

02160-1
11/20/88

A publication of the
Indiana Business Research Center,
Indiana University School of Business



Indiana Business Review

Volume 63, No. 3

November 1988

Robert Kirk

Indiana's Economic Performance: A Comparison

Graham Toft

Providing Public Facilities to Support Economic Growth

Richard B. Finch

Why There Will Be No Recession

in this issue...

The performance of the Indiana economy is of continuing interest. Professor Robert Kirk gives us an overview of how we are doing, without the positive or negative distortion of this fall's campaign rhetoric.

How our economy will perform in the future may well be a function of the condition of our state's infrastructure. Graham Toft shares with us the perspective of the state's long-range strategic plan for this vital component of our future.

In the next issue of the *IBR* we will learn what our faculty think will happen, economically, in the year ahead. Some economists believe we may be heading toward a recession. But Richard Finch suggests (with tongue in cheek) that a recession can be averted by reliance on our nation's secret economic weapon.

In a special insert, Indiana University President Thomas Erlich provides us with comments on the relationship between the future of this state and the role of our University in advancing the good prospects we seek for ourselves in the years ahead.

MJM

Indiana's Economic Performance: A Comparison

Robert Kirk

Professor of Economics, Indiana University-Purdue University at Indianapolis

Indiana's economy has been characterized by some as in the midst of a remarkable renaissance, and by others as in the Dark Ages in need of a renaissance. The reality, of course, is somewhere in between, but exactly where does it fall? In other words, how well *has* the Indiana economy performed?

In Indiana there were large declines in steel and auto employment during the 1980s, but labor productivity increased substantially in these industries.

In this study we try to find out. We compare Indiana's economy to that of the U.S. and the Great Lakes region (Illinois, Indiana, Michigan, Ohio, and Wisconsin) from 1969-87, by comparing rates of change in total labor earnings¹ in the Indiana economy with either the U.S. or the Great Lakes region economy. Labor earnings, not employment, is used because the earnings measure comes closer to measuring output; it captures some of the increases in labor productivity. Manufacturing employment as a percent of total employment has declined steadily in the U.S., but manufacturing output as a percent of total output has remained relatively constant. In Indiana there were large declines in steel and auto employment during the 1980s, but labor productivity increased substantially in these industries. The earnings data have been adjusted by appropriate price indices to account for inflation.

If a state's rate of change in a particu-

lar sector is greater than the nation's rate, then the state has increased its share of national earnings in that sector. If a state's rate is lower, the state's share has decreased. Since the time period of the analysis includes four recessions, a state can increase its share if its rate of decrease is less than the national rate. The same observations hold when comparing Indiana to the Great Lakes region.

Interstate Comparisons

The durable goods sector, illustrated in the Figure, is used as an example of the analysis. From 1969-79, comparisons are made from business cycle peak to peak. After 1979, annual rates of change are compared. The Figure indicates that from the peak of the business cycle in 1969 to the next peak in 1973, Indiana increased its share of the national durable goods sector because Indiana's rate of growth in real earnings was greater than the U.S. rate by 6.8 percentage points. From 1973 to 1979 (Indiana employment peaked in 1979 as auto industry layoffs began in the first quarter), Indiana's growth rate was less than the national rate by 7.6 percentage points; the severe impact of the 1973-75 recession on Indiana's durable goods sector caused the drop. Therefore, Indiana lost share in that period. The remaining bars represent annual changes in share. When the bar is above the zero line, Indiana gained share; when the bar is below, Indiana lost share.

Tables 1 through 5 summarize these statistics for each of the five Great Lakes states for each major sector. The figures for each year, of course, are measured from different national rates of change. The states are ranked (1=greatest increase in share or least loss in share; 5=least increase in share or greatest loss in share) relative to the U.S. economy's (or Great Lakes economy's) rate of

Figure
Indiana's Durable Goods Manufacturing Sector
Deviation in Rate of Change of Earnings from U.S. Rate, 1969-87
(in percentage points)

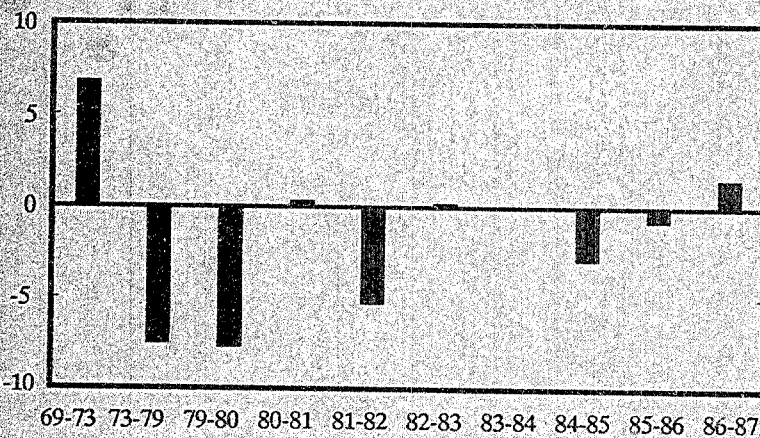


Table 1
Durable Goods Manufacturing
State Rankings Relative to U.S. and Great Lakes Region
1969-1987 and 1979-1987

