thanks to the disciplinary role of the Boston banks. They have disagreed about whether the benefits of the system went exclusively to the city banks or were

shared by country banks and the public at large.

In order to go beyond these qualitative assertions about the performance of the Suffolk System, we have gathered evidence comparing the performance of the banks of the Suffolk System with banks in nearby states. Our evidence derives from two sources: Congressional documents provide information on the balance sheets of state banks as based on the records of state regulators; and various bank note "reporters" are the source for discount rates on notes.

The evidence of the note discounts indicates that the Suffolk

Other Cooperative Arrangements

Clearing Houses

The New York Clearing House was founded in 1853 to facilitate check clearing among New York City banks. It soon developed features for co-insurance, providing for members to make markets in each other's liabilities and to pool resources in response to financial panics. During times of financial disturbance, members of the clearing house continued to clear checks, to assist each other through loans, and even to issue joint liabilities. These forms of co-insurance were made possible by the fact that they were aligned with the individual banks' incentives. The procedures were combined with substantial group authority to regulate behavior of individual banks, including reserve requirements, portfolio guidelines, and other restrictions on banking practices. Because membership in the coalition was valuable and because banks had an economic interest in enforcing regulations, the threat of expulsion for violations was a powerful and most credible disciplinary device.

Clearing houses developed in other major northern cities during the 1850s (Boston, Philadelphia, and Baltimore) and spread to cities throughout the country after the Civil War. But these coalitions were typically confined to banks operating in the same city. By so limiting membership, clearing houses ensured that their member banks maintained the incentives for efficient behavior, avoiding the temptation of member banks to "free ride" on the coalition. Monitoring could be accomplished easily so long as banks were not too distantly located. Furthermore, by keeping the numbers in a coalition small, the coalition ensured that member banks would continue to find it valuable to monitor one another, since the marginal benefit of monitoring a neighbor falls with the number of banks in the coalition.

State Insurance Schemes

While clearing houses are the best-known examples of coalitions of mutually regulating, co-insuring banks, they were not the only examples. In three antebellum state banking systems, Indiana, Ohio, and Iowa, state-wide coalitions of banks were created by statute. While these states' legislatures created the insurance systems, they did not run them. The law required members of the coalition to participate in the setting and enforcing of regulatory guidelines. More important, it created an incentive for banks to do so by making them mutually liable for any loss to banks' liability holders. The self-regulatory authority was granted the powers to set reserve guidelines and standards for banking practices. It also had the power to close offending banks. The number of banks was also limited in each of these states, so that the incentives to monitor were maintained.

These three midwestern co-insurance systems were extraordinarily successful. They suffered virtually no bank failures or fraud. Banking problems were detected early and corrected by the group leadership. During regional or national panics, in which suspension of convertibility was widespread, these banks typically maintained it. The performance of these three state systems is in sharp contrast to the uniform failure of government-run state bank liability insurance systems of the nineteenth century.

Informal Coordination

Finally, some banking coordination occurred in more informal ways, through ad hoc arrangements during crises. The antebellum South, with its small number of large branching banks, is the quintessential example. During the Panic of 1837, representatives of banks from all over the South met in Charleston, S.C., to agree on a plan for maintaining interbank convertibility in the face of general suspension of convertibility. Rules limiting banks' growth and activities in the interim accompanied agreements to make markets in each other's notes and deposits. Similarly, during the Panic of 1857, southern banks seem to have cooperated more effectively to pool reserves, support one another, and limit the disruptions due to suspension of convertibility.

The relative success of the South seems attributable, in part, to the greater ease of communication and monitoring in a system dominated by a relatively small number of geographically overlapping, branching banks. Unlike the many scattered unit banks of the North, southern branching banks could pool resources, monitor behavior, and reduce the transaction and information costs inherent in forming coalitions, without having to set up formal structures to do so.

System improved the acceptability of notes of *all* New England banks. The evidence from the banks' balance sheets also tends to confirm the view that the gains in efficiency from the Suffolk System were widely shared.

We find that the banks of New England were able to provide notes backed by lower levels of specie, but that the public regarded these notes as perfectly safe. Evidently public confidence in the New England banking arrangements enabled the banks to economize on holding of expensive reserves.

At the same time, the banking system had a higher penetration into the economies of the New England states than into the economies of the rest of the northeast. Apparently banks were better able to provide services for the population in the Suffolk System states; the natural conclusion is that the increased efficiency allowed the public at large to benefit from the advantages inherent in the system.

The results are not entirely rosy: There is evidence of greater disparity in the degree of banking services available in the areas of New England than in the Middle Atlantic states. Nonetheless, in absolute terms, even the least developed portions of New England were, for the most part, as well served as those in the Middle Atlantic area. In short, the preponderance of evidence supports the sanguine view of banking coalitions as beneficial to the economy as a whole.

Lessons for Current Regulatory Reform

The Problem and a Solution

In the wake of the difficulties of the savings and loan institutions, recent studies of deposit insurance funds have focused on the perverse incentives created by mispricing of deposit insurance. Insurance encourages excess risk-taking by existing banks, particularly if prior losses leave them with little capital to lose. Thus, insurance provides a potential

for unscrupulous, or merely inexperienced, entrepreneurs to enter banking as a means to finance their risky enterprises. Insurance tends to remove the discipline of the market, which normally would prevent such entrepreneurs from having access to funds: Depositors of insured institutions have little incentive to discriminate between responsible and irresponsible management when deciding where to place their funds.

Nonetheless, the insurance of bank liabilities exerts a desirable stabilizing influence. Banks, more than other institutions, are vulnerable to panics induced by depositors' uncertainty. How then can we provide credible protection of the banking and payments system without creating costs associated with the incentives for excessive risk-taking? It is here that the historical success of self-regulating, co-insuring systems of banks provides a possible solution.

The critical distinction between self-regulating agreements and government-run schemes is this: Only in the self-regulating agreements were the regulations aligned with incentives for the banks to maintain and police standards. By making banks as a group bear the costs for insuring depositors—and the savings from handling insurance more effectively—we can achieve more effective regulation.

Pitfalls along the Way

There are at least three challenges to a successful application of the lessons of self-regulating bank coordination to current banking reform: First, how can we ensure that banking coalitions will not degenerate into monopolistic cartels, using their powers of coordination to reduce the competitiveness of the banking industry? Second, given preexisting regulatory arrangements and vested interests in their maintenance, is it realistic to imagine politicians dissolving current agencies and relinquishing

authority to the banks? Third, are today's banks prepared for the responsibility—that is, do they have the resources to make co-insurance credible? Each of these concerns is legitimate; together they dictate important limitations on any attempt to incorporate self-regulatory features into the current system of federal deposit insurance. We will examine them in order:

• First, the problem of limited competitiveness. The record of the Suffolk System makes it clear that, while the potential for monopolization need not be an overwhelming concern, it is a legitimate one. In any new regulatory regime, the government must maintain an antitrust role, ensuring freedom of entry for new banks and competition among co-insurance arrangements. Ideally, there would arise a handful of parallel groups, each with several nationwide branching banks. So long as no group has a geographic monopoly, no alarm need be raised; but this dictates that special attention be paid to the problems of local market monopolization should the co-insurance arrangements be leagues of unit-banks.

• Second, the issue of political feasibility. It is fanciful to expect Congress all at once to scrap the existing system and replace it with nationwide, privately managed, bank groupings. Nonetheless, there are practicable steps in that direction that would reduce the costs of government deposit insurance by enlisting the assistance of banks in supervision. For example, banks could be allowed to form groups for mutual monitoring. These groups could be granted rewards in the form of reduced insurance premiums for agreeing to engage in monitoring and assessed penalties in the form of higher premiums for any failure to detect or report violations or insolvencies of banks in their group. At the very least this would provide a strong counterbalance to political encouragement of excessive forbearance by creating

Why Didn't Cooperation Extend Nationally?

If cooperative arrangements are good, it would seem that widespread cooperative arrangements would be even better. A nationwide group of branching banks would have been able to achieve substantial advantages, since the ease of coordination and greater diversification would have reduced banking fragility and financial panics. The failure to develop nationwide banking coalitions seems attributable to restrictions on branching.

Cooperative arrangements benefitted from and required mutual monitoring. There is, thus, a natural limit to the size of a cooperative arrangement.

The benefits of cooperative arrangements could not be achieved in a system composed of several thousand geographically separate unit banks. While inter-regional correspondent relations continued to play an important role in the national payments system, and correspondents often borrowed and lent to each other, such bilateral activity was not part of any co-insurance relation. The unique vulnerability of the US financial system and the unusual frequency and severity of banking crises in the United States testifies to the weakness of nationwide unit banking in that era as a structure for preserving system-wide stability.

an interest group whose incentive is to monitor banks and blow the whistle early on insolvent institutions. As the advantages of the system become more apparent, more substantive reforms in the direction of self-regulation might become more feasible.

• Finally, the question of banks' capacity for co-insurance. Historical studies of losses to banks during financial crises emphasize that, apart from losses attributable to mismanagement of insurance schemes, bank capital has always been large relative to aggregate bank losses. Thus, the capacity is available. Even the Great Depression may be only an apparent, not a real, exception: Large bank losses during the Great Depression may be primarily a testimony to the government's ability to destroy an economy through deflationary policy, not a measure of the inherent vulnerability of the banking system.

Suppose, however, that we conceded that in some extreme circumstances the government must stand ready to support the financial system. We would still argue that the government's proper role is as a back-up to private schemes, through a system of shared responsibility. Lesser shocks should be the responsibility of private, self-regulating groups, with the government

providing stop-gap protection against systemic collapse.

How might this be arranged? The government's back-up plan could provide that co-insurance among banks would be relied upon entirely to reimburse depositors in cases in which fewer than a specified number of banks fail, but the government would share increasingly in subsequent losses. By restricting the government's role to "catastrophe coverage," adequate incentives are retained for interbank discipline of banking coalitions without risking widespread failure.

Such an explicit division of responsibility has additional advantages. Since it is likely that the government will intervene in severe crises even in the absence of an explicit commitment to do so, it will be desirable to have the commitment spelled out. This offers the best chances for limiting congressional temptations to intervene in the pursuit of an individual banker's interest but against the interest of the public at large.

Summary

Cooperative arrangements among banks are an alternative to current regulation of the banking system. Theoretically, cooperative arrangements are better able to align the incentives of the banks in

the system with the regulations adopted for maintaining standards of quality. This theoretically predicted match-up was, in fact, a characteristic of nineteenth century cooperative arrangements. In particular, the Suffolk System of New England was a significantly more efficient banking arrangement than those found in neighboring states, and the benefits of the system were enjoyed by the public at large, not just by the large banks of Boston.

The lessons of the nineteenth century experience are relevant for the late twentieth century. Cooperative arrangements can and should play a role in current reforms of the institutions for deposit insurance. Encouragement of the growth of cooperative arrangements for self-regulation is both economically desirable and politically feasible. Perhaps the regulation of banking by banks is an idea whose time has come again.

Mary A. Laschober

The Market versus the Monetary View of Money Supply Determination

Wide swings in interest rates are nearly always a topic of popular conversation. However, when people talk about a rise or fall in the rate of interest, which rate are they discussing? There are many interest rates in the economy, both short- and long-term, including the Federal Funds rate, the prime lending rate, the Federal Reserve's discount rate, and yields on US Treasury securities of various maturities.

While short-term rates tend to move together, and long-term rates also tend to move together, there may be shifts in the position of the group of short-term rates compared with the group of long-term rates. Differences between the levels of short- and long-term rates reflect the riskiness of the various financial assets, the liquidity of the assets, and underlying economic conditions. Riskier assets tend to carry a higher interest rate as a premium to the buyer of the asset for assuming the risk of possibly forfeiting the original investment and/or any possible returns. Furthermore, long-term financial instruments may have a higher rate of interest than equally risky short-term assets in order to compensate the holder of the long-term asset for the foregone opportunities associated with having the funds tied up. Buyers of short-term instruments pay for the benefits of greater liquidity through the lower interest rates.

Consequently, short-term rates are sometimes above long-term rates and sometimes below them (Chart 1). In Chart 1 short-term interest rates are represented by the Federal Funds rate (the rate charged for one-day loans of available Federal Reserve balances); longer-term interest rates are represented by the

yields on ten-year Treasury securities (of constant maturity).

The classical view is that movements in interest rates reflect supply and demand conditions in the economy: the interest rate is determined by savings and investment. Savings are thought to be a positive function of interest rates. Other things being equal, the higher the interest rate, the greater the flow of savings from current income. The pace of investment in plants, equipment, and inventories is thought to be a negative function of interest rates. The equilibrium interest rate emerges when the flow of savings at a given level of income just equals the flow of planned investment. According to classical theory, interest rate movements result from either changes in peoples' saving decisions or changes in firms' investment plans. Put differently, rates are determined by the thriftiness of the public and the productivity of capital, adjusted for the

risk and liquidity of different assets. Money plays no role in this area of the classical system.

More recent theories of interest rate determination emphasize the monetary side of the economy. Within this context, the supply and demand for money balances influence or actually determine the equilibrium interest rate. The quantity of money demanded is thought to be a negative function of the interest rate; that is, the lower the rate, the more money balances people are willing to hold. A high rate of interest means that the cost of being liquid (holding money instead of other assets such as bonds) is great in terms of foregone interest earned. A high interest rate, therefore, acts as an inducement to hold bonds instead of money, reducing the quantity of money demanded.

The supply of money is partially determined by the Federal Reserve through its open-market operations. If the Fed wishes to increase the

Chart 1. Interest Rate Movements, August 1978 - July 1988
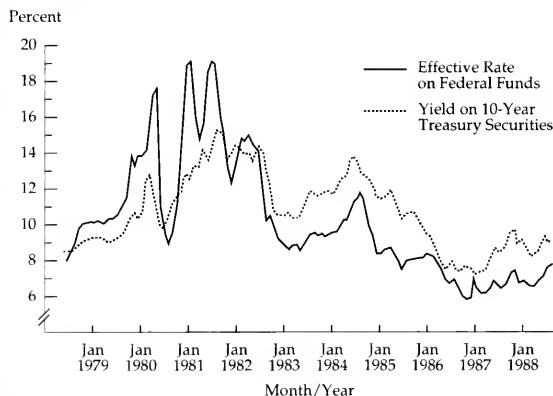
money supply, it can buy government securities (usually US Treasury Bills), thereby putting a greater quantity of money directly into the hands of the public and expanding the quantity of reserves in the banking system. As banks, in turn, make additional loans or purchase securities, the supply of money is increased. The Fed can also contract the money supply by selling government securities, thereby drawing reserves from the banking system.

The money market is in equilibrium when the amount of money demanded equals the amount supplied. According to this view, interest rates fluctuate in response to changes in the demand for or supply of money. Increases in the money supply tend to lower the equilibrium rate of interest, while decreases have the opposite effect.

Money and Interest Rates

Economists hold alternative views regarding the Federal Reserve's monetary actions and interest rate fluctuations. One view, characterized here as the monetary view, is that the Fed alters the money supply in order to raise or lower the interest rate to affect economic activity. A lower rate on bonds encourages greater borrowing. Presumably, increased borrowing translates into greater investment and consumption spending, thereby increasing gross national product. In this model, interest rates are a function of changes in the money supply.

Another view, characterized here as the market view, suggests that changes in the money supply are chiefly in response to short-run shifts in interest rates. In the context of the market view, actions of the Fed to moderate short-run shifts in interest rates are *not* undertaken within the framework of a countercyclical policy. Rather, they are viewed as defensive actions taken to avoid rapid, potentially unwarranted or self-reversing, price changes in government securities.

The Fed moderates interest rate increases by purchasing government securities. As a by-product of limiting the rise in interest rates, the supply of money expands. In the opposite case, if interest rates are falling, the Fed would sell government securities. As a consequence of limiting the decline in interest rates, the money supply tends to fall. The upshot of all of this is that, over a long period of time, changes in the money supply tend to exhibit a positive relationship with interest rate movements (see Chart 2).

Statistical Tests

A way to test the two competing views is to examine the relationship among interest rates, the money supply, and the business cycle. If the monetary view of Fed policy is correct, we would expect the money supply and interest rates to be negatively correlated. Beyond that, we would expect growth rates of monetary aggregates to change countercyclically; that is, to accelerate during recessions and to decline during economic expansions. According to the market view, we would expect the money supply to be positively correlated with movements in interest rates. Further, during contractions of the business cycle, we would expect the growth in the money supply to decrease; we would expect monetary growth to quicken during periods of economic expansion.

In order to test the market view, we can estimate an equation in an attempt to identify the overall

Chart 2. Relation between Yields on One-Year Treasury Securities and the Monetary Base
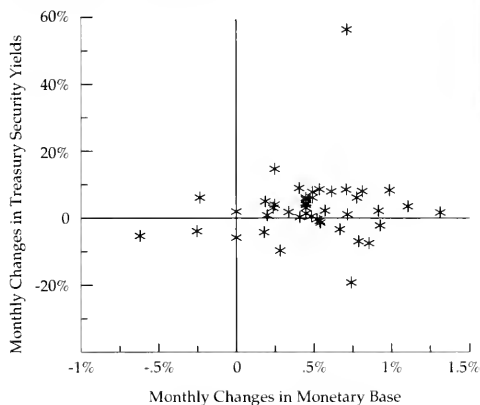
Based on a random sample drawn from May 1953-June 1988

relationship between the monetary base and two other variables—the yield on one-year US Treasury securities (at constant maturity) and the Federal Reserve's industrial production index. The monetary base (MB), consisting of bank reserves plus currency outside the banks, is used as a proxy for the money supply since the Fed has tighter control over changes in the monetary base. Also, changes in the monetary base do not appear to respond to future business conditions to the same degree as do broader measures of money. This reduces any spurious correlation between the money supply and asset yields, which often encompass expected future changes in output. The yield on Treasury securities (TB) represents an intermediate-length interest rate; the industrial production index (IP) measures the strength or weakness of the economy.[1]

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[1] Variables are logged to reduce the tendency of economy-wide variables to increase over time. They are also first-differenced to remove autocorrelation of the error terms. The regressions use monthly time series data, from March 1959 through June 1988, obtained from Data Resources, Inc.

The results of the estimation are:
$$MB = .0053 + .0064*TB + .0114*IP.$$
$$(28.87) \quad (2.23) \quad (.62)$$
(Note: t-statistics are reported in parentheses beneath the coefficients.) They indicate that a 1 percent increase in the Treasury securities rate over the month is matched by a 0.0064 percent increase in the monetary base. The positive relationship between the two variables, statistically significant at the 5 percent level, implies that the market view espoused here cannot be rejected. The industrial production variable, though positively related to changes in the monetary base as expected, has a coefficient that is not statistically different from zero.

We can test the monetary view, that the Fed "pushes" the interest rate in order to affect economic variables, by estimating an equation that relates Treasury security yields to the monetary base, the industrial production index, and the monthly inflation rate (PI). Increases in industrial production imply both increasing investment and consumer demand for output and loanable funds, thus placing upward pressure on interest rates. It is believed that increases in inflationary expectations, proxied by the rate of change in the price level over the previous month, also cause nominal interest rates to rise.

The results of this estimation are:
$$TB = -.0231 + 1.74*MB$$
$$(-3.36) \quad (1.74)$$
$$+ 1.75*IP + 2.67*PI.$$
$$(5.26) \quad (2.78)$$
They suggest that increases in the monetary base are accompanied by increases in short-term interest rates, which is not consistent with the monetary view. Rather, we would expect growth in the monetary base to lead to falling interest rates. Moreover, the coefficient of the monetary base is not statistically significant at the 5 percent level. As we would expect, changes in both industrial production and the inflation rate positively affect the nominal interest rate and are statistically

significant at the 5 percent level. The results of the two equations indicate that the Fed may respond to changes in interest rates by changing the money supply in a complementary way in order to stabilize interest rates over the long term.

However, econometric models often indicate only correlation rather than causality. A further test of whether interest rates affect the money supply or whether the relationship runs in the opposite direction is provided by the Granger-test of causality. Specifically, we want to see if there is some sort of relationship between past changes in the monetary base and current changes in short-term interest rates. If there is, this provides evidence that the monetary base changes first, and these changes cause short-term interest rate movements. We also want to test the opposite case, in which changes in past values of interest rates cause the monetary base to move in a predictable way in the current period. While the results of Granger-causality tests are fairly sensitive to changes in the estimating equation, they are useful for indicating directions of relationships between variables.

The test for causality between the monetary base and interest rates has the following results:
$$TB_t = -.0002 + 4.88*MB_{t-1} + 2.19*MB_{t-2}$$
$$(-.025) \quad (4.48) \quad (1.97)$$
$$- 2.43*MB_{t+1} - 4.27*MB_{t+2}.$$
$$(-2.23) \quad (-3.89)$$
The variables are the same as described above, where t denotes the time period. The first two variables represent a two-period distributed lag of past values of the monetary base (the lagging observations) with the form of lag weights unspecified. The second two variables represent a two-period distributed lag of future values of the monetary base (the leading observations). If MB affects TB and the causality is not reversed, the coefficients attached to the leading observations will not be statistically significant in the regression. If, however, they are

significant while the coefficients attached to the lagging observations are not, we can conclude that the causality is reversed. If all coefficients are significant, the causality runs both ways; that is, both the market view and the monetary view of the relationship between the money supply and interest rates appear to hold under certain economic conditions. Since all coefficients in the equation, except the constant term, are statistically significant at the 5 percent level, it appears that the two variables are mutually dependent; that is, interest rates and the money supply affect each other.[2]

Concluding Remarks

While the various tests discussed here do not provide substantial support for either the monetary or market view, neither do they solidly reject those views. What does seem clear, however, is that any explanation of changes in interest rates requires a consideration of the market view as outlined above, as well as a host of other factors not identified in this study.

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[2] Models with varying periods of lagged variables were estimated, with the two-period lag giving the best results. It is reasonable to expect that the lag between changes in interest rates and changes in the monetary base is fairly short since interest rates are quoted daily and the Federal Reserve can readily alter the monetary base through daily open-market transactions.

News from BEBR

T wo Bureau of Economic Research annual publications will be published this fall. One looks forward to the coming year with forecasts for the Illinois economy; the other provides statistics of recent performance for various sectors of the Illinois economy.

Illinois Economic Outlook

The *1991 Illinois Economic Outlook* will examine various sectors of the Illinois economy to provide a general forecast for 1991. The forecast is based on the Illinois Econometric Model maintained by the Bureau. Individual articles will look at the areas of agriculture, education, health care, banking, exports, and the state's fiscal position to predict trends for the coming year. Available in mid-December, the 1991 edition may be ordered using the form below. Copies are $10.00 each ($7.50 for insitutuions).

Illinois Statistical Abstract

The *1990 Illinois Statistical Abstract* a comprehensive, up-to-date, single-source reference for economic and demographic statistical data for Illinois, will be available in early November. In addition to the 357 tables updated from the 1989 edition, the 1990 edition features several new sections: state geography, education, public utilities, imports, and exports.

The *Abstract* contains the most current Illinois data available for the following topics:
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•Transfer Payments
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  By Industry
  Labor Force Statistics
  Weekly Earnings &
  Weekly Hours
•Gross State Product
•Census of Manufactures

•Census of Services
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Illinois Business Statistics

A sharp increase in energy prices has sparked fears of renewed inflation. Earlier this year, food and energy prices rose in response to record cold last December. Inflationary pressures from the temporary shock had totally subsided by May (Chart 1).The Iraqi invasion of Kuwait in August is responsible for what is likely to be a sustained rise in prices for most goods and services. The August consumer price index for the North Central region (which includes Illinois) shot up at an annual rate of 14.5 percent. The Chicago index followed suit with an annualized increase of about 11 percent. Further increases are likely as higher petroleum prices make their way into other sectors of the economy. Another way of viewing higher prices is to focus on developments regarding consumer purchasing power.

Chart 2 indicates that real personal income is expected to fall in the early 1990s, in part because of higher inflation but also because of the generally weak US economy. A prolonged period of inflation will exacerbate this trend unless the economy stengthens. In Illinois, a one percentage point increase in the CPI translates into a real loss of $2.4 billion in total personal income.

Forecast Statistics

Personal Income (millions of dollars, seasonally adjusted at annual rates)

	1989	1990:I	1990:II	1990:III*	1990:IV	1991:I	1991:II	1991:III	1991:IV	1992:I
Total personal income	$219,451	$228,302	$233,768	$237,671	$241,451	$245,071	$249,057	$253,077	$257,370	$261,708
Total nonfarm	159,680	164,942	168,573	171,300	173,923	176,286	179,053	181,797	184,882	187,932
Total private nonfarm	139,652	144,401	147,237	149,704	151,990	154,053	156,509	158,968	161,711	164,467
Mining	952	976	1,076	1,120	1,125	1,131	1,139	1,153	1,159	1,162
Construction	9,620	10,450	10,456	10,734	10,912	11,149	11,298	11,547	11,784	12,047
Manufacturing	33,606	33,208	34,869	34,898	34,922	34,856	35,071	35,343	35,611	35,954
Durable	21,038	20,608	21,660	21,594	21,530	21,386	21,468	21,622	21,781	22,008
Nondurable	12,569	12,600	13,209	13,304	13,391	13,470	13,603	13,721	13,829	13,946
Transp. & pub. utilities	11,648	12,043	12,308	12,524	12,662	12,783	12,919	13,056	13,214	13,364
Wholesale trade	13,321	14,002	14,082	14,396	14,637	14,880	15,152	15,364	15,634	15,902
Retail trade	14,222	14,626	14,930	15,109	15,400	15,542	15,832	15,975	16,257	16,440
Finance, ins., & real estate	13,865	13,966	13,899	14,158	14,415	14,615	14,815	15,015	15,258	15,482
Services	41,714	44,391	45,617	46,764	47,918	49,097	50,283	51,515	52,793	54,116
Government	20,028	20,540	21,336	21,596	21,933	22,233	22,544	22,829	23,171	23,465

*Forecast begins

Gross State Product (millions of dollars, seasonally adjusted at annual rates)

|	1989	1990:I	1990:II*	1990:III	1990:IV	1991:I	1991:II	1991:III	1991:IV	1992:I
Total	$257,599	$265,048	$274,366	$278,518	$282,809	$286,832	$291,040	$295,560	$300,040	$304,768
Total private nonagricultural	230,216	236,885	245,453	249,262	253,201	256,896	260,763	264,917	269,037	273,386
Mining	1,618	1,659	1,385	1,438	1,455	1,426	1,395	1,385	1,355	1,320
Construction	10,947	11,892	11,887	12,077	12,230	12,412	12,641	12,857	13,070	13,275
Manufacturing	49,496	48,988	51,645	51,577	51,319	51,251	51,358	51,555	51,761	52,106
Durable	27,538	26,976	29,410	29,265	28,988	28,806	28,801	28,922	29,029	29,292
Nondurable	21,958	22,012	22,235	22,312	22,332	22,445	22,557	22,634	22,731	22,813
Transp. & pub. utilities	25,625	26,495	28,389	28,923	29,496	30,032	30,560	31,114	31,666	32,228
Wholesale trade	22,540	23,691	23,489	23,895	24,312	24,648	24,995	25,358	25,715	26,079
Retail trade	23,366	24,031	24,912	25,281	25,609	26,026	26,451	26,869	27,303	27,756
Finance, ins. & real estate	47,278	47,614	49,894	50,850	52,103	53,060	53,923	54,889	55,837	56,809
Services	49,347	52,515	53,853	55,222	56,677	58,041	59,441	60,889	62,329	63,813
Government	23,252	23,847	24,406	24,801	25,208	25,560	25,884	26,261	26,578	26,937
Agriculture	4,131	4,306	4,508	4,455	4,399	4,375	4,393	4,381	4,425	4,445

*Forecast begins

## Illinois Employment Forecast (in thousands, seasonally adjusted)

	1989	1990:I	1990:II*	1990:III	1990:IV	1991:I	1991:II	1991:III	1991:IV	1992:I
Total nonfarm employment	5,179.2	5,206.0	5,214.2	5,210.0	5,211.2	5,207.4	5,195.8	5,199.7	5,203.7	5,222.4
Total private nonfarm emp.	4,441.4	4,460.7	4,461.7	4,457.6	4,458.5	4,454.5	4,441.4	4,442.6	4,449.2	4,470.0
Mining	19.8	19.5	19.9	20.3	20.3	20.7	20.4	20.2	20.4	20.6
Construction	209.7	212.7	207.4	207.2	206.3	207.1	201.7	201.0	200.4	203.4
Manufacturing	981.2	979.5	979.8	970.1	956.8	944.0	934.1	932.1	929.1	931.3
Durable	598.3	596.3	596.8	590.0	580.6	571.4	564.3	563.5	561.9	563.9
Primary metals	56.3	56.2	56.3	55.2	53.9	52.6	51.2	50.9	50.6	50.3
Fabricated metals	107.2	106.3	106.2	105.0	103.2	101.9	100.5	100.1	100.0	100.4
Nonelectrical machinery	154.2	155.3	155.3	154.0	151.6	148.8	146.6	147.8	146.6	147.9
Electrical machinery	118.4	117.8	116.7	114.9	112.9	111.2	110.9	111.0	111.6	112.5
Nondurable	383.2	383.2	383.0	380.1	376.1	372.7	369.8	368.7	367.3	367.5
Food & kindred products	90.2	90.1	89.8	88.9	88.1	87.1	85.8	84.6	83.8	83.5
Printing & publishing	112.8	112.8	112.8	111.6	109.8	108.9	108.2	107.8	107.0	106.9
Chemicals & allied prod.	61.1	61.5	61.7	61.7	61.3	60.6	60.5	60.4	60.5	60.6
Transportation & pub. utilities	304.5	306.1	306.2	306.8	306.1	306.6	306.3	306.4	306.4	307.1
Wholesale trade	374.1	375.8	377.1	377.4	378.2	378.5	377.4	376.1	376.7	377.6
Retail trade	900.7	904.3	903.3	901.7	908.0	908.0	910.0	911.7	911.9	917.1
Finance, ins. & real estate	372.4	373.1	373.1	374.3	376.4	377.0	376.6	376.3	377.8	378.4
Services	1,278.9	1,289.8	1,294.8	1,299.8	1,306.3	1,312.4	1,314.9	1,318.8	1,326.4	1,334.5
Government	737.7	745.3	752.5	752.4	752.7	752.9	754.4	757.1	754.5	752.4

*Forecast begins.

Chart 1. Consumer Price Changes (annualized monthly rates)
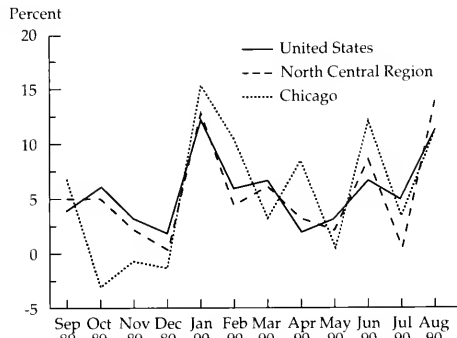
Chart 2. Growth Rate of Illinois Total Personal Income
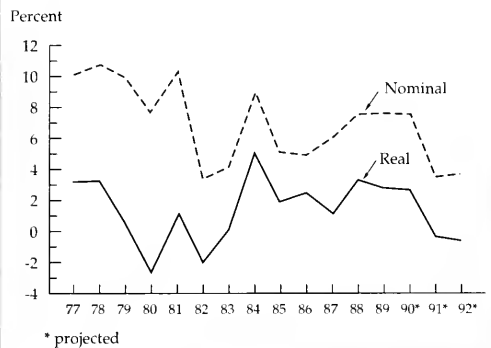
Historical Statistics

	One Year % Change*	Aug. 1990	Jul. 1990	Jun. 1990	May 1990	Apr. 1990	Mar. 1990	Feb. 1990	One Year Ago
Building Permits									
Residential housing units	-6.11	NA	3.167	3.531	3.658	3.702	3.479	2.539	3.373
Value of residential units	-2.49	NA	$298,885	$321,515	$348,264	$346,504	$317,335	$226,860	$306,526
Value of nonresidential housing									
Industrial buildings	-1.27	NA	$41,137	$23,423	$57,706	$18,562	$18,396	$12,119	$41,667
Office, banks, and professional buildings	-30.97	NA	$23,086	$29,565	$18,932	$21,268	$55,825	$25,619	$33,443
Stores and other mercantile buildings	-7.67	NA	$39,463	$55,120	$62,213	$27,770	$54,288	$28,440	$42,740
Other	-44.23	NA	$4,672	$9,910	$7,658	$5,800	$4,589	$3,393	$8,377
Consumer price index									
United States	5.62	131.6	130.4	129.9	129.2	128.9	128.7	128	124.6
North Central US	5.25	128.4	126.9	126.9	126	125.8	125.5	124.9	122
North Central/pop. more than 1,200,000	5.18	129.9	128.6	128.6	127.4	127.3	126.9	126.4	123.5
North Central/pop. 360,000-1,200,000	5.54	127.6	125.8	125.6	125.3	124.8	124.7	124.4	120.9
North Central/pop. 50,000 to 360,000	4.67	127.8	126.2	126.5	125.9	125.6	125.3	124.5	122.1
North Central/pop. less than 50,000	5.98	124.1	122.6	122.3	121.4	121.1	120.8	119.8	117.1
Chicago	5.38	133.2	132.0	131.7	130.4	130.4	129.5	129.2	126.4
St. Louis	NA	NA	128.0	NA	126.7	NA	127.2	NA	NA

*Change is July to July for building permits, August to August for price indexes.

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Review

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Mary A. Laschober

Illinois Bell's Rate Restructuring Plan: An Economic View

I n July 1990, the Illinois Bell Telephone Company extended its "pay-only-for-what-you-use" rate plan to cover a majority of its local exchange markets. A major feature of the restructuring plan involved a switch to local measured or usage-sensitive pricing, which has been in effect in northeastern Illinois for the past three years. This article considers both the efficiency and distributional aspects of the new rate plan.

Background

The public telecommunications network in Illinois is formed by the interconnection of 972 local exchanges. Telecommunications services between points within a single exchange are classified as local exchange services. Currently, 56 local exchange carriers provide thelecommunications services in Illinois. The largest of these is Illinois Bell, which serves most of the larger urban population centers. In 1989, it provided service to approximately four-fifths of all telephone access lines in Illinois (see Chart 1).

Illinois local exchanges are also grouped into larger geographic divisions known as Market Service Areas (MSAs). There are currently 19 MSAs in Illinois. Telecommunications services between points within separate local exchanges in the same MSA (intra-MSA) are provided chiefly by a local exchange carrier that serves as the primary toll carrier for the specific MSA. Telecommunications services between points in separate MSAs (inter-MSA) are currently provided by

certified interexchange carriers such as AT&T, MCI, and US Sprint.

Local exchange carriers offer many services to subscribers, the most basic consisting of connection to the public telecommunications network via access lines to the central office switch in each exchange. Access is the most basic form of telephone service, without which other services could not exist. Costs associated with access are referred to as nontraffic-sensitive costs since they do not depend on the number of calls made by the subscriber. The other basic service offered by local exchange carriers is the ability to call other subscribers in the network. The local carrier incurs costs in providing usage in relation to the level of calling traffic over the network. Therefore, costs associated with usage are referred to as traffic-sensitive costs.

Until this past July, most Illinois Bell residential subscribers were given the option of either prepaying a single flat fee for both access and usage each month regardless of actual telephone usage (flat-rate service), or paying a flat monthly

fee for access and a separate charge based on the number of calls made each month (local measured service). On November 9, 1989, the Illinois Commerce Commission (ICC) approved an Illinois Bell statewide rate restructuring plan. Except for eight communities, the single flat fee option is no longer available. Usage billing is based on the number of calls placed, as well as on the distance, duration, time, and day of each call. Residential access rates were also increased in all of Illinois Bell's service territories (except the Kaskaskia and McClure exchanges) outside of the Chicago Loop. Many of the local calling areas were expanded, and intra-MSA toll rates were reduced.

History of Illinois' Rate Restructuring

Following the breakup of the American Telephone and Telegraph Company (AT&T) in 1984, and the ensuing competition in the long-distance telephone services market, subsidization of local telecommunications services is being phased out in Illinois as in most other states. Prior to AT&T's divestiture, an extensive system of subsidization evolved between service classes. Under this system, long-distance rates were maintained at levels above their costs in order to support low rates for local telecommunications service. In 1983, Illinois received an estimated subsidy of $7.00 per line per month from long-distance rates in order to provide long-distance connection to the local

Chart 1. Illinois Bell's Access Lines as a Percent of Total Illinois Access Lines
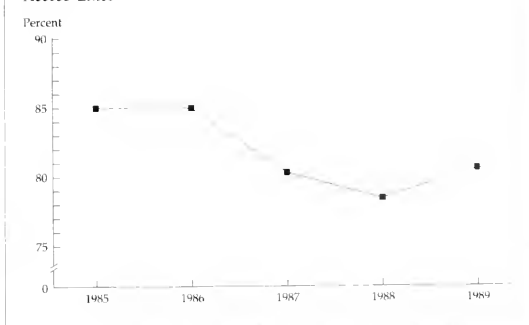
network. The subsidy was passed on to users of local services through reduced local rates.

Moreover, revenues from business service were used to subsidize residential telephone service. Businesses have traditionally paid higher rates due to their higher demand for service; however, the cost of business service is the same as that of residential service. Illinois and other states have increasingly transferred both nontraffic and traffic-sensitive costs to the end users of the services. Consequently, although most business rates still remain above residential rates, residential rates have generally been increasing, while business rates have generally fallen over the past few years (see Table 1).

The Federal Communications Commission (FCC) has mandated the transfer of nontraffic sensitive costs to users of the service. These practices have also led to increases in local rates. To date, the FCC program has resulted in the addition of a $3.50 subscriber line charge to the local service bills of residential customers and single-line business customers. Multi-line business customers have received increases of up to $6.00. Increases in subscriber line charges have been accompanied by reductions in long-distance rates (see Chart 2). Since 1984, prices of local telephone services have been increasing, although at a decreasing pace. Intrastate toll rates have declined in recent years, after a period of rising rates. Interstate long-distance prices have consistently declined since 1984, by rather substantial amounts.

Telephone Rates and Allocative Efficiency

The move toward cost-based pricing in the telephone industry has both efficiency and distributional effects that often lead to conflicting policy goals. As will be discussed, efficient pricing of the varied telecommunications services in most cases requires that prices reflect the separate costs of producing the services. However, if the cost of a particular service is high, a price reflecting this cost may preclude lower-income consumers from purchasing the service. Policymakers or consumer groups may then attempt to obtain prices that are set below cost if the service is considered a basic need.

First, let us explore the efficiency aspects of cost-based pricing for telecommunications services. Economic theory tells us that the price consumers pay for a product or service should equal the incremental or marginal cost of providing that service. Since the price that consumers are willing to pay represents the value of the service to consumers, if the price is set higher than the marginal cost, too few of society's resources are devoted to the production of that service. A lower price that reflects the cost of the service would induce more consumers to purchase the service, thus increasing consumer welfare.

Similarly, when the price is lower than the incremental cost, the value of the service to consumers is less than the cost of providing the service, so that too many resources are used. In this case, the price should be raised to cover incremental costs.

Prior to the current trend towards cost-based pricing, telephone service prices were thought to depart from costs in three significant ways. First, long-distance toll rates were set above the marginal or true costs of a long-distance call. This meant that long-distance users were paying more for long-distance service than the cost of supplying that service. Thus, the quantity demanded of long-distance telecommunications services was artificially low. Second, flat-fee local usage charges meant that the price of additional local phone calls was zero, while the cost to providers was positive. Therefore, the quantity of local phone calls demanded was greater than the efficient amount. Third, local access charges were set below the cost of providing access to the system, again inducing a level of access demand greater than the efficient level.

Illinois Bell's rate-restructuring plan was a major step toward implementing cost-based rates in Illinois, which should elicit a more efficient allocation of resources devoted to telephone services. A reduction in long-distance rates will encourage previous users of long-distance service to make more long-distance calls, as well as cause new users who found the previous rates too high to increase their use of this service. Higher access charges will reduce the level of demand for basic telephone service. From an efficiency viewpoint, this is a good result. Those customers who value access to a telephone less than the cost of providing access to the local exchange will no longer purchase the service. They will

Table 1. *Selected Illinois Telephone Rates*

Residential, Rotary Private Line with unlimited calling			**Single Line Business, touch tone, with unlimited calling**			**Residential Connection Charge for Rotary Services**		
	Decatur	Rock Island		Decatur	Rock Island		Decatur	Rock Island
1983	7.80	8.09	1983	22.19	24.13	1983	33.00	33.00
1984	10.85	11.15	1984	27.23	29.18	1984	36.88	36.88
1985	10.85	11.15	1985	27.23	29.18	1985	44.50	44.50
1986	10.88	11.48	1986	27.23	29.18	1986	55.00	55.00
1987	10.88	11.48	1987	27.23	29.18	1987	55.00	55.00
1988	10.88	11.48	1988	27.15	29.10	1988	55.00	55.00

Source: *Telephone Rates Update,* Federal Communications Commission, Common Carrier Bureau, February 1989

Chart 2. Annual Changes in Telephone Service Price Index Levels

Percent
Change

Local Telephone Service

Intrastate Toll Service

Interstate Toll Service

20

10

0

-10

1984   1985   1986   1987   1988   1989
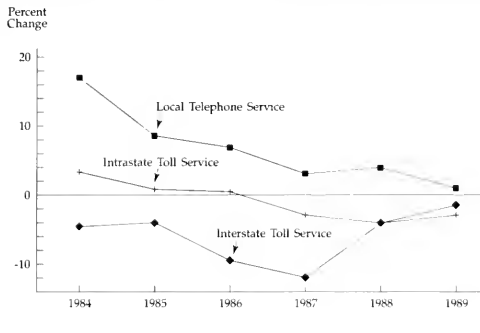
use their income instead to purchase goods or services that they value more than telephone service.

Furthermore, the move toward usage-sensitive pricing will encourage customers to weigh the costs of an additional telephone call against the benefits of the call. If the costs outweigh the benefits, the call will not be made, which is an efficient result. Moreover, the presence of higher rates during peak calling hours combined with discounted rates during off-peak hours will lead to the efficient rationing of telephone calls. Subscribers who place a higher value on prime time calls will pay a higher cost of placing those calls, while consumers with a lower willingness to pay will delay their calls until off-peak hours. These results are similar to those obtained from toll roads. Traffic congestion is controlled by charging for the use of the expressways. People who place a higher value on their time are willing to pay the toll and use the expressways, while people who place a lower value on their time are willing to use longer-route roads and avoid the toll.

Mandatory local measured service also includes elements that reduce efficiency and consumer welfare. First, the elimination of flat-fee service also eliminates a consumer's choice of payment methods. Prepaying a flat fee for telephone usage allows the consumer to smooth

monthly payments by making a certain payment each month. Under local measured service, monthly payments will be more uncertain and varied. Second, multiusers of telephones in a single household who share payment of the phone bill will need to keep a record of individual calls. This raises the costs of monitoring telephone use. If the monitoring costs are large, individuals in the household may try to shift costs to others if they are high telephone users.

A more basic problem is that any reduction in demand for telephone access caused by an increase in access or usage charges affects not only the welfare of users leaving the network, but also the welfare of those who stay. In order to make telephone calls, there must be someone to call. It seems reasonable to suppose that the larger the number of people to call, the more valuable the telephone service. In this context, each consumer on the network would like to keep the size of the network as large as possible. Consequently, if increases in access or local usage prices decrease the level of access demand, this not only results in a loss in value to those who leave the network, but also to those who remain.

Telephone Rates and Distributional Effects

The distributional effects of a change to cost-based pricing of telecommunications services are similar to what happens whenever the price system is used to ration the consumption of goods or services. Since demand for a service is determined by a consumer's ability to

pay, as well as the consumer's willingness to pay, some people who highly value telephone service may not have sufficient income to pay for the service. Therefore, higher access and usage charges may limit lower-income consumers' demand for telephone service. Low-income consumers may be forced to use the telephone only in off-peak hours or to discontinue telephone use completely. Additionally, the poor may suffer more than other consumers from higher usage rates if they make a greater number of telephone calls for informational purposes, perhaps due to the lack of money for affordable transportation.

Increases in telephone charges may also be regressive (have a greater impact on lower-income consumers) since local telephone bills, given the same number of message units used, comprise a higher proportion of a consumer's income at lower income levels. Although long-distance rates fell under the new Illinois Bell plan, if long-distance calls are a normal good (that is, demand increases as income increases), then it is likely that lower-income households will not receive smaller telephone bills under the rate restructuring. Instead, higher-income households that make numerous long-distance calls will be the beneficiaries of the new rates; this represents a redistribution of consumer welfare from lower-income to higher-income households in Illinois.

