

THE GREAT LAKES ECONOMY:

A Collection of Issue Papers

Final Report of The Economic Analysis and Policy Task Force

October 1987

*(with a December 1988 update on
"The Steel Industry in the Great Lakes States"*

The Great Lakes Commission

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PREFACE

The Great Lakes Commission created the Economic Analysis and Policy Task Force in October 1985 as a follow-up to the Commission's publication, The Great Lakes Economy: A Resource and Industry Profile of the Great Lakes States.

Specifically, the Economic Analysis and Policy Task Force was directed to do the following:

- o Analyze the data in The Great Lakes Economy book to identify trends, areas of regional strength to be preserved and areas of regional weakness to be overcome;
- o Develop additional information necessary to support research findings or develop policy recommendations;
- o Make explicit research findings; and
- o Present policy recommendations based on the research findings.

The Task Force identified several priority economic issue areas for further research. The Task Force was subdivided into work groups and individual members undertook the necessary research and report development. A series of issue papers were prepared. The papers have been compiled in this final draft document. Comments on the papers are welcome, before October 30, 1987, at which time final versions will be prepared and the document readied for public sale and distribution.

The titles of the attached issue papers are:

- *Expanding Self-Employment Opportunities in the Great Lakes Region*
- *Rural Community Economic Development*
- *A More Market-Oriented and Diversified Agriculture Producer Economy in the Great Lakes Region: Selected Policy Options*
- *Status Report on the Steel Industry in the Great Lakes Region*
- *Policy Options to Develop a Strategy to Enhance the Competitive Position of the Steel Industry*
- *Summary of Findings from a Microeconometric Analysis of the Economic Development Impact of Industrial Performance of Research and Development*
- *Tourism and Outdoor Recreation*

**GREAT LAKES COMMISSION
ECONOMIC ANALYSIS AND POLICY TASK FORCE**

EXPANDING SELF-EMPLOYMENT OPPORTUNITIES IN THE GREAT LAKES REGION

October 1987

Expanding Self-Employment Opportunities in the Great Lakes Region

STATUS OF POLICY RECOMMENDATIONS:

This paper was originally prepared for the Great Lakes Commission, Economic Analysis and Policy Task Force. It was approved by the Task Force in February, 1987. Four "summary positions" substantially following from the policy recommendations in this report were adopted by the full commission on March 16, 1987. The report has been forwarded to Great Lakes Governors' representatives for comment and review. Upon completion of that review, the report in its entirety may be considered for adoption by the Great Lakes Commission.

EXECUTIVE SUMMARY:

The Great Lakes States have a high share of unemployed and of persons utilizing social insurance programs such as Unemployment Insurance (UI) and Aid to Families with Dependent Children (AFDC). The Great Lakes also have slow economic growth and low self-employment rates. These conditions cannot be changed by any one program, but self-employment initiatives can be a useful addition to current state efforts. They can serve economic development goals while directly meeting the needs of the unemployed.

Persons who have experienced spells of unemployment or have received AFDC are unlikely to start a business. A statistical analysis was conducted of persons who were unemployed or AFDC recipients and who also worked during the same year. Only a very small portion of this group of workers was self-employed. Most had wage and salary employment. By contrast, the poverty population taken as a whole had a very high self-employment rate — twice the average rate for the total working population.

Potential entrepreneurs who receive UI and AFDC face a lack of capital, lack of training, and program restrictions that make the transition from public support to independence difficult or impossible. Programs of support have been developed which can overcome these barriers. Experience shows these can often be developed with minimal expense beyond existing programs.

A person who is trained into self-employment does not necessarily face a "dead end" situation. A look at census data shows that the likelihood of achieving financial independence is as great with self-employment as with wage and salary work. The variety of industries entered into by the self-employed clearly exceed the bounds of stereotypical images. And previous research has shown that newly-started small businesses make a significant contribution to overall job creation in the economy.

There is great need and a good degree of promise for programs to encourage self-employment as an alternative for the unemployed and those on public assistance. The Great Lakes states have already begun to pioneer programs in this area. The federal government must remove restrictions on social insurance programs to allow continued productive experimentation.

The following are four specific policy recommendations in the area of self-employment development:

1. Welfare Reform to Reward Work Efforts. The Great Lakes Commission should support the principle that the welfare system should be designed to smooth the transition to employment, including that to self-employment.

Several Congressional welfare-reform packages propose lessening the present dollar-for-dollar reduction in benefits for earned income, and

would extend other benefits to those who work. It would be inappropriate to support any one selected proposal, however the principle of reform should be backed.

2. AFDC Waivers for Self-Employment Experiments. The Great Lakes Commission should favor the suspension of regulations to allow states to carry out AFDC self-employment demonstration projects.

Congress and the Department of Health and Human Services are currently considering several approaches to allowing experiments in entrepreneurial training to function effectively. These will address such issues as asset limitations, income reporting and income carryovers by recipients. Special program waivers are also being considered at the Department of Agriculture for the Food Stamp program.

3. Self-Employment Initiatives involving the Unemployment Insurance Program. The Great Lakes Commission should endorse plans to carry out self-employment demonstration projects under Unemployment Insurance.

The Department of Labor is currently considering how to allocate a special \$5 million appropriation for demonstration projects under the Unemployment Insurance system. Under consideration is at least one self-employment demonstration project by the Department.

At the same time, Representative Ron Wyden of Oregon has re-introduced a bill to allow five to ten states to test the results of continuing UI benefits to persons pursuing self-employment. The program would be limited to a maximum of 5 percent of the caseload in any given state and would have a 3 year sunset provision. This proposal would be especially appropriate for those states which have high unemployment and experience in adopting self-employment programs.

4. The Corporation for Enterprise Development Self-Employment Investment Demonstration. The Great Lakes Commission should endorse and encourage this demonstration.

Six members of the Great Lakes Commission have indicated their intention to join the Self-Employment Investment Demonstration, which will provide training and assistance to AFDC recipients pursuing self-employment. It will be a unique opportunity to measure the impact of program approaches and identify factors that restrict small business development.

EXPANDING SELF-EMPLOYMENT OPPORTUNITIES IN THE GREAT LAKES REGION

PART 1: INTRODUCTION.

This paper outlines the potential for developing a set of policies for increasing self-employment in the Great Lakes states. The focus is on programs which will allow pursuit of self-employment by persons who are currently dependent on programs such as AFDC and Unemployment Insurance.

The type of self-employment initiatives envisioned here are those that provide training and capital assistance to selected groups of potential entrepreneurs. In addition, and perhaps most importantly, the programs would also provide a means to get around program regulations in UI and AFDC that effectively prohibit entering self-employment.

PART 2: BENEFITS OF SELF-EMPLOYMENT DEVELOPMENT.

An attraction of self-employment initiatives is that they can simultaneously address two issues. They address economic development concerns, and they also directly provide opportunities to the persons who have been most directly affected by the shortcomings of our recent economic performance. These two points are expanded below.

Economic development.

The economic performance of the Great Lakes States in the early 1980's focused much attention on the need for new approaches to economic development. Figures 1 through 4 illustrate the overall situation facing the Great Lakes.

Figure 1 shows the proportion of population in the Great Lakes states and the comparative proportion of unemployed persons and AFDC recipients. The Great Lakes region has fewer persons in poverty, but more unemployed persons and more of those using government support programs. The Great Lakes states should have a special interest in seeing that new programs are developed that address the problems of these population groups.

Figure 2 shows self-employment as a percentage of population in the Great Lakes region, compared to the regions of the U.S. defined by the Bureau of the Census. Figure 3 shows the self-employment rates in individual states in the Great Lakes region. Clearly, the Great Lakes states trail the nation. Only New York and Minnesota are as high as the national average in self-employment. (It should be noted that the agricultural sector is excluded from all self-employment calculations in this paper.)

Figure 1

Great Lakes Share of Population, AFDC Cases and Unemployed Persons. 1984.

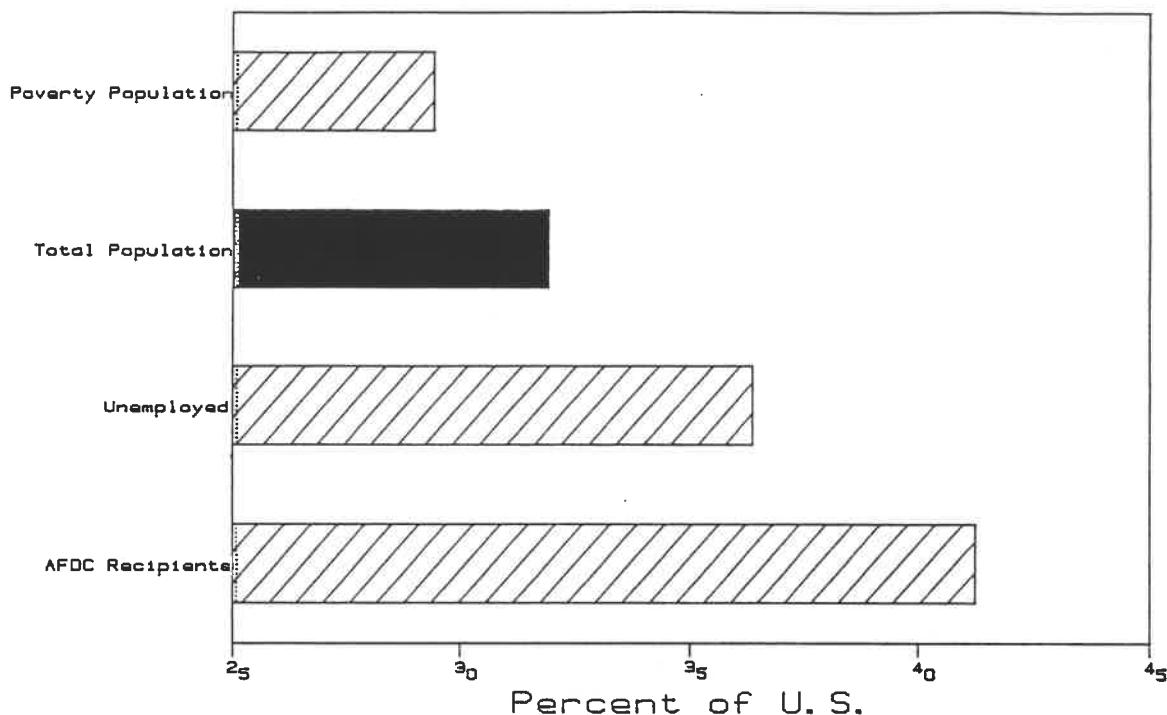


CHART PREPARED BY WISCONSIN DEPT OF DEVELOPMENT
Data source: Statistical Abstract of the U.S.

Figure 2

Non-Agricultural Self-Employment and Business Ownership Rates -- Census Regions.
1980 Census Data

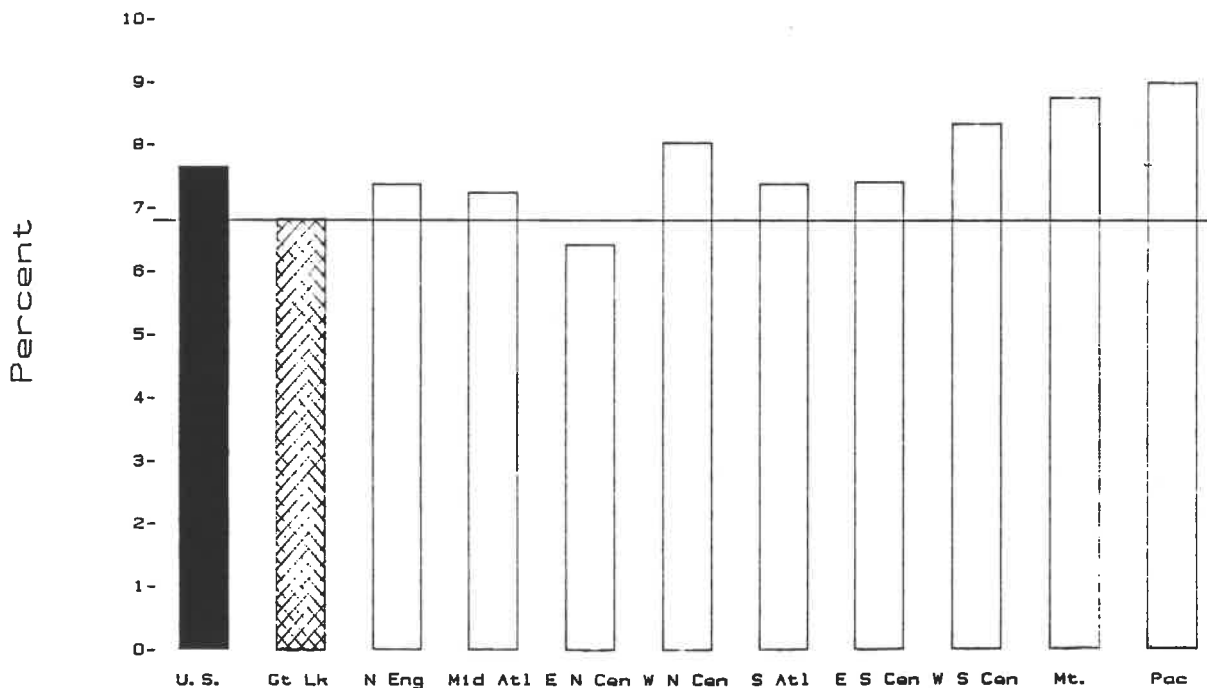


Chart prepared by the Wisconsin Department of Development.

Figure 3

Non-Agricultural Self-Employment and Business Ownership Rates -- Great Lakes States
1980 Census Data

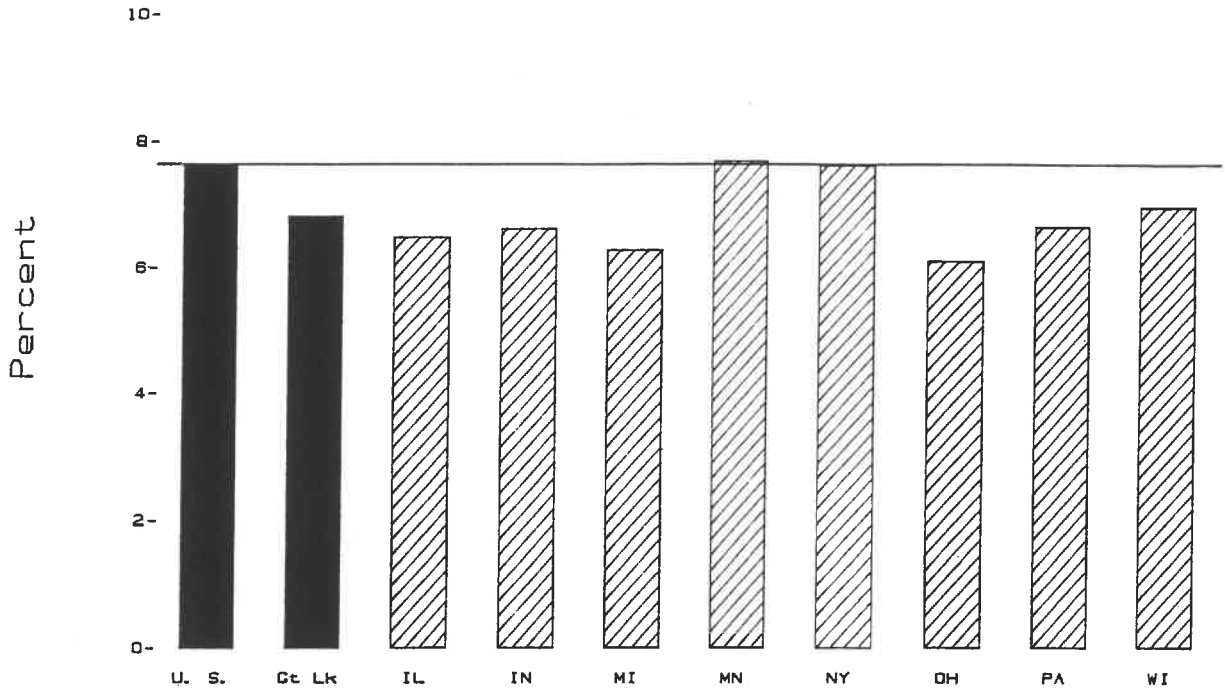


Chart prepared by the Wisconsin Department of Development.

Figure 4

GREAT LAKES STATES - SELF EMPLOYMENT BY POPULATION SUBGROUPS, 1980
Census file tabulations.