State	Relative to:			
	U.S.		Great Lakes	
	1969-87	1979-87	1969-87	1979-87
Illinois	5 (-.39)	5 (-.29)	5 (-.18)	5 (-.13)
Indiana	3 (-.16)	3 (-.15)	3 (.05)	3 (.01)
Michigan	2 (-.10)	1 (-.08)	2 (.11)	1 (.08)
Ohio	4 (-.27)	4 (-.17)	4 (-.06)	4 (-.01)
Wisconsin	1 (-.04)	2 (-.12)	1 (.17)	2 (.05)
Great Lakes		(-.21)		(-.16)

Summary statistic in parentheses.

change. The summations are computed over two time periods, 1969-87 and 1979-87, based on the assumption that in 1979 the U.S. economy began to face a more global and competitive

world economy. Since the state's economy is compared to both the U.S. and Great Lakes, a state could lose share relative to the U.S. economy but gain relative to the Great Lakes economy.

Durable Goods Manufacturing (Table 1)

Compared to the U.S., the Great Lakes region and all states in the region lost share in both periods. Wisconsin and Michigan lost the least, followed by Indiana, Ohio, and Illinois. When compared to the Great Lakes economy, Michigan, Wisconsin, and Indiana gained share while Ohio and Illinois lost share.

The analysis identifies no explanations. However, over the time period there were major shifts in population to the South and West. To the extent that firms are drawn by expanding markets, it is not surprising that the Great Lakes lost share to other regions.

Nondurable Goods Manufacturing (Table 2)

The Great Lakes region lost share to the U.S. However, the loss was less than for durable goods manufacturing. Wisconsin and Indiana both gained share in both periods relative to the U.S., while Michigan was unchanged in both periods. When compared to the Great Lakes economy, Wisconsin, Indiana, and Michigan gained, while Ohio and Illinois lost share. Thus, for manufacturing in total (durables and nondurables), the region lost share. Wisconsin, Michigan, and Indiana performed more strongly than Ohio and Illinois.

The analysis identifies no explanations. However, over the time period there were major shifts in population to the South and West. To the extent that firms are drawn by expanding markets, it is not surprising that the Great Lakes lost share

to other regions. The recession and appreciation of the dollar in the early 1980s affected regions and industries differently. The Great Lakes region, with its specialization in motor vehicles, steel, and machine tools, was more adversely affected than other regions.

Some of the loss in share in manufacturing has been due to the increased tendency of manufacturing firms to contract out certain functions to specialized business services firms.

Nonmanufacturing

Some of the loss in share in manufacturing has been due to the increased tendency of manufacturing firms to contract out certain functions to specialized business services firms. For example, janitorial services formerly performed by employees on the manufacturing firm's payroll now are provided by a janitorial services firm whose employees are classified in the business services industry. The increase in new firms has created a demand for advertising, business consulting, and temporary help services. Some of these services may be provided for firms located outside the state's borders. In health services, hospitals have specialized; they therefore may draw patients from outside the state. Government deregulation has promoted interstate competition in financial services. Thus, the list of products in which the demand is generated from outside the state (called the export base of the state) has been expanded beyond automobile parts, steel plate, and machine tools to include

business, health, and financial services. How have these nonmanufacturing sectors performed?

Services (Table 3)

The two major components of services are business services and health services. Compared to the U.S., the Great Lakes region and all its component states lost

share in both periods. Illinois jumped from 5th to 1st in the 1979-87 period. When the comparison is with the Great Lakes economy, Illinois' performance switched from a loss in share in the 1969-87 period to a gain in share for the more recent period. Wisconsin, on the other hand, gained share in the 1969-87 period but lost in the most recent period. The range of the summary statistic is generally

Table 2
Nondurable Goods Manufacturing
State Rankings Relative to U.S. and Great Lakes Region
1969-1987 and 1979-1987

State	Relative to:			
	U.S.		Great Lakes	
	1969-87	1979-87	1969-87	1979-87
Illinois	5 (-.21)	5 (-.10)	5 (-.13)	5 (-.07)
Indiana	2 (.01)	2 (.03)	2 (.08)	2 (.07)
Michigan	3 (.00)	3 (.00)	3 (.08)	3 (.04)
Ohio	4 (-.10)	4 (-.05)	4 (-.02)	4 (-.02)
Wisconsin	1 (.12)	1 (.05)	1 (.20)	1 (.09)
Great Lakes		(-.08)		(-.03)

Summary statistic in parentheses.

Table 3
Services
State Rankings Relative to U.S. and Great Lakes Region
1969-1987 and 1979-1987

State	Relative to:			
	U.S.		Great Lakes	
	1969-87	1979-87	1969-87	1979-87
Illinois	5 (-.18)	1 (-.08)	5 (-.02)	1 (.02)
Indiana	2 (-.15)	2 (-.09)	2 (.01)	2 (.01)
Michigan	3 (-.16)	5 (-.12)	3 (.00)	5 (-.02)
Ohio	4 (-.16)	3 (-.10)	4 (.00)	3 (.00)
Wisconsin	1 (-.06)	4 (-.12)	1 (.10)	4 (-.02)
Great Lakes		(-.16)		(-.10)

Summary statistic in parentheses.