Illinois Bell contends that local measured service will extend its requirement to serve as large a market as possible. According to Illinois Bell, customers who could not afford the flat rate charges, such as people on a fixed income, or subscribers who only make a few calls a month, will see lower overall telephone bills as a result of usage-sensitive pricing. However, Illinois Bell's argument is not a valid one. Since the local measured service option was previously available to most Illinois Bell subscribers

(approximately 83 percent of their access lines), customers who found the flat fee too high could have already chosen local measured service as a means of lowering their telephone charges.

The FCC currently operates two federal programs (administered by the ICC) that are designed to preserve and extend universal telecommunications service to low-income persons. The first program is a federal/state matching program that reduces the monthly telephone bills of low-income subscribers. The ICC has been studying the feasibility of Illinois' participation in this program. The second program, referred to as "Link-Up America," provides federal funds to offset the installation and connection fees for low-income subscribers. This program, offered by local exchange carriers in Illinois beginning December 1, 1989, does not require state matching funds. These so-called "lifeline" programs are designed to help counter any decrease in demand by low-income subscribers caused by higher local rates.

By law, the ICC must monitor the level of telecommunications penetration in Illinois, defined as the percentage of households that have telecommunications service available within the home. A recent survey of local exchange carriers in Illinois conducted by the ICC indicated that penetration is in the high 80 percent to 90 percent range. Such estimates are consistent with FCC studies of Illinois penetration indicating that approximately 94 percent of all Illinois households had telephone service as of July 1989. The national rate was approximately 93 percent. Additionally, the FCC report found that telephone penetration rates rise with increases in household income. People who do not own their own home and those households receiving food stamps have lower penetration rates than other

households. The study implies that low-income households have a higher price elasticity of demand for telephone services--that is, their demand for these services drop by a relatively large amount when telephone charges increase. The rise in Illinois Bell's access and usage charges may reduce Illinois' penetration rates in the future, especially among low-income households.

Losers and Gainers Under Rate Restructuring

According to Illinois Bell, more than 60 percent of their residential customers will save money under the new plan. Who are these customers? Telephone subscribers who opted to use local measured service before the restructuring plan, and who make mostly local calls, will probably face higher telephone bills. The monthly access charge for residential customers increased by $1.00 on January 1, 1990. This charge will be raised an additional $1.00 per month in January 1991 and January 1992. The increases apply to all residential telephone lines outside northeastern Illinois. Furthermore, local calls that used to average about 4 cents a call now cost an average of 4.7 cents a call. These customers' telephone bills may decrease if they reduce the number of local calls they make, or if they are able to shift a majority of calls to off-peak hours. Residential users may also shift telephone usage costs to businesses if they are able to delay calls until they get to work. Also, since some customers' local calling areas are now larger

than their previous flat-rate service area, subscribers who frequently place calls to the expanded area will now pay local rates rather than long-distance rates for those calls. However, these methods for reducing monthly service charges do not seem feasible for a majority of residential customers.

Telephone subscribers who previously opted for the flat-rate plan may not receive lower telephone bills either. The increases in local access charges mentioned earlier apply to their bills as well. Flat-rate usage charges in Illinois previously ranged from $4.00 to $6.00 per month. If the flat-rate charge used to be $6.00, users who now make more than an average of 4.5 local calls a day will have larger telephone bills; if the flat rate charge previously equalled $4.00, telephone bills will increase for customers who place more than an average of 3 calls a day. Again, residential customers can reduce their telephone charges by placing fewer local calls or by shifting calls to the discounted times. These figures indicate that only low users of local telephone service will save money.

Residential subscribers who will benefit by the rate restructuring are those whose telephone bills consist of a large percentage of long-distance calls, either intra-MSA or inter-MSA. Charges for calls carried by Illinois Bell to areas outside the local calling area in Illinois that are serviced by Bell have been reduced over 50 percent. Toll calls to areas served by other Illinois local telephone companies have been reduced by an average of 25 percent. A 1987 study indicates that the largest percentage of toll calls are made within a 17 to 40 mile radius, which received a 17.2 percent discount under the new Illinois Bell intra-MSA toll rates (see Table 2). Calls within the 0 to 10 mile radius received the

Table 2. Rate Reductions vs. Message Units by Mileage Band

Mileage Band	Percent Reduction in New Peak Period IBT Intra-MSA Toll Rates	Percent of Total Illinois Intra-MSA Messages in 1987
0-10 miles	-41.6	23.8
11-16 miles	-28.3	30.9
17-40 miles	-17.2	39.5
Over 40 miles	-7.0	5.8

Sources: *Annual Report onTelecommunications*, ICC, 1989; *Bell Operating Companies' Long Distance Message Telephone Rates*, NARUC, December 31, 1987.

highest discount. Customers who frequently call within this area should experience the sharpest decline in telephone bills.

Studies have shown that long-distance usage by both residential and business customers is highly concentrated. In 1984, AT&T claimed that 73 percent of residential telephone users spent less than $10 each month on long-distance calls. Seventeen percent spent $10.00 to $25.00 each month, while only 10 percent spent more than $25.00 a month on long-distance calls. If these figures still roughly apply to intra- and inter-MSA long-distance calling, then a majority of Illinois Bell subscribers will experience little or no savings from the new rate plan.

Gainers might consist of large business subscribers who make a high percentage of all long-distance business calls. They might also be both residential and business customers who purchase custom-calling options, since the prices of most custom-calling features have been reduced. Business rates for all custom-calling services and touch-tone service have been lowered to match prices paid by residential customers. Gainers from the new rate plan, then, will likely consist of higher-income groups who have a greater demand for custom-calling and long-distance services.

Concluding Remarks

Illinois Bell stands to profit from the rate restructuring plan. If the number of subscribers who pay higher telephone bills outweighs those who pay lower bills, revenues will increase. The adoption of mandatory local measured service also allows Illinois Bell to capture revenue from any increase in telephone calls stimulated by the rise in residential and business ownership of computer modems and facsimile machines. The relative price and income elasticities of demand for installation, access, and local and long-distance services will ultimately determine the overall impact on Illinois Bell's revenue, as well as the impact on different classes and income groups of users of telephone services in Illinois.

Mary A. Laschober

World Energy Consumption

C urrent United States' involvement in the Persian Gulf dispute has heightened interest in energy consumption and production issues. As would be expected, the more populated and the more developed countries make up the majority of the ten highest-ranked energy consuming countries (Table 1). In 1987, the top ten countries accounted for over 72 percent of all energy consumed. In fact, the United States was responsible for almost one-quarter of total world energy consumption. On a per capita basis, however, the United States ranked only fourth in energy consumption in 1987 (Table 2). Oil rich countries such as the United Arab Emirates, Bahrain, Kuwait, and Saudi Arabia ranked very highly in terms of per capita consumption. Furthermore, these countries substantially increased their energy use over the period from 1980 to 1987. In contrast, the United States was successful in decreasing its per capita use by 8 percent over the same

Table 1. Ten Highest-Ranked Countries in Total Energy Consumption, 1987 (Millions of Metric Tons of Coal Equivalents)

Country	1987	Percent of Total World
U.S.	2,322.9	24.1%
Soviet Union	1,867.2	19.3%
China (mainland)	800.8	8.3%
Japan	456.1	4.7%
West Germany	342.0	3.5%
United Kingdom	290.8	3.0%
Canada	256.5	2.7%
India	220.5	2.3%
France	206.9	2.1%
Italy	204.4	2.1%
Total World	9,653.6	

Table 2. Ten Highest-Ranked Countries in Per Capita Energy Consumption, 1980 and 1987 (Kilograms of Coal Equivalents)

Country	1980	1987	1980 to 1987 % Change	Ratio to World Total
United Arab Emirates	17,188	18,832	9.6%	9.8
Bahrain	12,651	14,680	16.0%	7.6
Canada	10,547	9,915	-6.0%	5.2
U.S.	10,386	9,542	-8.1%	5.0
Kuwait	5,019	9,191	83.1%	4.8
East Germany	7,276	7,891	8.5%	4.1
Netherlands	6,543	7,265	11.0%	3.8
Norway	6,423	6,782	5.6%	3.5
Soviet Union	5,549	6,634	19.6%	3.5
Saudi Arabia	2,745	6,322	130.3%	3.3
Total World	1,919	1,921	0.1%	

period, perhaps because of greater incentives to use less energy in absolute amounts, as well as economic incentives to use a given amount of energy more efficiently. However, the United States still consumed five times the amount of world per capita energy consumption in 1987.

The five countries with the lowest energy consumption are less-developed, relatively poor nations, mainly in Africa, confirming that energy consumption rises with per capita income or wealth. Although some developed countries, such as West Germany and South Africa, consume relatively small amounts of energy per capita, they still used more than the average for all countries, with 2.9 and 1.5 times world per capita consumption, respectively.

Roger J. Beck and
William McD. Herr

Income Inequality among Illinois Counties: Contentment and Despair

R egional disparities in per capita income provide a continuing challenge to policymakers to develop and implement strategies that will reduce the inequality. For many years inequality between regional and state average per capita income in the United States narrowed. To some, this was taken to mean that market forces in factor markets and/or public policies, though slow, were working. Recent studies indicate that the trend toward income convergence among counties and regions has been reversed. Some believe that increasing regional inequality may be associated with temporary forces related to the fortunes of specific industries such as farming and energy. Others see growing inequality associated with longer-term forces such as increasing suburbanization or the growing importance of the service industry sector.

This study focuses on the per capita income variation through time (1969–1987) among Illinois counties. The purpose is to look at three aspects of the inequality of average per capita personal income among Illinois counties: first, to document change in the inequality of average per capita income through time; second, to identify counties contributing to the observed inequality; and third, to attempt to identify some of the reasons for observed changes in income inequality. The article concludes with some implications for public policy.

Methodology and Data

The measure of income inequality employed in this study was the coefficient of variation of county average annual per capita income. The coefficient measures the relative dispersion of average per capita income about the mean for all counties in Illinois. In this formulation the average per capita income for each county, regardless of its population, contributes equally to the state average. In order to document the change in income inequality among Illinois counties, the coefficient of variation of per capita income was computed for each year from 1969–1987. The method focuses on regional, in this case intercounty, income disparity in contrast to examining how income is distributed among the population. Thus, for example, an increasing coefficient of variation through time indicates more regional income inequality but says little about the income distribution among the state's population. The latter requires analysis of how the population is distributed among counties as well as the distribution of income among the residents of each county.

Two alternative measures of income were used: personal income and personal income less transfer payments. It was presumed that the latter measure of income would have a higher coefficient and show more year-to-year variability than would total personal income. A comparison of the two could also provide an indication of the role of transfer payments in reducing income inequality among Illinois counties.

Transfer payments are those provided by governments to those to whom no wages and salaries are paid for in the current period. Included are Social Security, Medicare, Medicaid, Food Stamps, unemployment insurance, veteran's benefits, public assistance, and other programs.[1]

We did not attempt to adjust income for differences in the cost of living among counties. Even if data were available to make the analysis in real terms, we do not believe it would materially affect our conclusions. Results would change only if cost-of-living increases among counties were substantially different. Differences between low- and high-income counties might be smaller, but counties lying in either tail of the distribution would be likely to be the same, and counties moving in and out of the tails would also be likely to be similar.

[1] All data used in the study represent income estimates for local areas and counties prepared by the Bureau of Economic Analysis, US Department of Commerce.

Chart 1. *Coefficient of Variation of Average Per Capita Income among Illinois Counties*

The second objective of identifying counties contributing to the observed inequality was accomplished by observing for each year the counties that lie outside plus or minus one standard deviation from the mean income level of all counties. Our purpose is to determine whether this group of counties represents a persistent core of high- and low-income counties or whether, over time, counties move in and out of these categories.

The third objective, which seeks to provide an understanding for the observed income inequality, is accomplished by attempting to find common characteristics of counties in each end of the income distribution and for those counties moving away from the mean.

The Inequality of County Average Per Capita Income

The coefficient of variation of per capita income less transfer payments did not change much during the period 1969–1987. It was 20.5 in 1969, reached a low of 18.8 in 1972, and then trended upward reaching 20.8 in 1987 (Chart 1). This finding is consistent with the pattern of inequality among states and the intercounty pattern of inequality found by researchers.

The yearly coefficients of variation for average total personal income per capita were lower, indicating that transfer payments narrowed the relative gap between high- and low-income counties. On average, transfer payments lowered the standard deviation of average per capita income by ca. $140, or 10 percent. The time trend observed for the coefficient of variation

Chart 2. Annual Percentage Change in Illinois Per Capita Income [a] Compared to the Percentage Change in the Coefficient of Variation

[a] Personal Income Minus Transfers
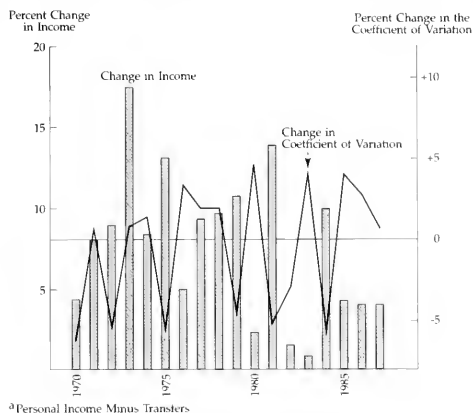
of total personal income, however, differed from that for income minus transfers. The coefficient of variation for the more comprehensive measure of income was just over 17 in 1969, reached a low of 14.4 in 1975, and since then fluctuated around a level trend. Stabilization of the annual coefficient of variation is perhaps due to the increasing importance of transfer payments in total personal income. In the early 1970s transfers averaged 11-12 percent of the state's total personal income, whereas in the 1985-1987 period they averaged 18 percent. This greater importance of transfer

Table 1. Number of Counties by Years in Which Their Average Per Capita Income was Outside the Range of ± One Standard Deviation of the State Average, 1969–1987.

	Number of Illinois Counties with Average Incomes Outside the Specified Range			
	Minus 1 SD		Plus 1 SD	
	No. of Counties	Percent	No. of Counties	Percent
17 years and over (Core)	10	43	7	23
6 to 15 years (Intermediate in and out)	6	26	8	27
5 years and under (In and Out)	7	30	15	50
Total	23	100	30	100

payments reduced the coefficient of variation in more recent years relative to earlier years. While transfer payments reduced the amount of inequality, year-to-year fluctuations in the coefficients for the two income measures were virtually identical.

We note that decreases in the coefficient of variation of total income tend to occur in years when state per capita income increased (especially 1975, 1979, 1981, and 1984) and widened in years when the overall change in per capita income was negative or low (especially 1976, 1980, and 1983), Chart 2. While some of the observed association may be related to our measure of inequality, nevertheless, it appears that growing personal income is one important ingredient in reducing intercounty income inequality.

Counties Contributing to Inequality

For each of the 19 years, we identified counties whose average total per capita personal incomes were outside plus or minus one standard deviation from the state average. We observed whether counties consistently remained outside this range or whether they moved in and out of the income extremity.

There were 23 different counties having an average income of more than one standard deviation below the state average in one or more years (Table 1). Of these "low-income" counties, 10 were in this low range for at least 17 of the 19 years. These were designated "core low-income

counties" in the state (Chart 3).[2] Seven counties were in the low-income status for fewer than five years and are termed "in and outers." Five of these counties (Calhoun, Henderson, Jasper, Pike, and Schuyler) have a substantial dependency on farming, and all of these counties were in the low-income group in one or more years of the early 1980s when farm fortunes sagged badly. Richland and Williamson counties fell into the low-income category for one year only, 1970 and 1975, respectively.

Six counties were in the low-income group for 6 to 16 years. Of these intermediate "in and outers," only Franklin county showed a persistent pattern of moving out of the group. Franklin was in the low-income group in most years to 1978 but since then has not reappeared. On the other hand, Union county first appeared in the low income group in 1978 and remained there through 1985. The other four counties (Clay, Cumberland, Gallatin, and Green) tend to show a pattern of being in the group in the early 1970s, the late mid-1970s, and again in the 1980s. These counties have a high dependency on agriculture, and many of these years, especially in the 1980s, correspond to poor farm income years.

There were 30 different counties having average per capita income of more than one standard deviation above the state average in one or more years of the 19-year study period. Of these "high-income" counties, seven were in the high group for at least 17 years. All of these high income counties are in or border the Chicago metropolitan

Chart 3. Counties Consistently Outside ± One Standard Deviation from the Average Per Capita Income of All Counties

High Income Core Counties   Low Income Core Counties

area (Chart 3). Fifteen counties were in the high income status for fewer than five years. Some patterns were discernible as to when they entered and left the group. Will and Boone, both northeast counties, were in this group in the 1969-1972 period and did not reappear in subsequent years—except for Boone, which returned to the group in 1987. Tazewell and Woodford counties were in the high-income group during the late 1970s and early 1980s but have since left the group. Seven other counties made the

group in one or more years prior to the mid-1970s and have not reappeared since then. Three of the counties first entered the high income group in the 1980s.

Eight counties had high incomes for 6 to 16 years. Putnam and Monroe first entered the group in 1974 and 1980, respectively, and have consistently remained there. Ford, Menard, and Peoria, on the other hand, were consistently in the group but departed between 1979-1982. The fortunes of a single industry, construction machinery and equipment, probably accounts for the change in Peoria as well as the adjacent counties of Tazewell and Woodford mentioned earlier. The three other counties (Piatt, Sangamon, and Stark) tended to rotate into the group in three different periods; early 1970s, mid-70s, and the late 80s.

Finally, we observe two counties that moved from one extreme income group to the other. Henderson was in the high income group in 1973 and 1975 but moved into the low income group in 1983. Richland was in the low income group in 1970 but moved into the high group in 1983. Increased income derived from extractive

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[2]Robert P. Hartwig (Illinois Business Review, December 1989) identified the 10 Illinois counties with the lowest average per capita personal income in each of the four years, 1984-1987. Seven counties were in this group each year. Three others appeared in the group in three of the four years. The 10 "core" low-income counties inferred from Hartwig's tabulation are the same as the 10 counties this study designates "core low income counties" based on a 19-year study period.

industries such as oil and gas have contributed to the climb from the low income-group to the high-income group.

The analysis shows that relatively more counties move into and out of the high income group than move into and out of the low group. For example, among all of the different low-income counties, over 40 percent were in the category for 17 or more years. Or, looked at the other way, less than 60 percent moved "in and out" of the group. Being in the low-income group appears to be more permanent than being in the high-income category. The economies of counties that move in and out of these income groups tend to be related to agriculture, mining, or the fortunes of a dominant manufacturing industry. Core low-income counties tend to be in southern Illinois, while core high-income counties are in the northeast.

Counties Contributing to Growth in Inequality

While the previous section identified counties contributing to the inequality of per capita income among Illinois counties, this section identifies counties that contributed to the increase in inequality as measured by county average per capita income less transfers between 1972 and 1987. We calculated the range in the standard deviation of incomes among counties that would have yielded the same coefficient of variation in 1987 as occurred in 1972, namely 18.8. We refer to this as the calculated coefficient of variation in 1987. We then observed two types of counties responsible for the increase in inequality. One group comprised those

counties within ± one standard deviation in 1972 but outside the calculated range of the standard deviation in 1987. Counties meeting this criterion had either rapidly growing incomes or, at the other extreme, very slow income growth. The second group represents those counties that were outside plus or minus one standard deviation in 1972 but whose income grew faster (slower) than the mean of all counties. These counties were farther away from the calculated standard deviation in 1987. Adding together the two groups of counties, we were able to

Chart 4. Counties Contributing to Increased Inequality of Income Between 1972–1987

■ Upward Divergent   Downward Divergent

identify counties that contributed to increasing income inequality. These are called upward and downward divergent counties.

There were nearly twice the number of upward divergent counties (13) than downward divergent counties (7), Chart 4. About one-half of the upward divergent counties were outside one positive standard deviation in 1972; and because their incomes grew faster than the state average, they were further outside the calculated range in 1987. All of the counties contributing to upward divergence, except one (Monroe), were located in northern Illinois.

Among the downward divergent counties, only one (Union) had an income that was within plus or minus one standard deviation of the average state income in 1972; but because of slow income growth, its average per capita income was less than the lower calculated standard deviation in 1987. The other six counties had incomes below the lower limit in 1972; and because income growth was below the state average, they contributed further to the divergence in income inequality among Illinois counties. All of the counties contributing to the downward divergence were located at the southern tip of the state except for Fayette.

Implications for Public Policy

Major objectives of economic development programs are to provide economic opportunities that raise incomes and sustain economic growth. This study shows that increasing income levels and providing for growth is a

complex process. For example, we found that a number of counties move in and out of the extremes of the income distribution. At the same time we found evidence that some counties seemed to remain in either tail of the income distribution more or less permanently. We were unable to adjust for differences in cost of living among Illinois counties, but we do not believe this omission materially changes our conclusion: Differences between high- and low-income counties would be reduced, but the impact on the counties moving in and out of the tails of the income distribution would likely be small.

The substantial movement of counties in and out of the tails of the income distribution, especially the upper, provide evidence that there are factors that can change the relative position of counties and

regions. On the other hand, the finding of a "core" of low income counties is indicative of a long-term, continuing income problem.

Superimposed over these two quite different findings is evidence that income inequality among counties as measured by the coefficient of variation is negatively associated with changes in the growth rate of personal income in the state. Apparently, general economic growth that increases all income provides a relatively greater stimulus in low than high income counties. In the short run this may occur as labor commutes from low-income counties to counties with higher paying employment opportunities.

These findings indicate to us that a mix of policies is necessary to reduce intercounty income inequality. Some policies must be long-term in nature and targeted to core

low-income counties. Others must be flexible and capable of responding to the needs of counties that are intermittently part of the low income group. Diversifying sources of income is important to counties that have moved in and out of the low income category. Finally, efforts to improve the overall growth rate of the Illinois economy cannot be overlooked. Growth, wherever it occurs, provides a stimulus for resources to move into higher return uses. In the long run, market forces may still push intercounty incomes toward more equality. However, this study, covering nearly 20 years, indicates that due to poor mobility of resources and industry trends that at times overwhelm market forces, economic development programs are a continuing necessity, especially for rural counties.

Robert P. Hartwig

How Much Does Holiday Shopping Matter?

T he holiday shopping season of 1990 will not soon be forgotten by consumers or retailers...or will it? Retailers bemoaned the newly developed penny-pinching of customers. They declared that disaster would befall them, claiming that forty, fifty, or sixty percent of all their sales were made in the all-too-few weeks preceding Christmas. Many say an even higher proportion of their profit is made during this period.

Are retailer's really that dependent on holiday sales? For retailers' claims to be true, the total value of everything we buy during the holiday season must be forty, fifty, or sixty percent of everything purchased throughout the year. For the vast majority of us, this is not the case.

Retail sales in Illinois illustrate this fact. The chart shows fourth quarter (October, November, and December) retail sales in recent years as a percentage of annual retail sales. It is clear that fourth quarter sales are consistently between 27 and 28 percent of the annual total. If consumers spent at a constant rate throughout the year, exactly 25 percent of all sales

should occur during the fourth quarter. Hence, fourth quarter retail sales are not as gargantuan as retailers lead us to believe.

It is true that some retailers depend heavily on holiday sales, but many do not, and for this reason fourth quarter sales are only modestly above sales in the first three quarters of the year. Retail sales include much more than the common gift and seasonal items purchased during the holidays. Throughout the year, we purchase items such as groceries and gasoline. We may even purchase an automobile, a boat, or furniture. All these items are included in retail sales and tend to diminish the spike in retail sales associated with the holiday season.

Fourth Quarter Retail Sales as a Proportion of Full-Year Retail Sales (millions of dollars)

Source: *Monthly Retail Trade*, U.S. Department of Commerce

J. Gregory Parrish
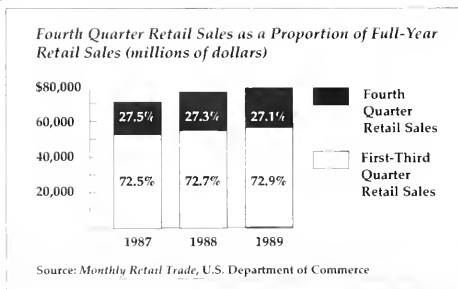
Airline Service in Downstate Illinois Cities, 1970–1989

A ir transportation in downstate Illinois cities has gone through extraordinary changes since 1970. The period has been characterized by both strong growth and periods of decline in boardings, as well as substantial changes in the number of airlines serving the area, the types of aircraft utilized, and the frequency of service. This article analyzes these changes, evaluates current needs, and considers the future outlook for air travel in downstate cities.

Growth , 1970–1989

During the period 1970–1989, all six major downstate Illinois cities experienced growth in the number of airline boardings, as shown in Table 1 and Chart 1. Champaign-Urbana led in percent gains with an increase of 100 percent, while the Quad Cities and Peoria gained 64 percent and 55 percent, respectively. The average overall rate of growth was 69 percent. Of the five cities for which data are available for the entire period, all experienced sharp declines in the number of boardings from 1978–1979 through 1981 or 1982. Two factors accounted for the falling trend. A deep recession in the national economy reduced demand for airline transportation, while a sharp contraction of short-destination service by

Ozark Airlines (the major carrier at that time) reduced the supply of airline services. The elimination of

Table 1. Airline Boardings, Six Selected Major Downstate Illinois Cities, 1970-1989

Year	Total Six Cities	Bloomington-Normal	Champaign-Urbana	Decatur	Quad Peoria	Cities[1]	Springfield
1970	551,405	NA	88,804	31,574	138,440	195,233	97,354
1971	567,651	NA	93,017	31,244	146,595	193,734	103,061
1972	591,879	NA	72,532	32,908	153,098	220,510	112,831
1973	536,620	NA	71,279	27,866	120,769	224,703	92,003
1974	681,869	NA	99,003	39,644	168,310	257,087	127,825
1975	808,277	NA	102,591	40,095	180,932	251,311	130,707
1976	773,961	NA	112,822	42,538	202,681	280,843	135,077
1977	852,384	NA	127,310	47,144	245,699	301,350	130,881
1978	980,190[2]	31,522	129,922	51,590[2]	274,938[2]	335,208[2]	158,010[2]
1979	879,169	32,883	110,908	41,929	239,450	320,208	133,751
1980	785,210	25,539	97,953	40,345	208,851	293,985	118,537
1981	695,593	22,818	95,114	38,516	195,294	244,126	100,725
1982	631,386	20,135	86,165	33,014	166,663	221,177	104,232
1983	715,151	24,667	117,669	31,645	182,015	248,666	110,489
1984	776,651	29,755	151,415	35,695	180,699	270,669	108,418
1985	817,992	30,079	166,694	37,948	195,444	268,843	118,984
1986	896,965	38,722	171,429	43,670	221,813	299,326	122,005
1987	879,497	38,622	164,369	34,402	209,695	318,135	114,273
1988	876,448	46,273	167,607	38,923	208,604	307,380	107,661
1989	931,868	55,000[2]	177,979[2]	41,433	214,610	319,801	123,045
% Change							
1970-89	69.0	74.5	100.4	31.2	55.0	63.8	26.4

[1]Moline, East Moline, Rock Island, Illinois and Davenport, Iowa.
[2]Peak year.

Source: Administrative offices of respective airports.

the Civil Aeronautics Board (CAB), due to the Airline Deregulation Act of 1978, allowed airlines to withdraw from existing markets and enter new markets at their own discretion. Ozark chose to develop St. Louis as a hub and, subsequently, shifted its equipment from short-haul airports to long-haul interstate destinations such as Miami and San Diego.

Changing Structure of Air Service

The six major downstate Illinois cities not only experienced overall growth in air traffic

Chart 1. Airline Boardings, Selected Cities

between 1970 and 1989, but they also experienced substantial changes in the structure of air service, as shown in Charts 2 and 3. In 1971, there was an average of 36 nonstop flights serving the six cities. This included numerous flights between the downstate cities, as well as flights to the two big hub centers of Chicago and St. Louis. Direct nonstop service increased to a peak of 47 flights in 1980. However, the number of direct nonstop connecting flights declined to 20 by November 1989.

In number of weekday arrivals, the six cities experienced a rise from 107 in 1972 to an early peak of 189 in 1980, then a decline to 149 in 1985 before peaking at 216 in 1989. The case of Bloomington-Normal is particularly striking. It had only four arrivals daily in 1971, but had 29 arrivals by 1989. Air travelers now have more options than ever before in terms of the time or day of the week a flight may be taken.

Change in Air Travel

In contrast to the major cities, four selected small downstate Illinois cities experienced an overall decline in airline boardings over the period from 1970 through 1989, after peaking in the mid- to late-1970s (see Chart 4 and Table 2). What explains the early peaks and the major declines in air travel

among these smaller cities? In the case of Danville, Mattoon-Charleston, and Mount Vernon, some travelers have chosen in recent years to drive to larger cities such as Indianapolis, St. Louis, Chicago, and Champaign-Urbana with more frequent service and more high-altitude, faster, jet service. This phenomenon also applies to Carbondale, except that its drastic decline was also brought about by a serious accident in 1983 that led to the total shutdown of Air Illinois, headquartered in Carbondale. Another factor that explains declining traffic was the elimination of subsidies by the federal government, originally provided by the EAS (Essential Air Services) as part of the federal air policy under the CAB. These subsidies were largely eliminated under the Deregulation Act of 1978, leading to the withdrawal or reduction of service to many small Illinois cities.

Table 2. *Airline Boardings, Four Selected Small or Medium Size Illinois Cities, 1968-1989*

Year	Danville	Carbondale	Mattoon-Charleston	Mount Vernon
1968	2,167	NA	3,959[1]	5,692
1969	9,922	NA	NA	5,606
1970	10,258	7,874	NA	5,900
1971	9,548	9,515	NA	4,105
1972	9,502	9,141	NA	5,230
1973	11,673	10,777	NA	4,534
1974	11,074	18,781	NA	4,000
1975	11,931	16,085	NA	4,503
1976	13,799	15,086	NA	5,189
1977	NA	16,228	3,610	5,372
1978	15,555	19,062	3,366	5,584
1979	13,997	22,670	NA	5,599
1980	13,877	21,750	2,456*	3,003
1981	8,618	20,631	2,571*	2,514
1982	6,754	18,619	1,926*	2,541
1983	7,273	16,090	3,261	2,009
1984	6,643	7,353	4,529	1,737
1985	6,887	7,211	4,552	1,741
1986	5,141	44	3,860	1,417
1987	4,496	1,845	3,014	195[1]
1988	3,591	2,619	2,298	831
1989	3,214	0[2]	3,318	0[3]

[1]Five months.
[2]Commercial operations ceased June 1988.
[3]Commercial operations ceased June 1989.
*Estimated

Source: Administrative offices of respective airports.

Decline of Jet Service after 1980

All six major downstate Illinois cities have experienced a decrease in jet service as a percentage of total flights since 1980, although the pattern varies among the cities (see Table 3). In 1971, almost three-fourths of all flights arriving in

Chart 2. *Nonstop Service (Selected Cities)*

Legend: 1971, 1975, 1980, 1985, 1989 (November)

Cities: Bloomington-Normal, Champaign-Urbana, Decatur, Peoria, Quad Cities, Springfield, Average

Number of Nonstop Connecting Cities (axis: 0 2 4 6 8 10 12 14 16)

Chart 3. *Service Levels*

Legend: 1971, 1980, 1975, 1985, 1989 (November)

Cities: Bloomington-Normal, Champaign-Urbana, Decatur, Peoria, Quad Cities, Springfield, Average

Number of Weekday Air Carrier Arrivals (axis: 0 10 20 30 40 50 60)
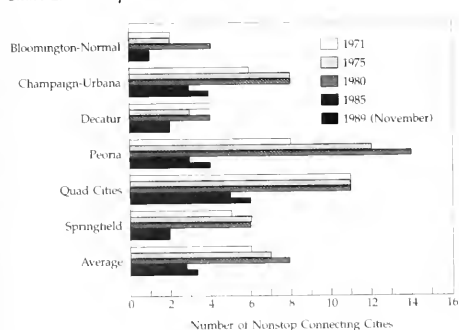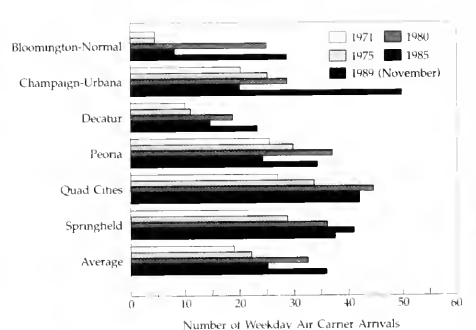
Springfield were jets, either DC-9s or Boeing 737s. By 1989, however, Springfield had lost all jet service, as had Decatur. And Champaign-Urbana had declined from 48 percent in 1975 to just 6 percent in November 1989. The Quad Cities had the best jet service by 1989, experiencing a decline of only 17 percentage points, down to 35 percent.

Jet service has many obvious advantages over propjet or piston engine aircraft. The jets fly "above the weather" at 15,000 feet or higher and attain speeds of upwards of 500 miles an hour. They also have stand-up room with overhead compartments, lavatories, flight attendants, food and beverage service, and are able to accommodate 90 or more passengers. The propjets are smaller, fly at lower altitudes and much lower speeds, and have very limited food and beverage service, if any at all.

As noted earlier, prior to 1980 Ozark withdrew jet service from subsidized small-to-medium-sized cities in order to use its equipment on longer and more profitable interstate routes out of its St. Louis hub. The freedom to change was provided under the Deregulation Act of 1978, which also eliminated or reduced the federal subsidies to the smaller cities. Other major trunk or regional airlines followed this same pattern of withdrawal at local levels and the build-up of hub centers in the big metropolitan cities. Recent mergers and acquisitions appear to influence the emergence of long-haul domestic and international flights.

Chart 4. Airline Boardings, Selected Cities
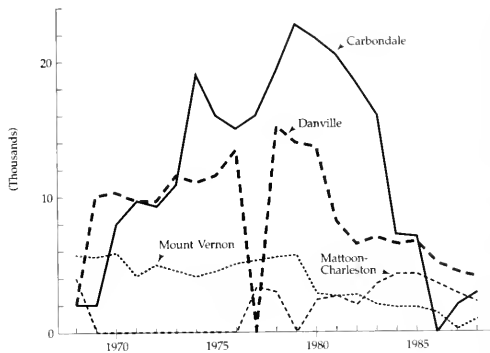
Recent Proliferation of Airline Service

Prior to 1975, there were only two principal airlines serving downstate Illinois, namely Ozark and United Airlines; these were supplemented by a small Illinois-based commuter airline (see Table 4). Since 1975, however, there has been a substantial expansion in the number of airlines from three in 1975 to eleven in 1989. The new airlines are mostly commuter carriers, affiliated with a few large trunk lines and used primarily to funnel downstate air passengers into the three big hub centers of Chicago, St. Louis, and Dayton, Ohio.

Table 4 shows the high rate of mergers and acquisitions that have occurred, especially since 1980, along with the relatively high

failure rate for startup airlines. Despite the great number of acquisitions and mergers, the average air traveler still had a relatively wide variety of airlines to choose from in 1989.

Current Concerns

One important concern for downstate Illinois air travelers is the rise in the relative cost of flying short distances to the hub centers compared to the cost of long-distance flights. For example, a recent air fare from Champaign-Urbana to St. Louis for round-trip (unrestricted) coach flights was $218, or $1.58 per mile. In contrast, the round-trip (unrestricted) coach fare from St. Louis to Los Angeles was $624, or $0.54 per mile.

If short distance fares continue to rise rapidly, travelers from the six downstate Illinois cities may increase their use of alternative forms of transportation, particularly that of driving to major hub centers such as Chicago, St. Louis, and Indianapolis. Although national statistics report strong growth in national air travel in recent years, many medium to small cities have experienced sharp declines in air travel (Table 2 and Chart 4).

Outlook for Short Distance Air Travel

After enactment of the Deregulation Act of 1978, the large regional and trunk airlines withdrew their 100 passenger-plus, fast, "above the weather" pressurized jets that provided many services and substituted small 10–20 passenger, "through the weather" planes that have few amenities. This has created a real "commuter gap." However, technology and consumer

Table 3. Percent Jet Flights of Total Flights[1] in Six Major Downstate Illinois Cities, 1971-1989

City	1971	1975	1980	1985	1989[2]
Bloomington-Normal	0	0	0	0	0
Champaign-Urbana	45	48	31	19	6
Decatur	44	36	29	0	0
Peoria	54	63	47	33	21
Quad Cities	52	70	47	27	35
Springfield	71	23	24	19	0
All Six Cities	52	48	33	21	11

[1]Arrivals.
[2]November.

Source: Official Airline Guide.

Table 4. Airlines Serving Six Major Downstate Illinois Cities, Selected Years, 1971-1989[1]

1971	1975	1980	1985	1989
Ozark	Ozark	Ozark	Ozark[8]	United
Air Illinois	Air Illinois	Air Illinois[4]	United	United Exp
Vercoa Airline[2]	United	United	Britt[9]	TWA
United		Britt	United Exp[10]	TWA Express[13]
Air Mid America[3]		Miss. Valley[5]	Air Midwest[11]	Continental West[14]
		Continental[6]	Piedmont[12]	American Eagle[15]
		Decatur Aviation[7]	TWA	Midway Connection[16]
				U.S. Air
				U.S. Air Exp[17]
				American West
				Northwest Air Link[18]

[1]The express airlines are considered separate airlines from their major trunk affiliates or owners in this survey. The parent major airlines, as American, United, etc. emphasize long distance flights using jet equipment. The express airlines owned by or having code sharing agreements with majors, are usually commuter airlines emphasizing short distances and using slower and smaller jet prop planes. Code sharing by a major and an affiliated commuter (express) airline may include joint ticketing, computer listing, baggage handling, coordinated schedules, and such support services as crew training.

[2]Ceased operation in 1971.
[3]Ceased operation in 1971.
[4]Ceased operation in October 1983.
[5]Acquired by Air Wisconsin in 1985 which later became United Express.
[6]Acquired by Texas Air in 1982.
[7]Ceased operation in 1980.
[8]Acquired by TWA in 1986.
[9]Acquired by Texas Air in 1986.
[10]Started by United after code sharing with Air Wisconsin in 1985.
[11]Ceased operation after 1985.
[12]Acquired by U.S. Air in August 1989.
[13]Started by TWA after acquiring Ozark in 1986.
[14]Started by Texas Air after purchase of Britt Airways in 1986.
[15]Started by American Airlines after code sharing with Simmons Airlines. The Simmons name disappeared on American's feeder routes.
[16]Started as a commuter airline by Midway Airline in 1988.
[17]Started as a commuter airline by U.S. Air in August 1989 after acquisition of Piedmont Airlines.
[18]Started after merger of Republic Airlines into Northwest Airlines in 1986.

preferences are acting together to close this gap. Jet planes are getting smaller: British Aerospace is introducing its ATP 68 passenger jet for shorter flights, the Fokker Company is introducing a (F28) 65 passenger jet, and Canadair is introducing a 48 passenger jet (60 1RJ). All are better adapted to short flights. At the same time, the turboprop planes are getting larger, faster, pressurized, and provide more amenities. For example, the Aeritalia Aerospatiale (ATR42) will have 40–50 seats, the Embraer Brasilia (EMB120) will have 30 seats, and the SAAB 2000 will have 50 seats.

The closure of the "commuter gap" should serve to improve air service to downstate Illinois cities, and to slow or reverse the practice of driving to major hub centers for airline service.

News from BEBR

Beginning with our next issue, the Bureau of Economic and Business Research will charge a subscription fee for the *Illinois Business Review*. The $10.00 annual subscription fee will cover increased printing and mailing charges. Please consult the order form at the bottom of this page for information on discounts for multiyear subscriptions. In order to continue to receive your copies of the *Review* without interruption, please fill out and return the form right away.

Illinois Statistical Abstract and *Illinois Economic Outlook*

The *Illinois Statistical Abstract* and the *Illinois Economic Outlook* are available for immediate purchase from the Bureau of Economic and Business Research. The *Abstract* provides the most current economic and demographic statistical data for Illinois in a comprehensive, single-source reference. More than 400 data tables and charts provide detailed coverage for Illinois, its counties and statistical metropolitan areas, and for the United States. Some topics covered are personal income, transfer payments, employment, census of services, comsumer price indexes, state revenue and expenditures, export dependent employment, non-farm earnings, industry employment, gross state product, census of population and housing, inflation rates, estimated retail sales, crime and law enforcement, farm income, labor force statistics, census of manufacturing, building permits, commercial banking, and exports.

The *1991 Illinois Economic Outlook* examines various sectors of the Illinois economy and provides a sixteen-quarter forecast based on the Illinois Econometric Model maintained by the Bureau of Economic and Business Research. In addition, trends for the coming year are predicted for these topics: agriculture, banking, fiscal position, education, exports, health care, and energy. Both publications can be ordered on the form below.

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Illinois Business Statistics

G rowth rates in real personal income in Illinois have continued downward through 1990 (Chart 1). The Illinois econometric Model (IEM) predicts that real income growth in good-producing industries will remain negative through 1991. Service-producing industries, which experienced real income growth in excess of 5 percent in 1988, are expected to have grown at annual rate of less than two percent in 1990.

The current economic downturn is responsible for a slowdown in employment growth in Illinois into the foreseeable future (Chart 2). Again, the goods-producing sector, which includes manufacturing, will be hardest hit. The IEM predicts that the total number of jobs in Illinois will actually shrink in 1991.

Construction employment is expected to experience the most precipitous decline. In the first quarter of 1990, construction employment stood at a seasonally adjusted 213,000. Employment in that sector is expected to fall to 203,500 in the first quarter of 1991 and to 193,000 in 1992, a net decline of 9.4 percent in just two years.