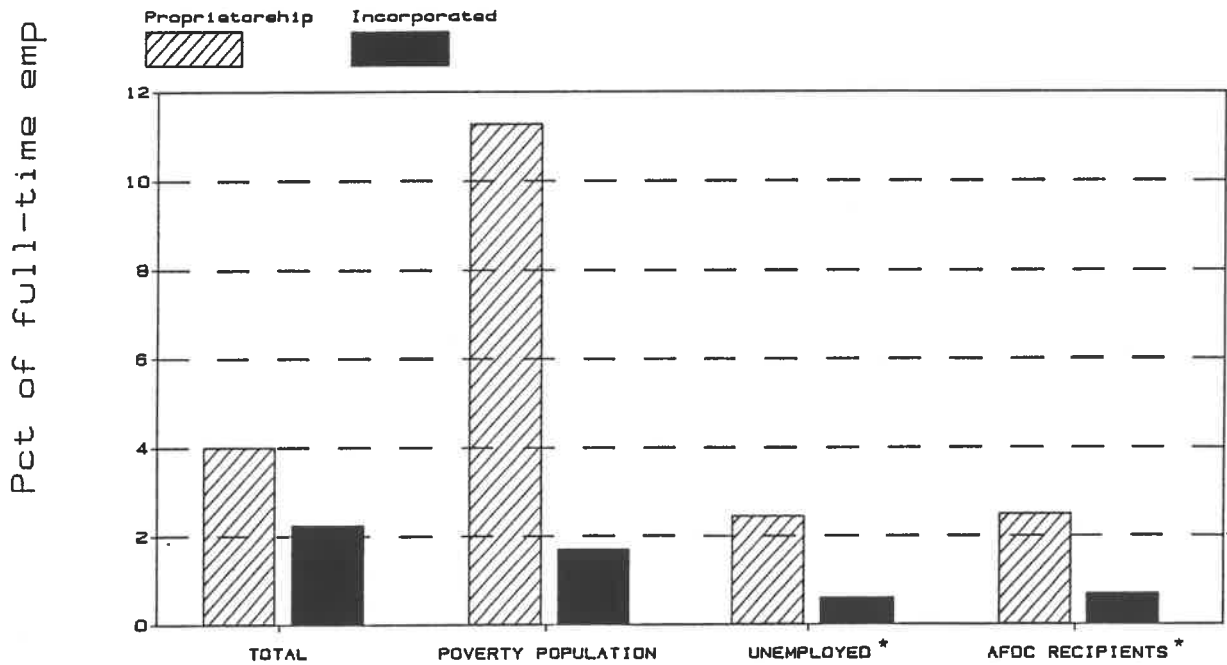


CHART PREPARED BY WISCONSIN DEPARTMENT OF DEVELOPMENT.

* Persons who reported receiving AFDC or having been unemployed but who also worked at least 35 weeks of the year (either before or after AFDC/unemployment experience or possibly during AFDC experience).

Figure 4 shows the self-employment rate among full-time workers in each of several population subgroups in the Great Lakes states.¹ The overall self-employment rate among full-time workers is 6.2 percent. Among those full-time workers classified as being in poverty, the self-employment rate is more than twice as high -- 13.0 percent. Most persons on AFDC or experiencing unemployment did not work full-time year-round (i.e. at least 35 weeks). However, a certain number did. Full-time workers who report also having received AFDC or having been unemployed during the year have a very low self-employment rate compared to the total working population or the poverty-income working population.

Given this background, there is a clear role for self-employment programs for the unemployed and AFDC-dependent. Self-employment programs can:

1. Provide a potentially significant source of new jobs.

Programs serving the unemployed in Britain and France have enjoyed broad participation. Over 150,000 have participated in the British program. The French program has had 175,000 participants since 1979. Entrepreneurial development programs have also been used widely in third-world development programs where they have received praise for cost-effectiveness and ability to reach large numbers of persons.

Self-employment programs could have a large impact on the Great Lakes States. If the unemployed and AFDC recipients had the same self-employment rate as did the general poverty population, the overall self-employment rate would climb significantly. The overall total-population self-employment rate would increase 17%, from 6.2 to 7.3 percent.

2. Provide long-term job generation potential.

Small businesses have been shown to provide more than their share of net new jobs in the economy. (Research on this subject has been undertaken by David Birch of M.I.T and also the Wisconsin Department of Development.) This is not simply due to the performance of "high-tech" high-growth firms, but mainly to the steady, consistent growth of large numbers of very typical small businesses. Newly self-employed persons can be expected to contribute to this process.

3. Provide jobs in a cost-effective manner.

A careful evaluation of the British program showed that participants in effect repaid all public costs within two years of entering the program. Relatively cost-intensive pilot projects in the U.S. have cost per job figures equal to or better than standards for programs such as Urban Development Action Grants and Community Development Block Grants.

4. Provide jobs directly to persons in need.

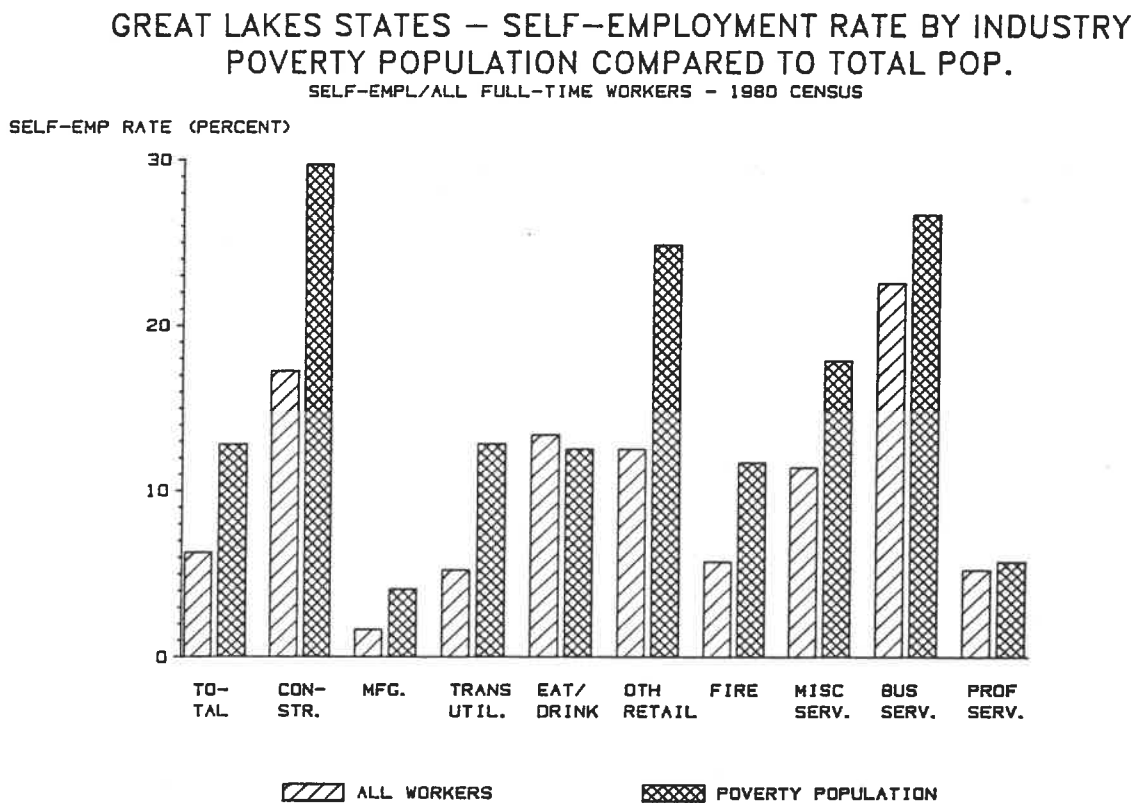
All the entrepreneurs participating in self-employment initiatives will be persons already living in a locality, and currently receiving Unemployment Compensation or AFDC.

5. Directly address the issue of low entrepreneurship rates.

Self-employment initiatives work directly to remove barriers that keep the rate of entrepreneurship for AFDC and UI recipients low. It is one of the few programs that directly increases entrepreneurship and the only one that does specifically for this target group.

There is a picture in most people's minds that self-employment consists mainly of "dead end" service-type employment at the fringes of the economy. However, examination of census data for the Great Lakes shows this not to be the case. This is shown in Figure 5. Self-employment is broadly distributed across industry sectors. Even the self-employed poverty population is found to be distributed fairly evenly across sectors.

Figure 5.



Social Benefits of Self Employment.

There is currently heightened interest in the topic of increasing work incentives on AFDC and other social support programs. Both liberals and conservatives are coming to agree that the current set of incentives and restrictions is counter-productive. Several bills are being introduced in Congress to reform social insurance and welfare programs and remove barriers to employment. Self-employment initiatives can be an important element in this new programmatic direction.

In low-income communities (both urban and rural) self-employment is a common way of economic adaptation. During economic downswings, the number of new small businesses tends to increase or stay the same rather than decrease. This likely reflects newly unemployed persons using self-employment as a means to get by. Over the long run, the poverty population has traditionally used self-employment as an important means of support. In fact, self-employment is predominant among the poor in much of the world today. In the United States, the low-income population has a significantly higher entrepreneurship rate than the general population.

Persons who pursue self-employment and find extraordinary success can provide new jobs, contribute to broadening ownership of wealth within society as a whole and provide powerful demonstration effects within their community, as others seek to emulate their success. And because self-employment rates are small among minorities and women, even modest programs could have a large impact. A program in which each of the Great Lakes states trained 500 AFDC recipients to become self-employed would increase this group's self-employment by 14 percent and minority self-employment by 1 percent.

Working for yourself does not necessarily require advanced business knowledge and skills. It is not expected that most unemployed or AFDC recipients will start up "high-tech" super-firms. One can make a living in many fields where there is not a need for advanced education. In any group there will also be those that go on to higher success. Program managers estimate that the proportion is usually something like 1 in 20.

The primary goal of a work program for AFDC and UI recipients should be financial independence. For the purposes of this report, this is defined as an annual \$8,000, which is the salary paid in most job placements in the Job Training Partnership Act program.² Figure 6 shows the percentage of full-time workers who earn over \$8,000 in wage and salary work and in self-employment. The percentage is slightly lower for self-employed than for wage and salary workers at 77.3 percent rather than 80.3 percent. As might be expected, those who have developed their business to the point of being incorporated, do better than those who are unincorporated. There is no way to make a similar breakdown among wage and salary workers.

Figure 6

GREAT LAKES STATES - EARNINGS COMPARISON
 Self-empl. vs wage/sal employment. Proportion
 earning over \$8,000 per year. 1980 census tabs.

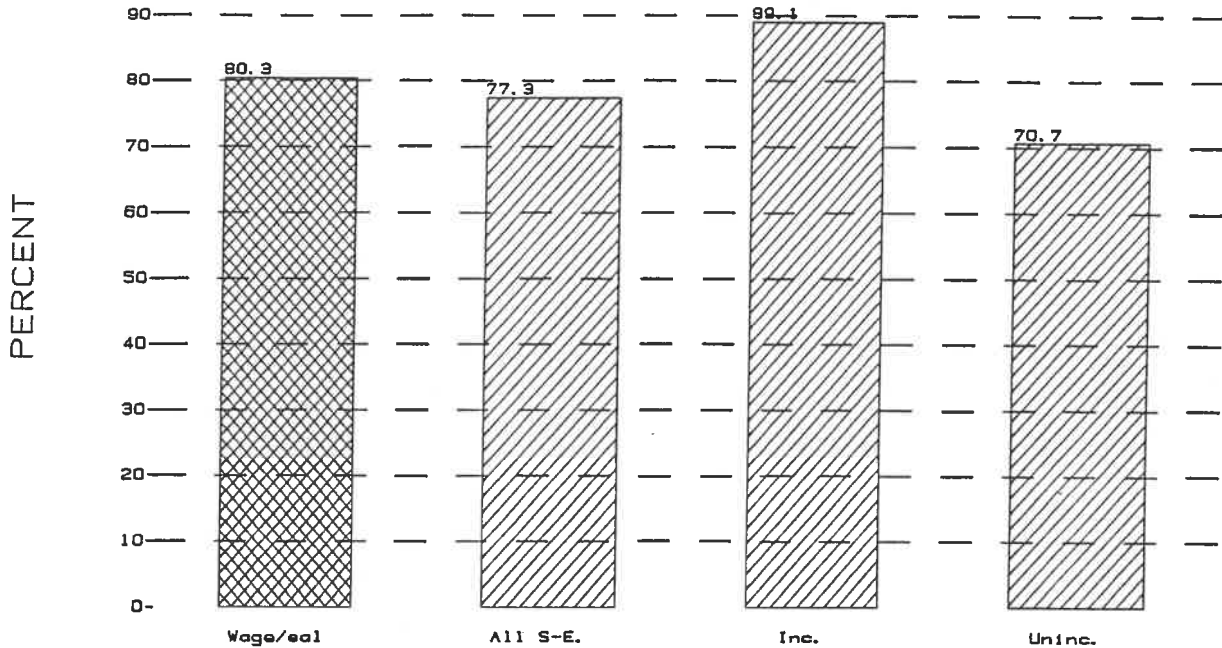


CHART PREPARED BY WISCONSIN DEPARTMENT OF DEVELOPMENT.

Figure 7

GREAT LAKES STATES - EARNINGS COMPARISON OF
 POPULATION SUBGROUPS, 1980: Self-empl. - Wage/Sal
 Proportion earning over \$8,000 per year.

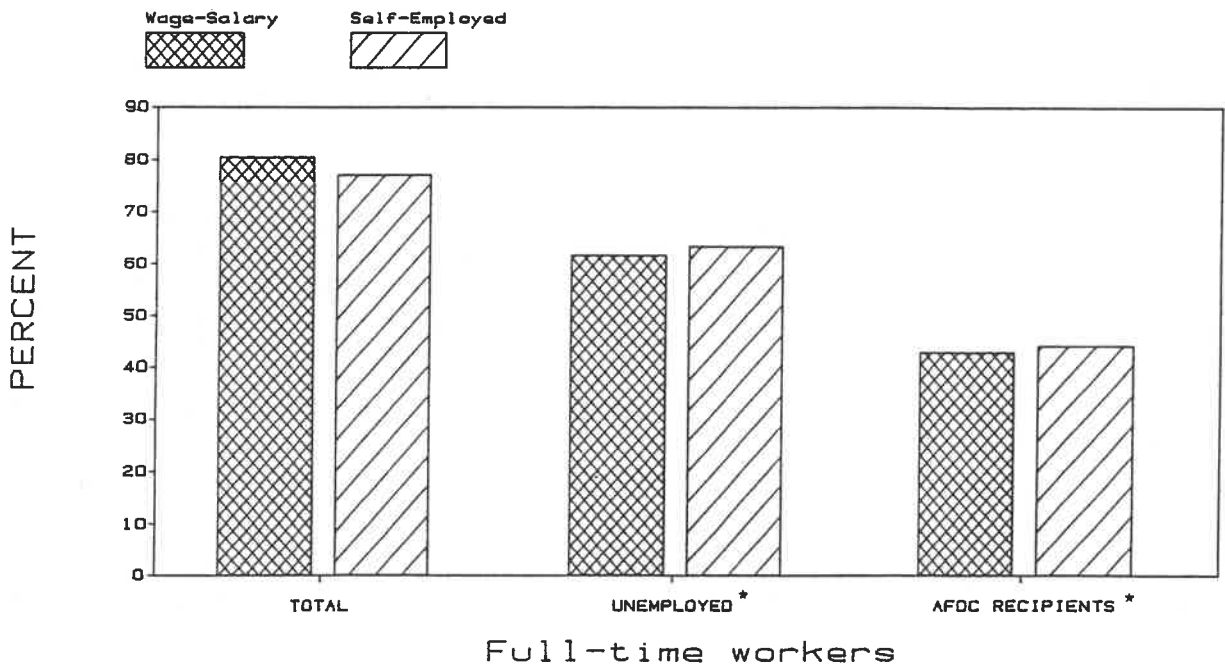


CHART PREPARED BY WISCONSIN DEPARTMENT OF DEVELOPMENT.

* Persons who reported receiving AFDC or having been unemployed but who also worked at least 35 weeks of the year (either before or after AFDC/unemployment experience or possibly during AFDC experience).

Although the self-employed do worse here than the wage and salary workers, the difference is not dramatic. In fact, it might be expected that reported earnings differences would be much greater. There is great under-reporting of self-employment income and entrepreneurs are much more likely to benefit from having personal use of business assets and other intangible benefits that go along with working for yourself. Measured under-reporting of income among self-employed is great enough that the percentage making over \$8,000 would climb to a rate higher than of wage and salary workers, under certain assumptions. On the other hand, self-employed persons may not have health insurance and other benefits not counted in income. Another drawback to self-employment is that, in general, longer hours are required. However, that does not detract from its meeting of the primary goal of generating sufficient funds for self-sufficiency.

Figure 7 shows how AFDC recipients and the unemployed compare with the total population. As would be expected, the group of workers who experienced unemployment or received AFDC were much less likely to earn \$8 thousand. However, both AFDC and unemployed are more likely to reach the \$8,000 goal in self-employment than in wage and salary work.

The evidence gathered here shows that self-employment is an extremely viable alternative to wage and salary work when the goal is to earn enough to support a family independent of the social insurance programs on which these people depend. (If a higher threshold than \$8,000 is thought necessary for independence, then the data indicate that self-employment is an even more attractive alternative.)