Table 4
Finance, Insurance, and Real Estate
State Rankings Relative to U.S. and Great Lakes Region
1969-1987 and 1979-1987

State	Relative to:			
	U.S.		Great Lakes	
	1969-87	1979-87	1969-87	1979-87
Illinois	1 (-.05)	1 (-.04)	1 (.16)	1 (.10)
Indiana	4 (-.36)	4 (-.25)	4 (-.14)	4 (-.11)
Michigan	5 (-.37)	5 (-.26)	5 (-.15)	5 (-.12)
Ohio	3 (-.35)	3 (-.18)	3 (.14)	3 (-.04)
Wisconsin	2 (-.12)	2 (-.17)	2 (.09)	2 (-.03)
Great Lakes	(-.22)	(-.14)		

Summary statistic in parentheses.

Table 5
Wholesale Trade
State Rankings Relative to U.S. and Great Lakes Region
1969-1986 and 1979-1986

State	Relative to:			
	U.S.		Great Lakes	
	1969-86	1979-86	1969-86	1979-86
Illinois	4 (-.20)	2 (-.08)	4 (-.01)	2 (-.01)
Indiana	2 (-.13)	5 (-.13)	2 (-.06)	5 (-.04)
Michigan	5 (-.22)	1 (-.05)	5 (-.03)	1 (.04)
Ohio	3 (-.20)	3 (-.10)	3 (-.01)	3 (-.01)
Wisconsin	1 (-.08)	4 (-.12)	1 (.10)	4 (-.04)
Great Lakes	(-.19)	(-.09)		

1987 data not available.

Summary statistic in parentheses.

small, suggesting less variation in performance compared to manufacturing. No doubt Chicago played a role in Illinois' performance.

Finance, Insurance, and Real Estate (Table 4)

The Great Lakes region and all the states

lost share in both periods. Illinois and Wisconsin lost less in the 1969-87 period compared to other states; Illinois lost the least in the 1979-87 period. When compared to the Great Lakes economy, Illinois and Wisconsin gained share in 1969-87, and only Illinois gained share in the 1979-87 period. Again, the importance of Chicago's role should be noted.

Wholesale Trade (Table 5)

Given Indiana's good spatial position relative to major markets, it is important to examine wholesale trade. Compared to the U.S., the Great Lakes region and all states lost share. The states' relative position changed substantially between the two time periods. Indiana ranked 2nd over the 1969-86 period but fell to 5th in the more recent period. Michigan, on the other hand, was 5th over the 1969-86 period but rose to 1st in the more recent period. Within the Great Lakes region, Indiana lost share while Michigan gained share over the 1979-86 period.

Compared to the U.S., the Great Lakes region and all states lost share. The states' relative position changed substantially between the two time periods. Indiana ranked 2nd over the 1969-86 period but fell to 5th in the more recent period.

Depreciation of the Dollar

How have the Great Lakes economy and its component state economies benefited from the depreciation of the dollar that began in 1985? The rates of change, 1986-87, for durable and nondurable goods manufacturing are examined in Table 6. (The 1986-87 period is used because of the lag in the effects of depreciation.)

The Great Lakes region lost share in durables and (slightly) in nondurables. However, Indiana gained share in both durables and nondurables relative to the U.S., ranking 2nd in durables and 1st in

nondurables. Indiana's gain in share relative to the Great Lakes region was even greater. One observation does not make a trend, but the initial results are encouraging for Indiana.

Conclusions

The most obvious conclusion is that Indiana has lost its share of several business sectors because it is part of the Great Lakes region--a region which as a whole lost share over the time period of the analysis. Several reasons have been suggested for this loss, including regional population shifts and a national fiscal policy that contributed to an appreciation of the dollar.

For Indiana, the results are mixed. In nondurables and services the state has done relatively well. In durables it falls in the middle. In wholesale and finance-insurance-real estate it is toward the bottom.

There were also shifts within the Great Lakes region. These shifts imply that state economies within the same geographic area responded differentially to the national shift. In manufacturing Illinois lost share; in finance, insurance, and real estate, it gained share while the

State
Illinois
Indiana
Michigan
Ohio
Wisconsin
Great Lakes

Summary statistic in parentheses.

Table 6
Durable and Nondurable Manufacturing
States Relative to U.S. and Great Lakes Region
1986-87

State	Relative to:			
	U.S.		Great Lakes	
	Durable	Nondurable	Durable	Nondurable
Illinois	3 (-.010)	5 (-.011)	3 (.010)	5 (-.007)
Indiana	2 (.016)	1 (.014)	2 (.036)	1 (.018)
Michigan	5 (-.050)	4 (-.009)	5 (-.030)	4 (-.005)
Ohio	4 (-.026)	3 (-.006)	4 (-.006)	3 (-.002)
Wisconsin	1 (.026)	2 (.006)	1 (.046)	2 (.010)
Great Lakes	(-.020)	(-.004)		

other states lost. Thus, Illinois has gone through a significant shift in its economy.

For Indiana, the results are mixed. In nondurables and services the state has done relatively well. In durables it falls in the middle. In wholesale and finance-insurance-real estate it is toward the bottom. Table 6 reflects the most recent observations and indicates that Indiana manufacturing has gained share relative to the U.S. and the region. As time progresses it will be interesting to determine if this one observation is the beginning of a trend.