Forecast Statistics

Personal Income (millions of dollars, seasonally adjusted at annual rates)

	1989	1990:I	1990:II	1990:III*	1990:IV	1991:I	1991:II	1991:III	1991:IV	1992:I
Total personal income	$219,449	$227,140	$229,459	$236,336	$239,859	$243,246	$247,109	$251,211	$255,716	$260,021
Total nonfarm personal	160,164	163,599	166,200	171,069	173,518	175,665	178,362	181,210	184,663	187,722
Total private nonfarm	140,267	143,109	145,357	149,513	151,568	153,432	155,816	158,444	161,508	164,303
Mining	1,048	1,118	1,137	1,153	1,183	1,192	1,210	1,224	1,234	1,242
Construction	9,687	10,031	9,552	10,100	10,256	10,451	10,586	10,822	11,035	11,258
Manufacturing	33,301	33,316	34,078	35,437	35,474	35,324	35,395	35,605	35,968	36,348
Durable	20,704	20,311	20,638	21,815	21,746	21,480	21,400	21,451	21,679	21,904
Nondurable	12,597	13,005	13,440	13,622	13,729	13,843	13,994	14,153	14,289	14,444
Transp. & pub. utilities	11,743	12,092	12,345	12,509	12,659	12,743	12,901	13,068	13,290	13,469
Wholesale trade	13,315	13,317	13,529	13,799	14,017	14,235	14,486	14,714	14,988	15,232
Retail	14,342	14,416	14,611	14,936	15,044	15,107	15,361	15,603	15,976	16,094
Finance, ins. & real estate	13,870	14,219	14,494	14,571	14,801	15,059	15,318	15,600	15,907	16,215
Services	42,272	43,913	44,926	47,008	48,135	49,322	50,559	51,806	53,110	54,445
Government	19,897	20,490	20,843	21,556	21,950	22,233	22,546	22,766	23,155	23,419

*Forecast begins

Gross State Product (millions of dollars, seasonally adjusted at annual rates)

|	1989	1990:I	1990:II*	1990:III	1990:IV	1991:I	1991:II	1991:III	1991:IV	1992:I
Total	$258,376	$263,974	$269,589	$275,811	$279,759	$283,299	$286,933	$290,835	$295,021	$299,250
Total private nonagricultural	231,145	235,879	239,926	246,465	250,077	253,318	256,646	260,221	264,057	267,933
Mining	1,781	1,901	1,933	1,601	1,663	1,647	1,616	1,591	1,559	1,519
Construction	11,024	11,415	10,870	11,391	11,511	11,646	11,846	12,038	12,219	12,390
Manufacturing	49,109	49,307	50,495	49,523	49,148	48,787	48,616	48,615	48,812	49,057
Durable	27,103	26,587	27,015	26,521	26,069	25,557	25,196	25,027	25,048	25,120
Nondurable	22,007	22,720	23,480	23,002	23,080	23,230	23,419	23,588	23,765	23,937
Transp. & pub. utilities	25,835	26,602	27,159	27,829	28,032	28,306	28,634	28,946	29,260	29,577
Wholesale trade	22,530	22,532	22,891	23,439	23,856	24,178	24,468	24,777	25,103	25,419
Retail trade	23,564	23,685	24,006	25,137	25,406	25,755	26,161	26,561	26,973	27,401
Finance, ins. & real estate	47,296	48,487	49,425	51,998	53,430	54,566	55,472	56,439	57,457	58,448
Services	50,008	51,949	53,147	55,545	57,032	58,433	59,835	61,253	62,673	64,123
Government	23,100	23,789	24,199	24,745	25,233	25,594	25,907	26,209	26,563	26,868
Agriculture	4,131	4,306	5,464	4,601	4,449	4,387	4,380	4,405	4,401	4,449

*Forecast begins

Illinois Employment Forecast (in thousands, seasonally adjusted)

|	1989	1990:I	1990:II*	1990:III	1990:IV	1991:I	1991:II	1991:III	1991:IV	1992:I
Total nonfarm employment	5,178.8	5,207.1	5,218.8	5,215.9	5,216.9	5,198.4	5,173.5	5,164.4	5,173.7	5,187.1
Total private nonfarm emp.	4,441.1	4,462.8	4,467.1	4,472.0	4,470.0	4,450.1	4,422.7	4,415.8	4,423.5	4,439.3
Mining	19.8	19.5	19.8	20.0	20.3	20.7	20.4	20.3	20.4	20.7
Construction	209.7	213.2	207.1	205.5	203.6	203.5	195.7	193.0	191.0	193.0
Manufacturing	981.2	979.5	980.8	977.7	963.8	947.7	933.4	928.0	927.1	930.1
Durable	598.3	596.2	597.4	594.4	585.6	574.4	564.4	561.3	562.2	565.7
Primary metals	56.3	56.2	56.4	56.3	55.1	53.2	51.3	50.5	50.1	49.9
Fabricated metals	107.2	106.3	106.4	106.2	104.2	101.9	99.6	98.5	98.5	98.9
Nonelectrical machinery	154.2	155.3	155.4	155.6	153.0	148.2	144.2	142.6	142.7	143.6
Electrical machinery	118.4	117.7	116.6	115.8	116.6	117.6	119.5	122.1	124.8	128.1
Nondurable	382.9	383.4	383.4	383.3	378.2	373.3	369.1	366.7	364.9	364.4
Food & kindred products	90.2	90.2	90.0	90.6	88.9	87.4	86.2	85.3	84.1	83.5
Printing & publishing	112.8	112.8	112.9	112.3	109.7	108.0	106.5	105.1	103.9	103.2
Chemicals & allied prod.	61.1	61.6	61.7	61.9	61.7	61.4	61.2	61.2	61.2	61.2
Transportation and pub. utilities	304.4	306.2	306.4	307.1	305.7	304.9	303.6	303.1	302.7	303.3
Wholesale trade	374.1	375.7	377.1	376.1	376.5	376.1	374.1	372.6	373.5	374.3
Retail trade	900.5	906.1	907.1	908.5	912.1	902.6	899.4	899.7	901.4	902.5
Finance, ins. & real estate	372.4	373.2	373.0	373.2	373.9	373.7	372.4	371.0	371.7	371.6
Services	1,278.9	1,289.4	1,295.8	1,303.9	1,314.1	1,320.9	1,323.8	1,328.1	1,335.7	1,343.8
Government	737.7	744.3	751.7	743.9	746.9	748.3	750.8	748.6	750.2	747.8

*Forecast begins.

Chart 1. Growth Rates in Real Personal Income (1982=100)
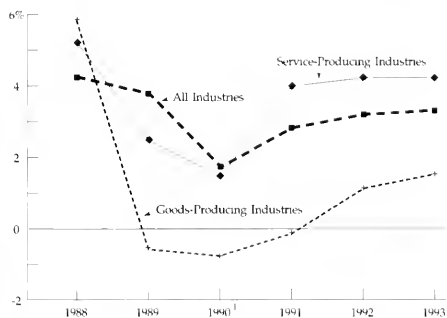
Chart 2. Growth Rates of Employment in Illinois
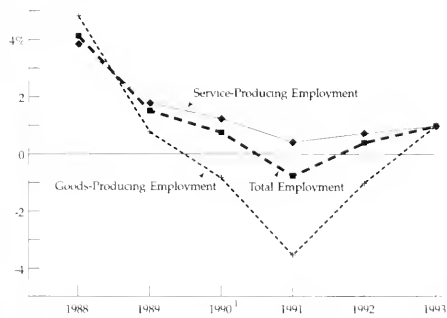
Historical Statistics

	One Year % Change	Oct. 1990	Sep. 1990	Aug. 1990	July 1990	June 1990	May 1990	Oct. 1989
Building permits (thousands)								
Residential Housing Units	-10.54	2.767	3.178	3.265	3.167	3.531	3.658	3.093
Value of residential units	-34.70	$251,262	$260,938	$299,246	$298,885	$321,515	$348,264	$384,805
Value of nonresidential housing								
Industrial buildings	18.21	$28,648	$32,910	$33,601	$41,137	$23,423	$57,706	$24,234
Office, banks, and professional buildings	-43.51	$35,060	$27,969	$111,955	$23,086	$29,565	$18,932	$62,069
Stores and other mercantile buildings	-2.49	$44,310	$43,765	$27,013	$39,463	$55,120	$62,213	$45,440
Other	-8.32	$6,667	$6,158	$6,054	$4,672	$9,910	$7,658	$7,272
Consumer price index (1982-1984=100)								
United States	6.29	133.5	132.7	131.6	130.4	129.9	129.2	125.6
North Central US	5.69	130.0	129.4	128.4	126.9	126.9	126.0	123.0
North Central/pop. more than 1,200,000	5.47	131.1	130.7	129.9	128.6	128.6	127.4	124.3
North Central/pop.360,000 to 1,200,000	5.82	129.1	128.3	127.6	125.8	125.6	125.3	122.0
North Central/pop. 50,000 to 360,000	6.43	130.8	129.9	127.8	126.2	126.5	125.9	122.9
North Central/pop. less than 50,000	6.43	125.8	125.0	124.1	122.6	122.3	121.4	118.2
Chicago	5.13	133.3	133.8	133.2	132.0	131.7	130.4	126.8
St. Louis	NA	NA	129.9	NA	128.0	NA	126.7	NA

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Stephen F. Quinn

Illinois and National Recessions: Will History Repeat?

U nlike the recessionary periods in the early 1980s, the current downturn appears to be imposing no worse hardship on Illinois than on the nation as a whole. At the end of 1990, the Illinois unemployment rate was lower than the national average, and state tax receipts were holding steady. The gross state product (GSP) for the fourth quarter of 1990, a measure of the state's total income or the value of final goods and services produced, seems not to have fallen as much as in the nation as a whole (GNP). Is this the quiet before the storm, or is Illinois insulated from the ill fortune of other regions?

To address these questions, recent Illinois economic history relative to that of the United States will be reviewed. Of course, national downturns dampen a state's economy, but the hardships of recession are not evenly distributed among the states. Recent changes in the nature of the Illinois economy may be making the state less sensitive to national trends.

Gross State Product

While enjoying some real growth over the past 15 years, real gross product for Illinois has contracted with more severity and grown with less vigor than in the nation as a whole. As a consequence, Illinois declined as a portion of the United States economy until late into the 1980s. From 1972 to 1985, Illinois GSP as a portion of US GNP fell from 6.2 percent to just under 5 percent (Chart 1). Illinois sporadically drifted downwards during the period with the most dramatic contraction coming with the regional downturn in 1985. During that single year, an expansion in the national economy was coupled with a recession at the state level. Since 1985, GSP has kept pace with gross national product.

Chart 1. Illinois GSP as a Percentage of US GNP
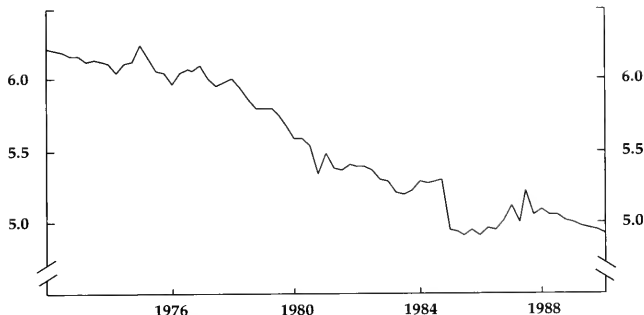
Source: Bureau of Economic Analysis

Chart 2. Illinois Employment as a Percentage of US Employment
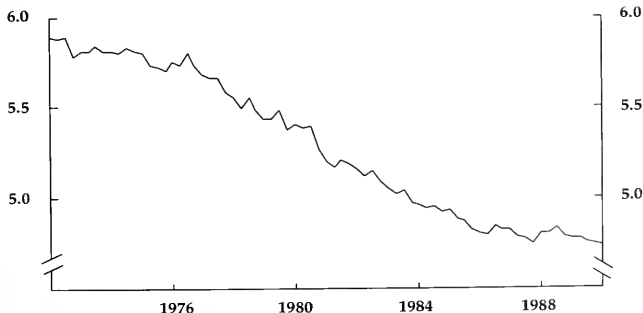
Source: Bureau of Economic Analysis

Employment

Employment developments in Illinois show a similar pattern. Since 1972, the rate of job creation in the United States has consistently outstripped that in Illinois. The consequent decline in the percentage of Illinois employment relative to national employment (Chart 2) mirrors GSP's fall. Even so, the state's loss in job share has slowed in recent years. Since 1986, Illinois employment levels have become stable relative to national levels.

The long-run erosion of the state's relative economic position

accelerated in the mid-1970s and continued unabated through the mid-1980s. Both gross product and employment trends illustrate that Illinois has not matched national expansion rates during good times. Moreover, Illinois has outdone national rates of contraction during recessionary periods. Illinois suffered disproprtionately from the national recessions of the mid-1970s and early 1980s. Unless meaningful change has affected the Illinois economy, a national downturn in 1990 positions the state to repeat the recessionary scenarios of the past, a worse-than-the-national-average contraction of GSP and employment.

The Changing Illinois Economy

Consideration of the historical relationship between the Illinois and US economies should be tempered with knowledge of how the composition of the state's economy has changed. Since 1972, the highly volatile goods-producing sector has been a shrinking share of the Illinois economy, while the more stable services-producing sector has grown. The goods-producing sector consists of mining, construction, and manufacturing while the services-producing sector consists of transportation; wholesale and retail trade; public utilities; real estate;
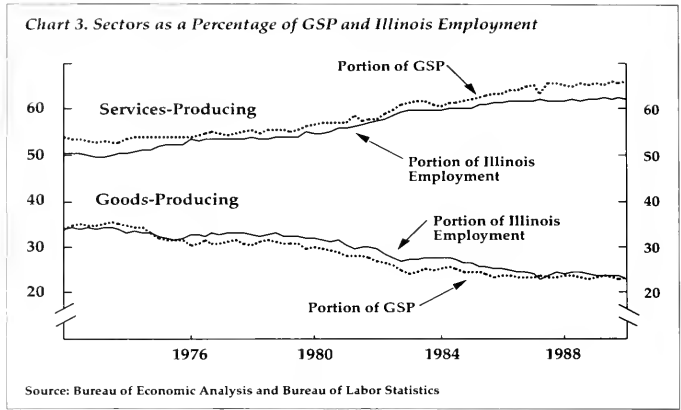
insurance; finance; and household, business, and legal services. The implication of the diminished role of manufacturing in the state economy is that Illinois may break its historical trend. Indeed, services, along with finance, insurance, and real estate may have become the sectors whose characteristics dominate the state economy. If so, Illinois may avoid the relatively severe state-level effects historically associated with national recessions.

Chart 3 shows that the services-producing sector has gained a 10 percent share of GSP over the past 15 years, while the goods-producing sector has declined by an identical percentage of GSP. Again, employment developments

paralleled changes in GSP. Employment in goods-producing industries declined from 35 to 25 percent of total, nonagricultural state employment, and services-producing employment rose from 45 to 55 percent of state employment.

Besides growing in relative size, the services-producing sector's gross product varies less than the goods-producing sector. Significantly, services production avoids the deep pockets of negative growth to which the goods-producing sector is prone (Chart 4). Key to unemployment concerns, the services-producing sector has historically avoided the severe drops in employment associated with goods production (Chart 5). The size and buoyancy of the Illinois services-producing sector will serve to mute the impact of a national recession on the state economy.

GSP data for fourth quarter 1990 and first quarter 1991 are not yet available, so clear conclusions regarding the role of Illinois in the national recession remain undrawn. While GSP data have significant lags, other sources of economic information are available on a more timely basis. Monthly state employment data show a strong finish in 1990. In December, the Illinois unemployment rate of 6.0 percent was just below the US rate (6.1 percent). Though not evidence of expansion,

Chart 3. Sectors as a Percentage of GSP and Illinois Employment

Source: Bureau of Economic Analysis and Bureau of Labor Statistics

Chart 4. Annual Rate of Change in Illinois Real State Product

Source: Bureau of Economic Analysis
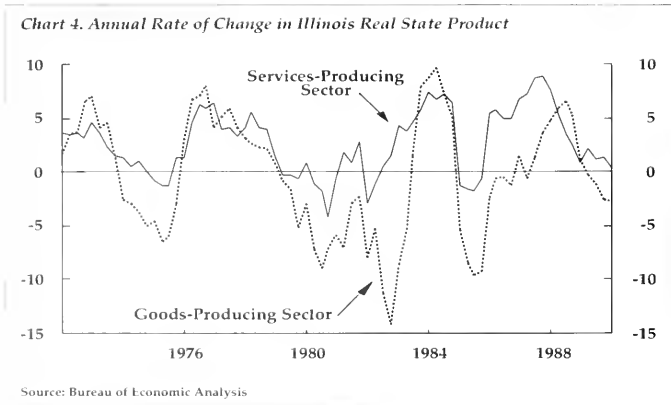
the Illinois employment numbers were not faring worse than the nation as a whole.

Monthly state revenue receipts provide another current source of information for the Illinois economy. Reflecting actual changes in personal income within the state, personal income tax receipts have remained strong. From July 1990 to January 1991 (a little over half of the fiscal year), personal income tax receipts grew by 1 percent over a year earlier. However, turns in personal income growth tend to lag changes in gross state product. Consequently, the stability of personal income tax revenue may reflect the strength of the Illinois economy during the third quarter of 1990.

The retail sales tax has not fared as well as the personal income tax. Retail sales were soft during the second half of 1990 with especially weak showings in September and December . Historically, the retail sector has been a leading indicator of changes in GSP. If historical patterns repeat, a shrinkage in GSP in the fourth quarter of 1990 and

Chart 5. Annual Rate of Change in Illinois Employment

Source: Bureau of Labor Statistics
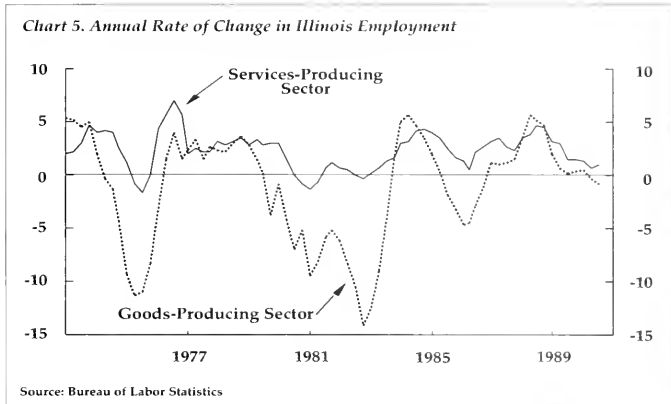
the first quarter of 1991 seem likely. While GSP may join GNP in recession, the retail sales tax numbers do not indicate a severe contraction. Indeed, January 1991 showed moderate strength. Though marginally weak, receipts from the retail sales tax do not portend the bottom falling out of the state economy.

The idea that Illinois has broken its historical trend within the national economy is worthy of tentative support. Although it is likely

that the Illinois GSP has fallen in the fourth quarter of 1990 and the first quarter of 1991, indications are that Illinois has not fared worse than the national average. The increased role of the services-producing sector in Illinois may be insulating the state economy from the misfortunes of other regions. Definitive conclusions, however, must await more complete data.

Robert P. Hartwig

The Chanute Air Force Base Closure: An Update

Since 1917, the small east-central Illinois community of Rantoul has been home to Chanute Air Force Base. In the 74 years since its opening, military expenditures associated with the base have come to be a chief driving force behind Rantoul's economy. But on December 28, 1988, the Department of Defense (DOD) listed Chanute as one of 86 military installations earmarked for realignment or closure. Subsequent legal efforts to keep the base open failed, and the community has since focused attention on its post-closure well-being. The base is slated for a phased closure to be completed by late 1993.

There is ample evidence to suggest that Rantoul will remain a vital community in the future.[1] The Office of Economic Adjustment (OEA), the DOD entity entrusted with assisting communities like Rantoul, cites numerous instances in which communities have rebounded from a round of base closures in the 1960s. Generally, the OEA success stories are based on snapshots of the affected community ten to twenty years following closure. The economic dynamics at work in the local economy during the intervening period remain largely undocumented.

The Longitudinal Study of the Village of Rantoul, Illinois (LSVRI), was conceived with the objective of providing insights into these dynamics. The study was developed in conjunction with members of Rantoul's business and government community. It is a long-term study undertaken by the Bureau of Economic and Business Research (BEBR) at the University of Illinois at Urbana-Champaign that is designed to track the performance of the Rantoul economy as it adjusts to a diminishing military presence. Much of the data for the study are obtained through a confidential, semi-annual survey of Rantoul businesses, non-profit organizations, schools, and the municipality itself. Publicly available state and federal data, such as census reports, are also utilized. Local businesses and town officials receive semi-annual reports summarizing the study's findings.

This report begins with a discussion of the variables monitored by the study and concludes with a presentation of findings and observations for the first full year.

Focus of the Study

There are many economic and demographic variables relating to the Rantoul economy that are likely to change as a result of the base closure. The LSVRI focuses on a subset of those variables that are easily quantifiable. In particular, the study tracks earnings (sales, gross billings, pretax income, and contributions), current employment (full-time, part-time, and total), projected employment (full-time, part-time, and total), school funding and employment, and municipal tax receipts and employment. Data relating to population, building permits, and business closure/ failure are also collected. Finally, the business community is also asked to rate the overall business climate in Rantoul for the next six- and twelve-month periods.

The study divides the Rantoul economy into seven segments: retail, professional, artisan/ contractor, financial, non-profit, school, and municipal. Survey questionnaires were developed for each of these segments. Dividing the economy in this manner facilitates the identification of weaknesses and strengths in specific sectors of the village economy.

Results

The first semi-annual survey was taken in March 1990 and covered the period July 1, 1989 to December 31, 1989. The second survey was taken in October 1990 and covered the six month period ending June 30, 1990. Survey questions ask for current data and for the change from the same period in the previous year. As a result, the LSVRI has, in effect, collected two years of data on the Rantoul economy. The time period is especially important since our earliest data predate the closure announcement. Thus, they serve as a benchmark and reference point.

Base Population, Employment, and Income

The closure announcement was made in late December of 1988. During that year, Chanute employed 2,383 permanent party military personnel, 991 appropriated-fund civilians, 542 nonappropriated fund/base exchange personnel, 864 contract civilians, and 63 other civilians. In addition, there were, on average, 2,759 students enrolled. During fiscal year 1988, Chanute had a payroll of $123.6 million and pumped between $107 million and $135 million into the local economy.

As of November 1990, only 75 military trainees and 25 instructors had left Chanute. About 25 others had been deployed to the Persian

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[1] For more details see my article in the June, 1989 edition of this publication.

Gulf. Between 100 and 300 persons are expected to be reassigned during 1991, 1,800 in 1992, and the rest by late 1993. Thus, to date, only minor changes have taken place.

Private Sector Earnings (Sales, Gross Billings, Income, and Contributions)

The initial impact of the closure announcement on Rantoul's private sector was severe despite the fact that few personnel had actually been transferred from Chanute. Table 1 shows that in 1989 mean per-firm earnings fell in every segment of the economy except the industrial sector.

Nearly half of the retailers sampled reported a drop in sales during the second half of 1989 as compared with the same period in 1988 (before the closure was announced). Though over 40 percent of retailers reported increased sales, the average and median increases were small when compared with

the large, negative figures at declining firms. One-third of professional businesses and artisan/contractors reported decreased earnings as did 50 percent of financial institutions.

Table 1 also compares earnings results from the first six months of 1990 with the same period in 1989. The findings are quite different. The average retailer, professional business, and nonprofit organization reported increased earnings, reversing the trend from the previous six-month period.[2] Also, there was an improvement reflected in the proportion of financial institutions reporting decreased earnings.

Private Sector Employment

Employment figures in Table 2 can be viewed as a reflection of the earnings figures in Table 1. In general, a greater proportion of firms reported decreased employment during the last half of 1989 than during the first half of 1990.

Moreover, the average number of jobs lost per firm in the retail and professional sectors shrank. Most sectors of the economy showed a larger proportion of firms with increased employment in the first half of 1990, while the majority of firms in both survey periods reported no change in employment.

Two positive developments are in evidence. Industrial employment continues to expand in Rantoul and fewer artisan/contractors reported reduced employment in early 1990.

Schools

As of March 15, 1990, Rantoul public schools employed 353 people. By the end of academic year 1990–91, administrators expect to

[2] Non-profit organization was a new category included in the second survey period. It contains some types of businesses previously included under the heading of profession business.

Table 1. Change in Earnings

July 1, 1989–December 31, 1989 (over the same period in the previous year)

TYPE	Percent Reporting Decreased Earnings	Mean Change Decreasing Firms	Median Change Decreasing Firms	Percent Reporting No Change in Earnings	Percent Reporting Increased Earnings	Mean Change Increased Firms	Median Change Increased Firms	Mean Change All Firms	Median Change All Firms
Retail	48.9%	($205,269)	($23,750)	8.9%	42.2%	$77,332	$18,454	($66,231)	0
Professional	35.3%	($83,569)	($33,495)	17.6%	47.1%	$14,834	$8,516	($22,514)	0
Artisan/Contractor	33.3%	S	S	33.3%	33.3%	S	S	($123,254)	0
Industrial	0.0%	NA	NA	0.0%	100.0%	$2,500,000	S	$2,500,000	S
Financial	50.0%	($139,940)	S	25.0%	25.0%	S	S	($66,470)	($62,440)

January 1, 1990–June 30, 1990 (over the same period in the previous year)

TYPE	Percent Reporting Decreased Earnings	Mean Change Decreasing Firms	Median Change Decreasing Firms	Percent Reporting No Change in Earnings	Percent Reporting Increased Earnings	Mean Change Increased Firms	Median Change Increased Firms	Mean Change All Firms	Median Change All Firms
Retail	37.1%	($96,026)	($26,150)	5.7%	57.1%	$67,902	$20,162	$6,051	$14,098
Professional	25.0%	($11,333)	($12,000)	0.0%	75.5%	$30,737	$15,455	$20,219	$4,500
Artisan/Contractor	33.3%	S	S	66.7%	0.0%	NA	NA	$0	$0
Industrial	0.0%	NA	NA	0.0%	100.0%	$860,560	S	$860,560	S
Financial	33.3%	S	S	0.0%	66.7%	$4,405	S	($10,064)	$3,000
Non-Profit	28.6%	($3,508)	S	14.3%	57.1%	$3,113	$1,785	$777	$883

S=suppressed to preserve anonymity
NA=not applicable
Note: Earnings measured as sales (retail, industrial, artisan/contractor); gross billings and commissions (professional);
pre-tax income (financial institutions), and contributions/dues (non-profit organizations)

Table 2. Change in Employment

July 1, 1989–December 31, 1989 (over the same period in the previous year)

Type	Percent Reporting Decreased Employment	Mean Change Decreasing Firms	Percent Reporting No Change in Employment	Percent Reporting Increased Employment	Mean Change Increasing Firms	Mean Change All Firms
Retail-Total	38.0%	-3.89	54.0%	8.0%	3.25	-1.3
Full	28.3%	-2.77	65.2%	6.5%	2.00	-0.7
Part	30.4%	-3.21	56.5%	13.0%	2.6	-0.6
Professional-Total	13.0%	-3.33	78.3%	8.7%	4.00	0.0
Full	13.0%	-1.33	78.3%	8.7%	3.00	0.1
Part	8.7%	-3.00	82.6%	8.7%	1.50	-0.1
Artisan/Contractor-Total	80.0%	-2.50	20.0%	0.0%	0.00	-2.0
Full	60.0%	-2.33	40.0%	0.0%	0.00	-1.4
Part	40.0%	-1.50	60.0%	0.0%	0.00	-0.6
Industrial-Total	0.0%	0.00	66.7%	33.3%	S	48.3
Full	33.3%	S	33.3%	33.3%	S	48.0
Part	0.0%	0.00	66.7%	33.3%	S	0.3
Financial-Total	40.0%	-3.00	60.0%	0.0%	0.00	-1.2
Full	40.0%	-3.00	60.0%	0.0%	0.00	-1.2
Part	0.0%	0.00	0.0%	0.0%	0.00	0.0

January 1, 1990–June 30, 1990 (over the same period in the previous year)

Type	Percent Reporting Decreased Employment	Mean Change Decreasing Firms	Percent Reporting No Change in Employment	Percent Reporting Increased Employment	Mean Change Increasing Firms	Mean Change All Firms
Retail-Total	28.6%	-3.05	4.8%	16.7%	2.3	-0.47
Full	23.8%	-1.9	66.7%	9.5%	4.0	-0.35
Part	21.4%	-1.8	59.5%	19.0%	1.8	-0.04
Professional-Total	6.3%	-1.0	81.3%	12.5%	1.0	0.06
Full	6.3%	-1.0	81.3%	12.5%	1.0	0.06
Part	6.3%	-1.0	87.5%	12.5%	1.0	0.00
Artisan/ Contractor-Total	33.3%	S	66.7%	0.0%	NA	-0.66
Full	33.3%	S	66.7%	0.0%	NA	0.00
Part	0.0%	NA	100.0%	0.0%	NA	0.00
Industrial-Total	0.0%	NA	25.0%	75.0%	29.7	22.25
Full	0.0%	NA	50.0%	50.0%	43.0	21.50
Part	0.0%	NA	50.0%	50.0%	1.5	0.75
Financial-Total	0.0%	NA	33.3%	66.7%	1.5	1.00
Full	33.3%	S	33.3%	33.3%	S	0.00
Part	0.0%	NA	66.7%	33.3%	S	1.00
Non-Profit -Total	0.3	-1.0	0.3	0.3	1.0	-0.11
Full	0.2	-1.0	0.7	0.1	1.0	-0.11
Part	0.2	-1.0	0.6	0.2	1.0	0.00

S=suppressed to preserve anonymity
NA=not applicable

Municipality

The municipal government in Rantoul is grappling with a number of serious economic issues simultaneously, none more important than its future well-being. It is working hard to attract new business to Rantoul and to foster the expansion of existing firms. The continued growth of its industrial sector and consistently low unemployment rate (less than 5.5 percent) are testimony to a successful campaign and to the diversification of the community's economic base. Reuse committees have been formed and are actively soliciting tenants following closure.

There are more immediate concerns about village revenue receipts. Though municipal revenues continue to increase, officials expect housing occupancy rates to drop. Consequently, they project declining revenues from dwelling-based taxes such as the water, sewer, and utility taxes. Sales tax receipts are another source of concern. At least 13 businesses are known to have closed in Rantoul (11 retail and 2 professional). Most of those businesses were small and hence had only a negligible effect on gross municipal revenues. Most large retailers in our sample reported increased sales in the first half of 1990. Village officials are concerned about real estate taxes, as the assessed valuation of a typical home in Rantoul declined 12.5 percent by the end of 1989.

Rantoul's share of federal and state taxes that are redistributed to

lose eight teachers, three support staff, and one other. State and local aid for 1990-1991 is expected to increase, but federal aid is expected to fall as military dependents leave the community. Larger drops in federal aid are expected as the base closure accelerates in 1992 and 1993. Costs associated with increased claims for unemployment compensation are expected to rise in the future.

Because public school funding depends heavily on local property taxes, any decrease in property values will lead to decreased assessed valuation and revenues for education in the Rantoul school district. School administrators currently rate the quality of education in Rantoul as excellent. Perhaps in anticipation of decreased revenues, they expect some deterioration within one to two years.

communities on a per capita basis (for example, some motor fuel taxes) will shrink as a direct consequence of the 1990 decennial census. That enumeration found 17,212 Rantoul residents, 2,949 or 14.6 percent fewer than the 20,161 counted in 1980.

Building rebounded in the first half of 1990 with 56 permits issued (6 residential, 3 commercial/industrial, and 47 others). In contrast, the final six months of 1989 saw virtually no new commercial/residential construction in Rantoul as measured by the number of building permits issued. Only nine permits for additions were issued. This corroborates the difficulties experienced by artisan/contractors during this period.

Expectations

Table 3 shows the expectations of the Rantoul business community. The first column shows that artisan/contractors and retailers expected to feel the greatest impact of closure. Most firms did not expect their business to increase from new or expanding firms, as indicated in the second column. Management opinion concerning the future business climate in Rantoul is given in the final two columns. Most firms are more pessimistic about the first half of 1991 than the second half of 1990.

Table 3. Expectations

TYPE	Expected Closure Impact 7/1/90-12/31/90*	Expected New/Expand. Business Impact 7/1/90-12/31/90*	Overall Rantoul Business Climate 7/1/90-12/31/90**	Overall Rantoul Business Climate 7/1/90-6/60/91**
Retail	2.4	3.1	6.2	6.1
Professional	3.0	3.7	5.1	5.7
Artisan/Contractor	1.7	2.7	7.7	6.5
Industrial	3.8	3.8	3.0	4.5
Financial	3.0	3.3	6.0	6.7
Non-Profit	2.6	2.6	NA	NA

* Scale of 4:1 = significant impact; 2 = moderate impact; 3 = slight impact; 4 = very little or no impact

**Scale of 10: 1 = very good; 10 = very poor

Summary

Rantoul's economy has shown resilience in the wake of the Chanute closure announcement. Though little has changed at the base itself in terms of personnel and payroll, the economy has begun a process of adjustment that will continue for many years. Until new tenants for the base are found, certain sectors of the economy will decline. The retail sector is particularly vulnerable since many retail expenditures are discretionary (for example, spending for restaurant meals, new automobiles) and because the presence of the base led the retail sector to expand more than could be justified for a community of Rantoul's size. Business for artisan/contractors will remain slow until there is a renewed demand for residential and/or commercial construction. Demand for medical, dental, legal, and other professional services, which are less discretionary, are likely to be less affected throughout the closure.

Some of Rantoul's industrial firms have plans for further expansion. This sector will supplant the military as the driving force behind the Rantoul economy if no single, very large firm comes to Chanute, such as the proposed United Airlines maintenance facility.

John C. Hamilton

Workers' Compensation Rates in Illinois

W orkers' compensation insurance is sold in Illinois by open competition. An Illinois employer, required by law to provide coverage, may negotiate with any insurance company qualified to sell workers' compensation insurance in the state. The National Council on Compensation Insurance (NCCI) publishes advisory rates for each classification code that serve as the starting point for negotiating the cost of workers' compensation coverage. NCCI rate-making allows the insurance companies to share the expense of actuarially determining rates for each classification for each state. This system takes the responsibility for setting rates out of the hands of government, which sets benefit levels, and gives that responsibility to a private insurance industry group, the NCCI.

The cost of workers' compensation insurance in Illinois may be above or below the NCCI recommended rates depending on, among other things, the negotiating skill of the company seeking coverage, and the willingness of the insurance company to deviate from the advisory rates. Rates vary from state to state depending on benefit levels defined by the laws of each state and the actuarial determination of risk made by the NCCI.

Two alternatives to negotiated insurance contracts exist. Employers may self-insure; but financial strength requirements and economies of scale essentially limit the self-insurance option to large firms. On average, self-insurance probably costs between 20 and 40 percent less than the NCCI manual rates, although the deviation is great. Employers who cannot self-insure and who cannot find a company willing to insure them are put in the assigned-risk pool. Companies in this pool are assigned by lottery to insurance companies that sell workers' compensation insurance in Illinois. Assigned-risk coverage costs 20 to 30 percent more than standard manual rates. Thus, with self-insurance costs lower and assigned-risk costs higher, the average rate in Illinois appears to be the NCCI advisory rates.

The advisory rates for Illinois are published in a manual along with the NCCI-calculated rates for 40 other states. The rate classifications roughly correspond to industries. For instance, "Glass Manufacturing" with some exceptions includes all the employees at a glass factory regardless of occupation. The rates are expressed in dollars per $100 of payroll, which is equivalent to a percent of payroll. The rate-making process has evolved over the years since workers' compensation insurance was pioneered in 1910 by Dr. Alice Hamilton in Illinois.

However, the NCCI manual still lists risk classifications from another era, for example, "Ice Harvesting," presumably from frozen ponds and lakes; "Music Roll Manufacturing–perforated paper" from a time when player pianos were the rage; "Five and Ten Cent Store" and "Milk Bottle Exchange"; and "Whip Manufacturing," a buggy whip factory being the economists' standard example of obsolescence

More troubling than the anachronisms are the anomalies scattered throughout the classifications and rates. In some cases the apparently more dangerous of two closely related classifications bears the lower rate. Some classifications seem so broad as to include products, processes, and businesses with widely divergent risks. There are numerous cases in which a classification will have a higher rate than another classification in one state and a lower rate than that other classification in a second state.

The Illinois rate for "Athletic Team–Contact Sports" is 9.97 percent of payroll; the Illinois rate for "Athletic Team–Non-Contact Sports" is 14.10 percent, whereas the rates for contact sports teams are higher than the rates for non-contact sports teams in Alabama, Indiana, and various other states. In fact, in Alabama the contact sports rate is more than twice the non-contact sports rate.

The Illinois rate for "Cabinet Works–With Power Machinery" at 5.29 percent is just barely above the 5.06 percent Illinois rate for "Cabinet Works–No Power Woodworking Machinery." The risk of injury would seem to be much higher around power machinery. In Indiana a cabinet works without power equipment pays 2.30 percent while one with power equipment pays nearly double at 3.94 percent.

In Illinois a pharmaceutical manufacturer who mixes ingredients made by others would pay 3.21 percent. A pharmaceutical manufacturer who manufactures ingredients and then mixes them would pay less: 3.00 percent! Surely manufacturing and mixing ingredients involves greater injury and health risks than just mixing ingredients, and in Missouri those that simply

mix ingredients pay 1.76 percent while those that also manufacture ingredients pay 3.32 percent.

Whereas the anachronisms and anomalies associated with specific rates are perplexing, state by state comparisons of average rates give some insight into the relative cost of workers' compensation in Illinois. Average rates must be used with care. One of the lowest Illinois rates is $0.33 for "Clerical Office Employees Not Otherwise Classified." The highest Illinois rate is "Metal Bridges" at an astounding $139.73 per $100 of payroll! The $70.03 average of those two rates does not convey any meaningful information about the workers' compensation insurance costs of either office managers or bridge builders. In an attempt to provide meaningful comparisons, average rates for major industries were calculated for each state.

The NCCI publishes rates for approximately 262 manufacturing, 59 construction, 25 transportation, 4 office work, and 165 primarily service classifications. Within these categories an average rate for each state was calculated using rates in effect as of July 1, 1990. The results are shown in Table 1. In only one category, construction, does the Illinois rate differ from the average rate for the other 40 states by more than one-fourth of a percentage point; the Illinois rate for construction exceeds the 40-state average by 6.86 percentage points. Since these workers' compensation rates are percentages applied to payroll, Table 1 implies that construction labor costs are 6.86 percent higher in Illinois than the average of the other 40 states because of workers' compensation insurance costs.

Another grouping of states shows a problem associated with workers' compensation confronting Illinois. Table 2 shows the average rates for Illinois and the six contiguous states. In four of the five categories, the average rate

for the surrounding states is well below the Illinois rate. This disparity of rates has two important effects. It makes Illinois less desirable for a business looking for a location in the region, and it subjects Illinois employers to competition from nearby firms with lower labor costs.

In order to test the economic impact and the employment ramifications of the perceived labor cost differences, the previously calculated rate differentials were used as

inputs to an econometric model. The Regional Economic Model Inc. (REMI) econometric model of the Illinois economy was used. The model was built especially for Illinois and uses Illinois historical data from 1969 to the present in estimating economic relationships. The REMI model is an input/output table conjoined with a set of econometric equations. The input/output table shows from which industries and in what percentage

Table 1. Workers' Compensation Rates—Average Rates by Category, by State (by percent)

State	Manufacturing	Construction	Transportation	Office Work	Services
AL	5.03	13.28	6.73	0.35	6.12
AK	8.63	20.80	12.17	0.58	8.58
AZ	7.50	15.58	10.01	0.48	7.73
AR	4.90	11.39	7.32	0.37	5.50
CO	10.13	26.22	14.96	0.54	10.49
CT	8.75	23.28	14.62	0.45	9.47
FL	10.70	29.49	15.24	0.78	12.28
GA	7.13	15.62	10.57	0.47	7.89
HI	8.91	18.95	11.07	0.74	9.20
ID	5.89	12.16	8.08	0.37	6.41
IN	2.71	6.73	4.26	0.17	3.36
IA	4.52	12.56	7.05	0.30	5.09
KS	4.33	9.70	6.23	0.25	4.73
KY	3.38	5.09	5.44	0.13	3.34
LA	5.73	11.10	9.54	0.43	7.12
ME	9.72	25.59	15.75	0.54	10.93
MD	3.21	8.80	4.86	0.20	3.39
MA	10.90	21.09	20.14	0.44	10.37
MI	8.55	18.70	11.45	0.40	8.22
MN	10.32	26.81	19.83	0.61	11.70
MS	4.56	12.02	6.76	0.38	5.85
MO	5.15	9.57	6.54	0.32	5.39
MT	11.67	32.28	16.28	0.81	13.37
NE	3.91	9.48	5.81	0.21	4.29
NH	8.33	19.29	15.20	0.55	9.01
NJ	4.36	7.18	7.23	0.37	4.62
NM	7.06	16.43	10.98	0.57	8.13
NY	7.51	10.42	8.59	0.41	6.22
NC	2.91	7.34	4.55	0.20	3.61
OK	6.17	14.23	9.28	0.36	6.63
OR	12.61	31.06	17.64	0.93	14.83
RI	8.99	19.92	14.72	0.43	9.32
SC	3.90	10.83	6.65	0.36	5.19
SD	4.42	11.77	9.32	0.40	6.46
TN	4.47	11.12	6.59	0.33	5.60
TX	11.18	25.48	11.65	0.73	11.98
UT	4.26	10.11	6.26	0.22	4.93
VT	5.26	11.57	7.64	0.35	5.83
VA	3.07	9.36	5.07	0.20	3.80
WI	4.95	13.51	7.15	0.23	5.45
40 State Avg.	6.64	15.65	9.98	0.42	7.31
IL (Rank)	6.48 (19)	22.51 (9)	10.06 (17)	0.36 (26)	7.51 (18)

Source: NCCI.

Table 2. Workers' Compensation Rates—Average Rates by Category, By State (by percent)

State	Manufacturing	Construction	Transportation	Office Work	Services
IN	2.71	6.73	4.26	0.17	3.36
IA	4.52	12.56	7.05	0.30	5.09
KY	3.38	5.09	5.44	0.13	3.34
MI	8.55	18.70	11.45	0.40	8.22
MO	5.15	9.57	6.54	0.32	5.39
WI	4.95	13.51	7.15	0.23	5.45
6 State Avg.	4.88	11.03	6.98	0.26	5.14
IL	6.48	22.51	10.06	0.36	7.51

amount a given industry will buy its inputs and to which industries the given industry will sell its output. The econometric equations add a time dimension and allow the model to show effects in units such as dollars and jobs.

Two simulations were run. The first gauged the effects of a construction labor cost reduction equal to the difference between the workers' compensation construction rates for Illinois and the 40-state average. The second estimated the effects due to the differences between Illinois and the contiguous states for all five categories: manufacturing, construction, transportation, office work, and services. The results of the simulations are shown in Table 3.

The impact shown in Table 3 includes both direct and indirect effects. Since the first simulation involved just a reduction of construction labor costs, the results are concentrated in the construction industry as shown by the employment numbers. The effects are more evenly spread across all industries in the second simulation; even though construction labor costs were reduced dramatically, there were also labor cost reductions included for the other industries.

Reducing construction labor costs by 6.86 percent, in the first simulation, results in additional construction employment of 6,668 per year over the next ten years; this is 3.2 percent of the 1990 Illinois construction employment of approximately 206,000. Reducing

labor costs across the board, in the second simulation, results in estimated additional employment of 213,752 per year, approximately 4.1 percent of Illinois' 1990 total nonagricultural employment.

An employment-weighted average of the labor cost reductions in the second simulation would be approximately 2.1 percent. This 2.1 percent is less than one-third of the average annual increase (7.8 percent) in NCCI rates for Illinois between 1986 and 1990. Further perspective on the 213,752 employment increase resulting from the 2.1 percent labor cost decrease is gained by comparison to the 105,000 average annual increase in Illinois total nonagricultural employment between 1986 and 1990. It seems that a relatively small change in workers' compensation insurance rates, and thus labor costs, can produce a significant change in employment levels.

The differences that exist between Illinois workers' compensation costs and the costs in other states have been laid to many causes. Some of the differences are startling, as when it is noted that the average construction workers' compensation insurance rate is higher in Illinois than in Alaska. Often the level of benefits in Illinois has been blamed. On occasion it has been said that a concentration of more dangerous industries in Illinois is the cause. The lump sum method of paying benefits has been faulted. The pervasive use of lawyers in settling claims and the political power of the trial lawyers have also been blamed. The Scaffolding Act, in particular, has been blamed for high construction workers' compensation insurance rates in Illinois. There may be some truth in all these explanations.

One area that remains largely unexplored in the literature of workers' compensation is the rate-making process. The effects on costs have been mixed in those states that operate their own workers' compensation funds and set their own rates. It may be that Illinois could achieve lower rates and employment gains by closer supervision of the rate-making process of the NCCI.

Table 3. Economic Impact of Labor Cost Reductions—Ten Year Averages, 1991–2000 (thousands of dollars)

	Reduce IL Construction to 40 State Average	Reduce All IL Categories to Regional Averages
Employment	42,418	213,752
Manufacturing	3,020	17,562
Construction	6,668	16,770
Transp., Comm., Pub. Util.	1,418	9,151
Fin., Ins., Real Est., Gov.	6,023	31,781
Services, Trade	24,814	137,279
Gross State Product	$2,850,260	$12,869,506
Personal Income	$2,496,491	$12,206,946
State and Local Taxes	$262,131	$1,281,729
State	$139,803	$683,589
Local	$122,328	$598,140

Nigel M. Healey

A Beginner's Guide to Corporate Barter

N ineteenth century economists traditionally described money as a "veil" behind which the real world conducted its day-to-day business. John Stuart Mill, for instance, frequently wrote about "money illusion," reminding his readers that, in the final analysis, goods are traded for goods with money being nothing more than a "medium of exchange." But Mill and his contemporaries never questioned the crucial importance of the lubricating role played by money, recognizing that in its absence the "double coincidence of wants"[1] would be so rare that trade would be impeded and the economic system would collapse.

The use of money is so ingrained in thinking and practice that it comes as something of a shock to discover that an increasing number of companies are beginning to trade—quite literally—goods directly for goods. In the United States, there are now over 150,000 companies actively swapping goods and services. Estimates of the total value of products bartered each year range as high as $100 billion, with household names like Goodyear, Amoco, Caterpillar, Xerox, Pan-Am, Chrysler, and Hilton amongst the better-known corporations involved. One of the most well-publicized barter deals of the 1980s concerned the 1984 Los Angeles Olympic Games, when the US Olympic Committee traded the promotional value of the Olympic logo for, among other things, Levi Strauss clothing, Converse shoes, General Motors cars, free travel with United Airlines, a swimming pool, and Fuji color film.

This article examines the recent growth of a phenomenon that appears to turn established economic theory on its head and that, while presently little used by non-American companies, shows every sign of spreading east and west during the 1990s.