PART 3: CAUTIONARY NOTES.

Self-employment initiatives are not without potential weaknesses or drawbacks. The following is a listing of several of these:

Participant Characteristics.

Many individuals among the unemployed and AFDC target groups face serious problems that will affect both training efforts and success at business. At the same time, there will be a question of potential "creaming" of the best possible candidates for these programs. Creaming generally lowers program impact. These are problems to which there is no absolute solution. However, past program experience has shown that effective training can be offered to both welfare recipients and long-term unemployed.

Other Barriers.

Potential entrepreneurs may face discrimination in lending and in other forms of business intercourse, and zoning, licensing and code restrictions which make it difficult for persons without specific

experience, training and resources to start a business. Some may lack the inclination or the ability to become self-employed. Also, the lack of existing economic activity in certain geographic areas could be a barrier for some. It is impossible to tell in advance how important each of these factors might be. However, if self-employment initiatives are first adopted on a "pilot" basis, these factors can be measured.

Regulations.

There may be difficulty in developing an adequate system of permanent regulations that will allow self-employment, yet protect against abuse of the system. Pilot projects should determine how to design effective regulations meeting both goals.

Program Cost.

Programs in Britain, France and in third world countries have demonstrated that it is possible to create inexpensive self-employment programs. How easy it will be to replicate these results here is yet to be seen. Program evaluation will have to focus on identifying those program elements that truly contribute to entrepreneurial success.

PART 4: PROGRAM EXPERIENCE.

Britain and France.

Successful programs in Britain and France have caused much attention to be focused on self-employment programs. As mentioned earlier, the British have had over 150,000 participants in their Enterprise Allowance Scheme, and the French have helped 175,000 form businesses through their program, called "Chomeurs Createurs."

In Britain, participants must have been unemployed at least 8 weeks, must make a substantial personal investment in the business and agree to work at least 36 hours a week. The weekly unemployment check continues for up to a year as the business is established. A recent survey found that over half of these businesses were still in existence after 3 years, median earnings were 95 percent of the pre-unemployment median and 38 percent had hired at least one additional employee.

The French program is different in that each participant is paid a lump sum based loosely on the amount of compensation one would expect to receive if unemployed an average period of time. The French program has a 67 percent business survival rate after three years.

U.S. Programs.

Two states in the Great Lakes region have taken the lead, nationally, in pursuing entrepreneurial development among the target groups that have

been discussed in the report.

Ohio has set aside \$550,000 in Job Training Partnership Act (JTPA) money for seven pilot projects in entrepreneurial training for dislocated workers. It is expected that approximately 200 persons will be trained in these programs. Indiana is conducting a similar pilot project involving 45 displaced farmers. Pilot programs have also been developed in Illinois and Michigan.

National attention has been focused on the Women's Economic Development Corporation (WEDCO) of Minneapolis, Minnesota. In four years, WEDCO has assisted over 2,000 women and worked with 400 small businesses that were beginning or expanding their operations. Approximately 20 percent of the women assisted were recipients of AFDC or other public assistance. WEDCO provides consulting, training workshops and assistance in obtaining loans. Of the businesses it has assisted, only two have failed to date.

The already-established programs point the way towards success. Expanding efforts beyond those mentioned here, however, will require action by the federal government to remove regulatory barriers that prevent self-employment from becoming a viable option.

PART 4: POLICY RECOMMENDATIONS.

A. Welfare reform:

There are numerous competing Congressional proposals in the broad area of welfare reform. It would probably not be appropriate at this point to endorse a certain select number of these. Rather, the Great Lakes Commission should support the principle that reforms should be adopted to provide increased support to those making the transition from welfare to work.

Background:

AFDC and related support often drop off abruptly when a recipient attempts to work. This affects both self-employed and regular wage-and-salary workers.

Medical Assistance. Depending on provisions in each state, medical assistance coverage continues for persons who leave AFDC for a period of from 4 to 15 months, if the reason for leaving AFDC is an increase in earned income. However, alternative medical insurance is typically unavailable beyond that point in lower-income jobs or in self-employment.

Hundred-Hour Rule. In those states that permit unemployed two-parent families to receive AFDC, working 100 hours or more in a month will disqualify the family from AFDC.

"Thirty and one-third" Rule. Prior to 1981, welfare recipients who found work to supplement their AFDC checks were permitted to keep the first \$30 of earned income plus one-third of the gross amount earned. This provision allowed a smooth transition from welfare to work. Provisions added to the 1981 Federal budget package changed this. The "30 and 1/3" allowance is now permitted only for the first four months of work and is based on net earnings rather than gross earnings. After the fourth month, the AFDC check is reduced dollar-for-dollar of earnings. Recent (1985) amendments have liberalized the rule to allow the working AFDC recipient to keep a flat \$30 per month for an additional 8 months. However, most persons do not consider this a sufficient incentive to continue to work.

Child Care. AFDC regulations currently allow \$160 per month per child to be retained for child care support. In many locations, this is an insufficient sum. Once a person leaves AFDC, The \$160 credit is lost altogether.

Welfare reform is a major focus of the 1987-1988 Congress. At least two major reform packages (those of Moynihan and Kennedy) propose to address the issue of work disincentives on welfare. Among the proposals are removing the 100-hour work limitation for unemployed families and eliminating the time limit on the current the "\$30 and 1/3" provision while

also changing the formula (e.g. \$50 and 1/5). Related legislation would also increase the Earned Income Tax Credit, which helps provide additional incentives for work.

Another possible area reform may result from President Reagan's recently proposed national catastrophic health insurance plan. Congressional leaders have indicated that action will be taken on the plan this session, with the possibility of expanding the proposal to the working poor.

B. AFDC Regulation Changes to Support Self-Employment Demonstration Projects.

The Great Lakes Commission should take a position in favor of adopting special-purpose changes in statutes and/or regulations to allow state-level pilot projects to continue to go forward.

Background:

Regardless of the outcome of welfare reform efforts, there is a need to address the specific problems of setting up a business as an employment option under AFDC. The best approach would be to allow specific waivers of federal regulations, conditional on participation in a state-sponsored self-employment demonstration project.

Several current program regulations pose potential problems for the self-employed:

Capital Equipment Purchase Restrictions. Federal regulations specifically disallow the consideration of purchase of capital equipment as a business expense. This effectively prevents anyone from entering a businesses with asset value over \$1000 and continuing to receive AFDC. If the person has any personal assets outside the business, the asset total allowed for the business is reduced proportionately.

Business Expense Restrictions. Regulations specifically disallow depreciation, personal business and entertainment expenses, personal transportation and payments on the principal of loans as business expenses.

Loan Receipt. Depending on regulatory interpretations in different states, receipt of a business loan may be counted as an asset, which then must be disposed of immediately or else counted as income.

Reporting Requirements. Again depending on individual state interpretation, self-employed persons may be required to base their eligibility on monthly income reports. This places an accounting burden on the business, and can result in persons losing eligibility and being forced to reapply month after month.

It will be difficult, if not impossible, for a large scale self-employment demonstration project to proceed without the receipt of program waivers from the Department of Health and Human Services. Simultaneous

waivers from the Food Stamp program in the Department of Agriculture will also be necessary. The Corporation for Enterprise Development is participating with states involved with the Self-Employment Investment Demonstration in negotiations with the Department of Health and Human Services on this subject. To the extent legislation may be required to make room for regulatory changes, this avenue is being pursued as well.

C. Unemployment Compensation Program-Based Demonstration Projects.

The Great Lakes Commission should support Congressional and Administration proposals to conduct self-employment demonstration programs for Unemployment Insurance recipients.

Background:

At the time of this writing, the U.S. Department of Labor was considering how to allocate 1987 funds for employment demonstration projects. Self-employment training for displaced workers or long-term unemployed is an option being considered within the \$5 million budget for such demonstrations.

Self-employment demonstrations were endorsed by the Secretary of Labor's Task Force on Economic Adjustment and Worker Dislocation, Chaired by Malcolm R. Lovell. The December 1986 report of the Task Force has received much publicity for its call for a massive new worker retraining effort. The Task Force also gave prominent mention to self-employment as an alternative for displaced workers. Among the ten final recommendations of the Task Force was the following:

"The Secretary of Labor should encourage and evaluate experiments designed to assist individual dislocated workers in starting their own businesses and facilitate feasibility studies of enterprise purchases by groups of workers facing displacement."

A related initiative is the Self-Employment Opportunity Act of 1987, HR 530, sponsored by Representatives Ron Wyden of Oregon and Richard Gephardt of Missouri. This bill would have states conduct self-employment pilot programs. The Department of Labor would choose to authorize project proposals from five to ten states. Each project would involve no greater than five percent of the state's Unemployment Compensation caseload and would sunset after three years. Overall evaluation of the various projects would be conducted by the Department of Labor.

There is obviously some overlap between the Self-Employment Opportunity Act and the current Department of Labor plans for conducting demonstration projects. Which of these proposals moves forward depends on decisions being made now at the Department of Labor and on the intentions of the Self-Employment Opportunity Act's sponsors and supporters.

D. The Self-Employment Investment Demonstration.

The Self-Employment Investment Demonstration should be endorsed by the Great Lakes Commission.

Background:

Five to seven states, including up to six in the Great Lakes region, will participate in the Self-Employment Investment Demonstration being sponsored by the Corporation for Enterprise Development (CFED), of Washington, D.C. The six are Illinois, Michigan, Minnesota, New York, Ohio and Wisconsin. (New Jersey, Mississippi and Virginia are also possible participants.) Each of these states will undertake 4-year pilot projects in self-employment training for AFDC recipients. The design of the project in each state will be up to that state. However, overall design guidance will be provided by CFED, with assistance from the Manpower Development Resources Corporation (MDRC) of New York.

According to CFED, the pilot projects are intended to answer three basic questions:

1. Is self-employment a viable route to self-sufficiency for AFDC recipients?
2. What barriers need to be removed to allow this group to successfully pursue self-employment?
3. What are the elements of an effective support system for creating successful self-employed persons from this group?

The time-line proposed by CFED would have most program plans complete by July of 1987, with training started before the end of the year. Most states would plan to put somewhere around 50 persons in business each year. Programs will be operated by non-profit organizations or other service providers, who will conduct training, provide counseling and arrange for availability of financing for business starts. MDRC will help set standards for each pilot project and will produce an interim report at the end of the first year. By 1990, all training programs will be completed, and by 1991, MDRC will have completed an evaluation of program outcomes.

The Self-Employment Investment Demonstration promises to provide a thoroughgoing and useful examination of self-employment development policy.

NOTES

1. Full time workers are defined as those who average more than 20 hours and more than 35 weeks of the year.

Persons listed as "AFDC recipients" in Figure 4 and Figure 7 also include recipients of SSI, general assistance and certain other programs. Because only those below age 65 and working are tabulated, most would be AFDC or general assistance recipients. Nationally there were 10.9 million AFDC recipients and 1.3 general relief recipients in 1984.

2. Preliminary statistical work showed that the measured differences between wage and salary work and self-employment were much greater if a lower figure were used as a target threshold. So, to highlight these differences, a reasonably low target of \$8,000 was used as a point of comparison rather than typical earnings taken by unemployed persons or estimates of wages necessary to offset all AFDC, medicaid, food stamp and child care benefits.

**GREAT LAKES COMMISSION
ECONOMIC ANALYSIS AND POLICY TASK FORCE
RURAL COMMUNITY ECONOMIC DEVELOPMENT**

October 1987

GREAT LAKES COMMISSION ECONOMIC ANALYSIS AND POLICY TASK FORCE WHITE PAPER:
RURAL COMMUNITY ECONOMIC DEVELOPMENT

Background On the Rural Problem

In the Great Lakes region, as well as nationally, the economic problems of rural America have captured the attention of both policy makers and the media. During the relatively prosperous decade of the 1970s, an undervalued US dollar and relatively low levels of offshore agricultural production generated a huge demand for US agricultural commodities. As national optimism regarding this agricultural resurgence peaked, then USDA Secretary, Earl Butz, was widely quoted as calling for "fencerow to fencerow" commodity production. Since that boom period, the fortunes of the US agricultural sector have been in marked decline. Low prices prompted by huge agricultural commodity surpluses, along with plunging farmland values have resulted in a significant exodus from farming to other sectors of the US economy. It is estimated that at least 100,000 American farmers have left farming since 1980. In the Great Lakes states alone the number of farmers fell from 625,000 to 609,000 between 1984 and 1985, while farmland values fell 18 percent (29 percent since 1981). This collapse in farmland values represents a serious trend to farmers who purchased or borrowed against the value of their farmland during the booming seventies. The USDA currently estimates that nationally 12.6 percent of all farms, holding 45 percent of all farm debt are in serious financial difficulty, with negative cash flows and debt loads of more than 40 percent of their equity.

Other non-agricultural commodity sectors in rural areas have also been hard hit. Minerals such as copper, zinc, iron and coal have been subject to chronically low worldwide demand and prices in recent years. Forest products have also seen low prices brought on by intense Canadian competition.

Other industry sectors in rural areas such as manufacturing and services also face problems. As of 1983, 30 percent of all rural manufacturing employment was in apparel, textiles, wood products, leather and shoes. These industries have all been hit hard by competition internationally from plants in Third World countries with lower wage rates. While rural areas lost manufacturing jobs at the same rate as metro areas during the recession years from 1979-1983, they slipped behind metro areas in the creation of new service industry employment.

These continuing problems in both commodity and non-commodity sectors of the rural economy are reflected in aggregate economic data for U.S. non-metropolitan areas. During the 1970's personal income in non-metropolitan areas increased as a percent of personal income in metropolitan areas. From 1979-1984, however, per capita personal income in non-metropolitan areas decreased from 76 percent to 74 percent of per capita personal income in metropolitan areas and this trend is expected to continue.

The financial and personal suffering being experienced regionally and nationally by rural areas is real and its intensity is in many ways unparalleled in recent history. However, the federal response to it via various federal farm programs has concentrated on the farm commodity side of the rural economic development problem. The \$25 billion, 1985 farm bill is

largely a subsidy program for commodity producers. Its much discussed "Conservation Reserve" and "whole herd dairy buyout" provisions, while generally laudable, are probably too small to have a significant impact on commodity surpluses. While federal commodity programs play a critical role in the rural economy, the current hardships faced by America's farm sector can be expected to continue for the indefinite future.

Off-Farm Employment

What has been ignored at the federal level are other sectors of the rural economy which must take up the slack if the rural lifestyle is to remain a viable one. Following a long-term, historical trend, off-farm employment has played an increasingly important role in providing a livelihood for farm residents. This movement from farm to off-farm employment has resulted largely from increases in US farm productivity. For the last 30 years farm productivity has increased an average of 1.8 percent annually, while domestic consumption of agricultural products has increased only slightly in real terms. While total land in farm production has remained nearly constant there has been a marked decline in the number of farms as well as farm production employment. The number of US farms has declined nearly two-thirds since 1935--from 6.8 million to 2.2 million (1983). The reductions in farm employment are equally striking. In 1920 the nation's 32 million farmers made up 30.2 percent of the population, by 1950 the number of farms had already fallen to 23 million making up only 15 percent of the population. The nation's 5.4 million farmers currently make up only 2.2 percent of the US population.

While many rural residents have sought new opportunities in urban areas, a great number have also found off-farm employment in rural areas. In 1985, 52 percent of farm residents worked in non-farm occupations. The proportion of total farm family income earned from off-farm sources has increased from 40 percent in 1960 to 60 percent in 1980. Off-farm employment by farm residents runs the gamut of occupations from sales and administrative support (30.9 percent), managers and professionals (19.3 percent), services (14.3 percent); to manufacturing, construction and repair (35.4 percent). Clearly farm residents have successfully found employment in a variety of occupations whose distribution closely parallels that found in the general economy. Off-farm employment in rural communities thus represents a viable means for many of the nation's and the Great Lake's region's farm residents to stay on the land and maintain a rural lifestyle with all of its attendant social, cultural and psychological benefits. The challenge will be to insure that the non-commodity production sectors of the rural economy have the capacity to provide the new jobs which will be necessary during this period of economic crisis and transition.

The Federal Response

While farm producer employment has continued to decline, the federal government currently invests billions of dollars in commodity production subsidy programs while doing little to assist other sectors of the rural economy. The cost of the Commodity Credit Corporation is currently (1986) running at \$25.8 billion per year, the Farmer's Home Administration (FmHA) is currently spending about \$1.9 billion annually for below market operating and farm

ownership loans. Additionally, \$18.1 billion per year is being spent on food stamps and child nutrition programs--both of which shore up crop demand.