The design of strategies for improvement requires a more disaggregated level of analysis. Although the states studied are part of the same region, differences in industrial composition exist within the

sectors and could explain the differential performance. Also, the differences in state performance reflect a variety of supply-side differences: infrastructure, human and natural resources, and energy and labor costs. During the 1980s the states have taken the initiative in the design of economic development strategies. It is expected that interstate competition will continue at both state and local governmental levels; Indiana's design will determine whether it increases or decreases its share of the nation's economy.

1. Labor earnings includes wages and salaries, employer contributions to private pension funds, and proprietors' income.

Indiana
University

O ne University With Eight Front Doors



Dear Friends,

During the past year, faculty, students, and staff, as well as alumni and friends of Indiana University, have been engaged in a planning process to define our academic agenda as we approach the twenty-first century.

Our planning effort has proposed fifty-five initiatives that together constitute an ambitious agenda designed to propel a great institution into one of still greater distinction. Some of the proposals focus on opportunities and challenges confronting campuses individually. Others are University initiatives, reflecting the fact that, as one University, the whole is greater than the sum of its parts.

We have already begun implementing some of the initiatives; we expect that five or six years will be needed to complete all of them. Some do not require additional funding. While many do depend on new resources, we propose that less than half of the investment will come from the State of Indiana; the major share will be from private and federal sources and from University internal reallocations.

This academic agenda has shaped our budget request to the State for an increase of \$85.5 million for the 1989-91 biennium. Our request calls for major investments in undergraduate education, in support of faculty as scholar-mentors, in our research enterprise, in our capacity to foster economic growth across the State, and in our ability to serve Hoosiers through access to higher education.

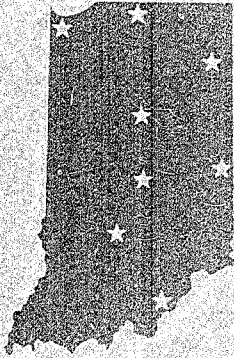
We invite you to review the following summary, which outlines our proposals for enhancing the quality of education and research at Indiana University and ultimately the quality of life in Indiana.

Cordially,



Thomas Ehrlich
President of Indiana University

Campus Initiatives



Undergraduate Education

Through undergraduate education—in both the liberal arts and the professions—Indiana University fulfills its first obligation to the State of Indiana. The University is committed to enhancing its undergraduate curriculum to provide students with the tools they need for living and working in a pluralistic, competitive, technological society. To achieve this goal, we plan to:

- expand the number of small-group seminars designed especially for first-year students and taught by faculty members.
- strengthen the basic skills of our undergraduates. We seek to enhance the curriculum in the areas of writing proficiency, foreign language proficiency and foreign culture awareness, and computer literacy.
- develop more general education courses, enhance undergraduate research opportunities, and expand senior seminars as key initiatives for enriching the major.
- promote meaningful, long-term faculty-student interaction by a variety of means, including reducing class sizes.
- increase significantly the number of minority faculty members.
- enhance equipment for chemistry and physics that will produce immediate benefits in the quality of instruction.
- reduce the University's reliance on part-time faculty.

Research and Economic Growth

Among the most fundamental of university functions is the creation of new knowledge through research. Indiana's distinguished record in research has

invigorated commerce and contributed to the welfare of all citizens by improving the quality of life across our State. In order to assure Indiana University's place as one of the major international centers of research, we must have the essential combination of top faculty, the best graduate students, and state-of-the-art facilities and equipment. To achieve this, we plan to:

- attract the most promising graduate students by significantly increasing support for those seeking advanced degrees.
- update equipment essential for first-class research in a modern university. Our goal is an annual academic equipment budget of 20 percent of total inventory, one half to come from State funds and the other from external grants and private contributions.
- continue recruiting distinguished scholar-teachers.
- offer the following new academic programs: a degree program in instrumentation science at Bloomington; undergraduate and graduate programs in cognitive science at Bloomington; master of science degree programs in electrical and mechanical engineering through the Purdue Graduate School at Indianapolis; a concentration in operations management on the Kokomo campus; and a master's program in economics at Indianapolis.

Educational Access

Our commitment to provide educational access extends to all Hoosiers; to part-time students; to minority populations; to the economically disadvantaged; to women seeking to enter fields in which they have been historically underrepresented; to those whose physical handicaps impede access to the full range of educational opportunities; and to the very best students, a high proportion of whom now

attend universities outside Indiana. We plan to:

- increase the numbers of minority students participating in higher education. We have developed the Future Scholars Program that will focus attention on up to 400 Indiana sixth-grade students from disadvantaged backgrounds. The program's goal is to prepare and motivate these students so they will be able to obtain a university education.
- initiate a second-year medical education program at Fort Wayne to complete the Statewide System for Medical Education.
- expand the University's student support services, including psychological testing, individual and group counseling, and crisis intervention.
- offer an innovative "IU tuition futures" plan that will provide parents and their children a sound means to finance a college education at no extra cost to the State.

Support to Attract and Retain Faculty and Staff—Indiana University's plans for achieving the goals of its academic agenda depend on attracting and retaining the best faculty and staff. To keep our best faculty from being drawn away by attractive offers from other institutions, the University must be able to offer comprehensive and flexible packages of support.