Countertrading

For many US companies, bartering is not actually a recent development at all. Third world governments strapped for "hard currency" have long obliged US exporters to accept locally produced goods rather than cash in exchange for their products: two-thirds of all US exports of jet aircraft are paid for "in kind"; many African governments, struggling with heavy external debt obligations, routinely pay for US goods with deliveries of raw materials like copper and zinc; the Soviet Union buys its fizzy drinks from PepsiCo in exchange for locally manufactured vodka.

What is new, however, is that the present upsurge in bartering has been in goods-for-goods deals between one US company and another, rather than in the well-established area of international countertrading. And while it clearly makes commercial sense for a major US exporter like 3M to swap its computer products for Tanzanian copper rather than lose the sale altogether, the rationale for the same company voluntarily seeking out barter deals in the United States itself is less easy to fathom.

The Role of Barter-Brokers

One factor that explains the increasing willingness of companies to dabble with barter is the growing number of specialized "barter-brokers." These intermediaries take over the role of finding a "match" for their clients; and by using large computerized databases they can locate potential exchange partners quickly and cheaply, thereby eliminating a large proportion of the "transactions" costs associated with traditional barter. This high level of sophistication also enables such brokers to sidestep another limitation of simple barter, namely the need to match precisely a company offering X tons of good A and requiring Y liters of good B with a second company looking for X tons of A with Y liters of B to spare (see the table). The final deal might actually be multidimensional, involving a number of companies.

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[1]The "double coincidence of wants" simply means that for a pure barter transaction, Company X must find another company which wants exactly what X has to offer and is prepared to give in exchange exactly what X requires.

	Acceptances by:			
	Company X	Company Y	Company Z	Total
Offers by:				
Company X	---	15A	5A	20A
Company Y	20B	---	15B	35B
Company Z	40C	10C	---	50C
Total	20B + 40C	15A + 10C	5A + 15B	20A + 35B + 50C

Consider the following scenario, in which the relative values of goods A, B, and C are in the ratios 1 : 2 : 4 (that is, 1 unit of good A is worth 2 units of good B, and so on).

In this example, Company X offers to trade an amount (20A), which exceeds the "buying" powers of Companies Y and Z individually, which, at the given rates of exchange (1A = 2B = 4C), are 17.5A and 12.5A, respectively. In the final deal constructed by the barter-broker, X supplies 15A to Y and 5A to Z, receiving 20B and 40C in exchange. Notice that while the final value of the goods received by Company X is equal to the value of goods supplied, its transactions with Y and Z taken separately do not balance out; Company X supplies 15A to Y, getting in return only 20B (worth 10A); on the other hand, Company X gives Z only 5A, getting back 40C (worth 10A). Company Y similarly sends Z 15B, receiving only 10C (worth 5B) in return, to offset its net gain on its trade with X.

In this barter deal, which is the simplest possible package involving more than two parties, the barter-broker not only avoids the need to find a single partner for Company X prepared to take the full amount of 20A offered, but also constructs an interlocking set of transactions, which means that none of the "bilateral" exchanges (that is, between X and Y, X and Z, and so on) needs to be an exact match either. In practice, barter-brokers regularly reach highly complex deals involving large numbers of contracting parties, with the only limiting constraint being that each emerges from the exercise having secured an equivalent value of goods it wants in return for whatever goods it offered.

The Function of Trade Credit

However large the number of clients a broker has, and however imaginative and complicated the interwoven deals, the problem of

the "double coincidence of wants" can rarely be completely exorcised. It may be, for example, that Company X in the scenario above simply does not need either good B or C at the present time. Had it sold its product for cash in the normal way, it could have held the money proceeds obtained until it was ready to buy at some point in the future. While improved matching can reduce the need for a medium of exchange in trade, it remains the fact that money performs an important additional function as "a store of value," smoothing out imbalances between what companies have to sell and what they need to buy at a particular moment.

Many brokers solve this problem by creating their own "barter-money" in the form of trade credit (or "trade dollars"). In effect, they act as "principals" in many of the deals they put together, standing ready to "buy" goods for which they cannot find immediate buyers in return for trade credits and taking the goods into their own stocks (or "cafeteria lists"). The recipient company can then use the trade credits to "buy" either goods from the broker's stock at some later date or goods offered by another of the broker's clients. Such internal systems are most formalized in a barter exchange, in which a broker organizes his or her client companies into a "club." In the most developed barter exchanges, members "sell" all the goods they have to offer to the broker; in return, their account is credited with trade dollars, which they then use to purchase items from the broker's constantly changing cafeteria list.

In a barter exchange, the outstanding volume of trade credits is normally equal to the value of the broker's stocks. In principle, however, there is no reason why the broker should not "create" extra trade dollars, acting like a private bank to grant loans to customers temporarily short of funds. To the extent that the extension of trade

credit has underpinned the growing popularity of barter-brokers, modern barter is not "barter" in the strict sense at all, but trade lubricated by privately issued "money." But from the point of view of participating companies, the arrangement still essentially represents a trade of goods for goods, since the value of accumulated trade credits can only be realized by redeeming them for goods from stocks held by the broker.

The Marketing Advantages of Barter

While the use of specialized brokers and trade credit makes barter easier, these two factors can never, of themselves, make barter positively preferable to straight cash sales. Company X in the scenario above could, for example, have sold 15A to Y and 5A to Z for cash and used the proceeds to buy the quantities of goods B and C that it needed, thereby saving itself the cost of the broker's services. Since commissions in barter-brokering are often high (around 10 percent of the value of the deals arranged), there must be some additional benefit from swapping goods for goods through a broker that could not have been gained by more conventional means.

That extra dimension is provided by the market advantage enjoyed by brokers. If brokers simply matched corporate clients with the companies that they normally supplied, the exercise would be pointless. What the brokers do, in contrast, is to seek out swaps with potential customers in areas far removed from their clients' normal spheres of operation, so bypassing the middlemen, wholesalers, distributors, retailers, and other obstacles that would normally stand between the companies being matched. In this way, the broker earns his or her commission by "creaming off" part of the difference between the price that the seller would normally have

received and the price the buyer would normally have paid.

The opportunity for profitable barter-broking most usually arises when a company finds itself with excess stock that it could only sell through its everyday channels by offering at a hefty discount. (Note that the company might also damage its longer-term market position by being seen to be "dumping" inferior goods on the market.) But suppose that the goods have been devalued largely as a result of changes in market fashion; they might still have value to a buyer somewhere, uninterested in the cosmetic trimmings, for example, on a consumer product, and concerned only with purchasing functional equipment at the lowest cost. Enter the barter-broker: if such a buyer can be matched up with the original seller, then the former might be prepared to offer goods and services with a higher value than the seller could have obtained through a normal cash sale, while still getting the stock at a much lower price than through the market-place.

Mutual Gains from Barter

A simple example illustrates the mutual benefits of barter. Suppose XYZ Hoses, Inc. has been left with unwanted stocks (say 500 units) of conventional plastic hose pipes, following an unanticipated switch by consumers to newer, "flatpack" pipes. Under these new market conditions, XYZ could only sell this stock to wholesalers by slashing its factory price from $10 to, say, $5 each. It asks a broker to look for possible swaps, and the broker's inquiries turn up ABC Inns, a hotel chain on the other side of the country that is prepared to offer $5,000 worth of hotel accommodations in exchange for the hose pipes, with the intention of using the goods acquired in their hotels' grounds. XYZ accepts the offer, recognizing the potential of the accommodations for promotional purposes and staff incentive schemes.

Now look more closely at the deal. XYZ Hoses, Inc. has obtained hotel bookings that would have cost $5,000 in the open market for the exchange of 500 outdated hose pipes with a "market" value to the company of only $2,500 (that is, $5 x 500 units). ABC Inns has secured 500 perfectly functional hose pipes, which—even after allowing for XYZ's cut in factory price—would have cost, say, $6,000 through a market outlet. A large proportion of the hotel rooms supplied in return, on the other hand, would have otherwise been unlet, and so overall the accommodations exchanged only have a value to ABC of, say, $3,000. XYZ, therefore, emerges from the barter deal $2,500, and ABC $3,000, better off. The broker's commission comes out of these gains.

Neither company would have been able to locate the other without the assistance of the broker, since it is precisely the fact that the two companies would not have dealt with each other in the normal course of events that makes a profitable trade of goods for goods possible. Nor would it have been worth the individual company's investing resources in its own barter-broking division, since the opportunities for such trade arise only infrequently. Like advertising agencies and professional "head-hunters," barter-brokers perform functions for their corporate clients that the latter choose not to bring "in-house," because their need for the service is too limited to make such a course of action worthwhile.
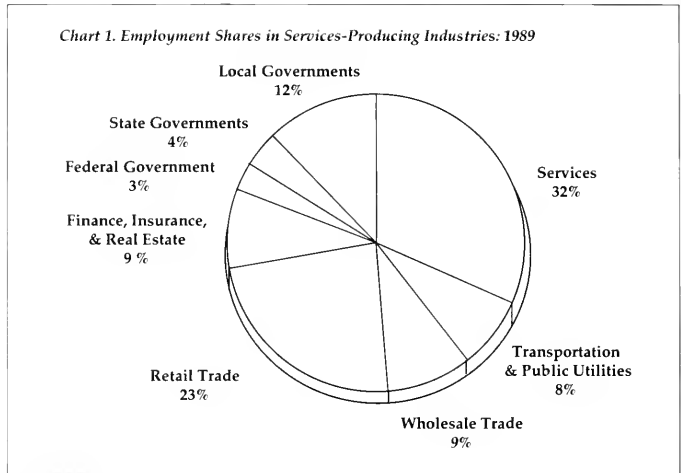
Conclusions

The growth of corporate barter is as remarkable as it is difficult to explain. While innovations in information technology and the use of trade credit have considerably reduced the costs associated with bartering goods for goods, these factors do not, of themselves, account for this new phenomenon. On closer inspection, it becomes clear that barter is profitable on occasions where the market fails to function efficiently, so allowing brokers to exploit their informational advantage to match up the needs of two or more companies and so cut out normal distribution costs. Such situations arise most frequently when companies have surplus stock (sometimes termed "distress merchandise") that can realize a better "price"—in terms of goods received—if placed with a carefully selected barter partner than if it is sold through conventional market channels.

William R. Bryan

Services and the Services-Producing Industries in Illinois

O ver the years, a distinction has been made between economic activity leading to the production of a tangible object or good, and activity leading to the production of an intangible service. This distinction arose at a time when, for the most part, markets were places where commodities were exchanged. In contrast, services were supplied within the home, or otherwise within a nonmarket context. The thoughts and writings of the classical economists were shaped within such an historical setting. Indeed, Marxian national income accounting has continued such a distinction, to the point of disregarding much of what western economies include within their service sectors. Whatever its underlying merit, if any, the distinction between goods and services continues to be made in economic data. Employment in goods-producing industries in Illinois rose 2.8 percent in the five years ending in 1989. By comparison, employment in services-producing industries expanded 13.6 percent. It may be of interest to acquaint ourselves with this important and dynamic part of the Illinois economy.
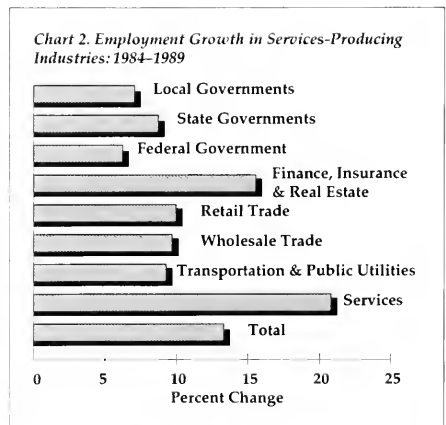
The services-producing industries, which make up more than three-fourths of total nonagricultural employment in Illinois, consist of several different types of activities. The most commonly identified general categories include transportation, trade, finance, and government. But within the services-producing industries, there is a specific collection of activities designated as the services sector. Moreover, the services sector is the largest single component of the services-producing industries,

Chart 1. Employment Shares in Services-Producing Industries: 1989

Local Governments 12%
State Governments 4%
Federal Government 3%
Finance, Insurance, & Real Estate 9 %
Retail Trade 23%
Wholesale Trade 9%
Transportation & Public Utilities 8%
Services 32%

employing nearly one-third of those working in the services industries (see Chart 1). In addition, it is the most rapidly growing area within these industries (see Chart 2). The services sector consists of a potpourri of establishments, activities, and organizations, including hotels and lodging, personal services (see table), business services (see table), auto and miscellaneous repair, motion pictures, amusement and recreation, health services, legal services, educational services, social services, museums, membership organizations, and so on.

Measured in terms of employment, health services constitute the largest single category of activities within the services sector. Health services accounts for

28.3 percent of total services employment in Illinois. Business services, which includes advertising, personnel supply, and computer and data processing, accounts for 18.7 percent of total services employment. The most rapid employment growth during the 1984–1989

Chart 2. Employment Growth in Services-Producing Industries: 1984–1989

Local Governments
State Governments
Federal Government
Finance, Insurance & Real Estate
Retail Trade
Wholesale Trade
Transportation & Public Utilities
Services
Total

Percent Change

period occurred in motion pictures; but this component accounts for just over 1 percent of the total. Rapid employment growth has also occurred in auto and miscellaneous repair.

The transportation sector consists of a readily identifiable collection of activities. Those activities involve the movement of tangible objects from one place to another. Included within the transportation category are railroad transport, local (bus and taxi) and interurban transport, trucking and warehousing, air and water transportation, transportation services, and pipelines (except natural gas). Because transportation has been the subject of regulation and has often taken the form of a public utility, the data relating to it are combined with data relating to other public utilities such as communications and electric, gas, and sanitary services. Employment in transportation and public utilities in Illinois accounted for 8 percent of employment in services-producing industries in 1989. But employment in transportation, which expanded 9.4 percent during the 1984–1989 period, has grown more slowly than in the services-producing sectors in general.

The important economic activity consisting of buying and selling, comes under the heading of trade. Employment in the trade sector constitutes nearly one-third of employment within the services-producing industries in Illinois. Within the trade sector, wholesale trade consists of buying and selling by middlemen. Employment in wholesale rose 9.7 percent in the 1984–1989 period. Retail trade consists of sales to the final consumer. Included among the many enterprises within this sector, which makes up the bulk of employment within trade, are restaurants and bars, automotive dealers, food stores, building materials and garden supplies stores, apparel and accessory stores, and so forth.

Employment in retail establishments increased 11.6 percent in the period 1984–1989, somewhat more slowly than in the services-producing industries generally.

One of the most rapidly growing components of these industries in Illinois and in the nation consists of that collection of enterprises included in the finance, insurance, and real estate sector. This category includes banks, credit agencies other than banks (savings and loan associations, mutual savings banks, credit unions, and so on), security and commodity brokers, holding companies, investment offices, insurance agents and brokers, insurance carriers, real estate agents and brokers, and so forth. Employment in finance, insurance, and real estate makes up less than 10 percent of the total, but has grown 15.6 percent since 1984.

Government is the most slowly growing area within the services producing industries in Illinois. Total government employment grew 7.3 percent from 1984–1989. Employment by the federal government in Illinois grew 6.2 percent. State government employment (including state-owned educational institutions) expanded 9.2 percent in the 1984–1989 period; local government employment (including primary and secondary schools) rose 6.9 percent.

Employment in the Services Sector in Illinois

	1989 (thousands)	Share of Total (%)	% Change 1984–1989
Total	1,278.8	100.0	20.9
Hotels and lodging	52.8	4.1	26.6
Personal services	51.3	4.0	8.0
Laundry and garment services	18.7	1.5	1.6
Photographic services	NA		
Beauty shops	17.1	1.3	
Funeral services	NA		
Business services	239.7	18.7	14.7
Advertising	18.9	1.5	11.2
Credit reporting and collection	NA		
Mailing, reproduction, & stenographic	18.4	1.4	
Services to buildings	33.2	2.6	
Personnel supply	64.2	5.0	
Computer and data processing	32.6	2.5	
Miscellaneous business services	NA		
Auto repair	41.0	3.2	29.3
Miscellaneous repair	16.5	1.3	26.0
Motion pictures	13.8	1.1	58.6
Amusement and recreation	38.0	3.0	11.8
Health services	361.7	28.3	10.0
Physicians offices	53.9	4.2	
Dentists offices	22.8	1.8	
Nursing and personal care	61.1	4.8	15.5
Hospitals	194.1	15.2	2.9
Medical laboratories	5.4	0.4	
Outpatient care facilities	7.5	0.6	
Legal services	44.4	3.5	
Educational services	82.6	6.5	4.3
Social services	76.1	6.0	40.9
Museums		0.0	
Membership organizations	97.9	7.7	
Miscellaneous	NA		

Illinois Business Statistics

An exceptionally weak real estate market has been cited as a primary cause of the current recession, which began during the last half of 1990 and which is expected to continue at least through the first half of 1991. Some regions of the country, most notably the northeast, have seen home prices fall, new home construction come to a standstill, and office and retail building occupancy rates plummet.

In Illinois, residential housing construction has thus far been more severely affected by the recession than nonresidential housing construction (Chart 1). The number of residential housing units built in 1990 was 35,991, down 10,967 units (23.4 percent) from 1988 and down 4,344 (10.8 percent) from 1989. The value of these units fell $566 million (14.4 percent) between 1988 and 1990 (Chart 2). 1,345 fewer (12.4 percent) nonresidential buildings were constructed in 1990 than in 1988, 1,246 (11.6 percent) fewer than in 1989.

Mortgage lending rates have fallen substantially since early 1990, and there are early indications are that the US residential housing market is beginning to rebound as a result. Nonresidential construction is expected to remain weak, however, because of overbuilding.

Chart 1. Residential and Nonresidential Housing Construction (number of units)
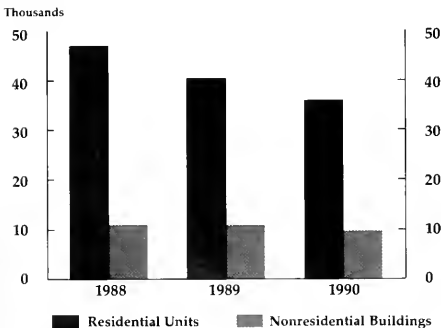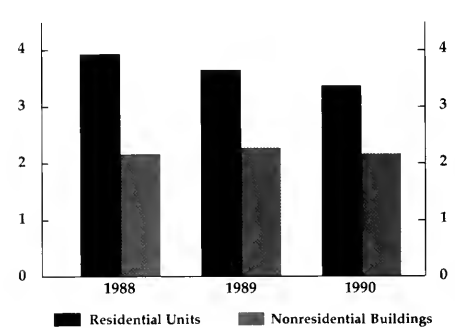

Chart 2. Value of Residential and Nonresidential Housing Construction ($ billions)

Historical Statistics

	One Year % Change	Dec. 1990	Nov. 1990	Oct. 1990	Sept. 1990	Aug. 1990	July 1990	Dec. 1989
Building permits (thousands)								
Residential housing units	6.42%	1,.524	2,.350	2,767	3,178	3,.265	3,167	1,.432
Value of residential units	-16.83%	158,466	201,547	251,262	260,938	299,246	298,885	190,536
Value of nonresidential housing								
Industrial buildings	-40.19%	21,666	14,579	28,648	32,910	33,601	41,137	36,222
Office, banks, and professional buildings	39.52%	27,649	27,510	35,060	27,969	111,955	23,086	19,817
Stores and other mercantile buildings	-30.75%	52,553	56,155	44,310	43,765	27,013	39,463	75,891
Other	163.81%	6,210	4,838	6,667	6,158	6,054	4,672	2,354
Consumer price index (1982-1984=100)								
United States	6.11%	133.8	133.8	133.5	132.7	131.6	130.4	126.1
North Central US	5.68%	130.2	130.4	130.0	129.4	128.4	126.9	123.2
North Central/pop. more than 1,200,000	5.79%	131.5	131.7	131.1	130.7	129.9	128.6	124.3
North Central/pop.360,000 to 1,200,000	4.88%	129.0	128.9	129.1	128.3	127.6	125.8	123.0
North Central/pop. 50,000 to 360,000	6.09%	130.7	130.9	130.8	129.9	127.8	126.2	123.2
North Central/pop. less than 50,000	5.81%	125.7	126.2	125.8	125.0	124.1	122.6	118.8
Chicago	6.40%	134.6	134.2	133.3	133.8	133.2	132.0	126.5
St. Louis	NA	NA	130.4	NA	129.9	NA	128.0	NA

Forecast Statistics

Personal Income (millions of dollars, seasonally adjusted at annual rates)

	1989	1990:I	1990:II	1990:III	1990:IV*	1991:I	1991:II	1991:III	1991:IV	1992:I
Total personal income	$219,449	$227,415	$229,765	$231,339	$237,875	$240,882	$244,505	$248,388	$252,422	$256,454
Total nonfarm personal	160,164	163,892	166,541	168,110	172,464	174,252	176,751	179,407	182,418	185,233
Total private nonfarm	140,267	142,666	144,952	146,505	150,482	151,990	154,179	156,638	159,239	161,805
Mining	1,048	1,115	1,060	1,114	1,160	1,166	1,179	1,193	1,202	1,207
Construction	9,687	10,016	9,774	9,604	10,163	10,369	10,501	10,744	10,951	11,180
Manufacturing	33,301	33,332	33,533	33,419	34,861	34,726	34,866	35,102	35,341	35,629
Durable	20,704	20,388	20,672	20,548	21,472	21,255	21,276	21,396	21,544	21,719
Nondurable	12,597	12,944	12,861	12,871	13,389	13,471	13,590	13,706	13,797	13,910
Transp. & pub. utilities	11,743	12,101	12,480	12,683	12,537	12,607	12,719	12,854	13,035	13,191
Wholesale trade	13,315	13,395	13,459	13,512	13,811	13,982	14,203	14,405	14,623	14,851
Retail	14,342	14,423	14,593	14,730	14,877	14,913	15,161	15,392	15,645	15,743
Finance, ins. & real estate	13,870	14,196	14,655	15,017	14,887	14,952	15,105	15,303	15,546	15,790
Services	42,272	44,088	45,398	46,426	48,186	49,273	50,445	51,645	52,895	54,213
Government	19,897	20,528	20,848	20,863	21,983	22,262	22,572	22,768	23,179	23,428

Gross State Product (millions of dollars, seasonally adjusted at annual rates)

	1989	1990:I	1990:II	1990:III	1990:IV*	1991:I	1991:II	1991:III	1991:IV	1992:I
Total	$258,376	$264,281	$270,007	$272,982	$279,038	$282,485	$286,199	$290,139	$294,137	$298,220
Total private nonagricultural	231,145	236,142	240,338	243,302	249,397	252,552	255,952	259,560	263,223	266,964
Mining	1,781	1,896	1,802	1,894	1,607	1,560	1,520	1,483	1,445	1,399
Construction	11,024	11,398	11,123	10,929	11,463	11,615	11,818	12,020	12,206	12,381
Manufacturing	49,109	49,301	49,528	49,383	48,575	48,357	48,301	48,423	48,557	48,733
Durable	27,103	26,688	27,060	26,897	25,991	25,606	25,389	25,355	25,329	25,361
Nondurable	22,007	22,613	22,468	22,486	22,585	22,751	22,913	23,068	23,228	23,371
Transp. & pub. utilities	25,835	26,622	27,456	27,903	28,254	28,588	28,941	29,293	29,636	29,979
Wholesale trade	22,530	22,664	22,773	22,862	23,598	23,849	24,121	24,404	24,676	24,954
Retail trade	23,564	23,697	23,976	24,201	25,487	25,872	26,276	26,688	27,102	27,531
Finance, ins. & real estate	47,296	48,408	49,974	51,208	53,406	54,383	55,264	56,156	57,113	58,071
Services	50,008	52,156	53,706	54,922	57,006	58,328	59,710	61,093	62,488	63,916
Government	23,100	23,833	24,205	24,222	25,088	25,378	25,674	25,915	26,273	26,543
Agriculture	4,131	4,306	5,464	5,458	4,553	4,555	4,573	4,664	4,641	4,713

Illinois Employment Forecast (in thousands, seasonally adjusted)

	1989	1990:I	1990:II	1990:III	1990:IV*	1991:I	1991:II	1991:III	1991:IV	1992:I
Total nonfarm employment	5,178.8	5,208.8	5,218.5	5,212.6	5,200.1	5,181.1	5,158.9	5,151.3	5,154.8	5,161.9
Total private nonfarm emp.	4,441.1	4,464.6	4,466.7	4,468.6	4,452.1	4,431.3	4,407.1	4,402.6	4,404.9	4,415.3
Mining	19.8	19.6	19.8	19.9	20.2	20.7	20.2	20.1	20.2	20.7
Construction	209.7	213.0	207.4	205.4	202.7	201.2	193.5	190.6	187.9	189.1
Manufacturing	981.2	979.8	980.3	976.9	958.1	944.7	934.3	931.8	930.5	931.9
Durable	598.3	596.4	597.1	593.5	580.8	571.4	564.1	563.6	564.0	565.8
Primary metals	56.3	56.2	56.4	56.1	54.7	53.0	51.3	50.7	50.4	50.3
Fabricated metals	107.2	106.3	106.3	106.2	103.6	101.5	99.8	99.6	99.7	100.2
Nonelectrical machinery	154.2	155.5	155.3	155.2	151.0	147.4	144.5	144.4	143.7	143.7
Electrical machinery	118.4	117.7	116.6	115.6	115.8	116.9	119.1	121.8	124.2	126.9
Nondurable	382.9	383.3	383.3	383.4	377.2	373.3	370.2	368.2	366.5	366.1
Food & kindred products	90.2	90.2	89.9	90.7	88.8	87.7	86.7	85.8	84.6	83.9
Printing & publishing	112.8	112.9	112.9	112.3	109.4	107.8	106.6	105.4	104.3	103.6
Chemicals & allied prod.	61.1	61.5	61.7	61.9	61.8	61.6	61.5	61.5	61.5	61.5
Transportation & pub. utilities	304.4	306.3	306.3	306.9	303.6	302.0	300.0	299.3	298.3	298.4
Wholesale trade	374.1	376.0	377.1	375.6	374.0	372.6	370.3	368.7	368.5	368.6
Retail trade	900.5	907.3	906.8	906.7	905.1	895.9	893.6	893.6	892.7	891.8
Finance, ins. & real estate	372.4	373.1	373.0	373.1	374.1	373.7	372.0	370.8	371.1	371.0
Services	1,278.9	1,289.5	1,295.9	1,304.0	1,314.2	1,320.4	1,323.2	1,327.7	1,335.6	1,343.7
Government	737.7	744.2	751.8	744.0	748.0	749.8	751.8	748.7	749.9	746.6

*Forecast begins

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Illinois Business Review

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**Paul C. Bishop and
Peter F. Colwell**

Price Discrimination and the Financial Aid Process

R apid increases in the price of attending college have been an important aspect of the changing financial landscape faced by families with children. Administrators at public and private institutions of higher learning have defended the increases as responses to rising costs of providing education services. The increases have been so severe that even households with the foresight to have planned ahead often find their financial resources inadequate when college bills come due. Students and their families therefore must rely increasingly on outside assistance to supplement their incomes and accumulated savings; loans and need-based financial awards are the two most widely available sources of such assistance. Loans are generally obtained through government programs, while other types of aid are provided by sources ranging from civic groups to the schools themselves. The type of financial aid offered directly by a school is typically a reduction in tuition. College administrators suggest that this type of assistance represents subsidies from their endowments to needy students. In fact, however, the administrators' eagerness to provide financial aid is subject to a much different interpretation. It may instead represent behavior designed to maximize profits.

Economic profit is what is left over after the cost of production is subtracted from revenue. Suppose that some entity such as a firm or a university incurs costs that are unrelated to its production process (e.g. it buys a yacht). In preparing an income statement, the accountants would declare that profits

have been reduced by the amount of the purchase. In contrast, the economist will declare that the profit from the production process is higher than the accountants' declaration by the price of the yacht. Economic profit can be positive, negative, or zero. Thus saying that an entity is behaving in a manner consistent with the maximization of its profits does not mean that profit is high or even positive.

One form of behavior that is consistent with profit maximization is called *price discrimination*. Price discrimination is the practice of charging different buyers different prices, according to how responsive various consumers of the particular good or service are to a change in its price. The ability to offer need-based financial aid (as opposed to merit and special ethnic scholarships) and changes in the demand for higher education have provided incentives for colleges and universities to engage in price discrimination. Price discrimination may, in

turn, be one reason for the rising inflation-adjusted price of higher education observed in recent years; such an explanation is consistent with higher education price increases of more than 10 percent annually during a period when the general price level has changed by less than 7 percent annually.

Price discrimination is a term that can elicit emotional responses from those who do not understand its meaning. In this context, the word discrimination should not be taken to mean any kind of difference in treatment of individuals based on their gender, nationality, or ethnic background. The term price discrimination might be less troubling if the noneconomists understood it to mean differences in prices charged across various groups of consumers.

The first section of this article reviews the levels of tuition charged by both private and public institutions of higher education over the last two decades. The second section

Chart 1. College Expenses as a Percentage of Median Family Income
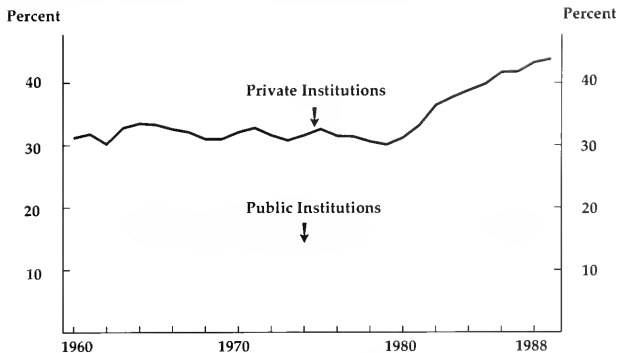
Source: *Digest of Education Statistics*, U. S. Department of Education.

provides a more detailed explanation of price discrimination. The third section contains a conclusion with a summary of our findings.

Trends in the Price of Tuition

Since 1980 the average annual increase in tuition has exceeded 8 percent at public, four-year institutions and 10 percent at private colleges. The average annual rate of inflation over that period has been approximately 6.5 percent. Taken together, these facts imply that the price of a college education, measured in inflation-adjusted dollars, has increased.

A more interesting question, however, is whether families today find it more difficult to pay for college than did families in earlier decades. One measure of the *burden* of the price of attending college is the percentage of median family income spent in meeting outlays for tuition, room, and board at public and private institutions of higher learning. Chart 1 illustrates these percentages for both types of institutions. With a few brief exceptions, between 1960 and 1979 the stated price of a public university education was a decreasing percentage of median family income. Tuition, room, and board accounted for approximately 16 percent of median income in 1960; by 1979 the figure had fallen to less than 13 percent. However, the trend reversed in the late 1970s; the most current figures available show stated total student charges at public institutions to equal approximately 15 percent of median family income. The story for private institutions is quite different. The 1960–1979 ratio of the price of a private college education to median income fluctuated between 30 and 34 percent. Then between 1979 and 1987, the burden increased by more than one third, from approximately 30 percent to more than 43 percent of median family income. An education at a private institution appears to have

become far more expensive, relative to the resources available to most students and their parents, than it was during the last three decades.

Yet while educational institutions have raised prices, they have also increased the amount of financial aid that they provide directly to students. Chart 2 illustrates the trends in financial assistance provided by private and public colleges. During the 1979–1986 period, college-administered scholarships and fellowships increased by 117 percent, far in excess of the increase in the price of attending college; the total rose from approximately $2.2 billion to $4.8 billion.

The 117 percent total increase does not represent equal relative increases in financial aid by public and private institutions. Scholarships and fellowships offered by public universities increased by more than 80 percent, while the price of attending these institutions increased by an equivalent percentage. Privately administered institutions levied a sharper average increase in tuition and fees, approximately 108 percent over the period, but at the same time their financial aid outlays grew by nearly 146 percent. Thus, the burden of paying for college has been held in check, to

some degree and for some students, by direct financial assistance from the colleges and universities.

Still, it is likely that families today see figures such as those displayed in Chart 1 and feel that the burden has increased noticeably, particularly with respect to public universities, for which the 1960–1979 period was a time of declining relative prices. It is therefore understandable that parents and students worry about the affordability of higher education. Of course, the figures shown in Chart 1 are prices paid by those who do not receive financial assistance. The typical student understands that direct aid can help to keep the price of education within his family's financial resources. What this student may not realize is that the pricing system in which financial aid plays a major part may actually increase the financial resources of the school offering the assistance.

An Alternative Explanation

The conventional wisdom holds that hefty tuition increases, particularly at private schools, are the result of cost increases. The suggestion is that maintaining the physical and human educational infrastructure has proven increasingly costly,

Chart 2. Scholarship and Fellowship Awards
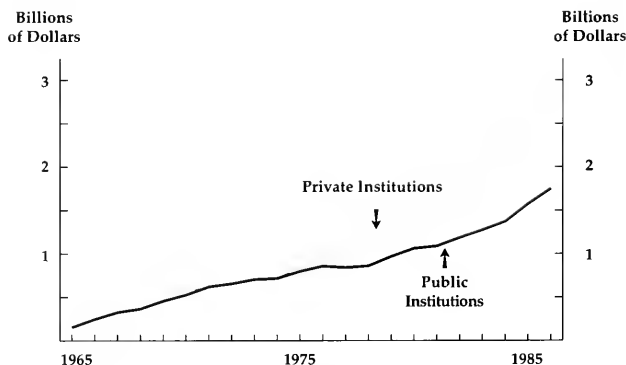
Source: *Digest of Education Statistics*, U. S. Department of Education.

The Mechanics of Financial Aid

Financial aid programs ostensibly are designed to assist students of modest means toward the goal of attending college. As part of the process of securing financial aid, prospective students and their parents must submit detailed financial disclosure statements. The purported purpose of disclosure is to allow a college to judge the capacity of an applicant's family to assist with paying education bills and to calculate any difference between expected outlays and available resources.

The most important dollar figures are "financial need" and "family contribution." Family contribution is the amount of money that the student and parents are deemed able to contribute toward paying for the education service. The figure is based only on the family's resources; it is not affected by the price of attending a particular college or university. If the price at a particular institution is greater than the family contribution total, then financial need is deemed to be present. Even if financial need exists, however, the student's likelihood of receiving assistance, and the amount of any aid received, depend on characteristics of the institution to which application is made.

The computation of family contribution is based on the assumption that the student and his or her parents derive current income from wages or salaries and from returns earned on the net worth of assets. A parent's total income is adjusted for such factors as state and federal taxes, medical expenses, family size, and the number of children in college. The adjusted total income is referred to as "available income." The net worth of assets is deemed to be available as collateral for loans to pay for college. Net worth is calculated as the sum of savings, home equity, equity in other nonfarm and nonbusiness real estate or other investments, and the adjusted net worth of farms or businesses owned. The system excludes a certain portion of parental net worth (increasing with the age of the parents) from consideration in the calculation of the family contribution. If total net worth exceeds this excludable amount, then 12 percent of the balance, termed the "income supplement" from assets, is judged to be available to assist the student in paying for college. The "available income" plus the "income supplement" constitutes the "adjusted available income," on which the expected parental financial contribution is based. The contribution is a portion of the "adjusted available income;" this portion increases from 22 percent to 47 percent as income rises.

An important part of the computation for a self-employed parent is the assessment of the adjusted net worth of a farm or business. Because such an asset is likely to be illiquid, and may be the only source of livelihood for the household, its net worth is adjusted in the process of computing the income supplement. If the family's net worth in such an asset is less than $65,000, then 40 percent of that amount is included in the overall net worth total; the figure rises to 100 percent for net worth of $330,000 or more.

Calculations based on the student's own income and assets are similar, although the rates of assessment are much greater. Annual after-tax wage and salary income is included at a rate of 70 percent or $700, whichever is greater. In the computation of the income supplement, 35 percent of the net worth in any assets the student owns is included, with no excludable portions and no adjustment in the net worth of a farm or business.

Income is imputed to certain assets to derive the "income supplement." While this procedure is valid for assets that produce no explicit income, such as owner-occupied housing, it amounts to double counting of income from income-producing assets. Thus, investors are disadvantaged relative to those who generate income via wages and salaries.

If the purpose of the system of financial aid were to make higher education affordable, this double counting would be counterproductive. If, however, the purpose of the system is to increase the profitability of the practitioners of this art, then double counting serves a useful purpose. It discriminates against investors, who are likely to highly value the investment in human capital that is at the center of college education. Therefore, they are likely to be less price sensitive than noninvestors. As a result, it pays educational institutions to charge them more, or provide them with less financial aid.

There are other similar mistakes on the form that reflect the true purpose of the financial aid system. Suppose the family owns a farm or business. The form calls for the net worth of the land and capital to be reported. This net worth must be converted to an imputed income by multiplying by a rate of at least 4.8 percent. Even if it were not double counting to do this, the rate is too high for a real rate of interest. The error of using too high a conversion rate is much worse for other categories of assets. For these other categories, the official rate is 12 percent. Thus, the discrimination against investors is substantial.

especially amid efforts to provide the technologically sophisticated equipment and the faculty expertise expected by today's students.

The cost-based explanation of tuition increases should not be ignored; cost is an important determinant of the *supply* of any good or service. We can gain additional insight, however, by studying the *demand* for education. Changes in this demand, which reflect demographic factors, may help to explain the high levels of tuition increases. We must also consider the great reliance that many college students have come to place on need-based financial assistance, because the financial aid process is itself an important component in the explanation of the prices charged for post-secondary education.

The Demand for Education Services

Changing demographics may be one factor in the explanation of rising tuition. Because families are becoming smaller, parents are responsible for providing college funds for fewer children. Population statistics show that between 1970 and 1980 the number of US families with three or more children under the age of 18 decreased by 37.8 percent; the number then fell by an additional 11.8 percent between 1980 and 1988. The number of families with only one or two children increased by 18.2 percent between 1970 and 1980, and then grew further by 1.7 percent between 1980 and 1988. It seems reasonable to assume that as family size decreases, a family becomes less sensitive to college price increases; it is willing to pay greater tuition for each child. [1] As families become generally less price sensitive, those with the most substantial resources will without hesitation send their children to Harvard or Princeton even if these schools' prices rise significantly more than do those at other institutions. Such a preference is not surprising if the educational and social opportunities offered by

elite schools are perceived as superior to those offered by less expensive institutions.

If demographic changes cause a preference for more expensive education, then elite institutions can increase tuition and capture greater profits among the group of parents with increased ability and willingness to pay for the perceived high quality. An institution that wishes to reap the benefits of these demographic changes therefore advertises considerably higher tuition prices in its catalog. Yet even though all families have presumably become less price sensitive, the number of students willing to pay the new, much higher price may be too low to fill available admission openings, and perhaps too low to provide coverage of the fixed costs of operating the school. Therefore, after charging the highest possible price to those for whom price essentially is not an issue, the institution may choose to reap even further financial benefits by engaging in price discrimination.

The Economics of Price Discrimination

There is price discrimination if a seller charges different prices to different consumers of a product that is sold in identical units. The seller can utilize price discrimination as a means of capturing different per-unit financial gains from different groups of consumers. The extent to which the seller can discriminate depends on how sensitive various consumer groups are to price changes. If a seller is successful in employing the technique, its total profits increase, because it extracts a greater total surplus from consumers than it could if there were a uniform price.

A classic example of price discrimination involves the student discount offered by many movie theaters. Suppose that the marginal cost to a particular theater owner of showing a feature film is constant at $2.00 per viewer. If the ticket price is $4.50, then there is a per-ticket

contribution to profit of $2.50. Suppose that the theater owner wishes to increase attendance, but does not wish to lose the high contribution to profit provided by each viewer willing to pay $4.50. The owner should seek people who do not attend film showings, but would if the price were reduced. While specific individuals of this type cannot be identified, there may be certain identifiable groups containing large numbers of such individuals. Suppose, for example, that students constitute one such group, perhaps because of their relatively low incomes. In recognition of this perceived difference in demand, the theater owner may establish a student ticket price of $3.00. Each student ticket sale provides a $1.00 contribution to profits, so each additional regular or student ticket sold benefits the owner. The theater retains the higher contribution from the segment of the audience that is more insensitive to price than are the students, while receiving a lower, but still positive, contribution from each price-sensitive student; total profits actually increase (or total losses decrease) after the price is *reduced* for a group that otherwise would not consume.

In our analysis of price discrimination in higher education, the university or college is the price discriminating seller, and the product is a unit of education services. The concept of education service is somewhat nebulous; we might think of a unit of service as a credit hour in some unspecified course. An educational institution typically quotes a uniform tuition price per credit hour regardless of the type of course (some courses require additional lab or material fees). If every student is quoted the same per-unit tuition price in the school catalog, how is the college or university able

[1]The potential effects of demographic changes on the demand for education have been outlined in a statement by Jay Ritter in *Fortune*, October 28, 1985, p. 15.

Beating the System

Because family assets are deemed available to assist in paying for college, a higher asset value prompts a greater expected family contribution. Therefore, there is an incentive for parents and students to hide or liquidate assets (putting the proceeds into something other than savings) in order to appear to have greater financial need. Stories (perhaps apocryphal) are told of wealthy families taking European vacations in order to reduce the resources they must disclose as available for paying college expenses. The actual frequency of such occurrences is open to question; a truly wealthy family would likely find it difficult, if not inadvisable, to spend its way into a position of measured financial need.

Nevertheless, assume that spending on luxuries drains a well-to-do family's net worth and allows it to qualify for financial aid. Has such a family cheated the college (or, as is often argued, less affluent but thriftier families who qualify for less aid)? The economist's answer is, perhaps surprisingly, that they have not. Spendthrifts are probably more sensitive to education price movements. Professor Jay Ritter of the University of Illinois has suggested a reason for this sensitivity: such a household "lives for today" and places little value on the future; it therefore discounts future investment returns (including those on the investment in education) at a high rate. It is precisely toward such consumers that price discounts are most profitably targeted.

On a modest scale, it may be possible to hide resources by converting reportable assets into cars, jewelry, or collectibles; such items are not included in the inventory of personal or family assets disclosed by a student applying for financial aid. A parent could also funnel income into a qualified retirement plan or other investment that shelters income from taxes and, hence, from financial aid calculations. Such actions might allow a family of moderate wealth to obtain more assistance than that for which it otherwise would qualify. Yet while such income and asset adjustments are possible, they carry certain risks. Tax shelters could cause liquidity problems for the family in the short term, and assets that need not be disclosed may not be safe or profitable investments. Furthermore, it is not uncommon for financial aid officers to study disclosure forms for such attempts at deception and to deny financial assistance to those involved. An abrupt asset liquidation designed to reduce the family contribution might be evident from curiosities in the financial statements, such as a low asset total coupled with a high prior-year interest income.

Another area for potential abuse is the allocation of nominal asset ownership among members of a household. For example, it is not uncommon for a parent to hold an asset, such as a savings account, in the name of a child for use as a college fund. However, current financial aid formulas provide clear incentives for a family to hold college savings funds in a parent's name rather than the child's. Recall that 35 percent of a student's savings is deemed available to pay for college, while at most 5.6 percent (0.47 × 0.12) of a parent's savings could be considered available. In addition, there is no asset protection allowance for the student. Finally, the family might minimize its income tax liability by keeping only a small amount of savings in a dependent child's account; it is interesting that the kiddie tax provision reinforces incentives for the families of college-bound students to hold assets in the parents' names.

to employ price discrimination? It does so by offering financial assistance to reduce the price that the aid recipient must pay to receive a unit of the institution's services.

An example may help to clarify the concept of financial assistance as price discrimination. Suppose that each of two students, John and Mary, enroll in fifteen credit hours of course work at Exclusive College. John, who does not receive financial assistance, is billed $300 per credit hour for a total tuition bill of $4,500 for the semester. Mary receives

financial assistance in the form of a $3,000 credit against tuition charges. Thus while her gross obligation to the institution is also $4,500, the total tuition she actually must pay is $3,000 less, or $1,500. Her effective price of education service is $100 rather than $300 per credit hour. If the marginal cost of providing the service is less than $100 per unit, then the institution receives a positive contribution to its profits by price discriminating.

Why does Mary receive assistance while John does not? Like the

theater owner, the administrators of Exclusive College believe that members of certain groups would purchase services only if they could pay lower effective prices, and these administrators feel that families without considerable financial resources constitute one such group. The college designs an assistance program with awards contingent on the financial resources of the student's household, and must, therefore, select indicators of the level of the family's available resources. These indicators (perhaps

household income and net worth as measured by specified assets and liabilities) become an important part of the school's process of awarding financial aid. Thus, students must disclose in detail the family balance sheet and income statement categories requested on the application form. The completed forms allow the institution to separate applicants into various financial need classifications. Applicants who appear to have the fewest available resources are presumed to constitute the group that would least likely attend if significant aid were not provided, so these individuals are offered the greatest discount against tuition charges. Those who show greater family resources are offered less assistance, or possibly none at all.