The federal budget for targeted rural community economic development programs is much leaner. Total federal aid per capita to local units of government in rural areas declined by about one-third between 1977 and 1982. Outlays for the Community Development Block Grant "small cities" program were only \$880 million in 1986 and the administration is requesting future cuts. The Farmer's Home Administration Rural Community Water and Waste Disposal Grant has been cut sharply to a 1986 expenditure level of \$178 million per year and is targeted for elimination in the administration's 1988 budget. Total outlays for the Economic Development Administration (EDA) which provides a substantial amount of technical assistance and grant-in-aid support to rural areas were only \$175 million in 1986. In addition to suffering major cuts since 1980 EDA continues to be targeted for elimination in the 1988 budget.

Given this relatively small federal commitment to targeted rural economic development along with plans for cuts and outright elimination of many existing programs, it is clear that a coherent and effective federal commitment to rural community economic development simply does not exist. Throughout the country and especially in the Great Lakes states, business expansions and new business start-ups in rural manufacturing, tourism, services and trade industries will be needed to provide off-farm employment for farmers and farm families if they wish to live in rural areas. If the continuing transition from a commodity based farm economy to a more diversified rural economy is to be a successful one, additional federal resources must be forthcoming to complement huge federal expenditures for commodity subsidies.

There are a number of reasons for an increased federal commitment to rural community economic development:

1. While in many ways the states have set the national economic development agenda, their resources are not unlimited. Especially in the Great Lakes states, economic development activities have been focused in urban areas hard hit by the last recession in order to obtain the most efficient use of limited state resources. Many rural communities which lack public or private sector economic development expertise have been left behind. The severity of the current farm financial crisis argues for a timely infusion of federal resources to supplement those already provided by the states.
2. The provision of opportunities for off-farm employment for farm residents in nearby rural communities makes strong economic sense when compared to the alternatives of encouraging the intra- and inter-state migration of labor out of farming regions. Many of the urban areas in the Great Lakes states have not fully recovered from the last recession and are not in a position to provide the numbers of jobs which will be required. In addition, the states have large "sunk" investments in human and physical capital in rural areas. If rural residents are forced to seek employment opportunities elsewhere, these costly investments will simply have to be written off.

3. To the extent that both new and expanding businesses in rural areas are able to export products and services across state lines they have the ability to make substantial contributions to overall state economic development in terms of new jobs and increased wealth.
4. With additional federal and state assistance, it is reasonable to expect that rural communities have the capacity over the long term to provide additional off-farm employment:
 - a. Farm residents already have an established employment track record in a wide variety of manufacturing, service and trade industries. In addition, the Great Lakes states have made substantial investments in K-12, vocational, and college level education and training for farmers and farm families. Many rural communities thus offer a comparative advantage to industries that require work force which is well educated and mechanically skilled.
 - b. Information-based and knowledge-based firms now can use telecommunications technology to overcome a number of the disadvantages of relatively remote rural locations. They thus have a great deal of freedom when making locational decisions. Rural areas which have natural resource amenities such as rivers, mountains, forests and other scenic features as well as good educational systems tend to be attractive to the management and highly skilled employees of these types of firms.
 - c. Retirement community developments and tourist industries in rural areas will benefit from the "greying" of America. The United States is currently one of the "oldest" countries in the world and is growing older. By 1990, 15 percent of the population will be over 65 years of age; by the year 2030, 25 percent will be over 65. As today's baby boomers move toward retirement age, there may be major population shifts to rural areas that offer low cost, slow paced living and recreational opportunities in pleasant surroundings.

Recommended Federal Actions

- ° Given the severity of the problems facing small communities and rural areas in the Great Lakes region and other parts of the country, it is clear that federal actions should be taken to assist the states in dealing with these economically distressed areas. Federal actions could include better coordination of existing programs which benefit rural areas such as Farmers Home Administration loan programs, federal job training and worker adjustment programs, SBA loan programs and U.S. Economic Development Administration grant and loan programs. This could be done through an "Office of Rural Economic Development" in the United State Department of Agriculture or other federal agency. Coordinative activities should be aimed at increasing the responsiveness and effectiveness of these existing programs in dealing with current rural community problems. Secondly, existing programs which assist or have the

potential to assist rural communities could be refined and/or consolidated to increase their efficiency. Finally, under limited circumstances, and recognizing budgetary constraints, increased federal funding might be provided for existing or new rural community development and assistance programs.

- ° In coordinating and refining existing programs or in developing new rural community development programs, the following general principals should be pursued.

Where appropriate, federal assistance funds for rural community development should be granted directly to the states. While in many ways the states have set the national economic development agenda, their resources are not unlimited. State oversight and management of federal rural development monies will assure consistency with existing state economic development programs. Maximum flexibility should be provided for Governors to define specific rural community development activities, to designate appropriate state and local recipients for financial and technical assistance, and to encourage financial participation and support from other public and private sector entities. Particular attention should be devoted to increasing self-help capabilities in small communities and rural areas through local capacity building programs. To this end, federal planning and technical assistance programs should be focused substantially on joint state/federal actions aimed at meeting capacity-building needs. Finally, the focus of rural community economic development programs should be rural businesses and entrepreneurs in sectors which have the most potential to generate new jobs and diversify the rural economy.

- ° Given this focus, the following elements should be considered for inclusion in a shared federal/state rural community economic development program: revolving loan programs for rural businesses (federal support could be sunset after a number of years and the program could be self-funded from the amortization of existing loans); "early stage" venture capital funds to provide equity funding for new business start-ups in rural areas; funding and technical support to create local small business incubators; and technical assistance programs for entrepreneurs and existing businesses seeking to expand.

Specific technical assistance activities could include: assistance for entrepreneurs in business plan development and in identifying sources of public and private sector financing; technical assistance to local communities in establishing "local venture forums" and other investor-entrepreneur networking mechanisms; and state permit and regulatory assistance programs.

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**GREAT LAKES COMMISSION
ECONOMIC ANALYSIS AND POLICY TASK FORCE**

**A MORE MARKET-ORIENTED AND DIVERSIFIED AGRICULTURE PRODUCER
ECONOMY IN THE GREAT LAKES REGION:
SELECTED POLICY OPTIONS**

October 1987

A More Market-Oriented and Diversified Agriculture Producer Economy in the Great Lakes Region: Selected Policy Options

Introduction

The eight States bordering the Great Lakes make a major contribution to U.S. agriculture. In 1983, cash receipts from the region's farm marketings totaled \$36 billion or more than a quarter of the national figure. In four major commodities (corn, milk, soybeans and hogs) the Great Lakes Region accounts for over a third of national cash receipts. For many reasons, the region has a comparative advantage in agricultural production. This advantage is also reflected in the nation's agricultural export statistics. U.S. agriculture exports are dominated by commercial shipments of feed and food grains and the region's States account for around half of the volume. The value of agricultural product exports from just four States in the region was more than 20 percent of the \$38 billion national total for fiscal year 1984.

The domestic farm economy has deteriorated in recent years. Farm income has dropped and farmland values have continued a downward trend begun in 1981. Low commodity prices and debt service costs have contributed to an average two percent return on investment. A significant downturn in farm exports has blighted the future of many Great Lakes region large-scale producers who had thrived in years of abundant crops and overseas demand. As with the industrial sector, a national restructuring of the farm economy is underway and much of the transitional dislocation is evident in the Great Lakes region.

Federal agricultural policies and programs have had a mixed record of success and failure. In many cases, such policies have interfered with basic market signals resulting in large subsidies, too much product and too low prices. What is needed is the reinstatement of a market-driven approach to public policy on agriculture. A key goal of this approach will be to increase the diversity of the farm producer sector.

Increased responsiveness to the market, whether it be local/regional or national/international, will permit realistic adjustment of agricultural supply and demand factors. Public policy, where appropriate, should be directed at facilitating this adjustment and preventing unreasonable disruption. The Great Lakes States have an important role to play through coordinated action on the federal policy level and through individual State programs targeted at marketing and promotion.

Basic and applied research and the institutional arrangements governing the use of technology will play increasingly important roles in improving agriculture sector productivity. The States and the Federal Government have maintained an agriculture research partnership since the creation of the land-grant university system in 1862 and the Cooperative Extension System in 1914. Now, the rapid pace of technological change requires greater attention to research funding issues and methods for facilitating technology transfer.

Great Lakes Region Agriculture

Great Lakes region agriculture is diverse and productive. With respect to value and volume, dairy, cash grain and livestock sales are the region's mainstays. Unique climatic-production niches have also contributed to a wealth of specialty crops. Over the last two decades, the farms in the region have become more specialized with domestic production and production for export increasingly tied to larger size farms. Also, farm receipts from crop sales have increased in response to export market growth. As a result, the relative share of cash receipts from livestock, poultry and dairy product sales has come down to be more closely matched to crop sales.

The high level of agricultural productivity is partly a function of geography. The part of the region located between 39° and 45° latitude has a combined soil and climate regime that makes it the prime agriculture area. With the exclusion of the podzolic soils of the northern tier States and mountain districts of New York and Pennsylvania, most of the region is suitable for large-scale farming. Average annual precipitation within the prime area ranges between 24 and 42 inches. Along with an average 145-day growing season, the prime area has moderate levels of potential evapotranspiration and solar radiation. These characteristics are suitable for production of eight of the ten top food crops in the world.

The Great Lakes region excels in a number of commodity production categories. Most of the Corn Belt is found in the Great Lakes States. The Corn Belt is universally recognized as the most valuable and extensive rain-fed cropland in the world. The Great Lakes States are at or near the top in national production rankings for numerous crops and other processed or raw food commodities. For example, the following States are currently or have been recently ranked one or two for these important commodities: Minnesota (sweet corn, sugar beets, turkey, cheese, spring wheat, and sunflower seeds); Wisconsin (milk, butter, corn for silage and hides); Illinois (soybeans and all corn); Indiana (corn and hogs - ranked 3 in a recent year); Michigan (navy beans, all dry beans, tart cherries, blueberries, cucumbers for pickles, and asparagus); Ohio (tomatoes); Pennsylvania (mushrooms and kidney beans); New York (cottage cheese, cream cheese, grapes, and apples). In addition, the presence of the Great Lakes and their associated area climates has created fruit and vegetable belts that have anchored the region's stake in specialty crop production.

The eight Great Lakes States comprise one-sixth of the U.S. continental area, but maintain nearly a quarter of U.S. cropland as defined by the USDA. Within the region, cropland constitutes nearly 40 percent of all land use. Based on the \$1000 agricultural products sale criterion and the latest available data compiled by the States, there are around 600,000 farms in the Great Lakes region. Census data indicates that the Midwest region (six Great Lakes States and Iowa and Missouri) continues to have the largest share of farm residents in the Country compared to other regions. With about 27 percent of the Nation's farms, and a substantial share of the nation's farm residents, the region's rural complexion reveals a well-developed and extensive agriculture base. Nevertheless, data from the USDA's Economic Research Service indicate that most counties in the Great Lakes States are not dependent on farming. "Dependency" is defined for those counties where at least 20 percent of the income earned came from the production of crops and livestock. However, counties in Southwestern Minnesota and central portions of Wisconsin, Illinois and Indiana do fit this category.

Diversification and the Role of State Government

Many recent State initiatives in agriculture policy have emerged in response to the widespread farm crisis. One important category of State response pertains to programs aimed at facilitating increased production diversification among farmers. Successful diversification programs are usually based on a strategic planning process coupled with State assistance in identifying markets, promoting sales and contributing research and financial resources. Growing emphasis on "value-added" products has become a major component of such diversification programs.

For many years, Midwest agriculture was diversified because of its subsistence/self-sufficiency base and local market orientation. As domestic and overseas markets expanded through improvements in the farm-to-market transportation system, steady population growth and cyclical demand factors, diversification became less of a descriptor. Some farmers understood that complete dependence on one crop placed them at the mercy of selected crop failure from disease or weather, soil loss or nutrient problems or the vagaries of the market and acted accordingly. Nevertheless, the Corn Belt and the dairy farm sector for which the Great Lakes Region is identified can be thought of as a monoculture at its "best or worst."

Diversification is coming back into the Great Lakes agriculture lexicon. Some farmers have made decisions to be as diversified as possible with a mix of production outputs. Others have discovered or stayed with unique market niches for certain commodities. The Northeast is a regional example where diversification is entrenched and perhaps as a result, a lower percentage of farmers than in the Midwest have sunk into the debt morass. Besides a broad array of specialty crops, production for the local market has become a key to success in that region. As John McPhee described in his Book on New York City's greenmarkets, the farmers market concept is becoming a seasonal fixture for even the largest cities. Pennsylvania leads the Nation in farmers markets and is among the leaders in roadside stands. Of the top six States in the pick-your-own category, four are in the Great Lakes Region (New York, Ohio, Michigan and Illinois). A USDA report in 1978 indicated that over a third of Michigan farmers sold commodities through direct marketing. Direct selling, though, is only one way to approach the local market. Linking up with wholesalers for intrastate distribution is more difficult but potentially more profitable.

More diversification may translate into substantial change for the farm sector. Farms are getting larger and fewer in number and this phenomenon has been connected with increased specialization. A gradual reorientation toward more local or regional markets on the part of some farmers will probably not dampen the long-term trends in farm size and number. But less specialization and more effort in fresh produce production may keep some farmers in business particularly those whose past export production practices were not profitable.

Other benefits from renewed interest in small-scale and more diversified agriculture are bound to accrue. For example, farms near urban areas suffer from development pressure and although the tax situation may be pivotal, successful complementarity with local demand can forestall encroachment. Production practices will be altered. Conventional inputs and equipment needs are sometimes greater and sometimes less depending on the commodity. Organic farming has already a foothold in the region's agriculture. The

Great Lakes States account for a substantial percentage of subscriptions to The New Farm magazine. The publication (based in Pennsylvania) is popular among organic farmers. Business as usual among all of the region's farmers may not be an accurate prediction for the future. In a recent book, Gaining Ground: The Renewal of America's Small Farms, J. Tevere MacFadyen states:

"It seems certain now that conventional large-scale agriculture, with its abject dependence on fossil fuel energy, its capital-intensive industrial technologies, and its devotion to high-volume, standardized mass production, cannot continue indefinitely to reign supreme in an economic and biological environment where adaptability, efficiency, and conservation are ever more important assets."

Minnesota is an interesting example for assessing the potential of small scale agriculture. The State is dependent on other States for the production and shipment of fresh fruits and vegetables. A University of Minnesota report, although based on ten-year old data, indicated that Minnesota-grown fruits and vegetables supplied only 14 percent of the State's needs. Minnesota is a net tonnage exporter in general for these commodities but imports more than half of twenty major food commodities. For example, Minnesota ranks as a one of the top States in vegetable processing, but production is concentrated in a limited number of kinds. The majority of imported produce is grown in California.

Minnesota researchers have identified other factors that suggest expanded opportunity for small-scale vegetable production. Consumer preferences are shifting in favor of fresh produce and more variety. The relocation of this market niche could reduce transportation costs -- currently about 25 percent of the wholesale price of produce shipped from California. Also the profit-per-acre potential is much greater for fresh produce production than it is for conventional cash grain. There is acknowledgment among agriculture economists that expansion of small-scale agriculture can result in new problems and may not be successful. Capital costs for start-up operation may be beyond some growers' means. Actual operations may be more labor intensive thus forcing some adjustments. And a major concern is the market size and potential for price depressing over-supply.

Examples of State Action -- Diversification Initiatives

Minnesota - Marketing of the production from small-scale agriculture is critical. A broader market area may be required than was originally envisioned. A promotional campaign is an asset. In Minnesota, the State Department of Agriculture, in a combined effort with the State's Vegetable Growers Association, embarked on a media campaign to promote Minnesota-grown produce. As a result, a vegetable producers cooperative in Minnesota has secured contracts with grocery wholesalers in the State.

Ohio - In Ohio, wine is the principal use for the State's grape crop. Ohio growers are faced with marketing problems as well as opportunities. One problem shared by many wine-producing States is that of increasing market share within the State. Ohio has set a goal of 12 percent of the market in five years -- a 50 percent increase from present. A three cent-a-gallon wine tax enacted in 1981 has provided State officials with revenue for

promotion and research. Recently, \$125,000 was spent to promote June as "Ohio Wine Month." Wine varieties and customer preference changes reflect a continual process of adjustment. For example, Ohio's traditional wines have been concentrated in the sweet, dessert category. However, as the American palate began to prefer lighter, drier wines, vinters and researchers worked together to develop hardy French hybrids and vinifera varieties. Many of Ohio's 46 wineries are making a local promotion push with tasting events and supply agreements with nearby restaurants and retailers.

Michigan - An Aquaculture Development Program coordinates the activities of Michigan Sea Grant researchers and the Michigan Department of Natural Resources in aquaculture-related problem solving, through research and extension services. An aquaculture research laboratory, located at Michigan State University, is currently involved in six different projects with potential application to the DNR program and commercial fish farming in the region. Five commercial fish farm operations were started in Michigan since 1980. These five farms annually produce over 50 percent of the approximately 500,000 kg of raised fish in the State with a market value around \$1.5 million. A recent project, coined the "Super Salmon Project" by the media, involves the production of salmon to be stocked in Lakes Michigan and Huron, mainly for sportfishing purposes. The program includes publication and distribution of a guide, "Making Plans for Commercial Fish Culture in Michigan," which goes through the planning process necessary for prospective fish farmers to identify their physical, legal and economic ability to raise fish commercially.