Library Acquisitions and Automation—An outstanding library is a cornerstone of a great university. Indiana University is committed to modernizing its library system through computerization in the next decade and to providing a truly world-class collection of teaching and research materials. A 50 percent increase in the library's acquisitions budget is required over the next three biennia to remedy the effects of recent inflation and

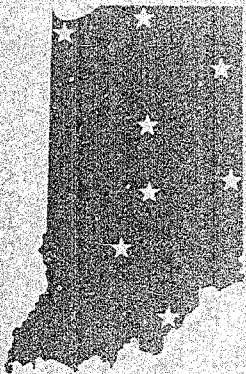
inadequate funding on our book and serial collections and to build adequate specialized collections in IU's strongest academic areas.

Interactive Telecommunications—We propose using advanced technology to develop a two-way interactive television system connecting all IU campuses. This innovative program will enable the University to expand course offerings, to combine faculty talents in team teaching, and to draw all campuses together as one University.

Student Performance Assessment and Advising—We are developing a comprehensive performance assessment program across the eight campuses to evaluate IU's writing programs, standards regarding placement and "testing out" procedures, major field programs, and student involvement. We are also working to improve the student advising system by increasing faculty involvement and expanding the computerized system for matching students' academic needs with course requirements.

IU Connections—New programs on our eight campuses will create associations and networks that will strengthen the research and instructional capabilities of all our faculty and will make the best use of expensive, specialized equipment and facilities.

Maintaining the Base for the IU Plan—The bold initiatives we have proposed will prepare both the University and the State for the challenges facing us as we approach the twenty-first century. But the success of these initiatives depends on a steady, reliable base of operations. Keeping up with the costs of basic items—such as facility maintenance, utilities, and personnel benefits—accounts for over half of Indiana University's budget request.



University
Initiatives

Capital Appropriation Request

All Campuses—General repair and rehabilitation of academic/administrative facilities

Bloomington Campus—Renovation of the nine buildings in the historic Crescent area for classroom and laboratory space

Indianapolis Campus—University Library

Indianapolis Campus—Science/Engineering Technology Building, Phase III

East Campus—Library/Classroom Building and associated remodeling

Kokomo, Northwest, and South Bend Campuses—Special repair and rehabilitation of library, classroom, laboratory, and computing facilities

Southeast Campus—Classroom/Office/Theatre Building and related remodeling

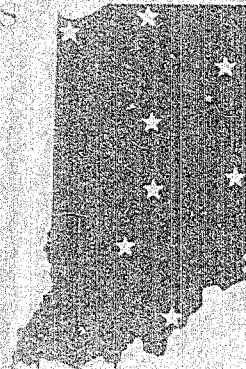
Indianapolis Campus—Land acquisition

Bloomington Campus—Cyclotron addition: Ion Source Building

Bloomington Campus—Psychology Building addition and remodeling

Indianapolis Campus—Medical Science Building Renovation, Phase I

We Are
One University
With Eight Front
Doors



Four out of five Hoosiers live less than an hour's drive from at least one of Indiana University's eight campuses in Bloomington, Indianapolis, South Bend, Gary, Kokomo, New Albany, Richmond, and Fort Wayne. The University, with a combined enrollment of more than 85,000 students, also operates facilities in Columbus and Elkhart, as well as programs at numerous other sites. Of the University's more than 300,000 living alumni, 168,000 live and work in Indiana.

We invite your support for the ambitious academic agenda described in this publication—an agenda that will help both Indiana University and the State of Indiana meet the challenges of the twenty-first century. We encourage you to share your views on the needs of higher education with your legislators. Please call or write us with any questions you have about our initiatives for the future.

Douglas Wilson
Vice President for University Relations
and External Affairs
Bryan Hall 500
Indiana University
Bloomington, Indiana 47405
(812) 855-0850

Providing Public Facilities to Support Economic Growth

Graham Toft

Senior Vice President, Indiana Economic Development Council

As a basic manufacturing-dominated economy, Indiana is an infrastructure-sensitive state. It has been quite reliant on its network of public works and public facilities. The state has maintained a strategic advantage through an extensive infrastructure base, particularly its highly developed transportation network.

In the 1950s and 1960s, Indiana spent at a more aggressive pace than much of the rest of the nation to complete its interstate highway system ahead of schedule, thus capitalizing on a geographic advantage. Indiana moved boldly to develop modern port facilities and airport connections while protecting its railroad network from being dismantled during the restructuring of the rail industry.

Indiana moved a little less aggressively than some states in implementing strong environmental controls, and it also cut back on highway maintenance. Property tax limitations brought on cutbacks in local public works spending.

In the 1970s and 1980s, however, the state's commitment to infrastructure development appeared to lessen; its rate of spending slowed. Indiana moved a little less aggressively than some states in implementing strong environmental controls, and it also cut back on highway maintenance. Property tax limitations

brought on cutbacks in local public works spending. In 1985-86, per capita state and local funding on highways was \$162. The national average was \$205, and Indiana ranked 45th among the 50 states. In 1985, the Federal Highway Administration rated Indiana 31st on the condition of its interstate system, and in 1986 only 38th in the percentage of non-deficient bridges. In 1986, the Environmental Protection Agency ranked Indiana 35th in the dollar amount of current sewage treatment plant needs on a per capita basis (50th position representing the worst situation in all the above rankings).