Price discrimination is a successful undertaking for the provider of a good or service only if different groups of consumers truly exhibit different responsiveness to price change. It is therefore very important to select correctly those to whom lower prices are quoted; if there are not different levels of responsiveness, the seller simply receives fewer dollars from certain buyers who otherwise would willingly have paid the full asking price. Do less financially secure families constitute a group that is more sensitive to changes in the price of higher education services? Studies have shown that parents with lower incomes (who would tend to be those with fewer total resources available to pay for college) are more sensitive to tuition increases and decreases than are parents with higher incomes.[2] Consequently, financial strength appears to be correlated with consumers' responsiveness to tuition changes. Thus, an indicator of financial resources can serve as a measure, albeit an imperfect measure, of which students would consider enrolling in a particular college only if they were to receive financial assistance.

Conclusion

Explanations for dramatic college price increases during a period of moderate inflation have tended to focus on the increasing costs reportedly faced by educational institutions. While such supply side effects certainly have been present, colleges and universities also have come to recognize the importance of the demand side of the market and, therefore, have utilized price discrimination, in the form of financial aid programs, to increase their profits. Financial assistance constitutes a subsidy only if the amount the student actually pays is less than the marginal cost of the education service provided. Recipients of financial aid therefore typically do not drain college endowments, but rather contribute to them.

Yet if these programs have been successful, why have the participating institutions not shown noticeable improvements in their own financial positions? The answer is that educational institutions have done more than simply sustain their expenditures in constant dollar terms. We must not forget that these are nonprofit organizations, which by definition do not wish to show revenues substantially greater than costs. A college or university may reduce its accounting profits in a number of ways. For example, it may increase its administrative staff, offer more perquisites to its personnel, improve its educational infrastructure, provide scholarships based on merit or on minority affiliation, present conferences and symposia that bring recognition to the institution, and reduce faculty teaching loads. Each of these profit-reducing activities may be extremely worthwhile and perfectly justifiable within a broadened framework regarding the purposes of higher education. But they may be substantially unrelated to delivering units of educational services as popularly perceived.

If the purpose of the system of financial aid were to make higher education affordable, the accounting errors that are built into the financial aid application form, described in the sidebars accompanying this article, would not be tolerated by the education establishment. Each of these errors contributes to the university's ability to distinguish among families on the basis of price sensitivity rather than ability to pay. People who receive investment income are disadvantaged by the improper imputation of income to their assets through double counting and incorrect conversion ratios. Spendthrifts are advantaged by the lack of any attempt to measure their true ability to pay. At the same time, these errors enhance the profitability of institutions offering financial aid.

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[2] Larry L. Leslie and Paul T. Brinkman give a comprehensive survey of studies on student demand in their article, "Student Price Response in Higher Education: The Student Demand Studies" in the *Journal of Higher Education*, Vol. 58, No. 2, pp. 181-204.

William R. Bryan

Autonomous Changes in the Federal Budget

T here is a widely held view that the federal government takes actions to minimize cyclical variations in economic activity. In fact, the federal government articulated the nature of its commitment to maintain stability in the Employment Act of 1946 and, later, in the Humphrey-Hawkins Act of 1978. Both of the statutes express an intent to maintain reasonably full employment and reasonable price stability. In generic terms, government stabilization policy that takes the form of expenditure or tax rate change is referred to as fiscal policy. Stabilization policy taking the form of interest rate movements, or shifts in rates of growth in money or credit are referred to as monetary policy.

This article represents a discussion of fiscal policy. First, after describing problems in measuring fiscal policy, there is a discussion of one particular approach. According to this approach, there is an effort to identify that portion of changes in the status of the federal budget that reflect the more-or-less explicit spending and taxing shifts of the federal government. These shifts are referred to as *autonomous* changes in the federal budget position. Then, by way of illustrating the means by which this policy measure may be used, data are presented for the period 1970 to early 1991. Finally, there is a discussion of recent and prospective fiscal policy developments.

The Dynamics of the Federal Budget

There are some things that we believe we know about the federal budget. We believe that during any reasonably short period of time—such as a calendar year—the stronger the performance of the economy, the more the federal government's budget position will move toward surplus. Belief in this notion is based on two considerations: one, a rise in tax revenues is likely to be associated with an expanding pace of economic activity, given a set of tax laws; two, given a set of entitlements programs, the better the performance of the economy, the less likely it is that those programs will be utilized. These ideas regarding the shape of the federal budget schedule are illustrated in Chart 1 by the solid lines.

There are lots of things that we know very little about. For example, we know very little about the shape of the budget function relating to the sum of all other sectors of the economy. Presumably we could aggregate across the budget schedules of all sectors of the economy other than the federal government (households, businesses, state and local governments, and the foreign sector). This is not to say that we know nothing at all about these budget relationships; for, we know that, at all times, the sum of the surpluses or deficits of these sectors will just equal the deficit or surplus of the federal government. Consider the table listing the sectors of the economy, the receipts and expenditures of each sector, along with each sector's surplus or deficit in the fourth quarter of 1990. The federal deficit (on income and product

Sector Receipts and Expenditures 4th Quarter 1990			
Sectors	Receipts	Expenditures	Surpluses or Deficits
Households	3892.4	3724.9	167.5
Businesses	660.6	698.3	-37.7
State and Local Govt.	721.0	695.3	25.7
Federal Government	253.3	437.6	-184.3
Foreign	—	-28.8	28.8
GNP	5527.3	5527.3	0.0

account) was $184.3 billion. The offsetting surpluses were from the household sector, state and local governments, and the foreign sector. Although we do not know the shape of the nonfederal budget function, two are shown in Chart 1 as heavily dotted lines, increasing as GNP expands. (Do not be fooled by the fact that the lines are drawn moving to the lower right! The nonfederal scale is on the left side of the chart.) In words, the larger the GNP the more the aggregate nonfederal budget moves toward surplus.

It is often the unfortunate case that we must be careful with words. Several statements have been juxtaposed that could be confusing. It has just been asserted that the larger the GNP the more the federal budget moves toward surplus. It has also been stated that the larger the GNP the more the aggregate of the budget positions of the nonfederal sectors moves toward surplus. Finally, it has been stated that the federal deficit or surplus must be exactly matched by an aggregate nonfederal surplus or deficit. Within what context can all these statements make sense? The statements dealing with the shapes of the federal and nonfederal budget functions relate to a let's pretend, short-run, situation. We are saying,

"What would happen to the federal budget position if the level of GNP were somewhat higher, rather than somewhat lower?" As we turn to real time, looking at history it is clear that over the long run both GNP and the federal deficit have grown; there has also been a corresponding growth in the size of the nonfederal surplus.

During any period, GNP will be what it is. At that point (say, point A on Chart 1), the federal and nonfederal budget functions intersect. At that intersection, the federal deficit (shown on the right side of Chart 1) is just matched by the nonfederal surplus (shown on the left side of the chart).

Now suppose there is some combination of an increase in federal expenditures and/or a cut in tax rates. Such an event is illustrated in Chart 1 by a shift to the right in the entire federal budget schedule, from line 1 to line 2. According to the new schedule (line 2), at any given level of GNP the federal government would be experiencing a larger budget deficit than previously (line 1). How should that change in fiscal policy be characterized?

One approach is to observe that the federal deficit has increased (see arrow on the right side of Chart 1), and to interpret the growth in the deficit as a measure of the shift in fiscal policy. Note that there is a new intersection at C of the federal budget schedule and the sum of the nonfederal budget schedules, at which point the federal deficit is just matched by an aggregate nonfederal surplus. But part of the

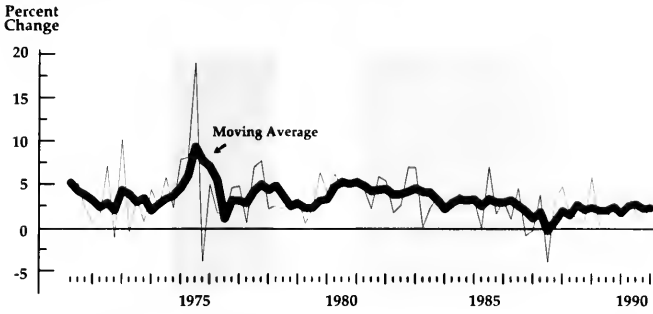Chart 1. Federal and Nonfederal Budget Functions
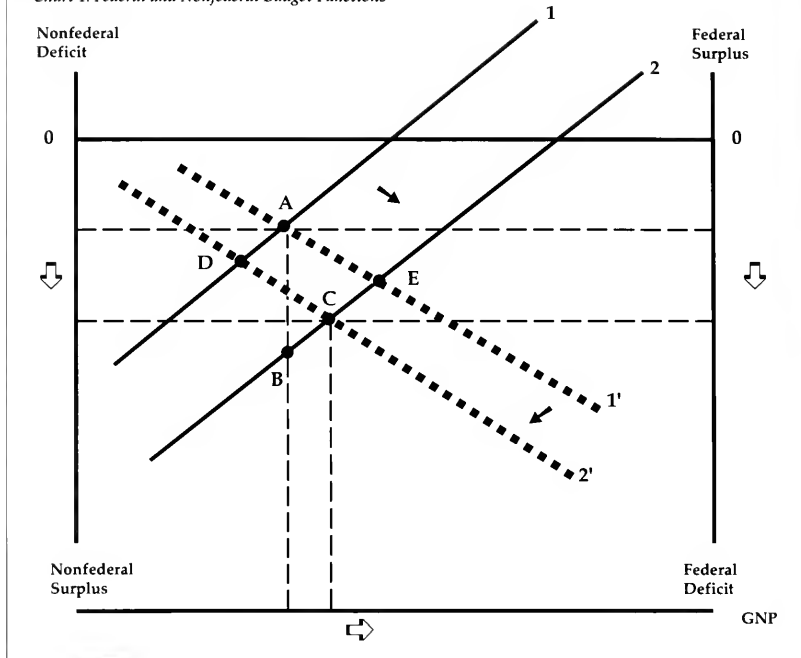
increase in the deficit reflects a shift in the nonfederal budget function (from 1' to 2'). If the nonfederal schedule remained at 1', the intersection would have occurred at point E and the increase in the federal deficit would have been smaller. At the risk of being sidetracked by details, it is worth noting that marginal tax rates enter into the nonfederal budget function; while it is very likely to shift in response to tax rate changes, the shift will be smaller than the shift in the federal schedule. The aggregate of nonfederal schedules does not need to shift in response to expenditure-induced changes in the federal budget position.

Note that it would have been possible for the deficit to have decreased without a shift in fiscal policy. Suppose the fiscal schedule had remained at 1, but the nonfederal schedule shifted to 2'.

Such a shift would reflect an attempt on the part of households and businesses to save more and spend less. If that had happened, the new intersection would have been at point D (see Chart 1). At that point, GNP would have been reduced, and the federal deficit would have risen.

Fiscal developments can be described as consisting of two components, one *autonomous* and the other *induced*. By autonomous, I refer to the shift in the federal fiscal position that would have occurred in the absence of a change in GNP. Returning to Chart 1, the autonomous component of the fiscal change consists of the change in the federal budget position from point A to point B. That aspect of the fiscal development is unrelated to developments in the nonfederal sectors. In the illustration, the nonfederal schedule shifted from 1'

Chart 2. Autonomous Changes in Federal Budget Position

Percent
Change

* Shaded areas represent recessions.

were 50 quarters during which the economy fell below its expansion path in the absence of cyclical deviations. There were 30 quarters during which the performance of the economy was sufficiently strong to reduce unemployment below 6 percent. An inspection of Chart 2 suggests some upward movement in autonomous changes in the federal budget position during the early quarters of cyclical weakness in the economy. Left to one's imagination is the question of whether those changes reflect conscious policy decisions or, instead, are more or less random. It turns out that autonomous changes in the federal budget were somewhat more rapid during shortfalls in the economy than during periods when the economy was performing more strongly. During periods of relative weakness, autonomous changes in the federal budget averaged 3.54 percent; autonomous changes during periods of relative strength averaged only 2.87 percent.

to 2'. By virtue of the change induced by the expansion in GNP, the federal fiscal position moved up the federal schedule from B to C. As Chart 1 illustrates, the size of the induced change in the federal deficit or surplus depends on the *position* of the nonfederal budget schedule and its slope.
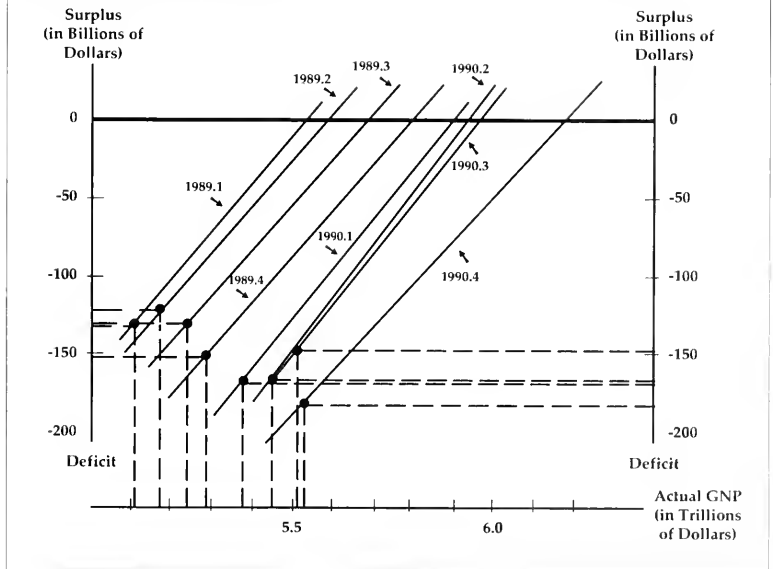
Some History

There is inconclusive evidence that fiscal policy, as measured by autonomous changes in the budget, has been adjusted to maintain cyclical stability. Chart 2 shows autonomous quarter-to-quarter changes in the federal budget position, expressed as a percent of federal expenditures in the quarter from which the change occurred. The heavy line on the chart is a four-quarter moving average centered in the terminal month; the other line depicts the actual quarter-to-quarter percent changes. The four-period moving average is used in order to smooth the data. The shaded areas on the chart represent those periods during which actual GNP fell below where it would

have been in the absence of downward cyclical swings in business activity. During such periods, the unshaded areas are those during which unemployment was 6 percent or less; unemployment was higher than 6 percent of the civilian work force.

In the period under consideration, from the first quarter of 1971 to the final quarter of 1990, there

Chart 3. Shifts in Federal Budget Schedules

Surplus
(in Billions of
Dollars)

Surplus
(in Billions of
Dollars)

Deficit

Deficit

Actual GNP
(in Trillions
of Dollars)

Recent Shifts in the Budget Schedule

It may be convenient to think of the federal budget schedule as shifting rightward quarter-after-quarter. Such shifts are shown in Chart 3 for eight quarters in 1989 and 1990. The specific explanation for each shift is beyond the scope of this article. In any event, it is probable that the schedule would shift to the right even in the absence of any new federal legislation, reflecting the growth of government associated with the underlying growth of the nation. New spending programs or tax cuts would accelerate the rightward movement. In view of the fact that we do not know the positions or slopes of the aggregate of the nonfederal budget schedules, we have left them off Chart 3. All we know is that they crossed the federal function at the points indicated.

Little imagination is required in order for the mind's eye to draw federal budget functions into 1991 and beyond. It is possible to believe that the aggregate of the nonfederal budget schedules is sloped downward, toward the lower right (as illustrated in Chart 1). It is also possible to imagine that the fluctuations of that function are more-or-less bounded by the experience shown on Chart 3. If such fanciful thought turned out to be more-or-less the case, a large and growing federal deficit is in prospect over the next several years.

The average shift in the budget functions shown on Chart 3 is $6.9 billion, with little change in the slope of successive functions. Suppose these shifts continue through 1991. A straight line fitted through the points shown on Chart 3 would cross these new federal budget functions at deficits of $181.1, $188.1, $195, and $201.9 billion, for an average deficit of $191.5 billion during the 1991 calendar year. If the straight line were fitted through the most favorable experience, the federal deficit for 1991 would average about $170 billion; in terms of least favorable experience, the deficit would average about $275 billion.

But turning away from fantasies about the unknowable future, there are lessons to be learned from this exercise. It is quite clear that the size of the federal deficit (or surplus), coupled with the simultaneously determined flow of GNP, are critically dependent upon the shape of and shifts in the aggregate of the nonfederal schedules. In a very real sense, the federal government can do little to affect the size of its deficit over the next several years. Too many of its programs are locked in place.

In order for the federal budget position to move toward surplus, it is necessary for the aggregate of budgets of households, businesses, state and local government, and the foreign sector to move toward deficits. Thus, households would need to spend an increased share of their income; or businesses would need to expand their expenditures on plant, equipment, or inventories; or state and local governments would need to accelerate their pace of expenditures; or the nation would need to export more aggressively than it imports. In the absence of some combination of these developments, the federal government will remain in substantial deficit.

Even as these words are written, I am conscious of the fact that some readers will rise up in horror. Aside from prescriptions relating to the foreign sector, it will appear that I am advocating profligacy. But quite the opposite is the case. With an expanding income, the absolute size of household saving could well be increased, not reduced. (After all, 6 percent of 80 is only 4.8; but 5 percent of 100 is 5.0.) And business investment is the stuff of enhanced productivity and growth.

In short, the set of factors that drives the federal budget toward surplus is the same as that moving the overall economy toward successful performance. A successfully performing economy is one in which the business sector is expanding. It may be investing in plant and equipment; it may be building business inventories in the expectation of rising sales. Within such a setting, it is likely that the business sector is expanding its workforce. At the same time, the household sector is likely to be confident of its ongoing and expected future situation. Consequently, households are likely to be consuming heavily, building up their holdings of durables, and otherwise enjoying life. States and local political subdivisions can be busily providing health, educational, and welfare services to their constituencies. Finally, the domestic economy may find itself being stimulated by strong demand from abroad. Of course, not all of these conditions need be present in an economy that is operating near noninflationary potential.

In short, a successfully performing economy is inextricably linked to a federal budget characterized by strong receipts. If this is so, public policy measures that are successful in moving the economy towards high standards of performance are very likely to be successful in moving the federal budget toward surplus. It is attractive to suppose that the federal government would be well advised to pay more attention to matters relating to economic performance than to matters explicitly designed to drive revenues higher. Indeed, it is plausible to argue that the approaches directed explicitly toward limiting the federal deficit are likely to be self-defeating. Thus, for example, it is not surprising that efforts to enhance revenue and to restrain federal expenditures have had, after the fact, little observable effect on the federal deficit. Such efforts tend to exert a dampening effect on the general economy, thereby driving the federal sector towards deficit.

Appendix

For those interested in technical details, this appendix explains how the federal budget function is estimated. In addition, relevant estimated values are shown for the 1970–1990 period. Suppose that the federal budget function is given by

$$Sf_t = a_{0,t} + a_{1,t}(GNP_t),$$

where

Sf	=	federal budget position (receipts minus expenditures),
a_0	=	intercept term (summary of all factors affecting federal receipts and outlays),
a_1	=	an average of marginal tax rates,
GNP =		gross national product, and
t	=	denotes time period (by quarters).

There are monthly data giving two estimates of both GNP and the federal surplus (or deficit). One estimate is of the actual flows for these two variables; the other estimate is of the flows for each of these variables on a cyclically adjusted basis. By cyclically adjusted, there is the assumption that the economy operates at a pace such that 6 percent of the labor force is unemployed. For each quarter, we have two observations on each of the unknowns; as a happy consequence, in each quarter we are able to solve for each unknown.

Estimated quarterly values for a_0 are shown in Chart 1. Each of these values is negative, indicating that expenditures exceed revenues at the y-intercept. Moreover, the chart indicates that a_0 has generally drifted downward. Estimated average marginal tax rates, a_1, have followed no particular pattern for the 1970–1990 period considered as a whole (see Chart 2). The description of a_1 as a tax rate is a short-hand expression and is not intended to be misleading. Clearly, it is *not* the marginal tax rate on taxable income. Rather, it merely expresses a relationship between GNP and federal tax receipts.

The estimates of autonomous changes in the federal budget position during time period 1, $Sf'_{t=1}$, are computed as

$$Sf'_{t=1} = (a_{0,t=1} - a_{0,t=0}) + GNP_{t=0} (a_{1,t=1} - a_{1,t=0}).$$

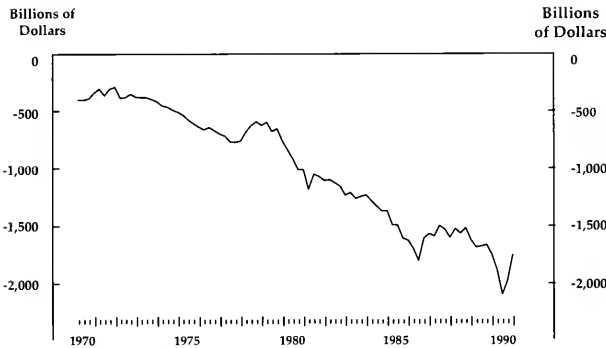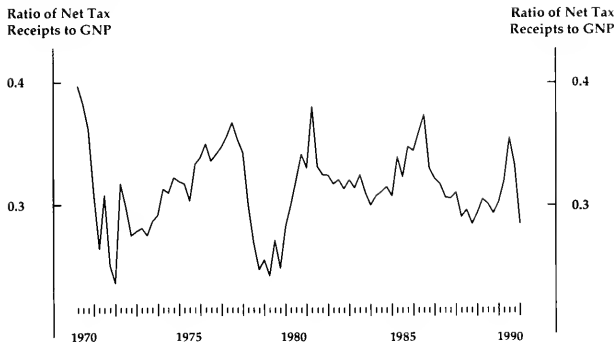Chart 1. Autonomous Changes in Federal Budget Position (GNP=0)

Chart 2. Marginal Net Tax Rate

Raymond K. Oldakowski and
Diane O'Rourke

Vacation Travel and Retirement Location

A recent study estimates that the State of Illinois lost over 1.2 billion dollars during the period of 1985–1990 due to the outmigration of retirees.[1] Only New York was harder hit than Illinois, with a net loss of nearly $2.9 billion.

Conversely, states benefiting the most from retirement migration include Florida (over $5 billion gained), and Arizona, Texas, North Carolina, Arkansas, Oregon, South Carolina, Nevada, Georgia, Washington, New Mexico, and California (over $1 billion gained by each). Even more staggering is the fact that these figures represent only losses and gains in income due to net migration, and do not include any indirect economic effects generated by changes in the spatial distribution of income (for example, jobs, housing starts, tax revenues).

Retirees are considered extremely desirable by local and state economies for many reasons. Most important, they often receive nonearned income in the form of pensions, assets, and Social Security; they put little or no negative pressure on the local employment market; and they spend a disproportionately large amount of their disposable income on goods and services (which in turn creates new jobs). In addition, tax dollars generated from the incoming retirees' income provide a boost to state and local governments. Some states had feared that an increase in the number of retirees would be accompanied by a significant increase in the demand for government social and supportive services. However, this fear has not been realized in most instances. Nearly 60 percent of retirees aged 55–64, and over half of all retirees, have income levels greater

than twice the poverty level. Furthermore, if this increase in the need for government services were to occur, it could have an overall positive impact on local and state economies due to an increase in the demand for labor by the public sector. Given these facts, it would appear beneficial for states losing large numbers of retirees due to outmigration to examine ways to slow, stop, or reverse this trend.

Background

Recent research on the migration decision-making process may provide some valuable information to address the problem of retaining retirees. Three basic factors have been found to be central to the formation of migration intentions and the selection of a migration destination. These are an individual's (1) socioeconomic and demographic characteristics, (2) attachments to the place of residence, and (3) ties to and familiarity with other places. Socioeconomic and demographic characteristics encompass a wide variety of variables including age, life-cycle and career-cycle stage, marital status, education, income, and occupation. Each of these variables has a different effect on migration behavior. For example, mobility rates are inversely related to age; married couples are less likely to move than are single persons; and persons with higher levels of education and income are more likely to migrate than those with lower levels.

Attachments to place of residence include housing tenure, duration of residence, residential satisfaction, and membership in clubs or other organizations. Each of these variables serves to deter migration.

For example, home owners are less likely to move than renters; persons who have lived in an area for a short period of time are more likely to move away than those who have lived there for a substantial duration.

Ties to other places represent exposure to different areas via previous residence, vacation travel, business trips, or the location of friends and relatives. These variables serve to stimulate migration. The more (positively) familiar a person is with another location, the more likely he or she is to move to that locale.

The purpose of this article is to examine the relationship between exposure to other places through vacation travel and locational retirement decisions (more specifically, the intention to move upon retirement and the selection of a desired location). Vacation travel has been found to be especially influential on retirement moves. Retirees, because they are no longer members of the labor force, are less responsive to employment considerations that often determine the migration decisions of labor force members. Moreover, researchers have found that exposure to other places plays an important role in explaining the migration intentions of individuals in the preretirement life-cycle stage (ages 50–64). This is partially due to the

[1]A list of references is available from the authors on request.

fact that older individuals often have developed attachments to a variety of places throughout their lifetimes. Other research has found that retired persons will often move to an area where they had visited friends and relatives in the past. The move is partially due to friends and relatives serving as information sources before retirement and also as a social support network after the move.

Methodology

The data for this study were obtained through a telephone survey of 1,011 adult Illinois residents conducted in November 1989 by the University of Illinois Survey Research Laboratory for the Illinois Department of Conservation. The main objective was to assess the outdoor recreation habits of Illinois residents while in Illinois and in other states. The authors added to the questionnaire to obtain a comprehensive inventory of vacation travel for the preceeding 12-month period. Information regarding the respondent's plans for retirement location were also ascertained.

Results

Survey participants were asked, "Have you thought at all about where you would like to retire?" Among the 1,011 respondents, 464 (45.9 percent) had not thought about where to retire, 371 (36.7 percent) had a retirement location in mind, and 176 (17.4 percent) had already retired. As one would expect, the likelihood that an individual has thought about a retirement location increases with age (Table 1). However, it is suprising to note how early in life this thought process begins. Among persons aged 34 and under, almost a third had already begun to think about where to retire. Among respondents

aged 35–49, nearly half had a retirement location in mind.[2] These results suggest that many individuals may consider that decisions concerning the selection of a retirement location require the same advanced thought and planning as do decisions concerning other retirement goals such as financial security.

Persons who had thought about a retirement location were then asked, "Would you prefer to retire in the community where you now live or somewhere else?" Of those 371 respondents, 120 (32.3 percent) chose their current community, 241 (65.0 percent) wished to retire somewhere else, and 10 (2.7 percent) were uncertain.

Responses to this question were cross-classified with education, income, and race (Table 2). These results demonstrate some of the traditional generalizations that have been formulated concerning retirement migration. First, migration is a positively selective process. Persons with higher levels of education and income are more likely to move upon retirement than those with lower levels.[3] This is due, in part, to the fact that awareness of other places increases with one's level of education, and financial ability to move increases with income. This process of positive selectivity is

Table 2. Desired Retirement Location by Education, Income, Race, and Place of Residence

	Desired Retirement Location:	
	Current Community	Somewhere Else
Education:*		
Some High School	8 (42.1%)	11 (57.9%)
High School Graduate	48 (38.4%)	77 (61.6%)
Some College	28 (27.2%)	75 (72.8%)
College Graduate	36 (31.5%)	78 (68.5%)
Income:*		
Less Than $25,000	17 (44.7%)	21 (55.3%)
$40,000 - 59,999	18 (23.4%)	59 (76.6%)
Greater Than $60,000	26 (35.6%)	47 (64.4%)
Race:**		
White	90 (30.6%)	204 (69.4%)
Nonwhite	26 (44.1%)	33 (55.9%)
Place of Residence:**		
City of Chicago	32 (34.0%)	62 (66.0%)
Chicago Suburbs	26 (22.0%)	92 (78.0%)
Downstate	62 (41.6%)	87 (58.4%)

*Chi-square significant <.05

**Chi-square significant <.10

especially important when examined within the context of the impact of retirement migration. Areas experiencing net inmigration will realize an increase in the number of wealthier, more educated retirees. Areas experiencing net out migration are left with a concentration of poorer, less educated retirees.

Second, whites are more likely to move upon retirement than nonwhites. Several possible explanations exist for this relationship. It has been hypothesized that perceived and actual racial discrimination serves to constrain migration intentions among nonwhites. In addition, larger extended families and geographically concentrated

[2]Similar results have been found in related research. A survey of 638 Champaign County residents conducted in the Spring of 1989 found that 45 percent of the respondents aged 35-49 had thought about where to retire.

[3]The results presented in Table 2 exhibit an interesting anomoly indicative of findings in previous studies of retirement migration, that is, the desire to move upon retirement actually decreases among the highest income and education groups. This is usually due to the fact that the wealthiest groups are more likely to have second homes in recreation/amenity areas; seasonal migration takes the place of a permanent retirement move.

Table 1. Thinking About Retirement Locations by Age

	Thought About Where to Retire		
	No	Yes	Already Retired
Age:*			
18-34	241 (64.4%)	124 (33.2%)	9 (2.4%)
35-49	141 (50.0%)	129 (45.7%)	12 (4.3%)
50-64	48 (26.5%)	92 (50.8%)	41 (22.7%)
65-89	18 (12.8%)	18 (12.8%)	105 (74.4%)

*Chi-square significant <.05

residential patterns among non-whites may already provide the social support networks often needed upon retirement, thus making a retirement move a less attractive option.

Responses were also disaggregated by place of residence within Illinois (Table 2). Downstate respondents were the least likely to want to leave their current communities upon retirement.[4] This is probably indicative of the prevalence of farmers and other property owners in this area of the state who have relatively stronger ties (including social, psychological, and financial attachments) to their current residence than other Illinoisans. The difference in the percentage of respondents wishing to move upon retirement between Chicago city and suburban residents most likely represents the differences in education, income, and race between the residents of these areas.

As mentioned previously, a complete inventory of the respondents' Illinois and out-of-state travel behavior was obtained. This inventory included trips for all reasons such as vactioning, visiting friends and relatives, enjoying the outdoors, and so on. Only business trips and trips with a duration of less than one night were excluded because of the potential for such travel to skew the results. A dichotomous variable indicating whether or not the respondent had traveled out-of-state in the past 12 months was created. When this variable is cross-classified with retirement location, it indicates that persons who traveled out-of-state were much more likely to want to move from their current residence upon retirement than those who did not travel out-of-state (Table 3). Further support for the existence of a relationship between vacation travel behavior and retirement location is evidenced by the fact that over 36 percent of the respondents providing a specific out-of-state retirement location had visited that place in the preceeding 12 months.

Table 3. Desired Retirement Location by Vacation Travel *

| | Desired Retirement Location: | |
	Current Community	Somewhere Else
Illinois Travel Only	42 (45.7%)	50 (54.3%)
Out-of-State Travel	78 (29.0%)	191 (71.0%)

*Chi-square significant <.05

The map presents the geographical distribution of those states most frequently mentioned by the respondents as desired retirement locations. Two basic spatial patterns emerge. The first is the influence of the Sunbelt states mentioned at the outset of this article that were gaining the greatest amounts of income due to retirement migration. These include Florida, Arizona, California, Texas, Nevada, South Carolina, and Georgia. The second is the influence

[4]Again, similar results have been found in previous research. The Champaign County Spring 1989 survey found that 41 percent of the respondents wished to retire in Champaign County, whereas 59 percent wished to retire elsewhere.

Desired Migration Destinations of Illinois Residents

Less than 1.5%

1.5% - 2.5%

2.6% - 5.0%

Greater than 5.0%
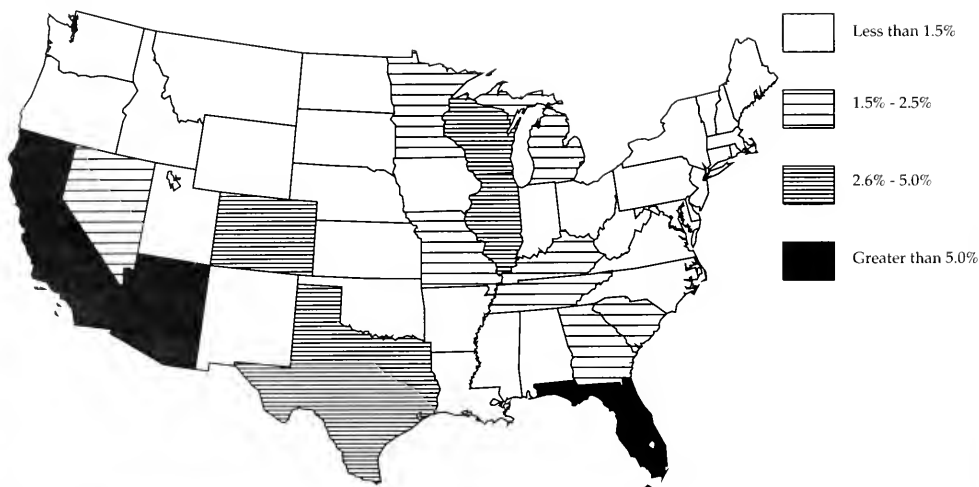
of regional vacation destinations among Illinois residents. These states include Wisconsin, Illinois, Michigan, Missouri, Minnesota, Kentucky, and Tennessee.[5] Table 4 illustrates that Wisconsin, Michigan, and Missouri are overwhelmingly the most popular vacation spots among Illinoisans; Minnesota, Kentucky, and Tennessee are also frequently visited.

Finally, respondents were asked why they wanted to retire to the particular location they had in mind (Table 5). Illinoisans who wished to retire in their current community cited reasons such as the presence of friends and relatives, the positive characteristics of the community, and their length of residence in the area. These reasons are all representative of the attachments to place of residence that serve to deter out migration. Among Illinoisans who wished to leave their current community upon retirement, climate was the most frequently cited reason. However, an equally large number noted other positive characteristics of the desired migration destination.

Table 4. Popular Vacation Destinations*

	Reported Number of Overnight Trips in Last 12 Months
Wisconsin	663
Michigan	262
Missouri	176
Florida	165
Indiana	115
California	89
Ohio	76
Colorado	66
Iowa	66
Minnesota	61
Kentucky	61
Tennessee	59

*As reported by 1,011 respondents

Table 5. Reasons for Selecting Desired Retirement Location*

	Desired Retirement Location:	
	Current Community	Somewhere Else
Cost of Living	9	11
Climate	9	149
Friends and Relatives	70	47
Positive Characteristics of the Area	57	126
Length of Residence	28	n/a

*Respondents could provide more than one reason.

Policy Implications

The results of this survey provide some important information for the development of new policies and the extension of existing policies to prevent the loss of Illinois residents via retirement migration. First, the thought process concerning the selection of a retirement location appears to begin early in

the adult life for many individuals. Hence, the promotion of Illinois as a "good place to live" after retirement should be directed toward all adult age groups, not only those nearing retirement age. Second, the loss of residents due to retirement migration is especially devastating because it involves not only raw numbers of population (which in itself is important), but also the loss of residents with relatively higher levels of income and education. Moreover, previous research has suggested that health status has a similar relationship with retirement migration, that is, healthier and more physically independent elderly are more likely to move upon retirement. Third, the relatively lower retirement migration rates among nonwhites indicate that racial discrimination may still influence the mobility decisions of Blacks, Hispanics, Asians, and other minorities. State officials must actively ensure that all Illinoisans are welcome as residents in all parts of the state (both in perception and actuality). Such policies might also make Illinois a more attractive retirement migration destination for out-of-state minorities. Fourth, the relatively higher rate of retirement

outmigration among persons who travel out-of-state suggests that even more effort needs to be made to promote Illinois as an attractive vacation and travel area. This effort should be directed not only to attract residents of other states, but also to retain Illinois residents themselves. By redirecting the vacation travel of Illinoisans from neighboring states (for example, Wisconsin, Michigan, and Missouri) to within the boundaries of Illinois, residents will become more aware of the physical amenities and recreation opportunities available in Illinois. These characteristics are clearly important to individuals in making the decision of where to retire. In addition, more immediate benefits, such as an increase in revenue from tourism, could result.

Finally, whereas Illinois can do little to change its climate, it is apparent that other factors influence retirement destination selection. Physical amenities and recreational opportunities discovered through travel behavior are one such factor. Other studies have demonstrated the importance of characteristics such as shopping facilities, access to health care, availability of transportation, and cultural activities in influencing locational retirement decisions. State officials would be wise to promote the existing availability of such amenities in Illinois in comparison to the greater demand (but lesser supply) of such features in retirement boom states such as Florida and Arizona. Hopefully, innovative and aggressive policies based on information such as that revealed in this study will enable Illinois to join the list of states gaining income from retirement migration in the near future.

[5]Because the retirement location question dichotomized "the community where you now live" and "somewhere else," other parts of Illinois could be selected.

Illinois Business Statistics

T here is a view that recessions include processes that serve to dampen inflationary forces. Because there is likely to be a weakening in demand for their product, producers find it difficult to pass along price increases. The weakening in aggregate demand is associated with a growing number of unemployed consumers and others who feel that their jobs are threatened. Price developments during the recession that began in July 1990 are consistent with such a general interpretation.

Chart 1 shows that price increases for necessities such as food, shelter, and clothing eased following the beginning of the recession. Aside from the diminution in inflation, price fluctuations have moderated. The price gyrations that characterized the first part of 1990 have been notably absent in 1991.

Chart 2 suggests that inflation is more difficult to tame in some sectors of the economy than in others. The relative cost of health care rose precipitously until the first quarter of 1991. New car prices have risen sharply since 1990. Finally, the cost of public transportation has fluctuated widely in response to changing expectations regarding fuel prices.

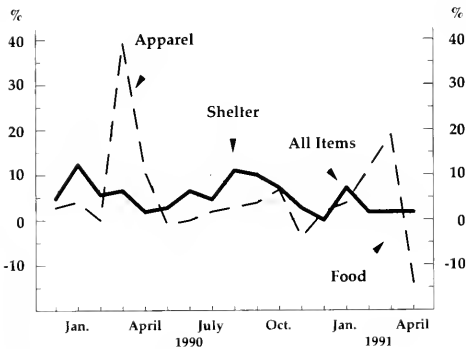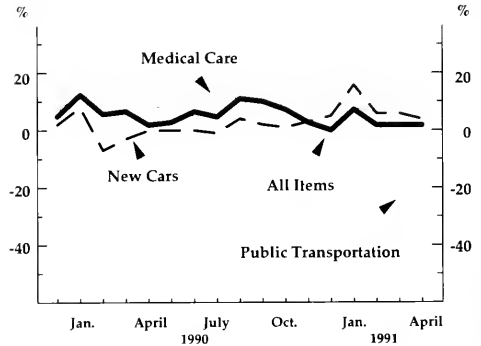Chart 1. Annualized Changes in Selected Price Indexes (CPI-U)

Chart 2. Annualized Changes in Selected Price Indexes (CPI-U)

Historical Statistics

	One Year % Change	April 1991	Mar. 1991	Feb. 1991	Jan. 1991	Dec. 1990	Nov. 1990	April 1990
Building permits (thousands)								
Residential housing units	-29.09%	2.625	2.394	1.158	0.768	1.524	2.350	3.702
Value of residential units	-16.25%	$290,207	$237,078	$125,916	$86,931	$158,466	$201,547	$346,504
Value of nonresidential housing								
Industrial buildings	-6.51%	17,353	15,666	4,446	16,904	21,666	14,579	18,562
Office, banks, and professional buildings	74.07%	37,021	15,139	31,597	116,876	27,649	27,510	21,268
Stores and other mercantile buildings	40.58%	39,039	29,030	22,445	7,284	52,553	56,155	27,770
Other	11.52%	6,468	7,282	2,673	4,301	6,210	4,838	5,800
Consumer price index (1982-1984=100)								
United States	4.89%	135.2	135.0	134.8	134.6	133.8	133.8	128.9
North Central US	4.53%	131.5	131.3	130.8	130.5	130.2	130.4	125.8
North Central/pop. more than 1,200,000	4.16%	132.6	132.7	132.0	131.7	131.5	131.7	127.3
North Central/pop.360,000 to 1,200,000	4.49%	130.4	130.3	130.1	129.5	129.0	128.9	124.8
North Central/pop. 50,000 to 360,000	5.49%	132.5	131.5	131.3	131.0	130.7	130.9	125.6
North Central/pop. less than 50,000	4.87%	127.0	126.2	125.6	126.0	125.7	126.2	121.1
Chicago	4.37%	136.1	136.2	135.5	135.1	134.6	134.2	130.4
St. Louis	NA	NA	130.7	NA	131.0	NA	130.4	NA

Forecast Statistics

Personal Income (millions of dollars, seasonally adjusted at annual rates)

	1990	1991:I*	1991:II	1991:III	1991:IV	1992:I	1992:II	1992:III	1992:IV	1993:I
Total personal income	$232,072	$240,526	$244,010	$247,946	$252,043	$256,172	$260,818	$265,068	$269,336	$273,646
Total nonfarm personal	168,764	173,778	176,122	178,855	181,930	184,876	188,442	191,444	194,607	197,641
Total private nonfarm	147,653	151,455	153,483	156,012	158,695	161,383	164,647	167,410	170,156	172,919
Mining	1,117	1,103	1,167	1,179	1,180	1,188	1,212	1,218	1,223	1,226
Construction	9,989	10,329	10,601	10,863	11,015	11,223	11,454	11,704	11,906	12,153
Manufacturing	34,126	34,068	33,653	33,707	33,985	34,314	34,872	35,123	35,354	35,530
Durable	20,777	20,607	20,245	20,259	20,485	20,738	21,226	21,409	21,587	21,703
Nondurable	13,348	13,461	13,408	13,449	13,501	13,575	13,647	13,714	13,767	13,827
Transp. & pub. utilities	12,420	12,568	12,686	12,884	13,114	13,303	13,518	13,662	13,836	14,024
Wholesale trade	13,405	13,782	14,072	14,355	14,584	14,833	15,129	15,382	15,616	15,889
Retail	14,546	14,902	15,028	15,287	15,565	15,701	16,064	16,329	16,607	16,774
Finance, ins. & real estate	14,942	15,257	15,579	15,808	16,039	16,294	16,496	16,730	16,965	17,225
Services	46,382	49,445	50,696	51,928	53,211	54,527	55,900	57,262	58,650	60,099
Government	21,111	22,323	22,639	22,843	23,235	23,493	23,795	24,034	24,451	24,722

Gross State Product (millions of dollars, seasonally adjusted at annual rates)

	1990**	1991:I	1991:II	1991:III	1991:IV	1992:I	1992:II	1992:III	1992:IV	1993:I
Total	$270,629	$278,236	$281,384	$284,761	$288,405	$291,972	$296,194	$299,864	$303,518	$306,987
Total private nonagricultural	241,427	248,663	251,545	254,635	257,972	261,239	265,108	268,472	271,821	275,003
Mining	1,885	1,902	1,995	2,019	2,023	2,049	2,111	2,134	2,158	2,180
Construction	11,225	11,627	11,840	12,035	12,207	12,370	12,590	12,801	12,993	13,178
Manufacturing	49,272	48,816	48,509	48,521	48,752	49,029	49,589	49,758	49,921	50,014
Durable	26,733	26,032	25,513	25,376	25,479	25,632	26,052	26,101	26,152	26,137
Nondurable	22,539	22,784	22,997	23,145	23,273	23,397	23,537	23,657	23,769	23,877
Transp. & pub. utilities	27,561	28,637	29,005	29,344	29,669	29,990	30,340	30,667	30,985	31,300
Wholesale trade	22,834	23,206	23,503	23,765	24,016	24,260	24,550	24,810	25,057	25,301
Retail trade	24,073	24,667	24,960	25,227	25,486	25,657	25,943	26,200	26,450	26,624
Finance, ins. & real estate	50,278	52,190	52,814	53,486	54,233	54,945	55,629	56,323	57,030	57,713
Services	54,299	57,618	58,918	60,239	61,586	62,940	64,357	65,779	67,228	68,694
Government	24,157	24,556	24,760	24,932	25,195	25,393	25,597	25,768	26,019	26,199
Agriculture	5,045	5,017	5,079	5,194	5,238	5,340	5,489	5,624	5,678	5,785

Illinois Employment Forecast (in thousands, seasonally adjusted)

	1990	1991:I	1991:II*	1991:III	1991:IV	1992:I	1992:II	1992:III	1992:IV	1993:I
Total nonfarm employment	5,263.8	5,267.3	5,221.0	5,212.1	5,224.7	5,240.4	5,245.8	5,257.3	5,266.6	5,292.6
Total private nonfarm emp.	4,501.7	4,504.0	4,459.4	4,452.7	4,467.5	4,487.0	4,494.1	4,500.1	4,511.5	4,541.8
Mining	19.8	19.8	19.9	19.6	19.5	20.1	19.8	19.6	19.7	20.2
Construction	218.4	219.1	211.3	208.2	205.7	206.0	200.6	199.2	198.6	202.5
Manufacturing	982.0	968.1	947.5	942.8	945.7	951.1	960.1	962.9	965.2	967.7
Durable	592.9	579.5	566.4	564.2	567.6	573.4	583.0	586.7	589.4	592.1
Primary metals	55.0	52.7	50.4	49.6	49.2	49.3	50.5	50.9	51.0	51.3
Fabricated metals	103.1	102.3	98.9	99.4	100.6	101.7	103.5	103.7	103.8	103.8
Nonelectrical machinery	153.3	150.9	148.0	146.4	147.1	148.4	151.6	152.4	152.7	152.4
Electrical machinery	115.8	113.0	114.4	116.6	119.6	123.0	126.4	129.1	131.5	134.3
Nondurable	389.2	388.6	381.2	378.5	378.1	377.7	377.1	376.2	375.8	375.6
Food & kindred products	93.3	93.1	91.3	90.2	89.9	89.2	88.1	86.8	86.2	86.0
Printing & publishing	111.5	111.1	108.6	107.2	106.0	105.0	104.7	104.8	104.6	104.5
Chemicals & allied prod.	63.2	63.4	63.1	63.1	63.4	63.4	63.4	63.2	63.3	63.1
Transportation & pub. utilities	307.8	309.0	305.3	304.2	303.9	305.1	307.1	307.0	306.2	307.4
Wholesale trade	357.8	357.7	357.5	357.7	359.1	361.2	360.4	360.9	361.9	364.6
Retail trade	900.4	903.1	893.1	893.5	897.8	899.2	902.8	905.0	906.0	911.4
Finance, ins. & real estate	375.5	373.9	372.7	371.0	371.4	370.2	367.6	365.2	365.3	364.2
Services	1,340.0	1,353.3	1,352.1	1,355.6	1,364.4	1,374.3	1,375.7	1,380.3	1,388.5	1,403.8
Government	762.2	763.3	761.6	759.4	757.2	753.4	751.7	757.2	755.1	750.8

*Forecast begins

**Includes a forecast figure for 1990:IV

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The Economic Outlook

A lthough there is periodic reference to a prospective "double dip," the most widely circulated view regarding current economic developments is that the economy is no longer in recession. Partly because the economy did not decline substantially during the recession, and partly because there has been little if any evidence of rebound, it has become fashionable to conclude that the recovery will not be strong.