State interagency coordination is necessary and important for many agriculture diversification programs. Such programs often involve multidisciplinary approaches and resource personnel from several agencies and branches. For example, the Michigan Department of Agriculture (MDA) in 1985 provided \$50,000 seed money for a project called "Pick Michigan." With the involvement of the Michigan Travel Bureau, a program was established whereby 150 farmers from the southwestern part of the State invited Chicago area residents to tour their farms. Because of the project's initial success, other ideas have been proposed. One would be to take vacant farm houses and convert them to "bed and breakfast" places and provide tours and "U-pick" opportunities for the guests. Another MDA project is the publication and promotion of "A Cook's Tour." This pocket-booklet contains descriptive material on 12 different motor trips located throughout Michigan each focusing on a particular product of a different region.

Federal/State Cooperation

Perhaps more than any other factor, the creation of the Nation's agricultural research and extension system has been responsible for much of the success of American agriculture. The system's main components are the U.S. Department of Agriculture, the land-grant university system and the Cooperative Extension System. Private sector involvement, particularly in the research arena, has been present for years. Such activity is assuming a more important role now that competition for government funds is intense and entrepreneurial ventures are propelling the wave of technological change.

The research and extension system is one based on complementary functions. Research may originate at any level, but the land-grant universities perform the majority of total public sector agricultural research. About half of the funding of this university research comes from State sources, whereas

Federal funds make up about a third of the amount. Federal agricultural and related economic research funding is managed by USDA. About three-quarters of the appropriated Federal monies are used by USDA either in-house or at USDA laboratories around the country. Federal funding for most research activity is about two-thirds formula-based with the remainder subject to a competitive grants process. Formulas are principally based on rural population and farm numbers. As a result, some states argue that other criteria such as value of farm commodities, should be included to remove certain existing geographical bias from the funds distribution.

The extension function serves an important role in translating research findings to the user community through public information and education/demonstration programs. The state specialists who make up the core of extension personnel are expected to engage in more product evaluation work in future years especially as the private sector performs more applied research. Extension is also looked to in providing feedback from clients to the researchers and thereby helping to influence what research is done. This quasi-research responsibility has not been developed as fully as was expected and coordination problems particularly with respect to basic research are present. New proposals have been advanced to enhance the feedback mechanism and improve coordination. Peter Marshall, a USDA researcher, advocates the establishment of Centers of Research and Extension Excellence to methodically analyze and disseminate research findings and identify regional research needs.

Regional research has been losing out in the competition for reduced funds. The payoff for regional research rests on the organization of a critical mass of research expertise to be directed at regional issues thereby expediting problem-solving and avoiding unnecessary duplication of effort. Regional research has become a lower priority among scientists and land-grant universities because such research funds are seldom earmarked accordingly, resulting in few "extra" dollars for such research. Extension has a regional component whereby specialists meet and develop materials on a multi-state basis, but funding for these activities has also been cutback.

Increased diversification of the agriculture producer economy in the Great Lakes Region is a worthwhile research and extension goal. Recently, more projects have been tailored to this end. Research agendas are developed through an elaborate process with substantial input from the national scientific community. Extension priorities are often identified at the local, grassroots level. If regional research and diversification strategies and practices are to be fully endorsed, public decision makers need to cultivate an appropriate and potent constituency at all levels.

Summary

A more market-oriented and diversified agriculture producer economy in the Great Lakes Region is evolving. However, progress is not startling, and the process will take time. The States have assumed more responsibility in moving their farm sectors toward entrepreneurial goals, particularly as the current farm crisis has deepened. The abrupt decline in farm commodity exports has hurt the Great Lakes States. The past over-dependence on monoculture practices is recognized now as a clear danger for many moderate-sized farms without financial resources to weather periodic cycles in overseas demand. The joint Federal/State efforts in research and extension combined with new initiatives from the private sector may provide further

impetus to the diversification trend. New crops and agriculture activities, new markets and enhanced productivity will create the right combination to improve Great Lakes farm sector prospects.

POLICY OPTIONS

State Action

- o State government involvement in the development of new agricultural products and marketing/promotion programs can take many forms and with the rationale for diversification so well established, these efforts need to be sustained and increased where practicable.*
- o A consortium of Great Lakes land-grant universities/Ag-Econ Departments could be formed for the purpose of developing a regional agricultural research agenda and establishing a satisfactory and secure funding process.*

The land-grant university system performs the majority of total public sector agricultural research in the U.S. In recent years, the State funding component of such research has been increasing and is now over 50 percent. As each institution prioritizes funding and makes project allocations in light of increasing financial pressures, the more costly regional research commitment has weakened. Certain commodities and production practices are similar throughout the Great Lakes region and this fact strongly points to the need for and usefulness of regional agricultural research. The assembly of a critical mass of researchers on a regional project carries with it the potential for significant problem solving and for expeditious implementation of solutions. Also, unnecessary duplication of research can be avoided through such regional efforts.

- o The Council of Great Lakes Governors could consider continuation of its current biomass energy study so as to thoroughly consider a region implementation strategy for appropriate recommendations.*

The multi-year biomass project, started in September 1983, entails a series of consultant studies and workshops. A regional biomass policy analysis on a State-by-State basis is also a project goal. Agriculture may have an important role in the future use of biomass-based energy. Direct combustion of crop residues for use in grain drying is a proven method. However, full utilization will depend on much wider acceptance among farmers and a meshing of energy cost factors with current grain drying and cultivation practices. The diversion of marginal production lands into biomass-cover vegetation is possible but the potential may be reduced by implementation of Federal conservation reserve programs.

- o A traveling "food expo" program could be set up by individual States to facilitate new product promotion and serve as an educational vehicle.*

The "food expo" program may be compared to events and functions associated with State fairs. The display and demonstration of food production and processing technology with an appropriate complement of "hands-on" activities and specialists/experts to facilitate public

involvement could instill interest in new opportunities as well as link urban and rural residents with a subject of mutual interest. A semi-trailer/cab combination modeled after bookmobiles and other traveling "exhibits" would not strain agency budgets, particularly if private sponsorship could be arranged.

o A linkage between farming and tourism could be fully developed.

Roadside markets, farm tours/vacations, U-pick opportunities, directories and pamphlets highlighting aspects of travel in agricultural districts are examples of what some States are encouraging and assisting with at present. Rural destinations can be targeted in State travel promotion programs through which the agricultural sector tourism opportunities are identified.

o A formal restructuring of traditional State agriculture and economic development functions with respect to agriculture diversification initiatives could be explored.

William C. Norris, Chairman Emeritus of the Control Data Corporation, advocates a consolidation of State Departments of Agriculture and Economic Development into Departments of Urban and Rural Enterprise. He argues that corporations and governments need to reduce operating costs, reallocate resources to the most productive uses and find new approaches for improving performance in order to remain viable and competitive. State agriculture diversification initiatives reveal a cross-fertilization process through the cooperative efforts of State agencies and academic interests. Formal organization of successful past government practices may encourage sustained performance in future action.

The Steel Industry in the Great Lakes States

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INTRODUCTION

The steel and associated iron ore industries are a vital component of the Great Lakes region's durable goods manufacturing cluster and are important to the national economy. The region's steel industry, particularly the integrated plant sector, has been buffeted by recent domestic and international forces. These forces have a bearing on the industry's short-term viability and future prospects. Penetration of traditional markets by foreign producers and U.S. minimills and the growth of alternate materials coupled with increasing obsolescence of physical plant and the pressing need for continued large-scale reinvestment for modernization have placed the industry in a pivotal historic position.

During the five year period, 1982-1986, the U.S. steel industry was in a depressed condition, the result of economic forces in the U.S. and overseas. The domestic industry sustained losses of nearly \$12 billion over that period. As the U.S. economy suffered the effects of a recession from early 1982 through late 1984, the steel industry struggled with reduced demand for steel by traditional steel-consuming industries and a rising level of imports.

In September 1984 the Voluntary Restraint Arrangement (VRA) program was initiated. The new policy was aimed at reducing the steel import share of the market through a series of bilateral negotiations with major steel exporting countries. During this period of upheaval and uncertainty, the domestic steel industry began to reorganize. The industry's principal objective was to regain profitability and in 1987, breakeven was achieved. In 1988, a profitable year is expected.

This remarkable turnaround for the industry has changed the industry significantly. Since 1982, 42 million tons of capacity have been shut down and the reduction has resulted in the loss of more than 100,000 jobs. The impact of plant closures, particularly on mining and mill towns, has been catastrophic. New plant and equipment expenditures, much of it funded by new debt, has improved production efficiencies. Such targeted capital investment, along with reduced employment, wages and benefits, have combined to lower U.S. producer costs per-net-ton shipped. U.S. costs are now competitive with those of major steel-producing countries. Still, the current improving status of the U.S. steel industry is vulnerable to the future threat of imports and other factors that would lessen profitability and dampen capital investment.

STEEL PRODUCTION, SHIPMENTS AND IMPORTS

Steel is a ubiquitous material in modern society. The construction, transportation and farm sectors along with the spectrum of durable consumer goods would all be shadows of their current economic presence without steel. One example of the steel industry's contribution is revealed in a recent Congressional Research Service study. The study concluded that an increase of one million tons in steel mill product shipments stimulates output from all sectors of about \$636 million (constant 1977 dollars) and generates over 6,000 jobs throughout the economy.

Nationally, U.S. steel production fell from 117 million tons (MT) in 1975 to 88 MT in 1985, a 24.8% decline. In 1987, production increased to 89 MT and for the first nine months of 1988, production was more than 75 MT or 11 million tons over the corresponding period for 1987.

During pre-recession years, steel mill shipments totaled 100.3 MT in 1979, 83.9 MT in 1980 and 88.5 MT in 1981. With the downturn in the U.S. economy, steel mill shipments fell to 61.6 MT in 1982, and then increased to 67.6 MT in 1983, to 73.7 MT in 1984,

declined slightly to 73.0 MT in 1985, declined sharply to 69.9 million in 1986, (USX strike was a factor) and increased sharply to 76.7 million tons in 1987. During this past nine-year period, imported steel increased its share of the U.S. market from 15.2% in 1979 to 26.4% in 1984, before falling to 25.2% in 1985, to 23.1% in 1986 and to 21.3% in 1987. Table I indicates annual steel mill shipments since 1978.

Table I

Net Steel Mill Shipments: 1978-1987
(Thousand Tons)

1978	97,935	1983	67,583
1979	100,262	1984	73,739
1980	83,853	1985	73,043
1981	88,450	1986	69,948
1982	61,567	1987	76,654

Source: American Iron and Steel Institute

Like no other major U.S. industry, the steel industry and iron ore industry are concentrated in the Great Lakes region. In recent years, steel mills in the eight Great Lakes states have produced nearly 70% of the nation's steel and Minnesota and Michigan account for nearly all of the domestically produced iron ore and taconite pellets. In comparison, auto plants in the Great Lakes states produced 54.1% of the U.S. autos in 1984. Table II indicates the total amount of steel produced in each of the Great Lakes states in 1985 and 1987 by all methods and companies and percent of the national total.

Table II

Total Great Lakes State Steel Production and Percent of U.S.: 1985 and 1987
(Thousand Tons)

	<u>1985</u>		<u>1987</u>	
Indiana	19,687	22.3%	19,290	21.6%
Ohio	14,094	16.0%	16,267	18.3%
Pennsylvania	12,034	13.6%	11,609	13 %
Michigan	7,297	8.3%	7,699	8.6%
Illinois	6,479	7.3%	7,141	8.0%
New York	456	0.5%	375	0.5%
Minnesota	-	-	420	0.4%
Wisconsin	0	0	0	0
Great Lakes	60,047	68.0%	62,802	70.4%
U.S.	88,259		89,151	

Note: 1985 data for Minnesota is not disclosed for reason of confidentiality.
Figures are rounded to nearest thousand.

Source: American Iron and Steel Institute

According to the American Iron and Steel Institute, 55 percent of total domestic shipments of steel mill products in 1985 were directed to markets in the eight-state Great Lakes region. When shipment data for the 24.3 million tons of imported steel is considered, the Great Lakes states accounted for about 50 percent of all steel used in the United States in 1985. These figures clearly depict a steel-intensive regional economy compared to the rest of the country.

The depressed condition of the steel industry has severely affected the Great Lakes region which has traditionally been both the major steel producing area of the country and the source of iron ore, coal and limestone used in the steel production process. The high level of steel imports and the decline in domestic production forced steel mills and mines to close, and this resulted in a sharp loss of jobs in the steel sector and related industries. The downturn in steel exacerbated the severity of the 1982-84 recession and slowed economic recovery in the Great Lakes region relative to other parts of the U.S.

STRUCTURE OF THE STEEL INDUSTRY

The steel industry in the U.S. is comprised of three distinct sectors, each characterized by different steel producing technology, products and structural organization. These sectors are: the integrated producers, minimills and specialty steel producers.

Integrated Producers

Integrated producers, which comprise the traditional core of the steel industry and account for most employment in the sector, typically have ownership control of the steel mills, the mines and the taconite pellet plants that produce the iron ore/taconite, limestone, and coal used to produce the steel. Also, several of these companies have Great Lakes vessel and rail subsidiaries or, at least, a substantial capital investment in such equipment. Several foreign iron ore companies (including Canada) entail U.S. investment and partial ownership. Some integrated steel companies own more than one large steel mill, and the majority of the integrated operations are located in the Great Lakes states. Table III lists the integrated companies and mill locations for the Great Lakes region.

Table III

Great Lakes Region Integrated Steel Producers

Acme, Inc.	Illinois
Allegheny Ludlum Steel Corp.	Pennsylvania
Armco, Inc.	Ohio
Bethlehem Steel Corp.	Indiana, Pennsylvania
Inland Steel Co.	Indiana
LTV Steel Co.	Ohio, Indiana, Illinois
McLouth Steel Products Corp.	Michigan
National Steel Corp.	Michigan, Illinois
Rouge Steel Co.	Michigan
Sharon Steel Corp.	Pennsylvania
USX Corp.	Indiana, Ohio, Pennsylvania
Wheeling-Pittsburgh Steel Corp.	Ohio

The market share of the eight largest steel producers fell from 82% of the market in 1950 to 54% in 1983. The two largest integrated producers, U.S. Steel (now USX) and Bethlehem Steel, experienced a loss in combined market share from 45.7% in 1950 to

23.6% in 1983. Because of excessive unused capacity, loss of markets and heavy financial losses, the integrated sector has been forced in recent years to shut down existing plants and several smaller producers have merged. The number of integrated producers is down from 23 independent companies in 1968 to 14 firms with 23 plants in 1985. The combination of reduced output and plant closings has had a severe impact on employment in the steel industry. Average annual employment fell from 453,000 workers in 1979 to 163,000 in 1987, a 64% decline. However, average employment for the first eight months of 1988 has increased to 170,000. Table IV indicates annual total employment (salaried and production workers) in the steel industry since 1978.

Table IV

Total Steel Industry Employment: 1978-1987

1978	449,197	1983	242,745
1979	453,181	1984	236,002
1980	398,829	1985	208,168
1981	390,914	1986	175,000
1982	289,437	1987	163,338

Source: American Iron and Steel Institute

Steel production at an integrated mill has several major steps including the preparation of raw materials, production of molten steel, production of semi-finished shapes and production of mill products such as bars, plates, rods and sheets. Preparation of iron ore actually begins after it is mined but before being shipped to the mill. Most taconite (iron ore) is processed into taconite pellets (two-thirds iron content) to remove physical impurities and facilitate transportation. At the mill, preparation of raw materials involves the production of coke from metallurgical coal for use as a fuel in blast furnaces and as a reducing agent. Iron ore, in its natural state, is the oxidized form of iron, and before the iron can be used to produce steel, the oxygen is removed by the process of reduction. The iron ore is reduced and transformed to molten iron in a blast furnace, and the molten iron is poured into a steelmaking furnace, along with inputs of scrap steel, limestone and alloying agents, where it is transformed into molten steel. The molten steel is poured into an ingot (block) mold, and the steel is cooled before being rolled into semi-finished shapes. These shapes are then heated and are used in the production of final mill products. Each rolling stage causes some loss of product, reducing the overall yield of the steelmaking process.

In response to technological advances in steelmaking, integrated producers have been installing continuous casters in the mills, which allow the molten steel to be poured directly into semi-finished shapes. This eliminates the need to pour the molten steel into ingots and then reheat the ingots before rolling the steel into semi-finished shapes. Introduction of continuous casters has enabled the mills to increase worker output, reduce energy needs, increase the yield of the production process and increase the quality of the product.