Indiana's infrastructure base remains a competitive advantage. However, the state needs to strengthen its efforts toward maintaining a transportation network and improving environmental protection facilities. Major additional investments can be expected in solid and hazardous waste disposal, airports, and sewage and water treatment. In addition, more attention needs to be given to the development of civic amenities such as recreational and cultural facilities, historic restoration, and landscape design of public space.

The cost of housing in Indiana is very attractive. On the basis of average housing costs as a percentage of per capita income, Indiana ranks 4th in the nation (1st being the least expensive). Development of physical and cultural amenities to complement the "affordability" of the Hoosier life-style would pay significant dividends for Indiana. Public facilities and civic amenities not only serve the direct needs of business; they also provide higher quality of life to residents.

In short, Indiana needs to re-establish the importance of infrastructure as a competitive economic advantage. This applies to both transportation and environment. Currently, cost-benefit

analysis speaks poorly of recent capital budgeting decisions at both state and local levels. Tough technical analysis will be required in the future to make sure every scarce infrastructure dollar is spent for beneficial economic development.

A Strategic Goal: Financing and Managing Public Facilities as Long-Term Capital Assets

In private business, capital facilities are treated as assets, not liabilities. The wealth of a business enterprise is measured in part by its stock of physical resources and properties. Expenditures that increase the value of those assets are viewed as investments. The public sector, on the other hand, has tended to treat infrastructure as a cost of doing business, a liability rather than an asset. Expenditures to maintain existing facilities or develop new ones are not offset on the balance sheet by increases in the value of capital assets.

Since public assets often involve large sums of money, require many years to design and build, and may last for 100 years or more, they must be managed wisely over their life span. Such a life-cycle approach can run counter to political power.

An asset-based, life-cycle approach to infrastructure planning would make financing and management more than simply an accounting adjustment. Instead, such an approach would drive important reforms in cost-benefit analysis, procurement, and the application of

improved technology to the design and construction of public facilities.

Since public assets often involve large sums of money, require many years to design and build, and may last for 100 years or more, they must be managed wisely over their life span. Such a life-cycle approach can run counter to political power. Moreover, neither state nor local governments have utilized life-cycle planning and budgeting techniques in the past to manage public assets over the long term. For example, units of government do not, as a rule, design capital improvement plans or capital budgets with spans of ten or more years.

Since Indiana is a limited-government, low-tax, and low-debt state, abundant finances for capital projects will not be available. Creative solutions to designing, financing, and operating public facilities must be found.

Governments need to manage soundly and efficiently the assets currently in place and invest wisely in new facilities according to life-cycle principles. Since Indiana is a limited-government, low-tax, and low-debt state, abundant finances for capital projects will not be available. Creative solutions to designing, financing, and operating public facilities must be found.

Strategies for Change

Priority 1: Improve infrastructure planning and capital budgeting. The first and essential step toward an asset-based, life-cycle approach is a reorientation toward

long-range planning and capital budgeting at all levels of government. While some long-range planning exists, there is no comprehensive, statewide master plan; nor is there a planning process to develop such a plan. The result is a lack of coordination and a line item (or pork-barrel) approach to infrastructure and environmental planning issues by both state and local governments.

Important long-range planning and capital budgeting needs identified at the Economic Development Congresses are:

1. A master plan for capital improvements and new investments should be developed on a state-wide basis for a minimum 7-year cycle.
2. A financing plan must provide for adequate funding mechanisms at the county and regional level.
3. The master plan must give high priority both to transportation and environmental infrastructure.
4. All units of government should be required to have a capital budget and a capital budgeting process.
5. The plan and planning process should be the work of a non-political entity that has the credibility to act as a coordinator between state, local, and private interests. Everyone must be able to trust an entity that deals with "big bucks" and long time-span projects.
6. The plan should incorporate broad land-use goals and strategies.
7. The state should assist and encourage local areas with community improvement planning and programming.
8. All long-range infrastructure planning must tie infrastructure expenditures to realistic economic development objectives and plans.
9. Future plans must recognize the emerging role of counties, multi-county alliances, and regional planning organizations in addressing area-wide infrastructure problems such as solid waste systems

and corridor development.

Priority 2 - Develop and implement a statewide plan for environmental infrastructure. Many Indiana communities face chronic environmental problems. Although a variety of factors contribute to this situation, the most widespread problem for communities is that they do not have the fiscal resources or technical expertise to deal with the growing complexity of today's environmental issues. Participants at Economic Development Congresses throughout the state identified the following areas of environmental infrastructure as critical priorities:

Sewer systems: While solid and hazardous waste and ground water are the hot environmental issues, Indiana must not lose sight of the fact that, according to the 1986 E.P.A. needs study, \$1.6 billion in current wastewater construction needs remain. Indiana's urgent sewer problems pertain to capacity, lack of capital budgeting and planning, poor maintenance leading to the deterioration of capital stock, and combined sewer overflows.

Cost-effective waste disposal has become the most important county infrastructure problem (along with the deterioration of county bridges). A mechanism for state government involvement in voluntary clean-ups is required.

Solid waste. With a state average of only 8.5 years of landfill capacity remaining, planning for adequate, cost-effective waste disposal has become the most important county infrastructure problem

(along with the deterioration of county bridges). A mechanism for state government involvement in voluntary clean-ups is required.