There are several aspects of economic activity that are typically the subject of specific review. Aside from a generalized interest in the volume of production, there is always a strong interest in the extent to which labor resources are employed. Similarly, there is substantial public concern regarding changes in rates of inflation, shifts in interest rates, and developments in the nation's foreign trade position. Finally, aside from concern regarding the economic policy environment within which the economy is operating, both monetary and fiscal policies, there is nearly always a substantial interest in developments relating to the federal budget, especially as these developments have a bearing on federal deficits.

Economic Weakness Persists

One measure of economic activity involves identifying the value of output sold in markets or added to business inventories during some specified period of time. This measure is referred to as gross national product (GNP). In order to prevent changes in prices from being misinterpreted as changes in physical output, it is common to state all values in terms of a set of prices during some base period. For some time, practitioners have used 1982 prices for these purposes. Although a change in base periods is at hand, I shall continue that practice.

We know that gross national product has declined for three successive quarters, beginning in the fourth quarter of 1990. Two measures of GNP are presented in Chart 1. The lightly drawn solid line shows year-over-year percent changes in real GNP for the 1971 to mid-1991 period. According to this measure of economic activity, the economy registered year-over-year declines in the first and second quarters of 1991, the first such declines since the early 1980s. In viewing these data, however, it is clear that increases began to grow persistently smaller after the fourth quarter of 1987. Hence, in some sense, the economy began to weaken more than two years ago.

Another way to view current developments in the economy is to view current developments against some kind of standard. One such standard is referred to as cyclically adjusted GNP. Cyclically adjusted GNP is the flow that would have been reached if the unemployment rate were to remain unchanged (at the 6 percent level). In periods when unemployment is above 6 percent, cyclically adjusted GNP is greater than actual GNP; during periods when the economy drives unemployment below 6 percent, cyclically adjusted GNP is below actual GNP. The heavy solid line in Chart 1 shows the difference between actual GNP and cyclically adjusted GNP (expressed as a percent of cyclically adjusted GNP). According to this measure, there have been three successive shortfalls from trend beginning in the fourth quarter of 1990. Moreover, there has been a downward drift since early 1989.

At first blush, the interpretation of recent events based on an examination of cyclically adjusted GNP is little different from interpretations

Chart 1. *Alternative Measures of Economic Performance*

Percent

Year-Over-Year Change in Real GNP

Real GNP as a Percent of Cyclically Adjusted GNP

1975   1980   1985   1990
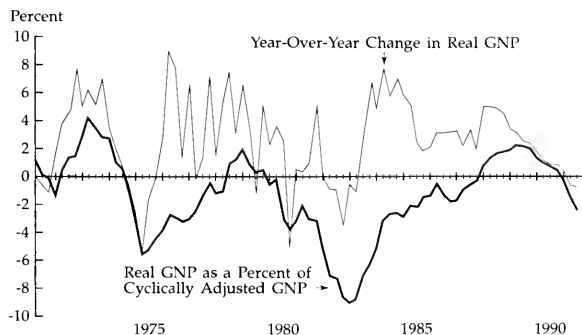
based on changes in actual GNP. The chief difference between the two measures is that the cyclically adjusted measure serves to highlight the generally weak performance of the economy over the past two decades. Thus, for example, according to data relating to real GNP the 1982 recession appears to have been quite brief. But an examination of the same period with data relating to cyclically adjusted GNP indicates that the economic weakness began in 1980, at least two years earlier, and lasted for another three years or more—until late 1986. Indeed, according to the cyclically adjusted data, much of the period since 1970 is characterized by economic weakness.

Turning to the current recession, those who suggest that the economic weakness will be brief are probably thinking in terms of actual changes in GNP. They would probably regard positive growth as a sufficient reason for believing that the recession is at an end. Those who would hold the economy to a higher standard of performance are less sanguine about the recent and prospective performance of the economy.

Additional evidence of cyclical weakness in the economy is provided by a review of industrial activity and construction. The Industrial Production Index, a measure of the output of mines, factories, and public utilities, fell at nearly a 10 percent annual rate from September of last year to March. Since March, industrial production has risen at more than an 8 percent rate. Even so, the pace of output at in mid-1991 was more than 3 percent lower than during the fall of last year. Home building, judged in terms of housing starts, has moved downward for about two years. In 1988, housing starts fluctuated around an annual rate of 1.5 million units. The pace of activity dropped to an annual rate of just under 1.4 million in 1989, moved downward to about a 1.2

million in 1990, then drifted below 900,000 units in January 1991, the lowest level since the 1982 recession. Housing starts have bounced above and below the 1 million pace over the past half year, with some evidence of sustained upward movement since March. If one were inclined to seek evidence of economic recovery, some evidence of strengthening is provided by the past several months of these data. The decline in industrial output may have come to an end in the spring. Similarly, the decline in home building appears to have been arrested. Even so, both of these measures of physical activity remain well below their pace before the recession.

Unemployment Has Stabilized

Reflecting the slowdown in the growth of productive activity, there has been a decline in employment. Since late spring of last year, total employment has fallen at just over a 1 percent annual rate. Changes in the pace of employment growth bring about movements in the unemployment rate. Consequently, over this same period, the unemployment rate increased from a low of 5.3 percent in early 1990 to 7 percent in June. Since the middle of the year unemployment has stabilized at just under 7 percent of the labor force.

The unemployment rate is the ratio of unemployment to the labor force (defined as the sum of

employment and unemployment). There does not appear to be a stable relationship between the rate of employment growth and changes in the unemployment rate. For example, employment expanded at a 2.2 percent annual rate from mid-1984 to mid-1986, and the unemployment rate was essentially unchanged (see the table). From late 1988 to mid-1990 employment expanded at only a 1.1 percent rate; even so, the unemployment rate remained approximately unchanged. Hence, there does not appear to be a "threshold" rate of employment growth that produces stability in the unemployment rate. Making a similar point, while employment expanded at a 2.4 percent rate during the two and one-half year period from mid-1986 to early 1989, the unemployment rate declined about 2 full percentage points; by comparison, employment expanded at a 4 percent rate during the one and one-half year period from early 1983 to the fall of 1984, and the unemployment rate declined by more than 3 percentage points. Notwithstanding these slippages, it appears that, roughly speaking, the more rapid the growth in employment the lower the portion of unemployed in the work force.

There is essentially no evidence of recent improvement in labor markets. Based on data stemming from monthly surveys of households, there were month-to-month increases in employment in April,

Employment Growth and Unemployment

	Employment Growth (at annual rates)	Unemployment Rate Changes (in percentage points)
Early 1983 to Mid-1984	+4.0%	-3.0
Mid-1984 to Mid-1986	+2.2%	-0-
Mid-1986 to Early 1989	+2.4%	-2.0
Late 1988 to Mid-1990	+1.1%	-0-
Mid-1990 to Mid-1991	-1.1%	+1.7

then again in June. However, the employment data stemming from the monthly survey of employers, a job count, indicate that employment continued to shrink during the same period. Clearly, it is premature to conclude that a set of expansive forces is dominant in labor markets.

Inflation Has Moderated

There is some evidence that the rate of inflation slowed late last year. For the period 1985 to early 1991, Chart 2 presents monthly data consisting of year-over-year percent changes in consumer and producer prices. Considering the period as a whole, it appears that inflation rates have moved higher. Rates of inflation remained below 4 percent during most of the period from 1985 through mid-1988. But inflation began moving higher in mid-1988, moving above 6 percent in late 1990.

Inflationary forces have eased since late last year. The rate of inflation in producer prices (of finished goods) turned negative in December and has since remained moderate (Chart 2). Rates of inflation in consumer prices have slowed since October, showing declines in year-over-year increases (Chart 2). To the extent that current movements in producer prices have a bearing on subsequent movements at the consumer level, there is reason to anticipate that inflation rates in consumer prices are likely to decline further.
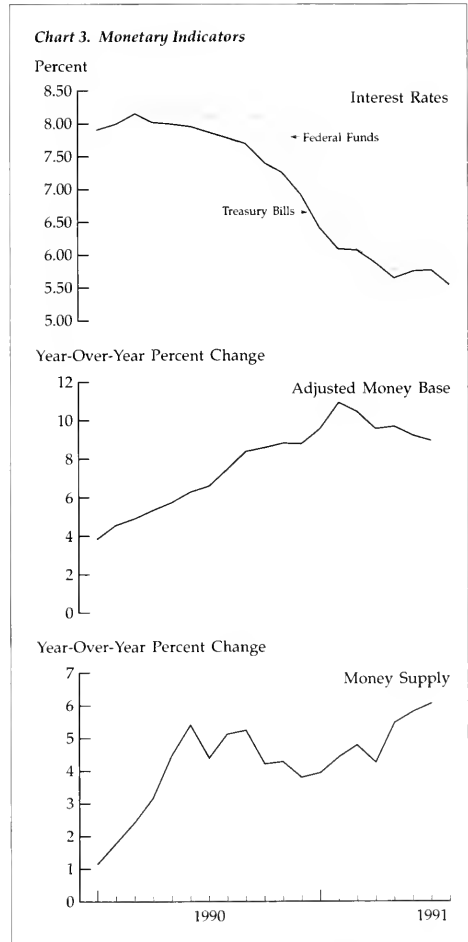
Interest Rates Have Declined

Reflecting a weakening in credit demands, both short- and long-term interest rates have fallen sharply since last autumn, continuing an irregular downward movement begun in the spring of 1989. The yield on three-month Treasury bills, has declined nearly 250 basis points (2.5 percentage points) since early October 1990 (upper tier of Chart 3); during the same period,
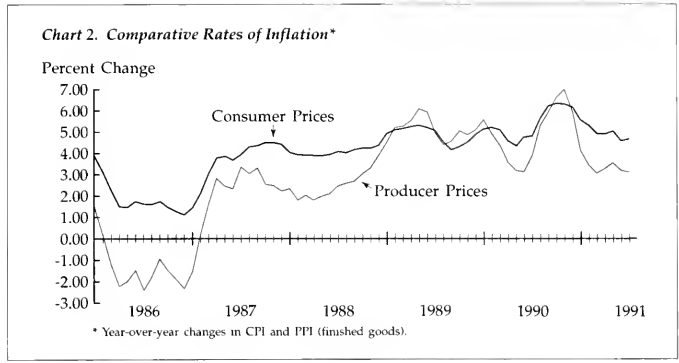
the federal funds rate, the rate charged for very short-term (typically overnight) borrowing and lending among and between financial institutions, has declined nearly 300 basis points (upper tier of Chart 3). There have also been sharp declines in rates on certificates of deposit (liabilities of financial institutions) and closely aligned yields on commercial paper (liabilities of financial and nonfinancial corporations). But declines in CD rates and commercial paper yields did not begin until early January.

For many months prior to October 1990, the constellation of short-term interest rates was well above the discount rate, the interest rate charged by the Federal Reserve for member bank borrowing. However, since October

Chart 2. *Comparative Rates of Inflation**

Percent Change

* Year-over-year changes in CPI and PPI (finished goods).

Chart 3. *Monetary Indicators*

most short-term market interest rates and the discount rate have been rather closely aligned (upper tier of Chart 3). For the most part, the alignment of the discount rate with short-term interest rates reflects the willingness of the Federal Reserve System to change the discount rate *following* prior changes in market interest rates. The Federal Reserve's mid-September change in the discount rate to 5 percent may represent something more than a passive response to prior market developments. Although some market interest rates had moved below the discount rate, it is fairly clear that the general level of short-term rates had not yet moved to the 5 percent level. At this writing, it is not yet clear whether the Federal Reserve move triggered a further and widespread rate decline.

Long-term interest rates have also declined since last fall. Yields on US Treasury, corporate, and municipal bonds, along with mortgage interest rates, have drifted irregularly downward since early October. Since the end of 1990 there have been four reductions in the prime rate, the rate of interest charged by financial institutions to their most credit-worthy customers. The most recent decline, to 8 percent, was coupled with the Federal Reserve's reduction in the discount rate. Even so, the decline in long-term interest rates has not been as pronounced as in the short-term area. As a result, the yield curve—the relationship between time to maturity and yield—has begun to slope upward. There is a view that the upward slope of the yield curve provides evidence about current expectations regarding future movements in interest rates. If this is so, it would suggest that investors currently believe that interest rates are likely to rise.

Monetary Growth Remains Stable

As suggested earlier, the decline in interest rates has reflected weakening credit demands, not an easing in monetary policy. There has been a great deal of attention to successive downward adjustments in the discount rate. Some have viewed these discount-rate reductions, along with corroborative statements of Federal Reserve officials, as indication that the monetary authority has been promoting monetary ease. While it is likely that the Federal Reserve would be pleased if economic activity expands and while it is likely that they are pleased that interest rates are declining, as it turns out the decline in interest rates is not associated with an acceleration in growth rates in monetary aggregates (see middle and lower tiers of Chart 3). But such a state of affairs is not unusual.

Two important monetary aggregates are the adjusted monetary base and the money supply, narrowly defined. One of these aggregates, the adjusted monetary base, has moved in a manner that is precisely inconsistent with monetary ease. The other aggregates, the money supply, has moved in a manner consistent with a Federal Reserve shift toward monetary ease. There was a rapid run-up in the monetary base from November of last year to March, an annual rate of growth of more than 13 percent. However, since that surge, the rate of growth in the base has fallen to just under 4 percent. Changes in the monetary base can be closely controlled by the Federal Reserve. The money supply, total checkable deposits plus currency held by the nonbank public, has moved quite differently from the monetary base. It was virtually unchanged during the fall and

early winter and has since expanded rapidly. Since January, the money supply has grown at just under a 9 percent annual rate. Changes in the money supply can be induced by shifts in the monetary base, but can also be affected by public preferences to hold financial assets included in the definition of money. In any event, whatever the source of change in the monetary aggregates, their movements are not closely correlated with movements in short-term interest rates.

Fiscal Posture Remains Unchanged

Autonomous changes in the federal budget position have moved in a downward trend for the past several years, but they remain positive. A change in the budget position is regarded as autonomous if it emerges as a result of changes in federal spending or shifts in tax laws. If the movement in the budget position results from changes in the economy—that is, from an expansion or contraction in income and spending—it is viewed as *induced*. It is plausible to view fiscal policy developments in terms of autonomous changes in the federal budget position. These are depicted in Chart 4. Positive percent changes, which emerge as a result of tax rate reductions or federal expenditure increases, may be regarded as reflecting fiscal expansion. The actual data, shown using the thin solid line, are quite volatile; hence, to assist in identifying trends a four-period moving average is shown using a thickened solid line.

There is no evidence of a meaningful change in fiscal policy actions. Autonomous budget shifts have grown persistently smaller since 1980, but the shift has not been dramatic.

Concluding Remarks

It is possible to read the foregoing paragraphs without coming to a clear impression of exactly what I am saying about the economy. Let me overcome that problem forthwith: I am saying that the economy has been in recession and continues to be weak. I do not have a clear opinion about whether the continuing economic weakness will be reflected in further quarterly declines in real GNP. Nor, by the way, do I believe that such declines are particularly meaningful watersheds in forming judgments about the strength or weakness of the economy. The chief points to understand are that the economy is weak and that it has not yet begun to show convincing evidence of recovery.

There are those who would be comforted by the belief that the economic leadership of the nation has taken meaningful steps to ameliorate the economic situation, lessening the downturn and providing a basis for recovery and expansion. Alas, such comfort is out of reach, and confidence is, thus far at least, misplaced. There is no evidence that either monetary or fiscal actions have turned expansive, notwithstanding the substantial and continuing declines in interest rates and the large and persistent federal budget deficit.

Chart 4. Autonomous Changes in the Federal Budget Position

Mary A. Laschober
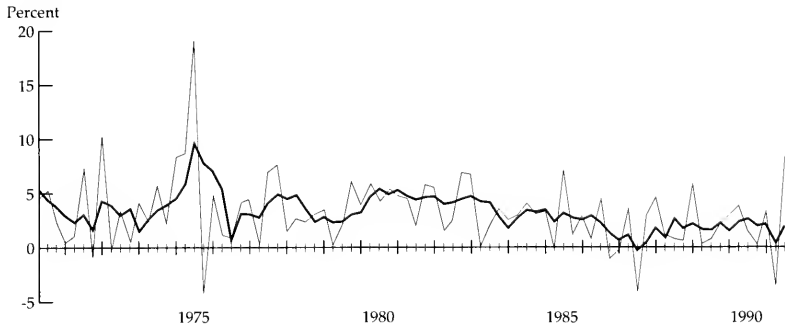
The Link between Current Tax Receipts and the Illinois Budget Crisis

T he current fiscal crisis in the Illinois state budget is a product of both spending decisions and adverse shifts in revenue. In order to understand how Illinois came to have the current crisis, it is useful to review developments relating to the budget over the past five years or more. In a forthcoming article in the *Illinois Economic Outlook* , J. Fred Giertz will discuss developments over the five-year period.[1] In this article I shall concentrate on a review of the sources of weakness in the general funds over the past fiscal year (FY91).[2] General fund receipts are the discretionary revenue source for most of the state's operations. Such funds are not targeted for specific state programs or projects. The bulk of general fund revenue comes from three tax sources—the corporate income tax, the personal income tax, and the retail sales tax. Receipts from the liquor gallonage tax, the tobacco tax, the public utilities tax, and net lottery funds are also included in general funds as are other miscellaneous state and federal revenue sources.

As the table indicates, of the three major general fund taxes, net corporate

income tax receipts registered the worst performance during FY91, falling by $27 million or 4.8 percent (see column 4). The decline of net receipts was a product both of a change in the amount of gross receipts diverted to other state funds and falling corporate profits, the corporate income tax base. While 20.1 percent of gross receipts was diverted to the income tax refund fund in FY90, a greater share (24.3 percent) was deposited into the fund in FY91. Consequently, even if the base had remained constant, net corporate income tax proceeds would have declined in fiscal 1991. Column 5 of the table, which adjusts FY90 revenue by the FY91 diversion percentage, shows that the corporate income tax base rose, providing a half-percent growth in adjusted net corporate income tax revenue. Even so, this amount represents a decrease in real revenue for the state, since the rate of

inflation over the period was approximately 5.5 percent. Adjusted corporate income tax receipts were quite strong in the first two quarters of FY91 (see the chart). However, FY91 second-half receipts were substantially affected by the decline in corporate profits as a result of the 1990–1991 recession. Compared to four-quarter growth rates of 26.7 and 3.7 percent, respectively, in the first two quarters of FY91, receipts fell by 10.9 and 7 percent in the final two quarters of the fiscal year. The trend reflected declining rates of growth in national corporate profits, from an average increase of 13.5 percent in the last two quarters of 1990, to an average four-quarter negative growth of 3.5 percent in the first half of calendar year 1991.[3]

In contrast, FY91 net personal income tax receipts outpaced the inflation rate. Unadjusted annual receipts increased by $296 million

General Fund Receipts (in billions of dollars)

	FY90 Receipts	FY90 Adjusted Receipts	FY91 Receipts	FY91 Change Over FY90 Receipts	FY91 Change Over FY90 Adjusted Receipts
Net Corporate Income	$568	$538	$541	-4.8%	0.5%
Net Personal Income	3,982	4,033	4,278	7.4%	6.1%
Net Retail Sales	3,828	*	3,864	*	0.9%
Public Utilities	685	*	690	*	0.7%
Liquor Gallonage	66	*	63	*	-4.5%
Cigarette (Tobacco)	317	*	315	*	-0.6%
Corporate Franchise	86	*	84	*	-2.3%
Insurance	164	*	169	*	3.0%
Inheritance	108	*	115	*	6.5%
Investment Income	161	*	128	*	-20.5%
Other Taxes	181	*	188	*	3.9%
Total	10,146	10,167	10,435	2.8%	2.6%
Lottery Transfers	595	*	580	*	-2.5%

*These receipts do not require adjustments; therefore, the figures do not change.

Source: General Funds Monthly Report, Illinois Comptroller; BEBR calculations.
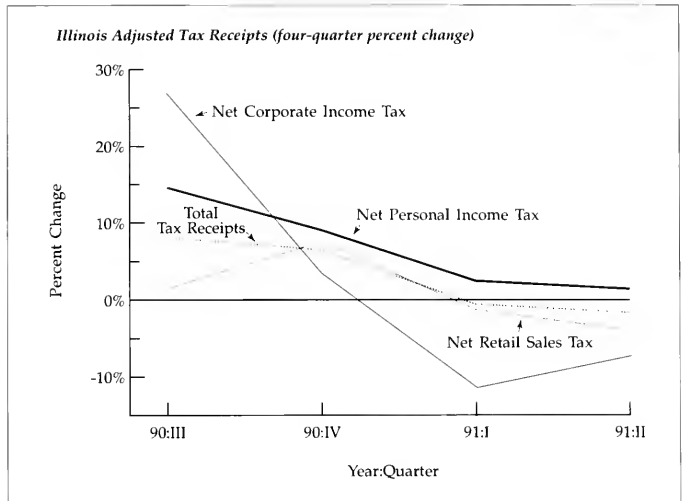
or 7.4 percent over the previous fiscal year. When net personal income tax revenue is adjusted for the fall in income tax refund fund diversions from 6.4 percent of gross receipts in FY90 to 5.2 percent in FY91, receipts still increased by $245 million or 6.1 percent (see the table). This implies that the inflation-adjusted personal income tax base, personal income, grew by approximately 0.6 percent during fiscal 1991. Personal income is not so volatile as corporate profits; therefore, it is not surprising that personal income taxes are more recession-proof than corporate income tax receipts. In spite of the national recession that began in mid-1990, Illinois personal income grew at an annual seasonally adjusted rate of 5.6 percent during FY91. Illinois total nonfarm employment (seasonally adjusted) fell during the first two quarters of 1991, but the Illinois unemployment rate was generally below the national rate over most of the past fiscal year. Even so, the chart shows that the growth of Illinois net personal income tax receipts slowed during the latter part of the past fiscal year (FY91).

In fiscal 1991, net sales tax receipts totalled $3.864 billion, only $36 million or 0.9 percent greater than comparable receipts in fiscal 1990. Sales taxes followed the same general trend as the personal and corporate income taxes, with a marked slowdown in receipts during the second half of FY91. In fact, the four-quarter decline in receipts were 1.1 percent and 3.9 percent, respectively (see the chart). The trend in sales tax receipts mirrored the decline in retail sales, which fell by 16.8 percent in the first quarter of 1991 over the previous quarter.[4] To the extent that consumers are inclined to postpone discretionary purchases when their near-term expected income falls, retail sales are adversely affected by a recession. Consequently, sales tax receipts tend to decline more than

personal income tax receipts under recessionary pressures.

Total general fund unadjusted tax revenues grew by only 2.8 percent in FY91, and adjusted revenues by only 2.6 percent over the previous fiscal year (see the table). Fiscal 1991 general fund tax receipts were not able to finance completely the inflation-driven cost increases in state spending. Neither could they support additional spending for growth in existing programs or new programs. However, the poor performance of tax revenues was not clear from the experience in the first half of FY91, as total adjusted receipts increased by an average of $163 million or 7.1 percent over the comparable FY90 period. Illinois appears to have felt the impact of the recession two quarters after the start of the national downturn in economic activity. There was a substantial shift in the pattern of adjusted total tax receipts in the second half of fiscal 1991. They fell by an average of approximately 1 percent (see the chart).

Looking back to the previous two fiscal years, total FY90 tax receipts were only 1.8 percent greater than FY89 receipts, after

adjusting for all tax rate and accounting changes. Without the tax rate increases implemented in FY90, the state's fiscal condition would be much worse than it currently is. Unless the Illinois economy rebounds over the next few fiscal years, the slow growth in the overall Illinois tax base will continue to exacerbate the state's budget crisis.

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[4]Second quarter figures for 1991 are not yet available.

Illinois Adjusted Tax Receipts (four-quarter percent change)

Robert P. Hartwig

Anatomy of the US Debt [1]

T he federal government of the United States issues more debt than any other public- or private-sector borrower in the world. As a result, the market for US government securities has evolved into a highly efficient mechanism for transferring hundreds of billions of dollars that flow annually from lenders worldwide to the US Treasury. Continued successful sale of US securities has meant the issue of debt with characteristics appealing to a broad class of investors. Near zero default risk, competitive yields, the variety of maturities, and a noninflationary environment all contribute to the attractiveness of US Treasury assets.

The need to finance deficits nearly every year since World War II has increased both the scale and scope of the market for Treasury securities. During the late 1950s and early 1960s net borrowing by the government seldom exceeded $10 billion. By 1970 annual financing needs doubled to $20 billion, quadrupled to $80 billion in 1980, and rose nearly five-fold to $385 billion by the end of fiscal year 1990 (see Chart 1). Smooth absorption by the public of such large quantities of debt has led to an expansion in the types and terms of government securities offered.

This article is an examination of the anatomy of the debt and deficits of the US government. I examine how the federal government's appetite for capital and the legislative actions (or inactions) of Congress have combined

to create the particular structure of the US national debt today. I show that the structure of the debt has often been shaped by the inability of Congress to enact timely debt reform rather than by a careless Treasury quest for untapped sources of funds. Reform by fire rather than foresight has occasionally contorted the anatomy of the debt and contributed to the costly and inefficient acquisition of funds.
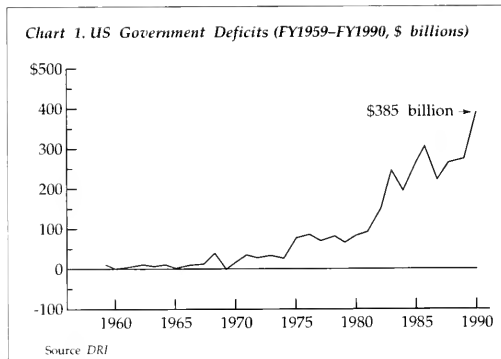
US Debt Maturity Structure

The maturity structure of debt may be viewed as a schedule that reflects the volume of debt to mature at each future point. The schedule changes continually as the debt flows toward maturity and as new debt issues are added to the nation's debt portfolio. Chart 2 illustrates the changes in maturity structure from 1945 to 1990. Its most notable feature is the rapid build up of debt since the late 1970s, but this is only one aspect of maturity structure. It is also important to note that the pattern of debt placement is not consistent through time. It appears that the Treasury does not or cannot maintain fixed

proportions of debt at each maturity. This is clearly evident in the years following World War II when long-term debt with original maturities of 20 or more years was allowed to advance toward maturity without replacement. Long-term issues reappeared in the early 1960s but again disappeared as preference was given to issues maturing in at most five years. By the early 1970s medium-term issues with maturities to 10 years were sold regularly, as were limited amounts of 20 to 30 year securities. The resurgence of long-term debt began in earnest in the late 1970s and continues today, accompanied by a flood of issues with maturities up to 10 years.

Chart 3 is a composite of the first and last "slices" of Chart 2, comparing the nominal stock of debt at year's end for 1945 and 1990. Again, the most striking feature of the chart is that the stock of debt in 1990 dwarfs even the war-swollen 1945 debt. Also clear is the fact that the distribution is skewed in favor of short maturities. While such an imbalance is also evident in 1945, it is much more pronounced in 1990.

Charts 2 and 3 clearly illustrate that the maturity structure of Treasury-issued debt has shifted through time. Presumably, the maturity structure does not emerge randomly. Rather, it is determined by a set of considerations. If so, it is plausible to suppose that the determinants

Chart 1. US Government Deficits (FY1959–FY1990, $ billions)

$500

400

300

200

100

0

-100

$385 billion

1960   1965   1970   1975   1980   1985   1990

Source DRI

Chart 2. Maturity Structure of Marketable Federal Debt ($ millions)
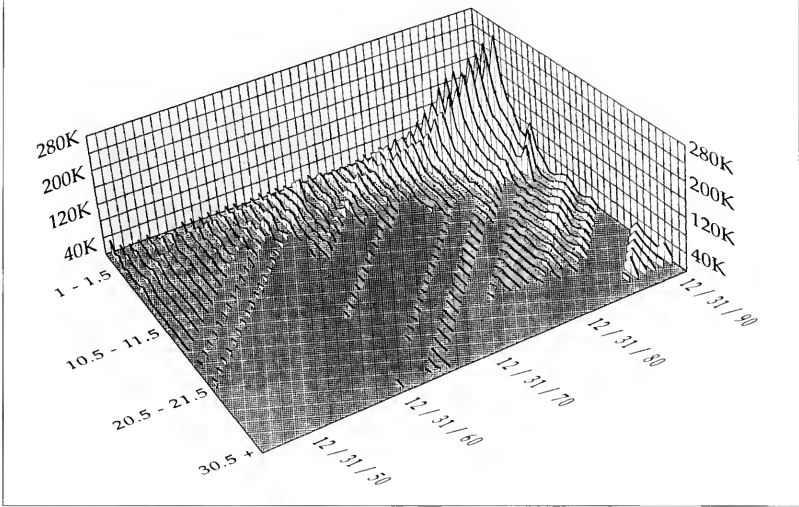
on interest rates, money supply, liquidity, credit availability, portfolio composition, and wealth. It may be that all are influenced directly by the financing decisions of the Treasury. The ready acceptance of US government obligations has made them the most widely held securities in the world. But it is the sheer magnitude of the outstanding debt coupled with an investor willingness to hold it that serve as the underpinnings for views relating to the ability of the Treasury to affect macroeconomic aggregates through the strategic management of the federal debt.

of the maturity structure have shifted over time. The exact nature of these determinants is not immediately obvious and is the subject of the next section.

Determinants of Treasury Debt Maturities

There are two primary sets of determinants of the maturity structure of federal debt: economic determinants and political determinants. Economic considerations include minimization of interest costs, minimization of disruptions to financial markets, and considerations relating to macroeconomic stabilization. Political considerations, however, supersede all economic objectives because of Congressional authority to impose constraints on the variety and volume of debt issued.

Economic Determinants

There is a widespread belief that the US Treasury, in discharging its duty to finance the federal deficit, exerts a tremendous impact on world capital markets. Presumably, Treasury operations have a bearing

There are three frequently cited objectives of federal debt management: interest-cost minimization, debt neutrality, and macroeconomic stabilization.

Chart 3. Maturity Structure of Marketable Federal Debt
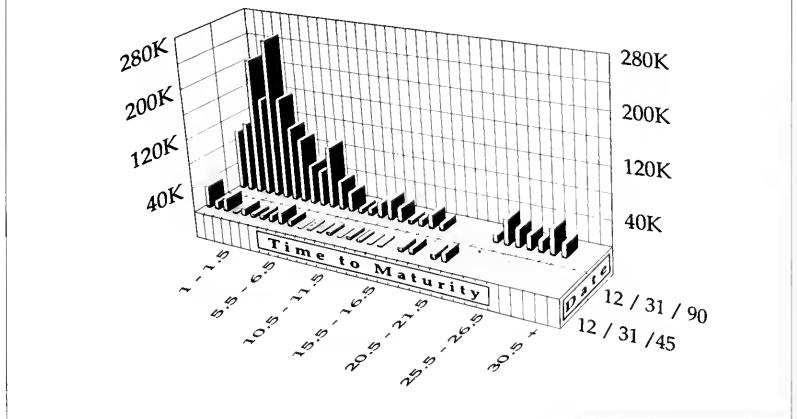
Interest-Cost Minimization

Minimization of interest costs implies that debt issues be adjusted to the shape of the Treasury yield curve. Because lower yields are generally associated with shorter maturities, costs are minimized, on average, with the issue of shorter-term securities. Consequently, it would be plausible to expect that the distribution of maturities be heavily biased toward short-term issues.

But a cost-minimization strategy does not always imply that the Treasury will issue short-term debt. During periods of economic weakness there is a tendency for long-term interest rates to fall relative to short-term rates. Indeed, during such periods it is not unusual for the yield curve to become inverted, with long-term rates actually lower than short-term rates. There is an incentive for the Treasury to issue long-term securities during such periods. In contrast, during periods of economic expansion there is a tendency for long-term rates to rise relative to short-term rates. Because short maturities are more liquid than long-term securities, a policy of interest cost minimization may be relatively stimulative over long periods of time when compared with a uniformly distributed maturity structure or one that favors long-term issues. However, the policy may tend to exacerbate cyclical movements in the economy. As suggested, the Treasury has an incentive to issue long-term debt during periods of economic weakness. Such actions may serve to moderate declines in long-term rates. In periods of economic strength, the Treasury has an incentive to issue short-term securities.

Such actions serve to expand the quantity of highly liquid assets, thereby stimulating economic activity. Table 1 shows that over two-thirds of all marketable public debt issued between 1946 and early 1991 (with original maturities of at least one year) were sold with maturities of three or fewer years. Structural shifts could be examined in terms of the foregoing set of conjectures.

Table 1. Distribution of Maturities other than Regular Weekly Issues (January 1, 1946 to April 3, 1991, $ billions)

Initial Maturity (in years)		Amount Outstanding	Percent of Total	Cumulative Percentage
Greater than	Equal to or Less than			
-	1	$1,760.0	25.3	37.9
1	2	1,753.2	24.1	62.0
2	3	502.9	6.9	68.9
3	4	461.6	6.3	75.2
4	5	152.5	2.1	77.3
5	6	349.9	4.8	82.1
6	7	363.0	5.0	87.1
7	8	42.4	0.6	87.7
8	9	11.4	0.2	87.9
9	10	432.5	5.9	93.8
11	12	8.6	0.1	93.9
13	15	23.6	0.3	94.2
16	17	2.2	0.0	94.3
18	20	67.1	0.9	95.2
20	21	2.6	0.0	95.2
21	22	2.4	0.0	95.3
23	25	87.5	1.2	96.5
26	27	6.8	0.1	96.6
28	30	216.5	3.0	99.5
30		13.4	0.2	99.7
Miscellaneous		20.7	0.3	100.0
Total		7,281.0	100.0	

Macroeconomic Stabilization

Debt management strategies designed to aid in counter-cyclical stabilization policies may frequently be a source of dilemma for Treasury and monetary policymakers for reasons suggested earlier. A counter-cyclical policy requires the issue of short-term securities during recessionary periods and long-term securities during periods of economic strength. Because the yield curve may be inverted during the former and positively sloped during the latter, stabilization policies may lead to the *maximization* of interest costs.

Hence, the Treasury is forced to weigh the benefits of economic stabilization against the cost of a higher interest burden on the national debt. Simultaneous achievement of interest-cost and macroeconomic stabilization are impossible given the normal shape of the yield curve.

It is possible to test for counter-cyclical debt management behavior by the Treasury. Average length of the debt (in months) was regressed on a dummy variable where 1 represents a recessionary period and 0, a non-recessionary period. The coefficient of the dummy variable would be expected to be negative under such a policy. The estimated coefficient is negative, showing a decline in the average length of the debt by approximately 1.5 months per recessionary quarter (defined as two or more consecutive quarters of real decline in GNP), but is statistically insignificant $(t = -0.4517)$.

Debt Neutrality

The neutrality approach to debt management stresses that the Treasury's debt-financing activities should be minimally disruptive to financial markets as well as to other branch-es of policy. Strict adherence to the principle of neutrality is likely to be characterized by continuous fine-tuning of the entire process of debt-management. For example, the maturity structure of the debt is likely to be kept balanced or smoothed to avoid the potentially disruptive effects of large refundings; borrowing should seek to minimize the "crowding-out" effect on the private sector; and the various characteristics of securities should be adjusted to the preferences of investors.

Chart 4. *Average Length of the Marketable Debt (privately held)*
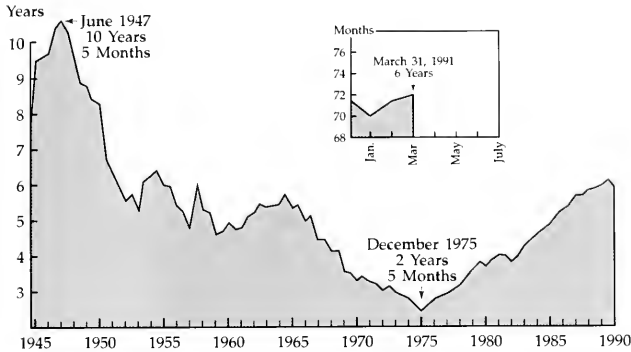
Source *Treasury Bulletin, June 1991*

Political Determinants

To conclude that the bias in favor of shorter maturities illustrated in Chart 2 is compelling evidence in support of Treasury efforts to minimize interest costs is premature. Close examination of the constraints imposed on the debt-issuing authority of the Treasury by Congress reveals that much of the short-term security bias can be explained by legislative inaction. The failure of Congress to adjust or remove interest rate ceilings on bond issues and statutory limits on maturity has occasionally resulted in some US securities becoming noncompetitive with similar debt instruments issued by the private sector. Shorter-maturity bills and notes were by default issued in quantities sufficient to satisfy the entire borrowing requirements of government, resulting in the

sharply skewed distribution of maturities shown in Chart 2 and Chart 3. As a result, the average length of US debt generally declined between 1947 and 1975, when effective reform was finally enacted (see Chart 4). The effect of politics on the maturity structure of the US debt is discussed in detail in the appendix "Historical and Legislatively Imposed Determinants of the Maturity Structure of Public Debt" (see p. 14) and are summarized in Table 2.[2]

Summary

The maturity structure of the US government debt today is the product of 75 years of legislative reform instigated by economic necessity. Seldom has Congress taken preemptive action to ensure the efficient financing of the deficits it creates. Unfortunately, this has led to a maturity structure characterized by frequent and large refundings of short-term debt. Only since 1988 has the US Treasury been able to balance the maturity structure through the issuance of long-term bonds, unhindered by anachronistic legislation.

Not all new debt issues are placed at long or intermediate maturities, providing at least anecdotal evidence that the Treasury does try to lessen, to some extent, the interest burden of the debt. There is little evidence to suggest that strategic management of the debt is actively employed as an economic policy instrument, but its broad influence on financial markets, investor portfolios, and macroeconomic aggregates suggests the existence of such a role.

[2] For a detailed discussion of the contents of Table 2 and the appendix (p. 14) see the *Handbook of Securities of the United States Government and Federal Agencies and Related Money Market Instruments*, 34th edition, Zwen A. Goy, ed., New York: First Boston Corporation, 1990. Additional reference material is found in the *Treasury Bulletin* (various issues).

Table 2. *The History of Treasury Debt*

1917	Passage by Congress of the Second Liberty Bond Act on September 24 grants regular debt-issuing authority to the Treasury subject to statutory limitations.
1942	Passage by Congress of the Public Debt Act of 1942 authorizes the Treasury to market securities at its own discretion subject to a 4¼ percent coupon ceiling on bonds (then defined as debt instruments with maturities in excess of five years).
1956	Market rates begin to rise above the 4¼ percent mark, making Treasury bonds noncompetitive and restricting the Treasury to the issue of notes (then subject to a maximum statutory maturity of five years).
1959	Congress authorizes a series of advance refundings with soon-to-mature debt exchanged for long-term securities. By 1965 long-term rates rise far above the 4¼ percent limit, making additional refundings impossible.
1967	Maximum maturity of notes increased from five years to seven years.
1971	Limited exemptions to the 4¼ percent limit on bonds granted.
1976	Maximum maturity of notes extended to ten years.
1988	Repeal of the 4¼ percent limit on November 10.

Historical and Legislatively Imposed Determinants of the Maturity Structure of Public Debt

The United States has a history of deficit-financed government expenditure as old as the nation itself. The American revolutionary government borrowed from the general public to finance its war effort against the British. War remained the chief reason for government borrowing through the conclusion of World War II in 1945. No regular debt-issuing authority was vested in any specific government agency until passage by Congress of the Second Liberty Bond Act of September 24, 1917 (again under the financial strains of war). The passage of this act and subsequent amendments gave the US Treasury authority to issue securities whose total face value is not to exceed an amount set by Congress. Military expenditures for World War II brought deficits that were unprecedented in terms of their nominal size and as a percentage of GNP. Absorption of such massive quantities of debt required increased Treasury discretion in the sale of government securities. This much needed discretion came in the form of the Public Debt Act of 1942. The provisions of this act gave the Treasury the authority to sell government obligations competitively or at prices fixed by the Secretary of the Treasury and issued on a discount or interest-coupon basis. Moreover, it imposed no statutory limits on the interest rates that may be paid on bills, certificates, or notes. Treasury bonds (then subject to a statutory maximum maturity of just five years), however, were subject to a 4¼ percent limit on their coupons. The limit became a binding constraint in the late 1950s when market yields moved above the 4¼ percent mark. Although the limit was an impediment to government financing and introduced distortions into world capital markets, Congress was slow to react, and consistently refused to repeal the ceiling for another 30 years.

Congressional refusal to lift the 4¼ percent ceiling created severe distortions in the market for Treasury securities because virtually all government debt had to be issued with maturities of less than five years. Concentration of government debt in short-term issues became a matter of increasing concern, and Congress finally agreed to a series of advance refundings beginning in 1960 that allowed investors to exchange their unmatured issues for longer-term issues with higher yields, thereby lengthening the maturity structure of the government debt. By 1965, however, market rates had risen far above the 4¼ percent ceiling making any such advance refundings impossible.

In 1967 Congress authorized lengthening the maximum maturity of notes from five to seven years. Because notes were not subject to the 4¼ percent limitation, the Treasury was free to sell them at market rates. Again, the net effect was to lengthen the average maturity of Treasury debt. In March 1976 the maximum maturity on new notes was raised again, this time to ten years and with much the same effect (see Chart 4). Limited exemptions from the 4¼ percent rule were granted beginning in 1971. While initially small—$10 billion—the exemptions soon ballooned to $270 billion, making the rate limitation essentially irrelevant. The 4¼ percent limitation was officially repealed by Congress on November 10, 1988.