Twenty-four continuous casters were installed in U.S. mills from 1982 to 1987. By the end of the decade, around 60% of the U.S. steel production will be from continuous casters, a figure still low relative to Japan's 85% of steel currently produced by casters. The U.S. percentage will represent about 70 million tons of capacity and already the new casting technology to date has resulted in a 6% improvement in product yield and a significant 37% increase in mill energy efficiency from 1982 levels. Other capital investments by the U.S. steel industry in recent years have been for improved rolling facilities, computerized operations, energy conservation and pollution control equipment.

Minimills

Minimills or nonintegrated operations are independently owned companies and generally confine their production to low cost, simple steel products such as bars, rods and wire. These products are made from scrap steel. While the integrated steel producers are concentrated in the Great Lakes region, minimills are more geographically dispersed with greater representation in the South and West regions, where they typically employ non-union workers and rely on local markets for scrap material and for sale of their products.

Almost all minimills have continuous casters and minimills use electric furnaces to produce steel from scrap. This eliminates the need for the mill to have large inventories of coal and iron ore and blast furnaces, and enables the entire steelmaking process to take place in a relatively small mill - usually with a capacity of less than one million tons. Innovations by two minimill companies, Nucor and Chaparral, have broadened traditional product lines to include medium-wide sheets and wide-flange beams.

Specialty-Steel Producers

Specialty-steel involves the production of higher-valued products such as alloy and stainless steel. Such steel is used extensively in tools, instrument and aircraft production and in components for power plants. Many manufacturing processes use this kind of steel to a smaller extent. The producers of specialty-steel include the integrated steel companies and a large number of small, specialized companies. Like minimills, specialty producers use scrap steel as the raw material for electric furnaces.

Steel Sector Production Trends

From 1975 to 1985, integrated mills experienced a production decline of 109 to 70 million tons or 35.8%, while minimills increased their output from 8 million tons to 18 million tons, a 125% increase. In 1975, 93.2% of the U.S. steel production was by integrated mills, but this fell to 78.7% in 1985. Today, minimills have around 22% share of the market. In terms of steelmaking capacity, the U.S. steel industry operated at 74.5% of capacity in 1975 and at only 66.1% in 1985, which was below the breakeven production level. For the first nine months of 1988, the capability utilization rate has been near 90 percent.

The integrated steel producers face continued decline and further loss of market share through the year 2000. According to Robert Crandall, Senior Fellow at the Brookings Institution, in a 1986 speech titled "Future of America's Steel Industry," overall U.S. steel production is forecast to fall to 84 million tons in the year 2000, of which integrated producers will have only a 64.3% share with 54 million tons while minimills will capture 34.5% of the market with 29 million tons of production. Thus, according to Crandall, while the integrated sector will experience a further 22.9% decline in production by the year 2000, minimills will increase their output by 61.1% over 1985 levels. While the integrated steel sector faces severe competitive pressures during the next dozen years, Crandall forecasts that the minimill sector will experience sustained growth. He attributes this to investments in modern equipment, lower labor costs, relatively low imports in steel products produced by minimills, and continued development of new technologies and associated new product lines.

William T. Hogan, S.J., a Fordham University professor and acknowledged steel industry expert, is less optimistic about minimill production and products. In his recent book, Minimills and Integrated Mills: A Comparison of Steelmaking in the United States,

Hogan indicates that the two sectors are likely to become more firmly established in their existing niches. He believes increased competition among minimills will dampen growth in new small mill facilities and plant-specific production limitations will lessen the tonnage impact of new flat-rolled and structural products.

STEEL INDUSTRY CHANGE: GREAT LAKES EXAMPLES

For the United States, steel employment was more than twice the current level ten years ago. Much of this attrition in steel workers ranks has been in the Great Lakes region. Both production and salaried workers have been dismissed or furloughed. In the last several years, major mills have been closed in Pennsylvania, New York and Illinois. Perhaps the area most representative and symbolic of this change is the Monongahela River Valley upriver of Pittsburgh. This is where steelmaking got its start in 1872 and over time, 12 plants were built. Today, only 3 remain completely open, employing 22,000. However, 30,000 steel workers in the area have lost jobs since 1980. In October 1983, all basic steelmaking at Bethlehem's Lackawanna, N.Y. plant was terminated. 3,900 workers were laid off and 3,400 workers on furlough will never be called back. A decade earlier, Bethlehem had 11,700 workers. A bar mill and galvanizing line were left operating (for more detail on New York's steel industry, see Section III). U.S. Steel (USX Corp.) announced in late 1983 that it would shut down plants and certain operations at twelve locations throughout the country, thereby reducing employment by 15,430 people. USX's South Works facility in Chicago, once a large steel complex, closed after the company decided not to build a new rail mill there. The mill had lost 6,000 workers since 1980 and 9,000 over the last 15 years. The Republic-J&L merger involved some consolidation of Midwest operations. The target facilities were old and were in need of substantial renovation. Because cash flow for the industry had declined to precarious levels, an argument can be made that imports had exacerbated the loss of revenues which, in turn, made it very difficult to reinvest in new plant and equipment. It should be pointed out that not all shutdowns have coincided with the high steel import period. A major U.S. Steel plant in Duluth, Minnesota was ostensibly closed because of the cost of environmental regulation compliance in the 1960s.

Not all of the recent steel industry history of the Great Lakes region is discouraging. It was in this region that the last "greenfield" U.S. integrated plant was built (Burns Harbor, Indiana - Bethlehem). Particular plants and companies depending on product lines are less subject to steel import competition. For example, the Ford Motor Company's Rouge Steel operation has 35 to 40 percent of its output dedicated to Ford vehicle production. With wage concessions from its workers and a \$100 million capital investment program, Ford has improved the financial fortunes of its subsidiary and helped to insulate Rouge from the competitive inroads of foreign steel. McLouth Steel, another Detroit-based steelmaker, has resurrected itself from bankruptcy through a major state-assisted restructuring with two employee stock ownership plans which entail 87% control of corporate stock (for more detail see Section III). McLouth's product line is also tied in with the local auto industry and a principal customer, General Motors, helps to reduce the threat from foreign steel through large contract purchases. General Motors, for its part, has supported domestic suppliers not only through large purchases but through insistence on quality control and special contract terms such as volume discounts and guarantees of no work stoppages. General Motors and Ford, together, account for about 10 percent of U.S. steel shipments. Domestic suppliers find themselves in competitive bidding situations with each other for the auto business and, as a result, are more attentive to holding down costs and improving quality. The Armco mill in Middletown, Ohio has become more cooperative with G.M. in tailoring production to the automaker's needs. With nearly 50 percent of its output shipped to G.M., it is apparent why. Inland Steel's only plant at Indiana Harbor is a major supplier to the

auto industry and thus production is related to vehicle demand. However, Inland's principal products are sheet and strip (70%), a category heavily represented by imports. In this case, vehicle demand and the national import penetration percentage are both important in affecting the plant's steel output. If imported steel were significantly cut back from current tonnage levels, Great Lakes production would likely increase, but higher production levels would vary among the companies and individual mills.

As the integrated steel industry in the Great Lakes region restructures and plants are shut down, new opportunities present themselves. At Lackawanna, N.Y. a square mile economic development zone encompasses part of the Bethlehem plant site. This zone is one of ten such zones established by the state in 1987 to encourage new business development and expansion through a comprehensive package of financial incentives including tax abatements and credits, utility breaks, and wage credits. So far, eight businesses have taken advantage of the program at Lackawanna. In the depressed West Pennsylvania steel town of McKeesport, the largest U.S. transfer of industrial property to local government for redevelopment was made in 1988. The agreement between USX Corp. and Allegheny County will permit 360 acres of former steel plant land to be sold with the two parties essentially dividing the proceeds. USX will continue to pay taxes until a sale, and the county will be responsible for preparing the land for development. In Pittsburgh, city-owned development parcels at a former mill site were conveyed to local universities for new building sites. In Pennsylvania and Ohio the conversion of old mills into museums has been proposed to showcase the region's industrial heritage.

U.S. RESPONSE TO STEEL IMPORTS

Since the late-1960s, the U.S. steel industry has sought restraints on imports of steel as a means to revitalize the domestic steel industry. The various programs that have been initiated on behalf of the steel industry have included voluntary restraint agreements with Japan and European producers from 1969-1974, quotas on specialty-steel imports from 1976-1980 and the Trigger Price Mechanism from 1978-1982.

In 1984, in a case filed under Section 201 of the Trade Act of 1974, the U.S. International Trade Commission (ITC) ruled that steel imports in five steel product categories had been "a substantial cause of injury to the domestic industry," and the ITC recommended imposition of higher tariffs and quotas to relieve the U.S. steel industry. This led to introduction in both the Senate and House of the "Fair Trade in Steel Act of 1984," that would have limited steel imports to 15% of the U.S. market for a five-year period.

A Congressional Budget Office study concluded that a 15% quota would have increased the average price of steel in the U.S. by 10%, increased domestic steel industry employment by 6% to 8% and decreased overall U.S. steel consumption by 4% to 5%. Rather than imposing quotas, which might have caused foreign countries to retaliate against products exported by the U.S., the President, in September 1984, initiated a program that involved the bilateral negotiation of voluntary restraint arrangements (VRAs) with major foreign steel suppliers. The goal of the VRA program is to negotiate agreements with major foreign steel producing countries to reduce annual imports of finished steel products to 18.5 percent of the U.S. market for a five year period and to reduce annual imports of semi-finished steel to 1.7 million tons. Overall, the goal of the VRA program is to limit steel imports to roughly 20.2 percent of the U.S. market. Table V shows the recent tonnage history of iron and steel imports to the U.S.

Table V

U.S. Iron and Steel Imports: 1977-1987

<u>Year</u>	<u>Imports (Thousands of Tons)</u>	<u>Imports as a Percent of U.S. Supply</u>
1977	19,307	17.8
1978	21,135	18.1
1979	17,518	15.2
1980	15,495	16.3
1981	19,898	18.9
1982	16,663	21.8
1983	17,070	20.5
1984	26,163	26.4
1985	24,256	25.2
1986	20,692	23.1
1987	20,414	21.3

The Steel VRA Program will expire in September 1989 unless it is extended. The unfair trade practices of steel exporting countries which prompted the VRA program have not been eliminated. Excess foreign capacity in steel production, a principal factor in spurring the rise in imports remains, although some countries have begun to rationalize their industries. The twenty-nine current VRAs have been successful in reversing the import trend but because of a slow program start-up and no agreements with certain key export countries, import volumes for the 1985 - 1989 period will be higher than expected. The American Iron and Steel Institute (AISI), the steel industry's trade and lobbying organization, is advocating expeditious Congressional action for a five-year extension of the current VRA Program. AISI asserts that the domestic industry is still vulnerable to an uncontrolled influx of foreign steel and the current steel recovery with its vast modernization and reinvestment schedule would be jeopardized without VRA program continuation.

Implementation of the steel import restraint program, that would limit imports to about 20.2 percent of the U.S. market, should provide for increased purchases of domestic steel, increased profitability for steel producers, additional funds for capital investments by steel producers and stabilized employment in the steel industry. However, some steel-consuming firms are concerned about the impact of import restraints on their material costs. Caterpillar, Inc., based in Peoria, Illinois, is a leading opponent of steel import controls citing the fact that steel represents 20% of the material costs for a typical piece of earth-moving equipment, and flexibility in shopping for the best price should not be constrained. A 1988 Congressional Research Service study, "Steel Prices and Import Restraints," concluded that the increase in domestic steel prices in 1987 should be attributed to the change in the value of the U.S. dollar and not the import restraint program.

The Great Lakes Commission conducted an analysis of the economic impacts of a steel import restraint program for calendar year 1986 which involved a determination of the economic benefits to the steel industry and of the economic costs to steel purchasers. The study indicates that annual cash flow to domestic steel producers would increase by \$1.14 billion, and prices paid by domestic companies that use steel would increase by \$116 million which represents less than 3/10 of 1 percent of their annual steel material costs. In addition, the economic impacts would be felt within other sectors of the U.S. economy, such as from higher prices paid by consumers for cars and home appliances and by farms for farm equipment and machinery, but the analysis does not

attempt to predict these impacts. The analysis of the economic impacts of a steel import restraint program that would limit imports to 20.2 percent of the U.S. market is presented in the Appendix.

IRON ORE IMPORTS AND INDUSTRY SITUATION

U.S. iron ore imports have ranged between a quarter and a third of domestic supply in recent years. In 1987, the 16,079,000 gross tons of imported ore represented about 27 percent of total ore consumed at U.S. furnaces. Canada is the chief supplier to U.S. steel firms accounting for about two-thirds of all ore imports. The other leading iron ore exporters to the U.S. are: Liberia, Venezuela and Brazil.

Of the three basic raw materials used by U.S. integrated mills, iron ore is the most dependent on foreign sources. For all Great Lakes area steel mills, U.S. and Canadian ore dominate receipts. Occasional rail shipments and a rare vessel delivery of overseas ore come to lakeside mills for test purposes, but most of this ore is used on the Gulf and East Coasts including interior Appalachian plants. The Lake Superior ore district has been relatively insulated from the direct competitive threat of overseas iron ore. Even though the specter of overseas ore looms for the region, its future presence is not assured.

Overseas ore does have a significant production cost advantage over North American ore. Labrador and Quebec iron ore costs less to mine and process than does U.S. ore but some transportation costs are slightly higher and as a result, the delivered price of the Canadian and U.S. ore at U.S. Great Lakes mills is relatively similar. Another possible factor in equalizing delivered price is the joint U.S.-Canadian ownership of certain ore companies. Pricing decisions are presumably made in light of fixed cost considerations thereby minimizing intracompany dislocations attributable to ore production and transportation cost differences.

Overseas ore production costs, on the other hand, may be as much as a one-third to one-half less than North American costs. Certainly, one cost differential factor is that North American ore is mostly pelletized compared with the higher grade ore from Australia, Africa and South America. Transportation costs for some overseas ore may be absolutely higher for the combined ocean and U.S. inland routes than comparable U.S. and Canada transportation but the usual delivered cost is much less. In 1983, it was reported that South American ore could be brought into Chicago for \$12.00 less a ton than Great Lakes-Canada ore. However, major changes in the North American iron ore industry have nearly eliminated any competitive advantage for foreign ore. In fact, one recent study has indicated a rough equivalency between the world price and the North American spot price at Pittsburgh. These changes include a reduction in excess pellet capacity to 55 million tons from 90 million tons in 1982, improved pellet quality and reduced labor and energy costs. U.S. steel plants located near the Great Lakes are unlikely to significantly switch to overseas ore for blast furnace feed. The U.S. Bureau of Mines estimates that the Lake Superior iron ore district has at least a 100-year or more supply of ore based on current production levels. This reserve, along with continual maintenance and replacement of taconite processing facilities, indicates no need to secure additional ore supplies from overseas sources to cover a production shortfall. The fixed investment in ore mining, taconite processing and transportation facilities and Canadian operations will also likely militate against any major change in source of ore supply for the Great Lakes area. Furthermore, long-term foreign supply contracts would contain escalator clauses to adjust for inland transportation cost increases as well as other business variables and, therefore, a certain ore price could not be guaranteed.

For the Minnesota and Michigan iron ranges, the current upswing in steel production is welcome news after several years of near depression conditions. However, the changes that occurred with restructuring will leave a lasting imprint on the regional economy, similar to the open pits that mark the landscape. In northern Minnesota, the Mesabi Range had eight mines and taconite plants with 14,000 workers in 1980; today there are six facilities with 5,500 workers. During this period, 19,000 people have permanently left the area for brighter horizons elsewhere. Taconite production for 1988 is expected to be 40 million tons or a 33% increase from 1987. Mainstreet merchants are feeling the rebound and local unemployment is down to single digits. The wrenching process of adjustment has spawned a significant effort by business and local and state government to promote a more diversified economic base. Electronics and forest products companies are putting down roots. Nevertheless, the taconite industry still accounts for 40 percent of the region's economy and the natural boom - bust mining cycle may again show its dark side.

Carajas Ore Project

Steel and iron ore industry officials have continually registered concern about overseas steel and ore production projects and their potential impact on North American operations. One such project is the world's largest mining development in Northern Brazil. The Carajas iron ore project, operated by Companhia do Vale do Rio Doce (CVRD), consists of the development of an iron ore mining complex, a deep water port near the city of Sao Luis in the Northeastern State of Maranhao, and a connecting railroad approximately 890 kilometers long. It also includes the development of a town at Carajas to accommodate an initial population of about 10,000, new housing and supporting facilities along the railway line, environmental and Amerindian protection components, and a staff training program. The project began production in 1985. It is expected to reach its planned maximum production level of 30 to 35 million tons of iron ore annually by 1990, and to maintain that level of production for at least thirty years. In 1987, iron ore shipments amounted to 22.5 million metric tons. At full production, the Carajas project will account for 7.5 percent of the total potential volume of iron ore traded in the world. Most of the ore will be sold under long-term contracts to Japan and East Germany at a price nearly 25 percent below current world prices. Even so, the project is expected to contribute over \$20 billion to Brazil's foreign exchange earnings over the 30-year life of the project.