Ground water. Since Indiana is so heavily dependent on wells for drinking water, ground water quality concerns are mounting rapidly. The key issues to be addressed are: acceptable ground water quality; nonpoint source pollution; and whether or not to declare certain areas off-limits to drinking (i.e. gray water use only).

A statewide plan must address head-on the economic impact of environmental management and the linkages between environmental quality and economic well-being. The plan must also include practical financing mechanisms that provide funds commensurate with needs. The advantages of revolving loan funds along with an environmental infrastructure bank must be thoroughly explored, and start-up of the wastewater revolving loan should not be delayed any longer.

Priority 3 - Develop and implement a statewide strategic transportation plan with special attention to the transportation needs of smaller communities. For Indiana to be an advanced manufacturing state, its firms must not only compete on cost, quality and reliability, but also on delivery. The ability to move goods on time is critical. Utmost care must be directed toward strategically locating future investments in highways, waterways, rail, and air. Indiana needs a plan of strategic corridors that capitalizes on its existing interstate system, explores prospects for rail upgrade and high-speed rail from the northwest quadrant to the southeast quadrant, evaluates the benefits and costs for an international passenger and cargo hub in Lake County, and considers the future role of the Ohio River for modern waterway traffic.

In developing such a plan, consideration should be given to the prospects for firm and employment growth in the warehousing and related distribution industry. Furthermore, the special needs of smaller communities must be more fully explored. With decentralization of manufacturing, Indiana's small to mid-sized communities have opportunities for growth if the infrastructure is in place. Economic Development Congress participants felt that many small communities lacked the necessary highway, rail, and air connections. This speaks not only to the need for full consideration in state transportation and economic development planning, but also to the need for improved communication and cooperation between local, regional and state entities.

Finally, any successful transportation plan must include a major overhaul of the streets and road distribution formula.

A finance gap of approximately \$28.2 billion exists between now and the end of the century. Compared with states burdened by heavy indebtedness or high taxes, Indiana has greater capacity to meet this crisis. Its challenge is simply one of will.

Priority 4 - Diversify financing options. A finance gap of approximately \$28.2 billion exists between now and the end of the century. Compared with states burdened by heavy indebtedness or high taxes, Indiana has greater capacity to meet this crisis. Its challenge is simply one of will. One way to get the most for the money is

to diversify financing options. Indiana needs flexible financing for infrastructure as much as it does for small business development. Of the traditional sources of infrastructure financing—current revenue, debt, and user charges—Indiana has tended to rely more on current revenue than many other states and less on debt than most. In fact, outstanding state and local debt per capita is about half in Indiana of the average of the midwest states. A greater reliance on user charges and improved debt issuance and debt management procedures will be necessary. Indiana's local governments also should be given the flexibility to lease facilities from private owners and builders and purchase management services from private operators. State and federal financing for local public facilities, such as wastewater treatment plants, should be shifted from a grant to a loan basis.

Along with diversity and flexibility comes the need to keep local governments informed of their options, and to lay out these options in a clear, concise manner. Simplified state procedures for procurement and budgeting are required. Moreover, training and continuing education for local officials is a must.

Priority 5 - Improve the day-to-day management of public assets. Public facility management in Indiana is sometimes characterized more by patronage than professionalism. The problems of low salaries, inadequate training, and limited career opportunities need to be dealt with. Improved capital budget procedures, life cycle costing and streamlined intergovernmental cooperation can be expected to improve public sector asset management. Giving local governments the authority to purchase infrastructure services from private providers also will allow improved management practices, particularly for small communities.

Greater efficiency in public facilities can be obtained through more flexible bidding and procurement procedures. The application of higher levels of technology in the design, construction, and management of such public facilities as bridges, roads, and waste treatment and storage facilities can increase infrastructure productivity.

Priority 6 - Increase public awareness of needs and public/private participation in public infrastructure. While the infrastructure crisis in Indiana is real, there is little perception of this crisis by the general public, business, or industry. Information is required on needs, costs, and economic development consequences.

Suggestions made by participants at the statewide Congress include:

1. Increase the number of opportunities for involvement by community leaders.
2. Present information to the public in a practical and understandable manner.
3. Develop a state and regional marketing program to promote public awareness of environmental and infrastructure issues.

Public awareness should lead to greater public/private participation. Stronger, more resolute local partnerships among government, business, labor, and the construction industry will be required if we are to "build Indiana" under conditions of diminishing federal aid. Suggestions from participants at the statewide Congress include:

1. Establish local non-political infrastructure and environmental study groups, using state assistance and guidelines and involving local public officials, community leaders, businesses, and interest groups to resolve local issues and problems.

2. Establish a framework for further

discussion of privatization of public facilities.

Priority 7 - Increase attention to physical and cultural amenities. Indiana's many communities should be encouraged to give greater attention to amenities planning and development. Increasing recreational facilities, improving community appearance, and developing diverse cultural assets can produce significant rewards in attracting highly-skilled, high wage earners.

Increasing recreational facilities, improving community appearance, and developing diverse cultural assets can produce significant rewards in attracting highly-skilled, high wage earners.