It is clear from this discussion that the maturity distribution of marketable US government debt is determined through a combination of market conditions and deliberate actions of the Treasury, but is ultimately a function of legislatively imposed constraints on the debt-issuing authority of the Treasury. The effects of legislation designed to lengthen the maturity structure of debt are clearly evident in Chart 4. The average time to maturity of marketable debt rose from 1960 through 1965 in response to the Treasury's early refunding offer. Since exemptions from the 4¼ percent ceiling were first granted in 1976, the average length of marketable debt has increased steadily from its all time low of 29 months in December 1975 to its latest position at 72 months (as of March 1991).

Consideration of legislatively imposed restrictions on the sale of Treasury securities casts substantial doubt on the earlier observation that the data presented in Charts 2 and 3 and Table 1 are consistent with the goal of interest cost minimization. In reality, it is the arbitrary distinction between bond and note, combined with interest ceilings, that have the most significant influence on average maturity.

Larry E. Hochstetler

Workers' Compensation Rates in Illinois: A Comment

J ohn Hamilton's discussion published in the *Illinois Business Review* (Spring 1991, Volume 48, No. 1) of state workers' compensation rates and the role of the National Council on Compensation Insurance (NCCI) in determining them, raises a number of issues, some of them substantive, some bogus, and some deserving comment.

The article is rife with undocumented suppositions. "On average," we are told, "self-insurance probably costs between 20 and 40 percent less than the NCCI manual rates, although the deviation is great." It appears that this figure is simply a guess, unsupported by any data whatsoever.

Information about self-insurance and its costs is rather scarce. Presumably, it affords some savings to larger employers, but comparisons are complicated. Since the firm is its own customer, there is no need to support agents to find the business. However, claims-handling requires time and paperwork, and the employee time and costs allotted to that function may not necessarily be counted in the insurance function.

For example, claims-handling may simply be run through an employer's human resources department, with the costs involved coming under another budget. Appeals may be handled by legal staffers or outside counsel, again with costs coming under another budget.

At the same time, self-insured employer costs involve a different moral hazard. Employers making the payments from their own resources have a direct incentive to enforce safety measures. However, employers with standard coverage can simply pass along the costs of

their losses to insurers. Thus, their incentive to control their costs through safety measures is often thought to be somewhat less, but that assumption ignores the effect of the Experience Rating Plan.

Therefore, self-insured employers are more likely to assume all the burdens implied by their workers' compensation costs and devote more energy to maintaining safer workplaces. This is obviously a desirable outcome, but not without costs of its own. The mere likelihood of lower overall losses will not necessarily translate into lower overall costs. Even when it does, the superior moral hazard implicit in self-insurers is its own reward and cannot be assumed to apply to the general run of employers.

We can turn now to the question of "buggy whip manufacturing" or "ice harvesting." It is true that the NCCI Basic Manual of classifications includes "Ice Harvesting." As Hamilton suggests, the origin of this industry lay in the cutting of ice from lakes and ponds.

A good discussion of the industry can be found in *The Americans: The National Experience* by Daniel Boorstin, who points out that ice was an early product of New England, cut from the local lakes, stored in insulated boxes, and shipped all over the world to refresh the drinks of the affluent and succor the feverish. Henry David Thoreau watched ice being harvested and marvelled at the prospect that the waters of his Walden Pond might one day mingle with those of the Ganges.

However, NCCI has long acknowledged that "Ice Harvesting" is a minor industry in contemporary America, if it exists at all.

(Given the enthusiasm for organic foods and bottled spring waters, however, it would not be surprising to see "air-speeded ice, cut from the 10,000 lakes of Minnesota" chilling the Perrier in Rodeo Drive cafes, if it does not already.) The category persists only as a cross-reference to classification code 8203—"Ice Manufacturing and Storage," which produced about $10 million of payroll in Illinois, according to the 1990 advisory filing.

The other apparently nonsensical or out of date classifications that Hamilton mentions are also cross-references to more contemporary business operations. More than a decade ago the Basic Manual was reviewed with an eye to getting rid of the archaisms altogether, but the consensus favored continuing them as cross-references to more substantial classifications.

Other anomalies he reports are more apparent than real. The rate levels for classifications are based on their own experience, and even if "common sense" indicates that one sort of business is less hazardous than another, the record often proves the opposite to be true. Noncontact sports *can* produce more injuries than contact sports, or at least more claims-producing injuries, as the data cited by Hamilton suggests.

This is not as converse as it may seem. A surprising number of children are killed playing Little League baseball each year, even though baseball is a noncontact sport. Ball players do not routinely collide with each other, but they hit and throw baseballs hard and errantly. Injuries—including serious ones—occur. Also, and perhaps surprisingly to anyone who has

watched the NBA playoffs or the Final Four, basketball is considered to be a noncontact sport, and it is played on a hardwood floor, as opposed to grass or Astroturf.

Hamilton's assumption that there is something wrong with our data because contact sports sometimes carry lower rates than noncontact sports, is only that—an assumption, and an intuitive one to boot. Our rates are based on facts, not suppositions or guesses—educated or otherwise, and when the record indicates that noncontact sports are the more hazardous, the rates will reflect it.

As Casey Stengel liked to say, "You could look it up." Our rate level filings are public documents filed with insurance departments in every jurisdiction, and they are open to inspection by anyone who cares to do so.

Moreover, if the point is to demonstrate how workers' compensation rates hurt business in a state, this is a particularly ill-selected example. Professional sport franchises have been moved repeatedly in the last four decades, with some teams moving several times. I cannot recall a single instance in which high workers' compensation costs were listed as the cause, or even mentioned. If high workers' compensation costs were actually the problem, the Dodgers would still be in Brooklyn, because New York rates are lower than California rates. North Carolina and Indiana would be jammed with professional teams because of their relatively low rate levels.

Turning to more substantive matters, in Hamilton's Table 1, depicting average workers' compensation rates by category, NCCI is listed as the source of these data. However, we did not publish this table, and we do not publish average rates in this comparative manner, or in any manner. Nor do we categorize rates the way Hamilton does in his graph.

This is not to say the data are wrong. They may be perfectly accurate, but in the absence of effective dates and any criteria upon which each of the more than 600 classification codes was placed in one of his five categories, it is impossible to say whether these data are an accurate representation of reality.

He uses an arithmetic average, apparently, when a weighted average would be more appropriate, given the variable incidence of industries throughout the country. Each state has its own economy, and comparing manufacturing rates in a state with little or no manufacturing (like South Dakota) to a state with a great deal of heavy industry (like Illinois or California) can be misleading. Moreover, the wage levels upon which indemnity benefits are based can vary considerably from state to state.

His analysis also ignores the fact that the workers' compensation benefits themselves can vary considerably from state to state. One measure of comparison is the maximum weekly payment for a permanent total disability. In Illinois that amount is $646. The comparable figure for Indiana is $294. If the incidence of permanent total disabilities in each state were identical, which, of course, it is not, it would obviously take more premium to pay Illinois benefits than Indiana benefits. The maximum benefits for the other states Hamilton mentions are: Iowa, $647; Kentucky, $353; Michigan, $430; Missouri, $397; and Wisconsin, $388. It should be noted that comparison of total disability is a rough way of comparing state benefit levels, but no more so than Hamilton's comparison of rates with no sense of what those rates purchase.

Some of the state-by-state comparisons border on the nonsensical. It would seem to go without saying that if you want to put up a building in Chicago, and you hire Illinois

workers to do the construction of that building, you must pay Illinois rates for workers compensation.

If it does not matter where you put the building, then workers' compensation rates might influence your decision, but they will hardly be the sole determinant. The Sears Tower could have been erected in Rapid City, but there is not much point in putting a huge office tower into a rural area lacking the population to support it.

Indiana has long had comparatively low workers' compensation rates, but there has been no noticeable stampede of employers from nearby states into Indiana. Indeed, if the "low workers' compensation rates attract business" thesis made any sense at all, we would be seeing people and industry pouring into Indiana and out of states like Florida and California, where rates are much higher. Of course, we see nothing of the kind. Indiana's population has been stable since World War II, while California and Florida have undergone explosive growth.

Texas workers' compensation rates have been increasing sharply since 1987, just as the Texas economy began to recover from the recession brought on by the collapse of oil prices in the early 1980s. By midsummer 1991, the state's workers' compensation system was on the verge of collapse, following one large rate level increase after another. Yet, the state's economy was weathering the national recession better than most.

If we seek an explanation for the phenomenon, we must look somewhere rather than to workers' compensation rates. The large question of wealth of states and the eagerness of businesses to invest in them, depends on many considerations— workers' compensation prices are a relatively minor one.

In his conclusion, Hamilton suggests that a state fund might influence costs, but here the history is

mixed. California has a competitive state fund and high costs. Ohio and West Virginia have monopolistic state funds but have not prospered to the same degree as Washington, which also has a monopolistic fund. This probably has more to do with the fact that the aircraft industry is doing a lot better these days than steel, autos, and coal rather than with the mechanism for providing workers' compensation insurance.

It goes without saying that the costs of workers' compensation are a consideration in deciding where to locate a business, or whether to remain or move elsewhere. The point is that they are seldom the decisive factor, and in many instances are even irrelevant. The Illinois economy rests on a mature industrial and commercial footing, and its workers' compensation costs as measured in the rate levels, reflect that fact—as well as the decision of the legislature to set benefits at their current levels.

A Reply from John Hamilton

Workers' compensation is important because of the large number of dollars involved and the service that is performed. In the manufacturing sector alone workers' compensation insurance costs are approximately $25 billion per year. That is about one-fourth of the profits reported by US manufacturing firms in the average year. But the effects of workers' compensation costs on the economy go far beyond the dollars paid to insurance companies and include considerations of equal treatment, barrier-to-entry, location, and free markets.

Large firms, through self-insurance, can dramatically reduce their workers' compensation costs; small firms usually cannot self-insure. I have examined the self-insurance records of approximately 50 large companies. Well-run, financially stable companies had workers' compensation direct costs 80 to 50 percent lower than costs based on manual rates. Less stable companies paid about twice as much in claims as their insurance costs would have been. Most companies that self-insure are the well-run, stable variety, and thus my estimate that self-insurance probably costs, on average, between 20 and 40 percent less than NCCI manual rates appears valid.

One reason it is important to note that in a pair of rates, one may be higher in one state and the other rate higher in the second state is what that implies about the NCCI rate-making process. It implies that not only do benefit and pay-level differences cause rate differentials between states, but also that the claims experience of existing employers results in rate differentials between states. Thus, unsafe, claim-prone firms operating in a state cause higher rates in that particular state for that particular industry.

These higher rates may, in turn, operate as barriers to entry to new, potentially safer firms.

It is clear that a cost equal to one-fourth of profits affects location decisions. One national study of the business climate in each state ranks the states on the basis of benefit costs per workers' compensation case. This is, of course, a disadvantage for Illinois because of relatively high wages (on which benefits are based) in Illinois. A more evenhanded comparison of workers' compensation insurance costs is not available; in particular, it is not available from the NCCI. The NCCI formerly published an average workers' compensation rate for each of the states for which it set rates. The last comparison was published in 1986. The 1986 comparison used rates from four different years for various states and different payroll periods for various states. Nevertheless, it was better than no information, and many used it to compare states. NCCI's response to the dissatisfaction of users of that comparison was to discontinue it rather than to improve it.

The federal and state governments require companies to provide workers' compensation insurance. Government allows the insurance companies, operating through the NCCI, to act in concert to set rates. The difference in costs between self-insurance and coverage provided by insurance companies suggests the possibility of a high level of profits for insurance companies. It is the responsibility of government, having required the insurance, to ensure that the insurance industry does not profit to such an extent that all other industries are harmed.

Illinois Business Statistics

C hanges in the level of borrowing by businesses and home buyers provide evidence of the strength of demand for credit in the US economy. There is a view that recovery from the recession that began in July 1990 has been slowed by the reluctance of businesses and home buyers to acquire new debt. There is also a view that the supply of credit has been curtailed by a tightening in lending standards. In any event, in view of declines in other market interest rates, the Federal Reserve has lowered the discount rate (the rate the Fed charges commercial banks for short-term loans) four times since late 1990.

Chart 1 shows a sharp drop in the prime lending rate (the short-term rate banks charge their best business customers) during the first half of 1991 as well as a gradual decline in the rate charged on conventional mortgages. Chart 2 shows corresponding stronger-than-seasonal increases in the value of residential and industrial construction in Illinois, typically funded through borrowing.

Chart 1. Value of Residential and Industrial Construction in Illinois
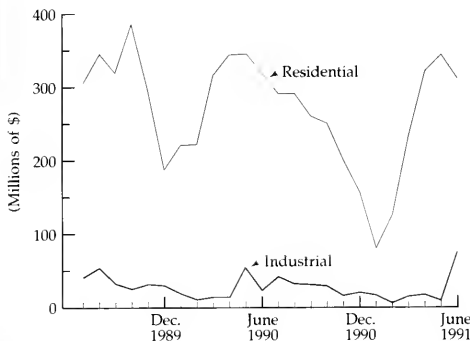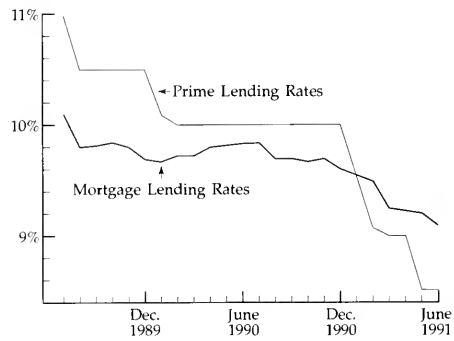

Chart 2. Home Mortgage and Prime Lending Rates (US Averages)

Historical Statistics

	One Year % Change	July 1991	June 1991	May 1991	April 1991	March 1991	Feb. 1991	Jan. 1990
Building permits (thousands)								
Residential housing units	4.26%	3.302	3.319	3.356	2.625	2.394	1.158	3.167
Value of residential units	6.64%	$318,740	$311,070	$341,220	$290,207	$237,078	$125,916	$298,885
Value of nonresidential housing								
Industrial buildings	-61.88%	15,682	74,111	11,097	17,353	15,666	4,446	41,137
Office, banks, and professional buildings	79.99%	41,553	47,226	29,039	37,021	15,139	31,597	23,086
Stores and other mercantile buildings	16.35%	45,915	43,807	41,626	39,039	29,030	22,445	39,463
Other	23.54%	5,772	6,957	6,086	6,468	7,282	2,673	4,672
Consumer price index (1982-1984=100)								
United States	4.45%	136.2	136.0	135.6	135.2	135.0	134.8	130.4
North Central US	4.33%	132.4	132.6	132.3	131.5	131.3	130.8	126.9
North Central/pop. more than 1,200,000	4.12%	133.9	134.2	133.8	132.6	132.7	132.0	128.6
North Central/pop. 360,000 to 1,200,000	4.21%	131.1	131.5	130.9	130.4	130.3	130.1	125.8
North Central/pop. 50,000 to 360,000	5.31%	132.9	132.5	132.8	132.5	131.5	131.3	126.2
North Central/pop. less than 50,000	3.83%	127.3	127.9	127.8	127.0	126.2	125.6	122.6
Chicago	4.02%	137.3	137.3	136.8	136.1	136.2	135.5	132.0
St. Louis	3.67%	132.7	NA	131.3	NA	130.7	NA	128.0

Forecast Statistics

Personal Income (millions of dollars, seasonally adjusted at annual rates)

	1990	1991:I	1991:II*	1991:III	1991:IV	1992:I	1992:II	1992:III	1992:IV	1993:I
Total personal income	$232,875	$239,937	$245,800	$249,506	$253,611	$257,740	$262,040	$266,257	$270,511	$274,812
Total nonfarm personal	169,583	174,889	178,043	180,484	183,637	186,569	189,736	192,678	195,892	198,895
Total private nonfarm	147,667	163,862	166,848	168,739	171,123	173,738	176,474	179,074	181,376	183,936
Mining	1,110	1,112	1,099	1,146	1,151	1,161	1,173	1,187	1,191	1,197
Construction	10,067	10,197	10,656	10,971	11,113	11,344	11,523	11,801	12,009	12,257
Manufacturing	34,416	34,576	34,675	34,558	34,778	35,021	35,288	35,459	35,588	35,730
Durable	20,954	20,897	21,051	20,920	21,088	21,274	21,481	21,602	21,699	21,795
Nondurable	13,462	13,679	13,624	13,638	13,691	13,747	13,807	13,856	13,890	13,935
Transp. & pub. utilities	12,505	12,822	13,010	13,143	13,369	13,559	13,763	13,935	14,141	14,341
Wholesale trade	13,592	13,992	14,379	14,625	14,878	15,142	15,389	15,637	15,879	16,140
Retail	14,603	14,840	15,254	15,452	15,790	15,993	16,318	16,548	16,832	16,999
Finance, ins. & real estate	14,922	15,514	15,489	15,690	15,915	16,164	16,392	16,621	16,850	17,104
Services	46,452	48,656	50,546	51,747	52,996	54,259	55,615	56,959	58,349	59,782
Government	21,184	22,423	22,935	23,151	23,646	23,926	24,275	24,531	25,052	25,344

Gross State Product (millions of dollars, seasonally adjusted at annual rates)

	1990	1991:I	1991:II*	1991:III	1991:IV	1992:I	1992:II	1992:III	1992:IV	1993:I
Total	$274,035	$279,536	$283,531	$286,834	$290,512	$294,041	$297,894	$301,545	$305,097	$308,565
Total private nonagricultural	244,613	250,216	253,883	256,917	260,296	263,541	267,083	270,440	273,709	276,900
Mining	2,112	1,972	2,027	2,083	2,082	2,107	2,139	2,183	2,211	2,245
Construction	11,188	11,552	11,766	11,966	12,142	12,294	12,506	12,706	12,877	13,038
Manufacturing	53,470	52,663	53,261	53,326	53,747	54,155	54,609	54,940	55,205	55,471
Durable	27,842	26,859	27,101	26,838	26,929	27,028	27,154	27,162	27,125	27,087
Nondurable	25,628	25,804	26,160	26,489	26,818	27,127	27,456	27,777	28,080	28,384
Transp. & pub. utilities	27,572	28,595	28,961	29,313	29,654	29,966	30,291	30,603	30,892	31,176
Wholesale trade	21,983	22,342	22,606	22,782	22,967	23,149	23,359	23,562	23,758	23,951
Retail trade	24,146	24,836	25,164	25,441	25,723	25,904	26,185	26,409	26,617	26,771
Finance, ins. & real estate	50,802	52,103	52,682	53,387	54,140	54,879	55,548	56,274	57,025	57,753
Services	53,340	56,153	57,416	58,618	59,841	61,087	62,445	63,764	65,124	66,495
Government	24,489	24,771	24,988	25,144	25,438	25,643	25,867	26,047	26,354	26,552
Agriculture	4,935	4,550	4,661	4,773	4,777	4,858	4,944	5,057	5,035	5,113

Illinois Employment Forecast (in thousands, seasonally adjusted)

	1990	1991:I	1991:II*	1991:III	1991:IV	1992:I	1992:II	1992:III	1992:IV	1993:I
Total nonfarm employment	5,263.9	5,274.7	5,272.0	5,250.5	5,257.9	5,271.0	5,261.5	5,267.0	5,273.9	5,299.9
Total private nonfarm emp.	4,501.7	4,512.2	4,511.5	4,491.9	4,500.5	4,517.6	4,510.3	4,511.2	4,520.7	4,551.8
Mining	19.8	19.8	19.6	19.6	19.5	20.0	19.5	19.3	19.4	19.8
Construction	218.4	219.3	214.7	210.5	207.3	206.6	201.4	198.5	196.7	198.7
Manufacturing	982.0	971.4	972.1	963.1	965.0	966.9	964.7	964.2	963.7	964.2
Durable	592.9	582.1	583.8	577.6	580.1	583.0	583.8	585.4	586.2	587.3
Primary metals	55.9	54.6	54.1	52.7	51.9	51.2	50.5	50.4	50.1	49.6
Fabricated metals	110.1	102.2	101.9	102.1	103.3	104.1	104.1	104.4	104.4	104.3
Nonelectrical machinery	149.9	151.2	150.4	147.1	147.4	148.1	148.7	149.6	149.2	148.6
Electrical machinery	117.5	113.0	113.8	116.2	118.7	121.5	123.9	126.2	128.0	130.4
Nondurable	389.2	389.3	388.3	385.6	384.9	383.9	380.9	378.8	377.5	376.9
Food & kindred products	91.9	93.5	92.8	91.4	91.2	90.6	89.4	87.7	86.9	86.5
Printing & publishing	112.2	111.2	111.2	109.8	108.3	107.0	105.7	105.0	104.3	103.7
Chemicals & allied prod.	60.5	63.5	63.4	63.3	63.7	63.6	63.4	63.4	63.4	63.1
Transportation & pub. utilities	307.8	308.6	308.2	306.5	305.9	306.5	306.3	306.2	305.5	306.0
Wholesale trade	357.8	357.4	357.2	356.5	357.8	359.8	357.9	358.5	359.7	362.4
Retail trade	900.4	906.0	904.0	899.4	900.6	903.6	908.6	910.2	912.7	921.1
Finance, ins. & real estate	375.5	374.2	374.0	371.4	371.2	369.9	367.7	365.7	366.0	365.2
Services	1,340.0	1,355.5	1,361.9	1,364.9	1,373.1	1,384.3	1,384.2	1,388.7	1,397.0	1,414.3
Government	762.2	762.5	760.5	758.6	757.4	753.4	751.2	755.8	753.2	748.1

* BEBR Forecast begins

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Paul Newbold and
Stephen F. Quinn

Illinois Economic Forecast 1992[1]

E conomic activity in Illinois is expected to quicken in 1992, according to projections of the Illinois Econometric Model. The forecasts show a mild expansion in real gross state product from the mild contraction experienced in 1991. In consequence, employment will increase very little, if at all. As in recent years, the services-producing sector of the economy is expected to outperform the goods-producing sector in terms of output and employment.

Broad movements in the national economy will inevitably be reflected in the state economy. The challenge of economic forecasting at the state level is to anticipate how movements in the Illinois economy will deviate from shifts in the national aggregate. For 1992, the Illinois economy will enjoy stronger growth than in 1991, but the state's growth rate will not match the national rate.

The National Economy

The forecasts generated by the Illinois Econometric Model are based on national forecasts produced by Data Resources, Inc. and the WEFA Group. Given recent trends in the national economy, both DRI and WEFA make projections for a number of sectors of the economy, including gross national product, employment, inflation, and interest rates.

The Recession and Recovery

In the aggregate, the recession now appears to have been relatively mild. Although the recession fit the "official" definition with two consecutive quarterly declines in real gross national product in the

fourth quarter of 1990 and the first half of 1991, data suggest that it was quite mild by historical standards. Of course, aggregate data conceal differences in individual sectors of the economy. The downturn has been sharp in some sectors, such as automobiles and real estate. Other sectors actually showed improvement. One bright spot in the economy was exports, which grew far more rapidly than imports and contributed to a dramatic improvement in the US balance of trade. Growth in exports can be partially attributed to the decline in the value of the dollar in 1990. Unfortunately, the balance of trade may not be maintained for long at the current level. Increased consumer spending will draw in more imports, and, barring a further decline in the dollar, exports may slow. If recessions in other countries are prolonged, sluggish growth in exports is likely.

Just as the recession was mild, it is expected that the recovery will be far from robust. Concerned about a "double dip" recession, economists agree that economic growth paused in the fourth quarter of 1991. However, the national economy will recover in 1992. There is some disagreement on the strength of the recovery through 1992, but it is generally agreed that it will not match the strength with which the economy has emerged from some recessions in the past. To a large extent, the strength of the recovery depends on consumers. Measures of consumer confidence rose sharply following the conclusion of hostilities in the Middle East. However, consumer confidence then fell in the latter half of 1991. There is also some concern about

the degree to which debt in all sectors of the economy will inhibit consumption.

Real Gross National Product and Employment

A look at recent gains and declines in real gross national product sheds light on the severity of the recession and the strength of the recovery. Real gross national product grew by 2.5 percent in 1989, compared with only 1.0 percent in 1990. This decline marks the beginning of the recession. It is expected that real GNP will have fallen by a modest 0.5 percent by the end of 1991. The slight drop indicates that the recovery tha began this year has not quite offset the early, recessionary months.

For 1992, economic forecasters are predicting various levels of growth in real GNP. The WEFA group predicts 2.9 percent growth in GNP, while DRI foresees slightly more modest growth of 2.4 percent. If these predictions are accurate and real GNP recovers to these levels, the recession of 1990–1991 will be seen as a minor blip in a picture of steady, if unspectacular, economic growth over several years.

Although public discussion tends to focus on unemployment, the number of people actually employed provides a more reliable picture of the labor market. Because the unemployment rate is a ratio of the number of people employed to the number in the work force, there is room for error both in counting the employed and estimating the size of the labor force.

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[1]Adapted from an article in the *1992 Illinois Economic Outlook.*

Chart 1. Real Illinois GSP

Billions of 1982 Dollars

Source: Illinois Department of Commerce and Community Affairs

mild increase of 2.7 percent. Such low levels of inflation presumably frees the Federal Reserve Board to engage in expansionary monetary policies if the recovery showed signs of faltering in 1992.

Short-term interest rates fell sharply during the recession, but long-term rates declined only slightly. Treasury bill rates dropped from an average of 8.1 percent in 1989 and 7.5 percent in 1990 to a projected average of only 5.5 percent for 1991. The rates are expected to fall to around 4.9 percent in 1992. The rates for thirty-year Treasury bonds, on the other hand, have fluctuated little over the period, from 8.6 percent in 1989 and 8.1 percent in 1990 to an expected overall rate of 7.8 percent for 1991 and 8.2 percent for 1992.

The picture that emerges from the employment data and the forecasts is not quite as encouraging as the outlook for GNP. Some delay in employment growth can be expected, since employment tends to lag behind other measures of activity. The sluggish growth will continue until the upturn in demand is well established and firms are sufficiently confident to take on new employees.

According to the latest forecasts, growth in employment will not recover to the rates that prevailed before the recession. In 1989, nonfarm employment in the nation grew by 2.6 percent, while the growth rate slowed to 1.5 percent in 1990 with the beginning of the recession. The projection for the whole of 1991 is a drop of 0.8 percent. For 1992, both DRI and WEFA project a 1.1 percent growth in employment. Employment prospects have a substantial influence on consumer confidence, and there must be some improvement in these prospects to sustain any consumer-led economic growth.

Inflation and Interest Rates

Of all the forecasts of broad national aggregates, inflation's prospects are perhaps the most encouraging. The consumer price index rose by 4.8 percent in 1989 and by 5.4 percent in 1990. The outcome for 1991 is expected to be a 4.2 percent increase, while the consensus forecast for 1992 is a very

The Illinois Economy

The Illinois economy experienced only mild effects of the recession as compared with the rest of the nation. This is clear from Chart 1, which illustrates the Illinois gross state product. Assuming that our forecasts are reasonably accurate, the recession appears as a visible blip, but hardly a major

Chart 2. Illinois GSP as a Percent of GNP
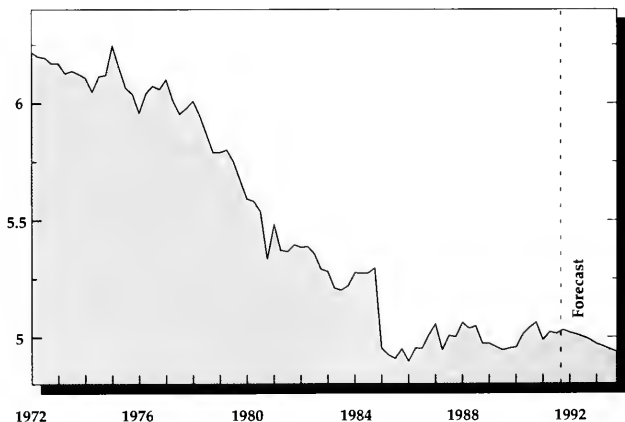
Source: Bureau of Economic Analysis and Illinois Department of Commerce and Community Affairs

economic event. However, because Illinois fared slightly better than the nation as a whole in the down-turn period, the state is expected to grow with less vigor than the rest of the nation during the recovery. Nevertheless, Illinois's performance during the recent recession and recovery compares favorably with its severe decline during the recession of the early eighties.

Real Gross State Product and Employment
Illinois real gross state product grew by 1.2 percent in 1989 and by 2.2 percent in 1990. We now expect a decrease of 0.3 percent in 1991, a better performance than the nation's 0.5 percent decline in GNP. For 1992, however, the Illinois Econometric Model predicts growth of just 2.2 percent, which is below the levels forecast for the national economy. Chart 2 shows the projected decline in Illinois GSP as a percent of gross national product. The figures suggest that the recent, relatively strong position of Illinois with respect to the nation may have been a temporary effect of the recession.

The employment sector is expected to reflect the small growth in the state economy in 1992. Total nonfarm employment in Illinois grew by 2.3 percent in 1989 and by 1 percent in 1990. Following the 0.2 percent growth rate projected through 1991, we expect an 0.2 percent decline in Illinois employment in the coming year. Thus, the state economy will have created virtually no new net jobs over a period of two years. Chart 3 shows that although the absolute number of Illinois jobs shrank during the recession, the state's share of US employment grew. However, the chart also shows that state employment will have declined relative to that of the nation during the recovery.

Real Personal Income and Retail Sales
Illinois real personal income will rebound with more vigor than other economic measures. Since net employment will not grow in 1991 or 1992, much of real gross state product recovery will be in terms of per capita income. In 1991, the lack of growth in Illinois employment will be met with an 0.8 percent increase in real personal income. The gap between income and employment growth will widen in 1992 with real personal income growing 4.4 percent and employment shrinking 0.2 percent. The reluctance on the part of employers to hire new workers implies that additional real output will manifest itself as higher wages for existing workers.

A strong resurgence of retail sales, measured in 1982 dollars, will accompany personal income growth in 1992. After the recession year of 1991, retail sales are expected to grow by as much as 6.8 percent in the coming year. Growth in retail sales will outstrip income growth, as consumer confidence returns in 1992. This growth in consumption and the rising

personal income constitute the encouraging measures of economic activity in 1992.

Goods and Services
Our aggregate data and forecasts camouflage important differences between sectors of the Illinois economy. The economy can be divided into two main sectors, a goods-producing sector and a services-producing sector. The goods-producing sector consists of mining, construction, and manufacturing; services-producing activities include government, transportation, business and household services, retail and wholesale trade, finance, insurance, real estate, and utilities. In 1991, the services-producing sector did much better than the goods-producing sector and is expected to continue to achieve relative gains in 1992. Gross state product related to the production of goods fell 5.7 percent in 1991, while GSP associated with services rose 1.9 percent. For 1992, we expect a 2.8 percent growth in services, compounded with an 0.1 percent decline in goods.

The same picture emerges when we look at total employment in

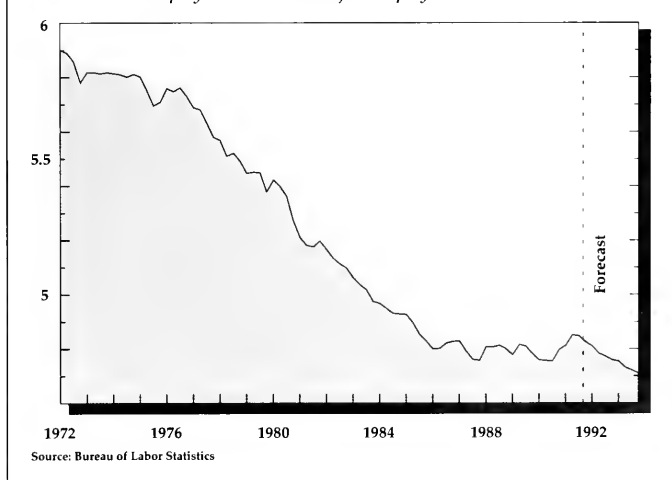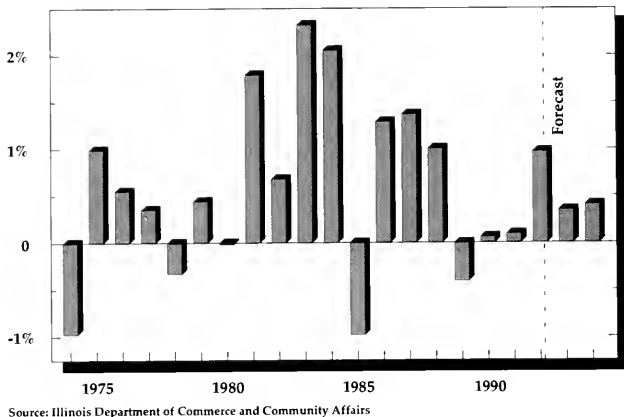Chart 3. Illinois Employment as a Percent of US Employment

Forecast

1972   1976   1980   1984   1988   1992

Source: Bureau of Labor Statistics

Chart 4. *Percentage of Illinois GSP Shift in Share from Goods- to Services-Producing Sector*

Source: Illinois Department of Commerce and Community Affairs

Illinois and the National Economy

The story of the economic decline of Illinois relative to the United States in the 1970s and the first half of the 1980s is well known. It is perhaps less well known that the deterioration of the Illinois economy relative to the nation as a whole was arrested in the second half of the last decade. Indeed, in light of the Illinois economy's improved relative performance during the recent recession compared with that of the nation as a whole, there appears to be hope for a reversal of the downward trend. Unfortunately, as Charts 2 and 3 show, when our forecasts are grafted onto the historical record, a pattern of relative decline re-emerges. From 1985 through 1991, Illinois has performed well compared with the rest of the nation, but the forecasts indicate some renewed deterioration in the economic position of Illinois relative to the U S.

Although long-run trends in the divergences in developments in Illinois from national developments become readily apparent after the event, short-run divergences over a year or two are typically small.

these sectors. In 1991, employment in goods-producing industries fell by 1.4 percent, and a further drop of 1.5 percent is expected in 1992. In con-trast, employment in services is expected to increase by 0.7 percent in 1991 and 0.2 percent in 1992.

The shift from goods production to services production is not restricted to the Illinois economy, nor is the phenomenon a recent development. Charts 4 and 5 show the shift in percentage share of total GSP and employment from goods-producing sectors to services-producing sectors. In the cases of both gross state product and employment, the increase in the relative importance of the services-producing sector is clear. The forecasts generated by the Illinois Econometric Model are no more than extrapolations of such long-run state and national trends. Our forecasts are based upon the view that growth in the Illinois economy will be increasingly dependent on the health of the services sector.

Remarkable divergences also occur within sectors. The recent strength of exports noted earlier has helped machinery manufacturing outperform other industries in the

goods-producing sector. Machinery producers are expected to employ more workers in the upcoming years, while other manufacturing industries face declines in employment (Chart 6). Moreover, the lone success of machinery manufacture seems to break with historical precedent, but this may be attributed to the recent influence of foreign demand.

Chart 5. *Percentage of Illinois Employment Shift in Share from Goods- to Services-Producing Sectors*
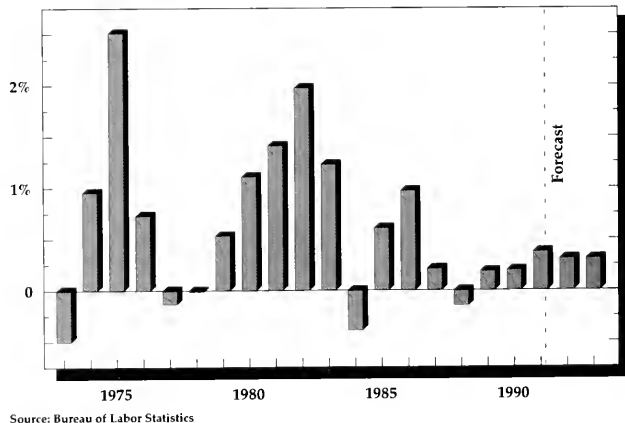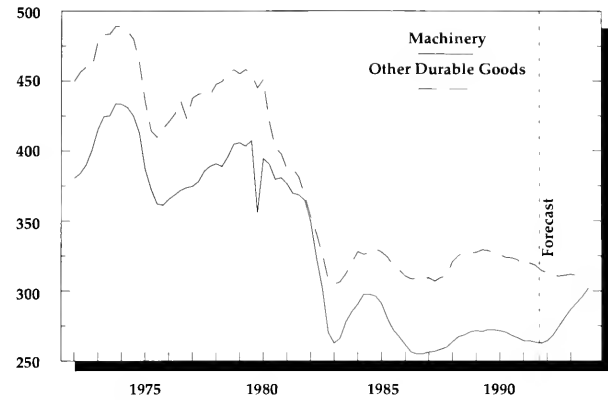
Source: Bureau of Labor Statistics

Chart 6. *Illinois Machinery Employment and Other Durable Goods Employment (thousands)*

Source: Bureau of Labor Statistics

Therefore, the probability of incorrectly projecting relative state performance from national forecasts is far from trivial. Last year, the Illinois Econometric Model correctly anticipated that the Illinois economy would do significantly better than the U S economy in 1991. For 1992, we expect the Illinois economy to expand, but at a slower rate than the national economy and total Illinois employment to remain nearly constant.

Annualized Quarterly Percentage Change — Gross State Product and Personal Income
(in real terms, base 1982; all rates seasonally adjusted)

	1991:III	1991:IV*	1992:I	1992:II	1992:III	1992:IV	1993:I	1993:II	1993:III	1993:IV
Total gross state product	0.3	0.5	0.4	0.7	0.7	0.6	0.5	0.6	0.5	0.5
Goods producing industries	0.3	-0.5	-0.3	0.4	0.4	0.2	0.1	0.2	0.1	0
Service producing industries	0.3	0.8	0.6	0.8	0.8	0.7	0.6	0.7	0.7	0.7
Total nonfarm employment	0	-0.2	-0.1	-0.1	0.2	0.2	0.4	0.1	0.3	0.3
Goods producing industries	-0.3	-0.9	-0.5	-0.4	0.1	0.4	0.5	-0.1	0.1	0.5
Mining	0	-1.1	1.1	-1.7	-1.4	0.8	0.6	-1.4	-1	0.3
Construction	-0.5	-2	-1.6	-2.4	-1.4	-1.3	-0.3	-1.8	-1.2	-0.1
Manufacturing	-0.3	-0.6	-0.2	0	0.4	0.7	0.7	0.3	0.4	0.7
Durable	-0.4	-0.8	0	0.4	1	1.2	1.1	0.6	0.7	1.1
Nondurable	0	-0.4	-0.6	-0.6	-0.4	0	0	-0.3	-0.2	-0.1
Service producing industries	0.1	0	0	0	0.2	0.2	0.4	0.1	0.4	0.3
Transp. & public utilities	-0.1	-0.1	0.2	0	0.1	-0.1	0.3	0.1	0.2	0.1
Wholesale trade	0.4	0	0.1	-0.3	0	0.4	0.4	-0.2	0	0.4
Retail trade	0.2	-0.9	-0.6	0.2	0.3	-0.2	0.7	0.8	0.2	0.2
Finance, insurance & real estate	0.1	-0.5	-0.7	-0.7	-0.6	-0.2	-0.4	-0.6	-0.5	0.1
Services	0.4	0.8	0.7	0.3	0.4	0.7	1	0	0.5	0.8
Government	-0.4	-0.1	-0.4	-0.3	0.3	-0.3	-0.6	0	1.1	-0.6
Total personal income	2.2	1.1	0.7	1.1	1.1	1	0.9	1	1	1
Total nonfarm personal	1.6	1.3	0.7	1.1	1.1	1.1	1	1	1	1.1
Goods producing industries	2.7	-0.4	-0.2	0.4	0.6	0.5	0.4	0.3	0.3	0.4
Service producing industries	1.9	1.9	0.9	1.3	1.3	1.3	1.1	1.3	1.3	1.3

* Forecast begins

Source: *1992 Illinois Economic Outlook*

William R. Bryan and
Charles M. Linke

The Earnings Impact of Age, Education, Race, and Gender

B eing middle-aged, well-educated, white, and male enhances earnings. Although these findings are not surprising, the reader may be interested in the specific benefits that attach to each of these attributes.

Loosely speaking, each additional year of experience during an individual's third decade of life expands real earnings by 1–2 percent; during that same decade each additional year of education increases earnings by more than 10 percent; being white, rather than Hispanic or black adds about 15 percent to average earnings; and being male adds more than 30 percent. As suggested, these averages are rough approximates. Their meaning is clarified substantially if looked at in context.

The Data

Quite apart from its decennial census, the Bureau of the Census conducts a monthly population survey as part of its continuing effort to keep track of demographic developments. The March survey typically concentrates on earnings and income. In October 1991 the Bureau of the Census published results of its 1991 March survey (Money Income of Households, Families, and Persons in the United States: 1990, Bureau of the Census, US Department of Commerce, Series P-60, No. 174, 1991). Data from this survey, which reports earnings for the preceding year, differentiate between and among the earnings of males and females; whites, blacks and Hispanics; various levels of educational attainment, and various categories of age (Table 29, pp. 128–155 and Table 30, pp. 156–159).

In order to present the data in the formats used in the charts and tables of this article, interpolations were made based on common statistical techniques (see the box). These permit the data to be presented year-by-year fashion, rather than in unwieldy age intervals.

The Bureau of the Census does not report data in instances in which their sample base is less than 75,000. Consequently, for females generally and male Hispanics and blacks they are unable to report earnings data relating to all educational categories in each of their age groupings. These problems were more prominant among those born in the 1930s and 1940s than those born more recently. If it is possible to determine missing values, we do so. Otherwise, the estimates we show constitute interpolations beyond the range of the data we use for estimation. These data problems make us tentative in our interpretation of race and education statistics.

Life Cycle of Earnings

Earnings tend to begin low, rise well through middle age, then decline during the final years of an individual's work life. Presumably, this pattern of earnings is a reflection of the changes in an individual's productivity. In turn, the changes in productivity emerge from the gains associated with experience in the work force. Because the data presented here are cross-sectional — that is, they are observations taken at a single point in time, they do not reflect the changes in productivity that relate to changes in technology and, therefore, emerge with the passage of time. By virtue of that shortcoming, the data understate life cycle earnings.

For both men and women, the life cycle of earnings show increases

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The general approach taken in preparing the estimates described herein is to view annual earnings as emerging from the following multiplicative process:

$$Y = (R) \times (G) \times (T) \times (LC)$$

where

R = race,
G = gender,
T = training, and
LC = life cycle.

In the work at hand, dummy variables (either 1 or 0) were used to stand in the place of white (W), black (B), or Hispanic (H); male (M) or female (F); and training was measured in terms of educational achievement. With respect to educational achievement, dummy variables were used to represent the following levels of education: eight years or less (E1), 1-3 years (E2), and four years of high school (E3), 1-3 years (E4), four years (E5), and five or more years of college (E6). Finally, the life cycle factors (LC) are estimated with an age variable (A) and, in order to take account of nonlinearity in the variable, age-squared (A^2). In addition, interaction terms were used between race and education.

Chart 1. Life Cycle of Earnings

Annual Earnings
1991 Dollars

Chart 1. Life Cycle of Earnings — graph of Annual Earnings (1991 Dollars) vs Age showing Males and Females curves.

relating to men and women in Chart 1, there is an increased likelihood that, over substantial age ranges, men will possess greater average experience in the work force.

Education and Earnings

Clearly, expanded earnings are associated with increases in education. Even though entry into the work force is likely to be delayed for those who chose to continue their education, those earnings losses are more than made up by the higher annual earnings and a work life that extends into years at which experience is heavily valued.

Differences in earnings according to alternative levels of education are illustrated in Chart 2. For purposes of this chart, it is assumed that those with a high school education or less enter the work force at age 18; those with one to three years of college are depicted as entering the work force at age 20; those with four years of college are shown as

through the middle years, then show declines beginning in the late fifties. But there are marked differences in earnings patterns between the sexes. Chart 1 presents the life cycle earnings patterns of men and women during an arbitrary work life beginning at age 18 and ending at age 65, neglecting factors relating to education and race. The earnings of women do not rise nearly as much as those of men during the period when earnings are rising. At their zenith, average earnings of men reach a point (at age 55) that is 120 percent above its rate at age 18. For women, their average earnings peak (at age 51) at a rate that is only 40 percent higher than its pace at age 18.