Financing for the \$3.2 billion project came from both domestic and foreign sources. Domestic sources include CVRD internal cash generation, new capital subscriptions, and local loans. Foreign financing is from Japan, European Coal and Steel Community, the German development aid agency, The World Bank, European and Japanese export credits, and the U.S. Export-Import Bank. Commercial bank loans make up the balance of the total foreign commitment. It was the World Bank loan (\$305 million) and the fact that the U.S. was contributing funds to the World Bank which were used to provide a "subsidized" loan to Brazilian iron ore producers that raised concern in the U.S. The World Bank does not raise its loan funds through annual member-nation contributions. Rather, it raises funds on the world's private capital markets much as any large private international bank might. It is not clear that the actual loan to CVRD was subsidized. The Bank's agreement with the company for the 15-year, \$305 million loan, specifies an interest rate of 11.6 percent and a one-time 1.2 percent guarantee charge. This was comparable to the cost of long-term funds experienced by other similarly-rated major borrowers at the time. Nevertheless, the U.S. with its 23% of total World Bank votes (voting is linked to the size of the member's subscription) was criticized for approving the Carajas loan because it was an action that would indirectly exacerbate the world's oversupply of steel. Cheaper Brazilian ore has the potential to enhance the competitive position of foreign steel producers.

ROLE OF GREAT LAKES SHIPPING

The Great Lakes navigation system provides a low-cost, efficient mode of transportation for U.S. steel mills to receive shipments of iron ore, coal and limestone -- the raw materials of the steelmaking process. A specialized fleet of self-unloading bulk vessels has been built to serve the needs of the steel industry and to ensure a continuous supply of these raw materials to the mills. In addition, because of its proximity to the industrial heartland of the nation, the St. Lawrence Seaway has historically been an important route for foreign imports of iron and steel to the U.S. For example, in 1977 25.9% of U.S. steel imports were shipped via the Seaway to Great Lakes ports. The figure was 16.2% in 1984 and 15.9% in 1986.

From the perspective of Great Lakes ports, steel imports via the Seaway are vital cargoes that comprise a major category of general cargo handled in overseas shipping. Vessels carrying inbound steel are available to carry outbound cargoes. The 4.2 million tons of Seaway steel imports in 1984, assuming an average load of 10,000 tons per vessel, generated 420 vessel sailings into the Lakes, and many of these vessels carried grain and other cargoes on outbound voyages to foreign countries. As the current VRA program developed, less imported steel arrived at Great Lakes docks and port officials expressed concern. However, deliveries continue, but future tonnage levels at individual ports are less predictable. For 1988 (through September) steel imports to Great Lakes ports have amounted to 3 million tons, up nearly 20 percent from the same period the previous year.

The mid-1980s downturn in U.S. steel production and subsequent demand for iron ore caused problems throughout the Great Lakes fleet and created particular difficulties for certain carriers. In August 1986, midway through the navigation season, only 44 vessels or 51 percent of the operational fleet were moving. Since then, the fleet has been downsized through scrapping and now sixty-nine vessels remain. The current increase in ore demand has resulted in the present operation of sixty-two of these vessels. The Lake Carriers' Association (LCA), which represents the U.S. flag fleets operating in domestic commerce on the Great Lakes, supports measures to limit steel imports. Recent LCA Annual Reports state that unfair competition by subsidized foreign steel producers had "led to severe depression in the U.S. iron ore, steel and Great Lakes shipping industries and jeopardized the nation's defense capabilities." Iron ore shipments from U.S. and Canadian ports on the Great Lakes fell from 105.9 million short tons in 1973 to 51.0 million short tons in 1986, a 52% decline. An increase to 60.3 million tons in 1987 was recorded and 1988 tonnage levels through August were ahead of last year by 19.5%.

RESEARCH ON STEEL AND IRON ORE

In recent years, the majority of steel industry research in the U.S. has been product oriented. Such applied research has been dictated by the current financial circumstances of the steel companies. The need for near-term return on investment coupled with large capital outlays for plant modernization has resulted in research budget constraints and little sustained movement toward new "leapfrog" technologies. Research and development spending for the integrated steel sector is estimated to be presently running at one-half percent of sales, considerably less than that for many other manufacturing industries.

The new technologies pertain to process improvements through which the conventional steelmaking process can be shortened, simplified and made much less capital intensive. Two general goals for advanced technology are a coal-based process with a one-step reduction of iron ore directly to steel and a moldless process for continuous casting

of near-net shapes such as through electromagnetic containment instead of traditional rolling and shaping.

U.S. steel companies have not operated in a research vacuum. Steelmaking research is conducted around the world and related information transfer has accelerated. Co-operative research ventures among particular companies, and at times, with a federal government role have been undertaken. A new federal role was approved by Congress in 1985 with passage of a continuing resolution that included a \$7.5 million appropriation for what is now referred to as the Steel Industry/Federal Labs (Keyworth) Initiative. The Initiative entails a plan whereby the Department of Energy's National Laboratories in Tennessee (Oak Ridge) and in Illinois (Argonne) would conduct research and development on advanced technologies for steelmaking. The plan also provides for a steel industry cash or in-kind contribution equal to 30 percent of the federal obligation and a comprehensive repayment provision after commercial application of new technology. Thirteen million dollars have been appropriated to date with approximately two-thirds of it going to the Argonne facility. The Steel and Aluminum Energy Conservation and Technology Competitiveness Act of 1988 (P.L. 100-680) is intended to extend the Steel Initiative Program and codify its elements with authorization for \$2 million - FY 89, \$20 million - FY 90 and \$25 million - FY 91.

The U.S. steel industry has decided to pool some research funds in order to set up a market-driven research program at a midwestern university. Operating through the American Iron and Steel Institute, the industry in 1985 selected Northwestern University in Illinois from among 20 university proposals. Initial industry funding of the "Steel Resource Center" is set at \$700,000. This "seed money" is intended to leverage several million dollars from other sources.

In December of 1986, the Chicago Mayor's Task force on Steel and Southeast Chicago published a report, "Building On The Basics," which recommended the retention of existing steel producing and steel consuming industries, creation of an advanced technology program for basic industry and the determination of ways to facilitate labor adaptation to ongoing changes in the industry. The report also recommended that the Argonne National Laboratory, in conjunction with the University of Illinois at Chicago and the City, sponsor a "summit" for midwest steel producing and consuming industries with a program focus on advanced technology and related technology transfer issues. The summit would also bring together public policy officials in the region to consider long-range strategic concerns. The resulting "Conference on Technology Transfer and Steel" was held in Chicago on March 4, 1987. It attracted 140 persons who heard updates on the status of the steel industry and participated in six workshops on topics that included cooperative ventures; intra-firm technology transfer; feasibility of an R&D center for basic industry; impacts of social, economic and environmental factors in introduction of new technologies; future technology needs; and the role of federal, state and local governments.

Much of the iron ore and taconite pellet research in the U.S. has taken place at northern Minnesota and Michigan operations. The closure of some mines and pellet plants along with selective retrenchment in operations may have an impact on future raw materials research. In 1983 the Natural Resources Research Institute (NRRI) was established as part of the University of Minnesota at Duluth. The mission of NRRI is to concentrate on applied research and development. The Institute's minerals division hopes to become the central lab for iron ore and minerals research in the area. In July 1986, the USX Corporation agreed to lease its research lab at Coleraine, Minnesota and pay the Institute \$950,000 over the next two-and-one-half years to conduct research including the feasibility of using a "home-grown" organic binder in pellet production. Michigan Technological University's School of Business and Engineering Administration at Houghton is also engaged in natural resources research including that for iron ore

and taconite. The State of Minnesota developed an Iron Ore Cooperative Research Program in 1985 with the goal of assisting private sector research with matching grants. The current state appropriation is \$600,000 for the biennium (for more detail on the program see Section III).

A major project jointly proposed by the State of Minnesota, USX and a West German engineering firm is a new state-of-the-art iron mill planned for the USX Minntac taconite plant at Mountain Iron, Minnesota. The \$125 million mill would turn taconite into iron through a coal and oxygen process known as COREX or K-R direct iron reduction. A substantial federal grant through the Clean Coal Technology Reserve program was applied for (\$59.2 million), but the grant proposal was turned down in 1986 in favor of a similar iron mill proposed in Pennsylvania. When that project foundered, Minnesota again became the primary candidate. However, the lack of a steel company sponsor at this time has put the project on hold, but the state is considering a partnership with a steel company to use the federal money to demonstrate the COREX Process at an existing steel mill (for more information, see Section III).

GREAT LAKES COMMISSION STEEL-RELATED ACTIVITY

The Great Lakes Commission has initiated legislative efforts to assist the revitalization of the steel industry. In July 1986, the Commission wrote to House Ways and Means Committee Chairman Dan Rostenkowski and other Great Lakes state members of the tax reform conference committee in support of a "transition rule" for the steel industry. The transition rule would provide for a 15-year carryback of 50 percent of the value of unused investment tax credits against taxes previously paid, amounting to an immediate refund of about \$500 million to the steel industry. Support for the transition rule by the Commission was based on the understanding that the amount refunded to the steel industry would be used for reinvestment in steel operations and modernization, consistent with the provisions and intent of the Steel Import Stabilization Act of 1984. The transition rule for steel was included in the Tax Reform Act of 1986 (P.L. 99-514).

The Commission has been active with Great Lakes navigation and steel interests in supporting authorization and funding for a second large lock at Sault Ste. Marie, Michigan. Great Lakes navigation has become increasingly dependent on the present 1200-foot Poe Lock. During recent shipping seasons, nearly half of U.S.-origin iron ore movements were carried aboard large lakers restricted to the Poe Lock. In addition, the substantial low-sulfur western coal movement to lower lakes utilities is also dependent on this lock. It is clear that if a Poe Lock shutdown were to occur for any reason, a serious disruption in certain Great Lakes and national bulk commodity flows would result. The Water Resources Development Act of 1986 authorized a second large lock but a 35% nonfederal cost share requirement (\$80 million) has stalled progress on lock appropriations.

The Great Lakes Commission has also sponsored a Great Lakes Steel Policy Colloquy held October 12, 1988 in Detroit. The objective of the Colloquy and preliminary activities was to develop a regional steel policy framework to guide advocacy efforts relative to federal legislation and Commission involvement in related state actions. Colloquy participation included policy representatives from governors' offices and economic development agencies.

SUMMARY

The Great Lakes region accounts for 70 percent of total U.S. steel production and almost all of the iron ore/taconite mining. The eight Great Lakes states use about 50

Steel Prices

According to Peter F. Marcus and Karlis M. Kirsis of Paine Webber Mitchell Hutchins, Inc., publisher of World Steel Dynamics, the price of steel produced in the U.S. in 1986 averaged \$490 per metric ton or \$445 per short ton. This price represented the composite average prices of 16 steel products. In comparison, Paine Webber indicates the price of imported steel ordered from foreign producers averaged \$400 per metric ton or \$363 per short ton. F.O.B. foreign port (Antwerp), and the foreign spot market price averaged \$310 per metric ton or \$281 per short ton, F.O.B. foreign port.

The charge to ship steel from Antwerp to Chicago in 1986 via the St. Lawrence Seaway was about \$40 per metric ton or \$36 per short ton. Adding this to the price of steel at the foreign port, the price of foreign steel landed in the U.S. will range from \$317 to \$399 per short ton. On average through 1986, the price of imported steel was 10 percent to 20 percent less than the price of U.S. produced steel.

Paine Webber indicates that, in 1985, the price of U.S. produced steel was \$467 per short ton at the beginning of the year, and the price fell to \$445 per ton by the end of the year. The downward trend in steel prices from 1985 was supported in testimony by David M. Roderick, Chairman of the Board of United States Steel corporation, on April 4, 1986 before the House Subcommittee on Commerce, Consumer and Monetary Affairs. Mr. Roderick stated that the price of steel produced by his company was \$500 per ton in mid-1984 and fell to \$445 per ton by the fourth quarter of 1985.

According to a report by the U.S. Bureau of the Census, Highlights of the Export and Import Trade, imports of iron and steel in 1985 had a C.I.F. value of \$9.6 billion and were charged duties of \$492 million, for a total landed value of \$10.1 billion, or an average of \$417 per ton. In 1986, steel imports had a C.I.F. value of \$8.2 billion and were charged duties of \$392 million, for a total landed value of \$8.4 billion or \$402 per ton. While Paine Webber indicates steel import prices remained steady through 1985 and 1986, the Census Bureau reports a slight decline in import prices.

Based upon the domestic and foreign prices of steel indicated by Paine Webber and the value of imported steel reported by the Census Bureau, the following table presents the trend in steel prices in 1985 and 1986.

	1985		1986	
	<u>Domestic Price/Ton</u>	<u>Import Price/Ton</u>	<u>Domestic Price/Ton</u>	<u>Import Price/Ton</u>
Paine Webber	\$445-467	\$317-399	\$445	\$317-399
Census Bureau	-	\$417	-	\$402

Using \$400 per ton as the average price for import steel in 1986, the import price averaged \$45 per ton less than the domestic price of \$445 per ton.

In 1986, U.S. companies that use steel in their production processes purchased 69.9 million tons of domestic steel at an average price of \$445 per ton, for total expenditures of about \$31.1 billion. In addition, U.S. companies purchased 20.7 million tons of imported steel at an average price of \$400 per ton, for a total of about \$8.3 billion. Overall, U.S. companies paid about \$39.4 billion in 1986 for steel used in their production processes.

Economic Impacts of a Steel Import Restraint Program

Determination of the economic impacts of the steel import restraint program is based on the assumption that steel imports were held to 20.2 percent of the U.S. market in 1986. The following data on tons of U.S. steel shipments, imports and steel prices are used in this analysis:

- o U.S. steelmakers shipped 69.9 million tons in 1986.
- o Foreign steel producers shipped 20.7 million tons to the U.S., an import market share of 23.1 percent.
- o Had imports been limited to 20.2 percent of the U.S. market in 1986, imports would have declined to 18.1 million tons, a reduction of 2.6 million tons.
- o Limiting imports to a 20.2 percent share would have increased domestic shipments in 1986 by 2.6 million tons, to a total of 72.5 million tons.
- o The average price of steel in 1986 was \$445 per ton for steel produced in the U.S. and \$400 per ton for imported steel, a difference of \$45 per ton.

Using the assumptions listed above, limiting steel imports to 20.2 percent of the U.S. market in 1986 would have had the following economic impacts:

- o Foreign steel producers would have lost 2.6 million tons of steel sales in the U.S. At prices of \$281 per ton, F.O.B. foreign port for spot market purchases and \$363 per ton, F.O.B. foreign port for steel order prices, the average F.O.B. price of foreign steel destined for the U.S. market was about \$322 per ton. At this price, foreign steel producers would have lost sales revenues of \$828 million.
- o U.S. steel companies would have increased domestic shipments by 2.6 million tons, at an average price of \$445 per ton, for an increase in total sales of \$1.14 billion.
- o On average, the price of steel produced in the U.S. exceeded the landed price of imported steel by \$45 per ton. On 2.6 million tons that would otherwise have been imported, but instead would have been purchased from U.S. steelmakers, the domestic companies purchasing the steel would have paid higher prices totaling \$116 million.
- o An increase of \$116 million in the price paid by U.S. companies for steel would have represented less than 3/10 of 1 percent of their total steel material costs.

**GREAT LAKES COMMISSION
ECONOMIC ANALYSIS AND POLICY TASK FORCE**

**POLICY OPTIONS TO DEVELOP A STRATEGY TO
ENHANCE THE COMPETITIVE POSITION OF THE STEEL INDUSTRY**

**Final Draft
October 1987**

INTRODUCTION

The Council of Great Lakes Governors adopted a resolution at its May 25, 1983 Economic Summit expressing the intent to act in concert to assist our basic industries:

Retention of the basic industries of this region being vital to its economic health, an intergovernmental and public/private reinvestment strategy will be developed to enhance the competitive positions in the world economy of such industries as automobiles, automobile parts, steel and machine tools. (emphasis added)

The Great Lakes Commission has created an Economic Analysis and Policy Task Force to:

Analyze the data to identify trends, areas of regional strength to be preserved and areas of regional weakness to be overcome;

Develop additional information necessary to support research findings or develop policy recommendations;

Make explicit research findings; and

Present policy recommendations based on the research findings.
(Adopted at GLC Annual Meeting, October 17, 1985)

This document is a compilation of research findings and policy options focused on the steel industry so as to address the desires of the Great Lakes Governors and the directive of the Great Lakes Commission. The policy options are the result of a comprehensive process undertaken by the Commission's Task Force. Policy recommendations were solicited and received from a wide spectrum of interested individuals and organizations including corporate officials, academic experts, governmental agencies and trade/research organizations.

The goal of the Commission's effort is to develop steel industry policy options to be considered by the Governors of the eight Great Lakes states. We hope and expect the lessons learned from the steel industry investigation to have broader applicability to durable goods manufacturing generally. Suggested policies have three basic objectives; coordination among the region's states to effectively influence federal policy and action on steel sector and other manufacturing sector issues, development of or targeting existing state or state-administered programs to assist the steel sector in resolving specific problems and consideration among the states of action on a regional program to increase the international competitiveness of the U.S. steel industry.