Recent Accomplishments

The 1988 General Assembly passed legislation for a new program of bond financing for highway improvements in Indiana. This new program should gradually eliminate the current backlog of rehabilitation and highway improvement projects. The Indiana Bond Bank has been successful in assisting smaller units of government with access to capital markets. Indiana Infrastructure, Inc. (I³), a not-for-profit public/private partnership, has provided well-researched recommendations which continue to be the foundation for infrastructure finance reform. I³ is also a state model for localities to bring all the players of the equation together to "build Indiana." The repair and rehabilitation formula now built into the state

budget process for post-secondary institutions has been successful in ensuring a planned approach for upkeep and modernization. The approach should be adapted to all areas of the state's budget. Tax increment financing innovation has been applied in recent years to finance up-front public costs for major public/private development projects.

Hoosiers must be realistic about the prospects for financing Indiana's infrastructure. The federal government will not be the major player it has been in the last two decades because of changing federal priorities (such as deficit reduction). If Indiana wants to be a leading goods-producing state (in agriculture, manufacturing, mining, and construction), it will need first-class transportation. If the state's residents want a high quality of life, they will need first-class environmental infrastructure--sewer-treatment, waste-disposal, and water-purification facilities. The relationships between infrastructure and economic and social development are becoming abundantly clear. The 1990s will see infrastructure as a pressing state and local issue. Must we wait for a major bridge collapse or a sewer blowout before we act? Must we curtail development and investment because of the lack of adequate public facilities? We have not been good at infrastructure planning in the past; we can no longer afford this permissive, piecemeal approach.

1. This article is extracted and adapted from *Looking Forward*, an update of Indiana's Strategic Plan for Economic Development. Copies of *Looking Forward* may be obtained from the Indiana Economic Development Council.

Why There Will Be No Recession

Richard B. Finch

Executive Vice President, Indiana Lumber and Builders Supply Association

Since it occurred, the recession of the early 1980s has been a saving grace for the news media, financial reporters, and economists. When nothing else of any interest is happening, someone can always be found to discuss his or her projections of the date and severity of our next recession. The only interesting thing about these reports is that none of them are the same, except that they all keep us nervous about when the trouble will begin. It brings up the memory of Chicken Little: "The sky is falling!"

I am pleased to report that our recession anxieties can be relieved forever. Into my possession has come a listing of the materials that go into producing one ton of paper. If the listing, shown in the Table, hasn't made it clear, let me explain why I feel it is impossible for us to ever have a recession again.

Based on a conservative estimate, the federal, state, and local governments use several million tons of paper every day. The Armed Forces fill out all their

paperwork in triplicate, so they probably use as much paper as the government offices--another several million tons daily. All businesses have been forced to become gargantuan paper-eating organizations. Then there are the millions of tons of paper used by ordinary people in their homes, 365 days a year.

It all adds up to billions of tons of paper production annually, with each single ton requiring all of the wood, minerals, chemicals, and fuel listed in the Table and the machinery, manufacturing, mining, logging, transportation, and labor to produce it. Everything that goes into one year of paper production requires enough money and produces enough taxable income to make our national debt look like a drop in the bucket.

It leads me to the inevitable conclusion that we must stop worrying about the doom-and-gloom predictions of a recession around the corner. Anyone with any knowledge of the production and use of paper can see that that process alone will keep a recession from occurring. The media and the economic forecasters merely need something to talk and write about when things get dull.

Table
What Goes Into a Ton of Paper

Water	27,000 gal
Wood	4 tons
Sulfur	12 lb
Magnesium Hydroxide	10 lb
Lime	120 lb
Salt Cake	28 lb
Caustic	87 lb
Chlorine	70 lb
Starch	112 lb
Power	1,000 kwh
Fuel	2/3 ton coal
Talc	12 lb
Synthetic Fibers	16 lb
Alum	28 lb
Clay	187 lb
Calcium Carbonate	45 lb
Coating	12 lb
Chlorate	27 lb
Sulphuric Acid	43 lb
Sodium Hydrosulfide	8 lb
Dyes and Pigments	10 lb
Capital Investment	\$850 per ton
Work Hours	7 per ton

In the Next Indiana Business Review

1989 Economic Outlook--National, State, and Local

Indiana Business Review

Published six times each year by the Indiana Business Research Center, Graduate School of Business, Indiana University.

Jack R. Wentworth, Dean
Morton J. Marcus, Director and Editor

Brian K. Burton, Managing Editor; Lowell McCoskey, Systems and Programming Manager; Melissa Lamb, Darren Wells, Editorial Assistants; Paula Carroll, Graphics and Pasteup; Vicki Fowler, Compositor Coordinator; Melva Needham, Circulation; Nikki Livingston, Senior Secretary; Jo Clontz, Office Manager; Louise B. Brown, Project Coordinator. Printed by Indiana University Printing Services.

Unless otherwise noted, information appearing in the *Indiana Business Review* is derived from material obtained by the Indiana Business Research Center for instruction in the School of Business and for studies published by the Center. Subscriptions to the *Indiana Business Review* are available to Indiana residents without charge.

Indiana Business Review

Indiana Business Research Center
Graduate School of Business
Indiana University
Bloomington, Indiana 47405

November 1988

Nonprofit Organization
U.S. Postage
PAID
Bloomington, Indiana
Permit No. 2

00899 8809
Cheryl Waldman
Congressional Info Serv.
4520 EAST WEST Highway
Bethesda MD 20814