In part, but only in part, the observed differential reflects the fact that age is an imperfect measure of experience, especially as that measure relates to women. For a variety of reasons — some related

to child-bearing and raising children — women are much more likely to enter, then leave, then re-enter the work force than are men. Hence, in comparing averages

Chart 2. Earnings and Education

Annual Earnings
1991 Dollars   **All Persons**

Chart 2. Earnings and Education — graph of Annual Earnings (1991 Dollars) vs Age showing curves for: 5 or more years College, 4 years College, 1-3 years College, 4 years High School, 1-3 Years High School, 8th Grade or Less.

entering the work force at age 22; while those with five or more years of college are shown as entering the work force at age 24. In each case, it is assumed that the hypothetical earners are new entrants into the work force. The alternative worklife estimates are the average of data relating to men and women. The expected working life estimates the number of years a worker of a specific sex-age-education configuration is expected, on average, to continue his/her participation in the labor force. (For a discussion of the concept and for data see Worklife Estimates: Effects of Race and Education, US Department of Labor, Bureau of Labor Statistics, Bulletin 2254, February 1986.)

Suppose that a 16-year-old is considering the value of his or her high school education and is considering the value of additional education. It is reasonable to ask whether the higher earnings available to a high school graduate are sufficiently great to compensate for the fact that an individual must delay entrance into the work force. Even though earnings received later are inherently less valuable than earnings received now, there is a likelihood that money earnings will rise in the future. Moreover, there are out-of-pocket costs associated with attending college. Hence, it may be reasonable to draw comparisons between the costs of attending college and the anticipated future returns. The clear differences introduced by education are shown on Chart 2, and are summarized with regard to race and gender in Table 1.

Considering the summary statistics in Table 1, shown as weighted averages in the right-hand column, high school graduates have an average earnings capacity of $760,278 (stated in 1991 dollars), nearly 58 percent more than a person with one to three years of high school and almost 82 percent more than a worker with an eighth grade education or less. Similarly, a person with four years of college shows lifetime earnings of $1,273,835, nearly 70 percent greater than a high school graduate and more than 31 percent greater than a person with one to three years of college (Table 1). Finally, a person with five or more years of college shows lifetime earnings of $1,481,290 on average, 16.3 percent more than a college graduate and nearly twice the lifetime earnings of a high school graduate.

Part of the difference in lifetime earnings among those with different levels of education reflects the way this article has portrayed the concept of working lives. For ease of exposition, a person's worklife is depicted as though it begins at, say, 18 years of age for a male high school graduate, then extends continuously for the next 37.9 years. As a consequence of this approach, those who enter the labor force at an early age are shown as having their working life concentrated in the lower end of their potential life cycle of earnings. Conceptually, however, the 37.9 is not really a sum of years; it is a sum of probabilities. Each probability entering the sum is the probability that the 18-year old male high school graduate will be in the workforce at successive years in the future. That future runs to an age well into the late seventies (where it is truncated). Notwithstanding the expositional bias, we are confident that our interpretations of the data are not misleading.

Table 1. Lifetime Earnings by Gender, Race and Education*

	in 1991 Dollars						
	Males			Females			
	White	Hispanic	Black	White	Hispanic	Black	Average*
8th grade or less	510,856 (34 yrs.)	449,712 (34 yrs.)	474,764 (34 yrs.)	226,762 (21.5 yrs.)	215,845 (21.5 yrs.)	206,887 (21.5 yrs.)	418,496
1-3 years high school	611,414 (33.4 yrs.)	575,965 (33.4 yrs.)	537,872 (33.4 yrs.)	282,742 (20.9 yrs.)	234,648 (20.9 yrs.)	241,179 (20.9 yrs.)	481,823
4 years high school	998,952 (37.9 yrs.)	810,259 (37.9 yrs.)	756,810 (37.9 yrs.)	479,234 (27.9 yrs.)	444,258 (27.9 yrs.)	433,210 (27.9 yrs.)	760,278
1-3 years college	1,228,183 (38.5 yrs.)	1,063,127 (38.5 yrs.)	1,022,247 (38.5 yrs.)	641,654 (30.3 yrs.)	642,549 (30.3 yrs.)	609,962 (30.3 yrs.)	971,174
4 years college	1,603,192 (37.1 yrs.)	1,380,846 (37.1 yrs.)	1,222,939 (37.1 yrs.)	774,070 (28.9 yrs.)	736,104 (28.9 yrs.)	811,090 (28.9 yrs.)	1,273,835
5 years college or more	1,795,990 (35.6 yrs.)	1,988,979 (35.6 yrs.)	1,392,919 (35.6 yrs.)	900,096 (27.3 yrs.)	791,142 (27.3 yrs.)	782,695 (27.3 yrs.)	1,481,290
Average*	1,208,434	827,208	851,410	591,143	465,334	517,668	

*Worklife estimates are in parentheses; averages are weighted by number of persons in each category.

Table 2. Distribution of Educational Attainment by Race and Gender

	Males			Females		
Educational Attainment	**White**	**Hispanic**	**Black**	**White**	**Hispanic**	**Black**
8th grade or less	4.75%	25.65%	6.81%	2.72%	17.69%	3.22%
1-3 years high school	6.98	13.50	12.00	5.92	11.46	10.74
4 years high school	36.64	32.35	44.41	41.68	36.86	42.12
1-3 years college	20.87	16.14	20.26	22.44	18.29	25.76
4 years college	17.29	7.49	11.06	16.42	9.53	11.97
5 years college or more	13.47	4.88	5.47	10.82	6.17	6.18

Race and Earnings

In terms of raw statistics, the average of 1990 earnings of white males was 46.1 percent higher than those of Hispanic males and nearly 42 percent higher than those of black males (for dollar magnitudes see bottom row of Table 1). In part, the differences in averages reflects the differences among the races in educational attainment and, hence, earnings. Among white males more than 50 percent have some college education, and just over 30 percent have four or more years of college education (Table 2). By comparison, among Hispanic males only 28.5 percent have some college education, and just over 12 percent have had four or more years of college (Table 2). Among black males 36.8 percent have some college education and nearly 16 percent have had four or more years of college.

The differences among races are markedly less, but substantial, if comparisons are made at comparable levels of education. It is noteworthy that some of the earnings differences narrow as education levels rise. Thus, for example, among high school graduates white males earn almost 23.3 percent more than Hispanic males and almost 32 percent more than black males. But among those with four years of college education white males earn 13.6 percent more than Hispanics; among those with five or more years of college Hispanic males show the greatest earnings. (The reader is reminded that data difficulties undermine our confidence in these estimates.)

Differences among females are somewhat less pronounced than those among males. Averages of median earnings of white females were 27 percent greater than earnings of Hispanic females and 14.2 percent greater than those of black females (see Table 1). Here again, however, a greater portion of white females had attained four or more years of college than among Hispanic or black females (Table 2).

At comparable levels of education the earnings differences among females were smaller than indicated by the overall average statistics. Among those with eight years of education or less, white females earned 5.1 percent more than Hispanic females and 9.6 percent more than black females. These differences were little changed among high school graduates, as white females earned nearly 8 percent more than Hispanic females and 6.2 percent more than black females. There was an interesting shift in positions among those females with four years of college; median earnings of white females averaged

about 5.4 percent more than those of Hispanic females but nearly 4.6 percent less than for black females. Among females with five or more years of education the relative earnings of white females jumped sharply. White females earned nearly 14 percent more than Hispanic females and 15 percent more than black females. (Again, the reader is reminded that data difficulties, specifically small sample problems, indicate that these statistics are subject to pronounced sampling error.)

Earnings and Gender

Lifetime earnings of males are higher than those of females among all races and at each level of educational attainment (Table 3). Part of the difference in lifetime earnings reflects the fact that the worklife of males is substantially longer than the worklife of females with the same level of educational achievement. Even correcting for the differences in worklife, however, male earnings exceed female earnings by a substantial margin. The margin does not vary meaningfully among different races, nor is it ameliorated by educational achievement.

Table 3. Comparison of Average Annual Earnings of Females with Earnings of Males of Same Race and Education

Educational Attainment	White	Hispanic	Black
	(difference stated as a percent of male earnings)		
8th grade or less	-29.8	-24.1	-31.1
1-3 years high school	-26.1	-34.9	-28.3
4 years high school	-34.8	-25.5	-22.2
1-3 years college	-33.6	-23.2	-24.2
4 years college	-38.0	-31.6	-14.9
5 years college or more	-34.6	-48.1	-26.7

Timothy J. Gallagher and
Ralph V. Switzer

People and Corporations: Who Takes Responsibility?

"Did you ever expect a corporation to have a conscience, when it has no soul to be damned, and no body to be kicked?"

Edward, Lord Chancellor of England[1]

T he role of managers of corporations has received much attention in business literature, but there has been little focus on ethical considerations. There is often a conflict between the interests of the managers of a corporation and the owners, the stockholders.

A corporation serves many different constituencies. It has stockholders, officers, managers, employees, customers, suppliers, a board of directors, and a community within which it operates. We often hear calls for "corporate responsibility," but that term is often left undefined. In fact, it has no meaning unless it is defined within some ethical framework.

We attempt to identify some of the ethical issues that should be considered when formulating policies consistent with corporate responsibility. As we point out, these cannot be the exact same principles that guide individuals or proprietorships and partnerships.

What is a Corporation?

Corporations are the entities that generate most of the private sector economic activity in this country. A corporation can own property, pay taxes, sue and be sued in a court of law. It can even be named as a defendant in a criminal case. It can pay fines, but it cannot go to jail. All of the corporate actions are independent of the actions of the owners or managers of the corporation. The corporation is a separate legal entity, having many of the same rights and responsibilities as natural persons.

The US Supreme Court has frequently had to deal with the question of the legal status of a corporation. The following are some of the court's findings about the definition of a corporation:

A "corporation" is a mere creature of law, invisible, intangible, and incorporeal, and the corporate name represents persons who are members of the corporation.[2]

A corporation is an artificial being, invisible, intangible, and existing only in contemplation of law.[3]

A corporation, although it is an artificial being invisible and intangible, is a 'person' for certain purposes in contemplation of law.[4]

These comments make it clear that a corporation is a creation of law, but it is a fictitious creation. We pretend that it exists and give this artificial construct certain rights and responsibilities under the law.

Ethical responsibilities, however, cannot be met by an "artificial person." Natural persons—corporate directors, officers, and managers—can act either ethically or unethically. An artificial person can do neither. It is necessary, therefore, to identify the ethical issues that the natural persons working as agents for, or on behalf of a corporation, should consider.

Misconceptions about Corporations

Corporations are not very popular institutions. Public opinion polls often show that the public want to tax corporations more heavily than they are currently. If additional tax revenues must be raised, an increase in the corporate income tax rate is typically much preferred to an increase in the individual income tax rate.

It must be asked, however, who pays the corporate income tax? An artificial person cannot truly pay a tax: Only natural persons can ultimately pay a tax. Wealth is ultimately owned by natural persons regardless of the entity holding title. Is the corporate income tax paid by the owners, the stockholders? Perhaps employee salaries are lower than would otherwise be the case, and the tax is therefore paid by the employees. The cost of the income taxes owed by the corporation could be passed along to customers, in the form of higher prices, and paid by them. This is one of the political appeals of the corporate income tax. No one is sure who pays it. People who do not know they are paying a tax are less likely to complain to their political representatives about that tax.

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[1] *The Oxford Dictionary of Quotations* (3rd Edition 1980) p. 550.

[2] U.S. Ga. 1809. *Bank of U.S. v. Deveaux*, 9 U.S. 61, 5 Cranch 61, 3 L.Ed. 38.

[3] U.S. N.H. 1819. *Trustees of Dartmouth College v. Woodward*, 17 U.S. 518, 4 Wheat. 518, 4 L.Ed. 629.

[4] U.S. Ala. 1839. *Bank of Augusta v. Earle*, 38 U.S. 519, 13 Pet. 519, 10 L.Ed. 274.

Likewise, a corporation cannot truly pay a legally imposed government fine, nor punitive damages from a civil lawsuit. Texaco corporation was named as a defendant in a suit filed by Pennzoil corporation, the plaintiff. Note that both the plaintiff and the respondent in this action were corporations. The jury found that Texaco had interfered with a legal contract between Pennzoil corporation and Getty Oil corporation. This jury found that Texaco owed damages in excess of $10 billion to Pennzoil. When questioned by a reporter after the trial, a juror said that they wanted to "send a message" to big corporations that this kind of behavior would not be tolerated by society. A large part of the award was for punitive damages rather than actual damages. Punitive damages (designed to punish the defendant) are assessed independently from compensatory damages (designed to pay for the actual loss to the plaintiff). In effect, Texaco corporation was being punished for unethical behavior.

How can an artificial person, such as Texaco corporation, behave unethically? How can it be punished? Soon after the jury made this award in favor of Pennzoil (shortly thereafter scaled down to $3 billion in a post-trial settlement), Texaco fired thousands of employees and filed Chapter 11 bankruptcy proceedings. The stock price plummeted. The message had been sent. Who actually paid the damages, and to whom was the jury sending the message?

The problem was that those who bore the brunt of the punishment were completely innocent natural persons, the employees and stockholders. Those persons in top management whom the jury found to have breached a legal contract between Pennzoil and Getty Oil bore little of the burden of the fine that had to be paid in accordance with the settlement. In fact, the settlement, reached after the trial in order to get Texaco to give up its right to

appeal, specifically indemnified Texaco management from any liability. It is unlikely that this is the outcome that the jury had in mind when it sent its message.

Innocent employees were fired to save enough money to help pay the fine. On the other hand, the stockholders knew, or should have known, that one of the risks of corporate ownership is the risk of loss if the corporation loses money for whatever reason, including litigation. It is probably disconcerting, however, for the stockholders to see their investment plummet in value because of unethical conduct by managers left essentially unscathed in the wake of this incident. All pain is borne by other natural persons, who are essentially innocent parties. The legally guilty corporation, which cannot feel pain, is "punished" for the sins of largely unpunished managers.

Furthermore, in the event that a director, officer, or manager should happen to be sued personally for an official act as an agent of the corporation, most corporations have included within their articles of incorporation an indemnification clause that seeks to indemnify such an agent from any subsequent finding of liability. The following is similar to a standard clause found in most corporation articles:

Power to Indemnify—Third Party Actions.

The Corporation shall have power to indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending, or completed action, suit, or proceeding, whether civil, criminal, administrative, or investigative (other than an action by or in the right of the Corporation) by reason of the fact that he is or was a director, officer, or employee or is or was serving at the request of the Corporation as a director, officer, employee, or agent of another corporation, partnership, joint

venture, trust, or other enterprise, against expenses (including attorney's fees), judgments, fines, and amount paid in settlement actually and reasonably incurred by him in connection with such action, suit, or proceeding if he acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the Corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful. The termination of any action, suit, or proceeding by judgment, order, settlement, conviction, or upon a plea of nolo contendere or its equivalent shall not of itself create a presumption that the person did not act in good faith and in a manner which he reasonably believed to be in or not opposed to the best interests of the Corporation, and, with respect to any criminal action or proceeding, had reasonable cause to believe that his conduct was unlawful.

In addition, most corporate articles provide that expenses incurred in defending a civil or criminal action brought against a director, officer, employee, or agent will be advanced and paid by the corporation prior to the final disposition of the case. Most articles of incorporation will include an insurance clause that provides that the corporation will have the power to purchase and maintain insurance on behalf of any present or former director, officer, employee, or agent of the corporation. This insurance will compensate for any liability of such a person for expenses incurred arising out of the employment as such, whether or not the corporation would have the power to indemnify the agent against such liability under other sections.

Corporations are frequently fined for violation of employee safety and pollution laws. Only rarely are natural persons, responsible employees

or managers, prosecuted for these crimes. When this does occur, sometimes natural persons go to jail. However, the corporation, which cannot be sent to jail, often pays a fine that is ultimately paid by some unspecified and innocent natural persons. A change in the human organizational culture of the corporation is more likely to curb undesirable behavior than monetary fines.

There are cases in which natural persons have been held responsible for their actions in behalf of a corporation. In California the Corporate Criminal Liability Act makes it possible to prosecute managers of corporations for knowingly allowing harmful situations to exist for the corporation's workers. Penalties may include fines and/or imprisonment for these managers. In 1985, three executives from Film Recovery Systems Corporation in Illinois were convicted of crimes relating to the death of an employee at the company. This employee died when exposed to cyanide fumes on the job. These verdicts were later overturned on appeal. In 1987, two New York men were convicted of recklessly endangering the lives of 57 employees exposed to toxic mercury vapors. The potential for more than an Occupational Safety and Health Administration (OSHA) fine to the corporation clearly exists for today's managers, at least in some states. The probability that an individual will be held accountable for decisions made on behalf of a corporation, however, is still quite low. is still quite low, however.

These cases depict rare examples of criminal prosecution of corporate executives. Civil cases against corporate executives are also rare. Much of the money lost by failed banks and savings and loan associations was the result of executive fraud or mismanagement. Only a tiny fraction of this money will ever be recovered from the individuals responsible. The rest will come largely from the US taxpayers.

How Should Corporations Operate?

Do corporations have obligations to the communities in which they are located? Most people would say yes. The question must be asked, however, just what are the rights of the owners, the stockholders? If a plant that employs a significant percentage of a town's citizens is a chronic money loser should it be closed? If the corporation decides to shut it down, the town will likely suffer. If the plant is kept open, the stockholders who own the corporation will be hurt.

This loss, borne by the stockholders, will probably be spread more thinly than if the employees are asked to sacrifice their jobs. It is not this simple, however. Are there other, more productive jobs, that these fired employees could find? Maybe the economy would be better off if these employees left this inefficient plant and went to work at a more efficient one. How many jobs should the stockholders of a corporation be asked to subsidize? How do corporate officers and directors make this decision? How do they balance their responsibilities to the community, if any, and their fiduciary responsibilities to the stockholders?

Do the rights of the owners of a corporation differ from the rights of the owners of a partnership or proprietorship company? If you worked as a cashier for Mr. and Mrs. Johnson's Mom and Pop General Store you would not unilaterally take money from the cash drawer to give to a charity. Taking it without permission from Mr. and Mrs. Johnson's cash drawer would be unethical.

When a corporation donates money to charity or builds a park in the community where it is located, this is usually praised. The money donated, however, belongs to the stockholder owners and is typically donated without a vote of stockholders. How is this different from taking the money from Mr. and

Mrs. Johnson's cash drawer? Why is one of these actions praised and the other condemned?

Lawyers would argue that the corporate directors, officers, and managers who donate company funds to charity or to the community are protected by the "business judgment rule." This is a judicial rule that says that managers have wide latitude to represent the stockholders for whom they are agents. The business judgment rule has been used to grant to managers wide discretion in conducting the affairs of the corporation. This has included passing "poison pill" provisions for inclusion in the corporate charter in order to ward off "hostile" takeovers and to reject unwanted (by management) merger offers. It is difficult to argue that a purchase offer of twice the current price of a company's stock is contrary to the best interests of the stockholders. Management, using the business judgment rule as justification, has rejected such offers for some companies. The courts have been reluctant to substitute their own judgment for that of these corporate managers.

As a result of takeover battles in recent years, a majority of states have adopted new legislation known as Corporate Constituency Statutes. These statutes seek to clarify the obligations of directors of corporations, and essentially require a duty on the part of directors to act in the best interest of the corporation. In this sense, these statutes place the corporate interests, as defined by the directors themselves, in a priority position as compared with the interests of the corporate stockholders. The underlying principle is that the long-range benefits to shareholders will be enhanced if corporate interests are emphasized in the short-term. It is entirely possible that the interests of third-parties, such as creditors, communities, and the like, will be favored rather than the interests of the stockholders.

Moreover, the directors, officers, and managers may remain largely unaccountable for long-term corporate obligations thus incurred. To the extent that these obligations are detrimental to the best interests of the stockholders, those responsible will be shielded by indemnification clauses in the articles of incorporation in the event that the stockholders attempt to recoup losses through shareholder derivative suits against the directors, officers, or agents.

This wide latitude given to managers has encouraged them to pursue many actions of questionable benefit to the stockholder owners. Whether these actions are ethical or not is seldom asked. Certainly the courts have been hesitant to ask the question. If the cashier takes money or pursues actions that are contrary to the interests of Mr. and Mrs. Johnson, the owners of Mom and Pop General Store, that cashier will be quickly out of a job. The stockholder/owners of corporations do not usually have nearly this degree of power over their directors, officers, and managers.

Should the rights of the owners of corporations be different from the rights of other business entity owners? While it can be argued that there are various control issues to be balanced among management, employees, and stockholders, ultimately priorities will be established. To the extent that corporate stockholders exercise control less than equivalent to full ownership rights of other entity owners, then the stockholders are being short-changed by the corporation. One can easily argue that stockholder rights should be different from the rights of other business owners. If we want the public interest to be considered before a corporation makes a decision affecting its community, we could make that one of the constraints that the corporation operates under as a matter of law. Laws impose many constraints on businesses, including corporations.

Suggested Reforms

It is cheaper to pollute than to clean up your mess. It is cheaper to build an unsafe plant than to build a safe one. In general, we do not allow businesses, including corporations, to pursue the lower-cost alternative in these instances in order to generate more profit for the owners. If there are other constraints we wish to impose, we should make them explicit as a matter of law. Otherwise, we ask the managers of these corporations to weigh their fiduciary responsibilities to the stockholders against their perceived obligations to the community. These are often in conflict. The managers of these corporations are put into an impossible situation. Natural persons in control of a corporation should be held accountable for their actions. Courts have been hesitant to pierce the "corporate veil" that separates the corporate artificial person from natural ones in order to impose liability upon natural persons. Although there are good reasons to treat the corporation as a separate entity, the costs to society are mounting rapidly. Accountability by natural persons should be encouraged. A federal law to this effect would make uniform those standards that some states have already established.

It would not be necessary to change the limited liability that stockholders enjoy to improve this situation. Limited liability is probably necessary to provide stockholders with the incentive needed to entice them to provide the capital needed for economic prosperity. Investors in corporate common stock would be hesitant to provide equity capital if they could lose more than the price of the stock.

The separate corporate entity also makes it possible for stockholders to sell their shares on exchanges and the organized over-the-counter market. Knowing that these shares are easily transferrable makes the investment more attractive. This makes it easier for the corporation to sell those shares initially and to raise the needed money. This translates into jobs and economic benefits for the communities served by these corporations and for the economy in general. The separate corporate entity also makes it possible for the corporation to "live" indefinitely and to continue to employ workers and serve the community, independently of the lives of any specific natural persons.

Conclusion

Society must come to terms with the questions of what a corporation is and what it is not. Ethical conduct should be encouraged by natural persons and incentives and guidelines for that conduct should be established. This will necessitate passing new legislation that will hold natural persons responsible for their actions. These natural persons should not be allowed to escape individual responsibility by hiding behind the corporate veil.

The rights of corporate owners should be carefully considered. If they are to be different from the rights of other business owners, those differences should be clearly delineated. Many of these problems come from our treatment of the corporation, as if it were a natural person. A corporation may have certain rights and responsibilities under the law, but it is not a natural person. A corporation consists of a file folder in the Secretary of State's Office, often in Delaware. File folders cannot truly pay taxes or fines and cannot feel pain. Natural people can and do.

Stephen F. Quinn and A. Samad

Wildcat Banking in Illinois: A Look into Our Financial History

T he American free banking era stretched from 1837 to the National Banking Act of 1863. Before 1963 the federal government did not issue bank notes, and the nation had no central bank. Banks issued their own notes, and the economy was littered with a variety of coins, currencies, and other means of exchange. Each state was left to devise its own banking system. Traditionally, state legislatures chartered individual banks and via a charter set restrictions on a bank's activities. An alternate banking system developed in Michigan and New York in 1837 and 1838 respectively: These two states adopted free banking laws that replaced legislative chartering of banks, and many other states followed.

These free banking laws had two key provisions. The first was free entry of any bank that met some minimum capital requirement. While eliminating the politics and corruption involved with a legislative charter, free entry provided little security to the note holding public. Hence, the second characteristic of free banking laws was to require banks to deposit government bonds with the state comptroller as security for the release of bank notes.

Until work by Hugh Rockoff, Warren Weber, and Arthur Rolnick, historians had viewed free banking as inherently unstable. According to such renowned authors as Bray Hammond, Andreas and Dudley Luckett, the history of US free banking was a debacle. In *Money and Banking*, 1980, Luckett states

...free banking degenerated into so called wildcat banking. *Banks of very dubious soundness would be set up in remote and inaccessible places "where the wildcats throve." Bank notes would then be printed,*

transported to nearby population centers, and circulated at par. Since the issuing bank was difficult and often dangerous to find, redemption of bank notes was in this manner minimized. These and similar abuses made banking frequently little more than a swindle.

Hugh Rockoff explains in "The Free Banking Era: A Reexamination" (*The Journal of Money, Credit and Banking*, May 1974) the economic motivation behind wildcat banking by considering the bond reserve requirement found in free banking laws. If the market value of the bonds put up for security was less than the legal value (the value of notes that could be issued on a bond), the wildcat banker could turn a quick profit. The unscrupulous banker could purchase state bonds at the prevailing market price, exchange the bonds at the legal value for bank notes, and then purchase commodities or other assets with the notes. The greater the gap between market price and legal value, the greater the potential windfall. To maximize such profits, the wildcat banker minimized reserves while running the risk of having insufficient specie to meet redemption demands and not enough assets (bonds) at market prices to cover outstanding liabilities (notes). To minimize redemption and delay bank closure, wildcat bankers would settle far from civilized areas—where the wildcats roam. Since mid-nineteenth century banks were formed under limited liability, the typical noteholder would be exposed to substantial risk.

The *Chicago Democrat* noted,
No man is safe sleeping overnight with one dollar of Illinois currency in his pocket. . . . The day laborers will never be content to work for

"wildcat" which is not worth thirty-three and one-third cents on the dollar...

To measure the extent of wildcat banking, however, look at failed Illinois free banks. A bank is considered "failed" if, upon closing, notes were not redeemed at full nominal value. The tell-tale signs of wildcat banking are long distances from urban areas and short lives. Also, low market prices for bonds and a state law that issues notes for bonds at above market prices must exist.

For wildcat banking to be a problem, the market price of bonds must be less than the value at which the state comptroller exchanged the bonds for notes. In February of 1857, the State of Illinois began exchanging notes for bonds at 90 percent of the six-month average price to a limit of the bonds par value. Although intending to safeguard the Illinois banking system from falling Missouri bond prices, the new policy opened up the potential for wildcat banking.

Few banks acted on the wildcat banking opportunity. Market prices fell below the bank note exchange rate infrequently. From 1857 to 1863, only 8 percent of banks that eventually failed opened during periods of potential wildcat windfalls. Also, few failed banks existing during wildcat periods exploited the openings for quick capital gains. Wildcat banking or the problem of banks exploiting the bond-note exchange system seems a minor cause of bank failures.

From 1851 to 1863, 89 Illinois free banks failed. Of these, only ten were in locales with populations of fewer than 200 people. Conversely, a majority of failed banks were in communities of more than 1,000. According to A. Economopoulos ("Illinois Free Banking Experience," *Journal of Money,*

Credit and Banking, May 1988), "It would seem that the traditional accounts of numerous inaccessible banks have been exaggerated." Moreover, a majority of failed banks operated for more than two years.

Wildcat banks characteristically failed within a year.

Little of the instability that existed in the Illinois free banking system can be attributed to wildcat banking. Although a favorite story of journalists

of the day and writers thereafter, wildcat banking was not epidemic. Few banks settled in inaccessible locations, and few banks failed from sacrificing reserves for quick capital gains. Illinois was not a wildcat state.

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T he latest editions of the *Illinois Statistical Abstract* and the *Illinois Economic Outlook* are available for purchase using the form below; they are produced as a public service by the Bureau of Economic and Business Research. Both the *Statistical Abstract* and the *Outlook* are valuable resources for those who need to know the facts about Illinois: journalists, public speakers, executives, bankers, attorneys, marketing specialists, planners, administrators, public officials, educators, students, researchers, historians, government employees, and other public and private sector professionals.

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Illinois Business Statistics

The Bureau of Economic Analysis measures Gross National Product primarily by adding up incomes. The BEA has also calculated GNP by adding up the value added at each step of production. This second approach allows for attributing value added to a particular locale, so the value added in Gary, Indiana when producing steel can be separated from the final use of the steel, possibly a building in Chicago. While summing to a gross national product, the value-added approach provides gross state products.
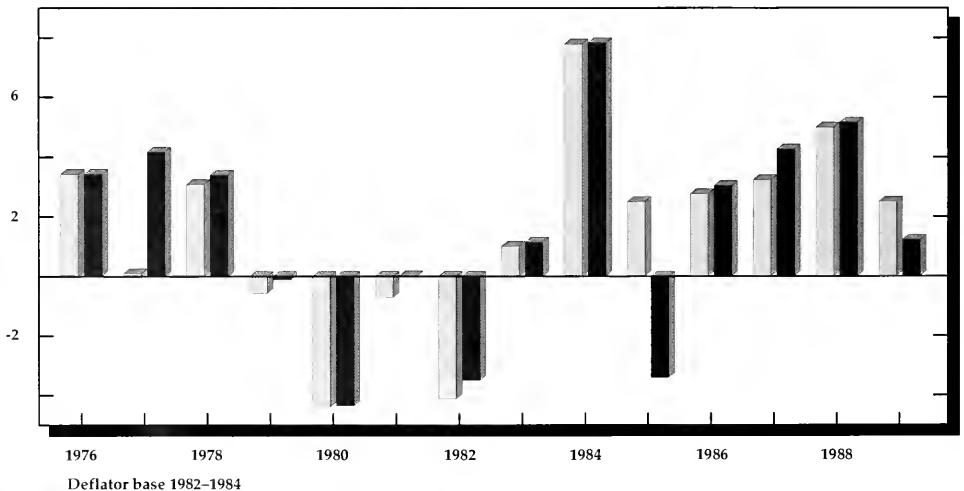
In 1991, the BEA released new, annual GSP numbers for Illinois.

Previous BEA figures ended in 1987, so the new release revised the old BEA numbers and extended the GSP numbers through 1989. Given the two or more year lag between the BEA GSP numbers and current economic conditions, the Illinois Department of Commerce and Community Affairs has attempted to bridge the gap by extrapolating forward the BEA series ending in 1987. The DCCA numbers are used for comparison to the new BEA numbers in 1988 and 1989. The new and old series are shown in real terms (base 1982–1984=100) in the chart.

There were substantial revisions in Illinois Gross State Product in

1977 and 1985. Gross state product in 1977 went from a growth of over four percent to no growth. The revision in gross state product for 1985 resulted in a change from a sharp contraction, to a year with a reasonable growth of just over two percent. The 1985 revision is a swing of more than five percent! Otherwise, the two BEA series are remarkably similar. The DCCA number for 1988 closely matches the new BEA series, but the BEA is bullish on 1989 relative to DCCA.

Chart. Real Illinois Gross State Product, Annual Percentage Change

Deflator base 1982–1984

Revised and extended GSP series released in 1991 by BEA

1976–1987 GSP series released in 1989 by BEA; 1988 and 1989 estimated by DCCA

Forecast Statistics

Personal Income (millions of dollars, seasonally adjusted at annual rates)

	1991:III	1991:IV*	1992:I	1992:II	1992:III	1992:IV	1993:I	1993:II	1993:III	1993:IV
Total personal income	247,019	251,371	255,128	259,328	263,654	268,059	272,575	277,125	281,770	286,451
Total nonfarm personal	178,310	181,712	184,290	187,374	190,508	193,870	197,179	200,556	203,960	207,522
Total private nonfarm	155,216	158,203	160,477	163,226	166,089	169,009	172,024	175,043	178,138	181,239
Mining	1,070	1,087	1,097	1,110	1,117	1,125	1,130	1,134	1,137	1,142
Construction	9,951	10,146	10,302	10,453	10,621	10,827	11,020	11,155	11,323	11,532
Manufacturing	34,787	34,677	34,765	35,071	35,443	35,775	36,107	36,427	36,735	37,039
Durable	20,779	20,688	20,738	20,976	21,268	21,545	21,805	22,047	22,265	22,521
Nondurable	14,009	13,990	14,028	14,095	14,174	14,230	14,302	14,380	14,470	14,519
Transp. & pub. utilities	12,680	12,965	13,134	13,296	13,458	13,639	13,851	14,049	14,252	14,454
Wholesale trade	13,942	14,415	14,629	14,830	15,044	15,285	15,553	15,753	15,993	16,227
Retail	15,115	15,499	15,612	15,883	16,133	16,344	16,540	16,820	17,091	17,276
Finance, ins. & real estate	16,144	16,422	16,744	17,068	17,398	17,774	18,156	18,545	18,940	19,343
Services	51,526	52,992	54,194	55,514	56,875	58,239	59,666	61,161	62,668	64,227
Government	23,094	23,509	23,813	24,148	24,419	24,861	25,155	25,513	25,822	26,283

Gross State Product (millions of dollars, seasonally adjusted at annual rates)

	1991:III	1991:IV*	1992:I	1992:II	1992:III	1992:IV	1993:I	1993:II	1993:III	1993:IV
Total	285,255	288,420	291,700	295,526	299,312	303,063	306,719	310,528	314,227	317,912
Total private nonagricultural	255,145	258,045	261,051	264,559	268,031	271,472	274,826	278,322	281,718	285,103
Mining	1,913	1,894	1,906	1,925	1,941	1,967	1,987	2,008	2,027	2,051
Construction	11,520	11,669	11,799	11,988	12,167	12,321	12,461	12,654	12,841	13,005
Manufacturing	51,544	51,525	51,684	52,084	52,523	52,928	53,316	53,667	53,986	54,323
Durable	25,996	25,746	25,672	25,810	25,991	26,151	26,299	26,407	26,481	26,593
Nondurable	25,548	25,779	26,012	26,274	26,532	26,777	27,017	27,260	27,505	27,731
Transp. & pub. utilities	28,231	28,515	28,773	29,035	29,276	29,517	29,741	29,950	30,151	30,349
Wholesale trade	22,904	23,025	23,173	23,371	23,579	23,763	23,952	24,145	24,342	24,533
Retail trade	25,475	25,739	25,939	26,249	26,520	26,749	26,946	27,216	27,449	27,644
Finance, ins. & real estate	55,343	56,268	57,162	57,993	58,823	59,729	60,610	61,474	62,326	63,198
Services	58,216	59,409	60,616	61,914	63,202	64,498	65,812	67,207	68,597	69,998
Government	25,864	26,158	26,416	26,681	26,933	27,238	27,498	27,783	28,050	28,361
Agriculture	4,246	4,217	4,233	4,286	4,348	4,353	4,395	4,423	4,459	4,448

Illinois Employment Forecast (in thousands, seasonally adjusted)

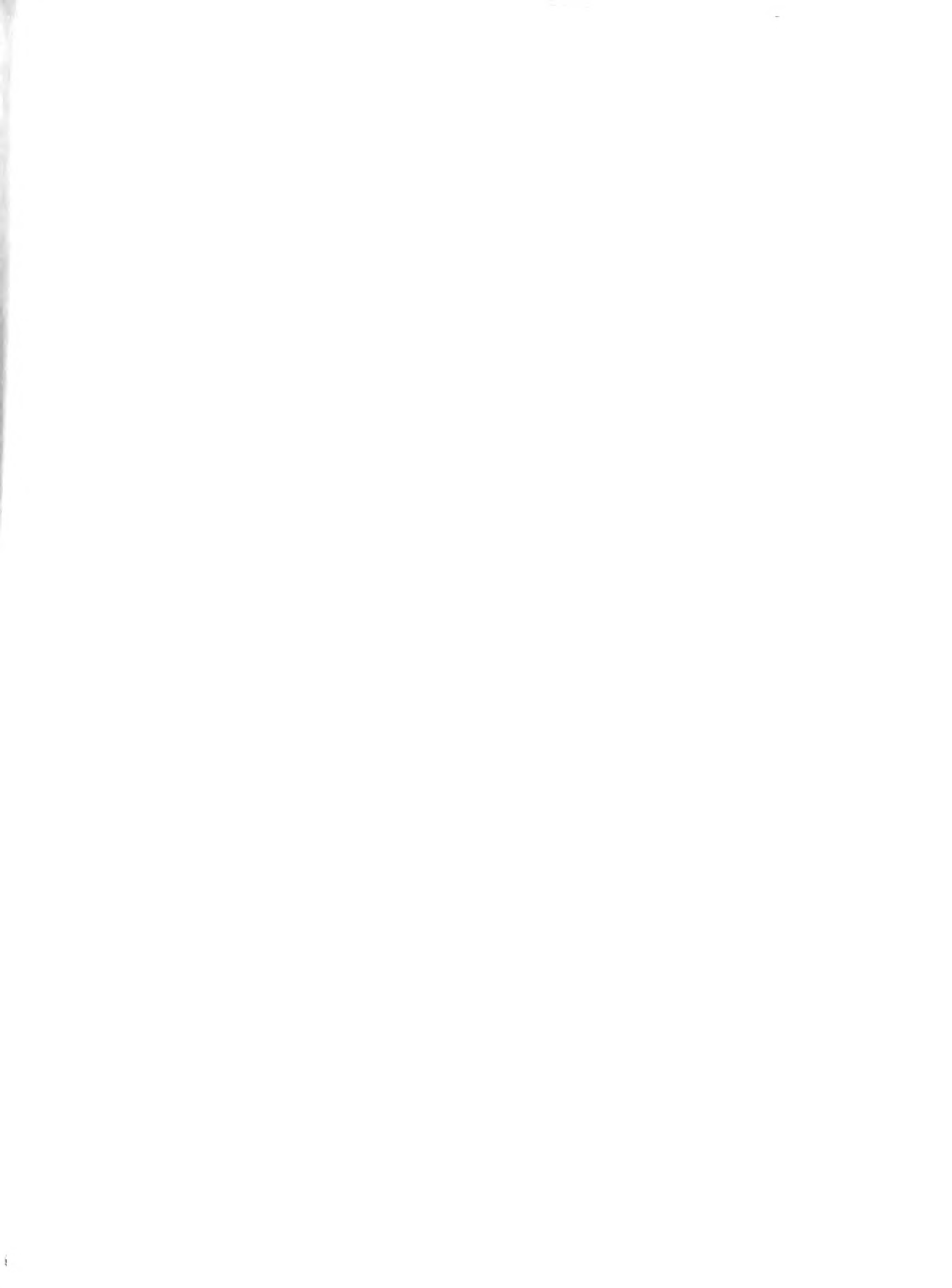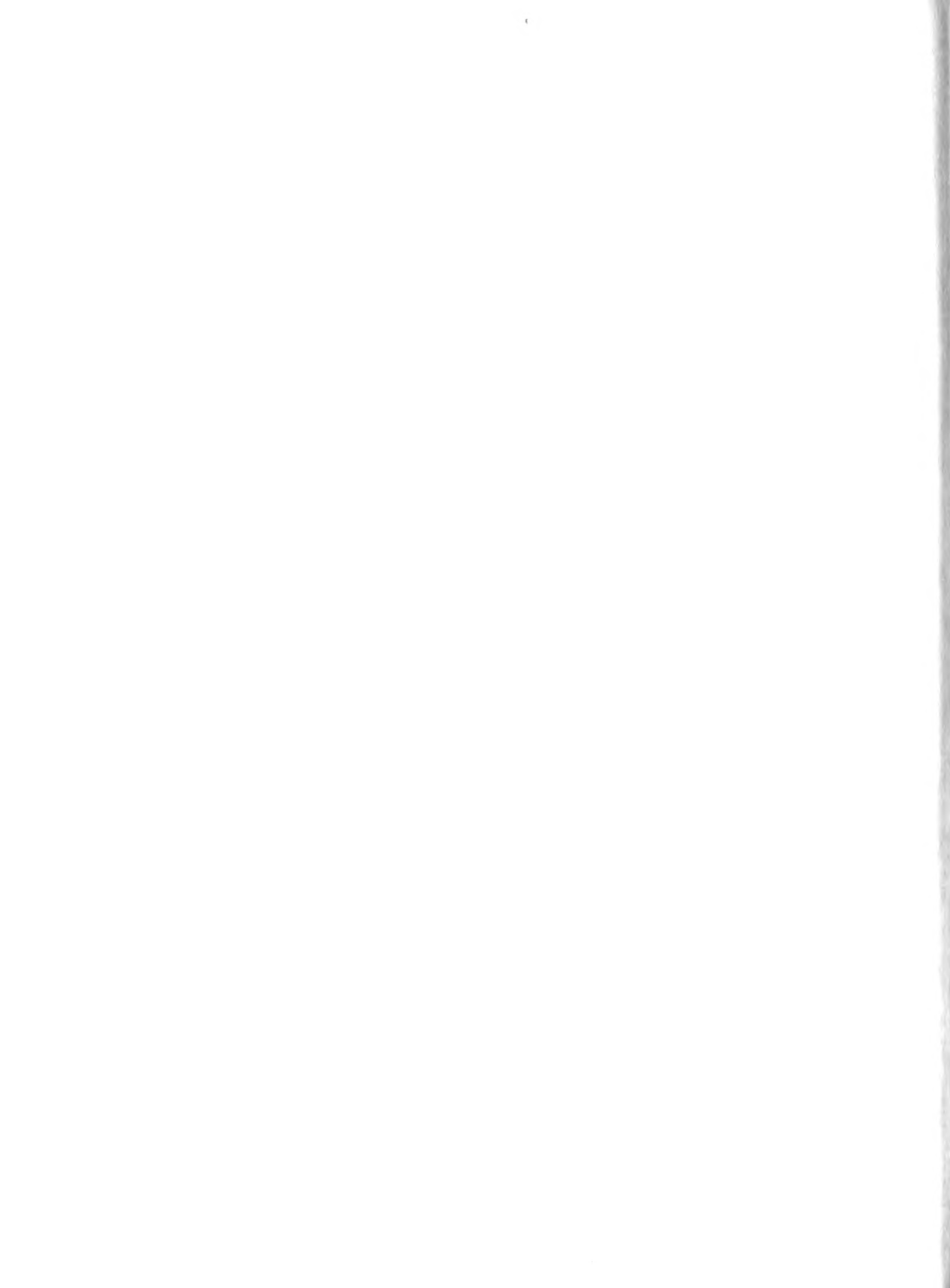|	1991:III	1991:IV*	1992:I	1992:II	1992:III	1992:IV	1993:I	1993:II	1993:III	1993:IV
Total nonfarm employment	5,277.9	5,266.8	5,260.3	5,254.5	5,264.2	5,275.1	5,298.5	5,302.9	5,319.7	5,336.8
Total private nonfarm emp.	4,519.7	4,509.4	4,506.0	4,502.3	4,509.7	4,523.1	4,550.8	4,554.9	4,563.6	4,585.1
Mining	19.6	19.4	19.6	19.3	19.0	19.1	19.3	19.0	18.8	18.9
Construction	214.0	209.8	206.3	201.4	198.6	195.9	195.4	191.8	189.5	189.3
Manufacturing	970.3	964.2	961.8	962.0	965.9	972.8	979.5	982.0	985.5	992.1
Durable	581.6	577.2	577.0	579.5	585.0	591.9	598.6	602.3	606.5	613.4
Primary metals	54.6	53.6	52.9	52.4	52.4	52.2	52.3	52.2	52.1	52.3
Fabricated metals	102.1	102.2	102.0	102.1	102.5	103.1	103.7	103.9	104.3	104.7
Nonelectrical machinery	149.0	146.6	145.7	146.8	149.7	152.6	155.1	156.6	157.9	160.6
Electrical machinery	114.3	115.9	118.6	121.5	124.9	128.3	131.7	134.8	138.2	141.4
Nondurable	388.7	387.0	384.8	382.5	380.9	380.8	380.9	379.7	379.0	378.6
Food & kindred products	92.5	91.7	90.7	90.0	88.8	88.0	87.6	86.7	85.5	84.8
Printing & publishing	111.4	109.9	108.5	107.2	106.2	105.5	105.0	104.5	104.1	103.8
Chemicals & allied prod.	63.9	64.2	64.1	63.9	63.8	64.0	64.0	63.8	63.9	63.8
Transp. & pub. utilities	308.0	307.8	308.4	308.3	308.6	308.4	309.4	309.7	310.4	310.6
Wholesale trade	358.8	358.6	358.8	357.6	357.5	358.9	360.3	359.5	359.3	360.8
Retail trade	906.3	898.5	893.3	894.8	897.2	895.7	902.1	909.6	911.6	913.6
Finance, ins. & real estate	374.4	372.6	370.1	367.4	365.3	364.5	363.0	360.8	359.0	359.3
Services	1,368.3	1,378.5	1,387.7	1,391.6	1,397.6	1,407.7	1,421.9	1,422.4	1,429.5	1,440.7
Government	758.2	757.4	754.3	752.2	754.5	752.0	747.7	748.0	756.1	751.7

* BEBR Forecast begins

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