The principal theme guiding the development of these policy options and their possible implementation is management of change. Steel industry policies that

gain acceptance of public and private sector decision makers will not be formulated to prevent change which is inevitable and part of a normal, evolutionary economic process. Instead, such policies should consider measures designed to guide development and assist economic adaptive response.

THE GREAT LAKES ECONOMY AND THE STEEL INDUSTRY

The steel and related iron ore industries are a vital component of the region's durable goods manufacturing cluster and are important to the national economy. In recent years, the Great Lakes states have accounted for nearly 70% of domestic steel production and almost all of the iron ore mining and taconite pellet production. The region's national dominance in durable goods production including motor vehicles, farm equipment, machine tools and other capital equipment ties such manufacturing inextricably to steel usage and associated energy production and transportation/distribution functions.

The region's steel industry, particularly the integrated plant sector, has been buffeted by domestic and international forces. These forces have a bearing on the industry's short-term viability and future prospects. Penetration of traditional markets by foreign producers and U.S. minimills coupled with increasing obsolescence of physical plant and the pressing need for continued large-scale reinvestment for modernization have placed the industry in a pivotal, historic position.

The international milieu that represents and sustains the global economy is shaping the steel and iron ore industries in the Great Lakes region. For this reason the steel industry is offered as a vehicle for analysis, to assist with the review and consideration of the basic industries of the region, especially as they confront and adjust to the realities of the current international trade environment.

U.S. INTERNATIONAL COMPETITIVE POSITION

The United States has become uncompetitive in the global marketplace. Trade statistics document the deterioration of our competitive position.

The Bureau of the Census summarized trade statistics into 37 major commodity groups. Of that number only nine show a positive trade balance for 1985. They are agricultural products, anthracite coal, bituminous coal and lignite, tobacco manufactures, chemicals and allied products, nonelectrical machinery, manufactured commodities not identified by kind, and scrap and waste. Large imbalances occur in apparel and related products, petroleum refining and related products, primary metal products, electrical and electronic machinery and supplies, and transportation equipment. Even what would be considered a "high tech" industry like scientific and professional equipment shows a net trade deficit.

EXPORTS, GENERAL IMPORTS, AND MERCHANDISE TRADE BALANCE
(millions of dollars)

STATISTICAL PERIOD	EXPORTS f.a.s.	IMPORTS c.i.f.	TRADE BALANCE
Jan - June, 1986	108,118.9	192,039.5	- 83,920.6
1985	213,146.1	361,626.3	-148,480.2
1984	217,888.0	341,176.8	-123,288.8
1983	200,537.6	269,878.2	- 69,340.6
1982	212,274.6	254,884.5	- 42,609.9
1981	233,739.1	273,352.2	- 39,613.1

Source: U.S. Bureau of the Census, Highlights of the U.S. Export and Import Trade, FT990/December 1985 and special release by telephone.

According to the DRI Report on U.S. Manufacturing Industries, "There are so few exceptions to the decline of the international positions of U.S. manufacturing industries that one must seek more general causes that act on the entire economy. Without a strongly advancing manufacturing industry, the U.S. economy is hardly likely to maintain its progress in the decades ahead".

The Brookings Institution has estimated that half the jobs lost in manufacturing from 1980 to 1982 can be traced to increased imports and decreased exports. Robert Lawrence of Brookings has further calculated that to regain an equal balance in our balance of trade, the U.S. would need a 28% decline in the value of the dollar. That implies a fall in our standard of living which would be socially and politically disruptive.

The present U.S. trade imbalance is attributable, in part, to increased foreign competition and to non-tariff barriers faced by U.S. companies in their efforts to export products overseas. These foreign barriers include local content requirements, minimum export requirements that obligate firms to export and subsidies to companies that experience competition from imports.

RESEARCH FINDINGS

There is substantial excess capacity in steel production in both worldwide and domestic markets.

Vigorous competition exists in the United States and more sheltered markets characterize the economies of our major trading partners.

State of the art steel production technology is equally available to all countries.

Reinvestment in more advanced steel making facilities by domestic producers exceeds operating profits.

Current federal efforts to maintain an orderly domestic market and prevent predatory competition are only partially successful.

- target share of imports exceeded by more than 20%
- circumvention of voluntary trade agreements is common
- non signatory countries are increasing their import penetration

IMPLICATIONS

A process of substantial down-sizing of domestic steel production capacity is underway.

- Since 1976, production capability has fallen from 158 million tons to 128 million at the beginning of 1986 and is expected to decline to some 100 million tons in the next four-to-five years.
- Since 1980, employment has declined by 54%.

The demand for investment funds by the domestic steel industry exceeds the value of equity and their ability to borrow.

- LTV is in bankruptcy and analysts have a grim prognosis for Bethlehem and Armco.

Recent investment has been \$7 billion in the last four years and the industry needs to invest at least that much over the next five years.

The social and economic costs of plant closings are very large.

- Cost to companies is \$50,000 to \$60,000 per employee, plus over-all costs of \$3 billion to \$8 billion to the industry.
- Cost to communities and states involve loss of tax base and increased demand for governmental services.
- Cost to individuals and families involves higher loss of income, homes and social distress.

POLICY OPTIONS

Otto Eckstein, in his last work before his death, counseled that "A nation that casually surrenders leading industrial positions through policies of

neglect will find it difficult to stage a comeback, particularly if the period of non-competitiveness stretches on for more than a few years."

The following policy options constitute a coherent and coordinated program for the Great Lakes states to assist in the revitalization of the integrated steel industry. These policy options recognize that steel industry management and labor and the financial community are primarily responsible for revitalizing the industry.

Steel Research Policy

1. The Great Lakes Governors should urge Congress and the Administration to sustain funding for the Steel Industry/Federal Labs Initiative aimed at advanced technologies for steel making.
2. The Great Lakes Governors should provide state financial support for participation by state universities in the recently-established Steel Resource Center at Northwestern University.
3. The Minnesota and Michigan Governors should provide a joint program for their states designed to forge greater coordination and cooperation on iron ore and taconite research and related applied technology at the university level--University of Minnesota at Duluth and Michigan Technological University at Houghton.

State Coordination

1. Each state with a major stake in the steel industry could develop an inter-agency coordination group to address steel issues as they come up, analagous to Michigan's Auto Policy Group.
2. A multi-state cooperative effort could be organized that would entail on-location expert assistance to communities affected by steel plant closures. This would provide a mechanism for shared learning about adaptive reuse of obsolete plants, displaced worker programs and other transitional programs in order to lessen the damage from plant closings.
3. The Great Lakes Governors should convene and participate in a "steel summit" meeting in 1987 at which the region's public sector and industry labor/management officials would meet to map out a long-term strategy plan for the region's steel industry

Adjustment Assistance Programs

1. An agreement to provide advance notice of plant closings should be obtained from companies in industries for whom the United States has negotiated import restrictions such as voluntary restraint agreements. Specifically, the Secretary of Labor should negotiate Voluntary Notice Agreements (VNA) with firms operating integrated steel mills. The VNA's would provide for advance notice of three to six months of a closing of a facility with a blast furnace or basic oxygen process for the production

of raw steel. The Secretary should report the progress of the negotiations to the Office of the Trade Representative with recommendations concerning the continuation or extension of Voluntary Restraint Agreements. The VNA's would be of the same duration as the VRA's.

2. A comprehensive set of services to workers who face displacement because of plant closings should be provided through a coordinated program of public and private services. They include training and assessment, counseling, job search skills training, job development, vocational skills training, and remedial education. Management, employee organizations, community based service agencies and state agencies should participate in providing the services.
3. Changes in the rules governing the payment of unemployment benefits should be enacted. If the displaced worker chooses to try to start his or her own business, the benefits should be continued for 26 weeks. In order to be eligible for this alternative unemployment compensation program, the worker would have to provide a business plan determined to be reasonably likely to succeed by a designated small business service agency.
4. Extended unemployment benefits may be paid if a state meets certain criteria. The formula should be changed to permit sub-state regions to attain eligibility in the case of a major plant closing.
5. A federally funded community assistance program to encourage the adaptive reuse of the abandoned facility or site should be enacted.

Investment Policy

1. During the period that VRAs are in place, both U.S.-owned and foreign-owned manufacturing plants that have received state investment/construction assistance or incentives should purchase steel from domestic U.S. steel companies.
2. Encourage the construction of manufacturing plants in the U.S. by foreign producers of steel-intensive goods such as autos, trucks and farm equipment. This could serve to increase the consumption of domestic steel and reduce indirect steel imports of foreign-produced steel into the United States.
3. Great Lakes states should target financial assistance and marketing programs to retain and attract firms involved in steel fabrication, distribution and use of steel in the manufacturing process. This could readily stabilize the size of the regional market for the products of integrated steel mills.
4. Implement the recommendation of the 1986 Report by the House Committee on Science and Technology, entitled "New Technology And The Future of Steel", which calls on the Congressional Budget Office to prepare a report identifying Federal policies that influence capital formation in the steel industry and describing alternatives that would maximize the generation of investment funds.

**GREAT LAKES COMMISSION
ECONOMIC ANALYSIS AND POLICY TASK FORCE**

**STATE INDUSTRIAL RESEARCH AND DEVELOPMENT FUNDING:
SUMMARY OF FINDINGS FROM A MICROECONOMETRIC ANALYSIS
OF THE ECONOMIC DEVELOPMENT IMPACT OF INDUSTRIAL PERFORMANCE
OF RESEARCH AND DEVELOPMENT**

October 1987

**SUMMARY OF FINDINGS FROM A
MICROECONOMETRIC ANALYSIS OF
THE ECONOMIC DEVELOPMENT IMPACT
OF INDUSTRIAL PERFORMANCE
OF RESEARCH AND DEVELOPMENT**

Background

In 1986, the Economic Analysis Division completed an econometric analysis examining the economic development impacts of various categories of expenditure by state government agencies and state-dependent corporations. The analysis revealed that in comparison to traditional state government expenditures for various categories of education and transportation infrastructure, public funding of industrial performance of research and development offers the greatest impact. The impact was measured both in terms of increased employment and in terms of increased tax collections and user-fee collections resulting from the improvements in the level of personal income and the tax base.

Purpose

The Indiana Corporation for Science and Technology was established in 1982 by the Indiana State Legislature to help strengthen the Indiana Economy through the development and application of science and technology. Its capital base consists of state dollars appropriated by the legislature which the Corporation awards to applied research ventures proposed by applicants. Priority is given to proposals which are in targeted growth areas of the state economy, and which incorporate both advanced technology and plans for full commercialization. Therefore, in addition to all the factors considered by the private corporation when making the R&D investment decision, CST's public funding contribution must also be guided by the economic development purpose and intent of the legislation.

The purpose of the following analysis therefore is to give greater definition to the earlier, more aggregate analysis, thereby contributing information for the identification of target-worthy areas of the economy. The contributed information consists of isolating the net R&D impact on both product demand and factor demand in major industry groups, and of measuring the net R&D impact in terms of R&D elasticities of product shipments and of net employment. This purpose is accomplished by means of a ninety-three equation microeconomic model which is driven by macroeconomic variables.

Data

The SIC code major industry groups represented in the micro-econometric model are as follows:

<u>SIC</u>	<u>Major Industry Group</u>
20	Foods & Beverages
22 & 23	Textiles & Apparel
24 & 25	Lumber, Wood & Furniture
26	Paper & Products
28	Chemicals & Products
29	Petroleum & Products
30	Rubber & Plastics
32	Stone, Clay & Glass
33	Primary Metals
34	Fabricated Metals
35	Nonelectrical Machinery
36	Electrical Machinery
37	Transportation Equipment
38	Instruments

The variables in the model for each of the SIC industry groups are as follows:

1. Constant-dollar value of shipments (denoted VS). Value of shipments is usually the current-dollar value of shipments reported in the Census of Manufacturers and Annual Survey of Manufacturers deflated with a producer price index for the same SIC group. When a producer price index is not available for a group, the value of shipments is the index of production for the industry group, dollarized by the 1982 value of shipments.
2. Price index (PR). Whenever possible the Bureau of Labor Statistics producer price index is used. When the producer price index is not available, the price index is an average unit value index generated by dividing the current-dollar value of shipments by the corresponding Federal Reserve Board production index.
3. Ratios of current-dollar imports to exports (IE).
4. Stock of research and development (RD). This is a stock variable generated by a stock equation using National Science Foundation research and development expenditure data by industry group, deflated by the GNP deflator. The stock equation uses the declining balance method of depreciation, and a thirty-four year economic life of the information stock is assumed. This results in the equation:

$$RD_t = 0.8111 * RD_{t-1} + RE_t$$

where:

RD is the stock of R&D information

RE is the annual rate of constant-dollar expenditure for industrial R&D performance

5. Capacity utilization rate (UT). The capacity utilization rates for the SIC industry groups are estimated and reported by the Federal Reserve Board of Governors as percentages.
6. Capacity level output (KQ). This variable is derived by dividing the constant-dollar value of shipments by the capacity utilization expressed as a decimal. Changes in the capacity-level outputs represent net investment in the industry group. Experimentation with these variables revealed that use of capacity-level output is superior to stock variables created from investment data, because stock variables with depreciation-decay factors do not register charges in capacity due to plant and facility shut-downs which are a function of economic conditions.
7. Employment (EM). This variable is represented by Bureau of Labor Statistics nonagricultural establishment employment data.

Methodology

The methodology for constructing the microeconomic model is more "pragmatic" than "theoretical", where "theoretical" refers to the determination of the equation specifications by means of a priori beliefs imposed on the data, while "pragmatic" refers to the determination of the equation specifications by means of a posteriori data analysis. While there is a widely accepted body of traditional economic thinking called microeconomic theory, it says relatively little about research and development. Furthermore, it is traditionally a static theory of prices and of limited applicability for the industrial sector of the economy, where most adjustment takes place in the quantity demanded with price charges following in response.

The introduction of R&D data complicates any attempt to create theoretical "structural" equations in two ways: Firstly traditional microeconomic demand theory does not take explicit account of "quality" improvements that are produced by the product design changes resulting from R&D performance. In microeconomic theory such changes are structural changes that manifest themselves as the structural breakdown of the traditional economic model. Secondly, the R&D variables identify only the industry groups in which the R&D activity is performed; it does not identify the SIC code in which the R&D information is used. Often the R&D results in design changes in the

products used by another industry either as raw materials or as equipment, and structural change is thereby introduced into the using industry. The R&D may also result in a change in employee practices, and it may be transferred into another industry simply as information that is not embodied in a product, thereby again introducing structural change into the using industry. In none of these cases does the SIC code identification reveal which industry is the user industry. Nor does it reveal substitution effects or complimentary effects in other industries.

Economic theory cannot cope with this chaos of information. Accordingly recourse must be taken to extensive data analysis. The procedure used is to write computer systems that execute combinatorial processes, which examine a very large number of equation specifications consisting of alternate selections of variables and time lags, and then choosing that which has the least mean-squared error. However, users of this report are warned that this procedure could be used only for preliminary equations specifications, since the Economic Analysis Division of the Indiana Department of Commerce budgets no funds for use of the state's mainframe computer; only personal computers have been used, and their use required many weeks of run time. These preliminary equations were refined with some guidance from Scherer's static input-output model relating R&D expenditures to value of shipments. Accordingly, the equator specifications in this model are subject to possibly extensive revision.

Model Structure

The microeconomic model is divided into two principal sectors:

1. The product demand sector. The product demand sector contains the constant-dollar value of shipments, the price index, the import/export ratio, and the R&D stock variables for each industry group. It also contains several macroeconomic variables including the constant-dollar GNP, the prime commercial paper interest rate, the Moody's AAA classified bond rate, the Federal Reserve Board's trade-weighted index of the value of the US dollar relative to the currencies of the other G-10 countries, the price of crude petroleum, total US imports in both current and constant dollars, and total US exports in both current and constant dollars. As a result of these macroeconomic variables, the product demand sector does not rely on the interaction of the industry groups to explain the business cycle component in the data. Not only is the explanation of the business cycle not the subject under inquiry, but it is not possible to describe the cycle adequately with fourteen two-digit SIC major industry groups. Another outcome of the use of the exogenous macroeconomic variables is the very high degree of fidelity of the equations to the data; the model is very accurate. The interaction among the industry groups occurs principally among the value of shipments variables; import/export ratios for industry groups

are important determinants of shipments only for petroleum, steel, and transportation equipment including automobiles. Prices usually follow shipments changes with considerable lags, and it can be said that the shipments sector drives the price sector. R&D stocks are exogenous in all equations in which they occur. Every shipment demand equation has its "own" R&D variable, but it may often have R&D variables representing other SIC industry groups. R&D variables are also important in import-export equations for the industry groups.

2. The factor demand sector. The factor demand sector is driven by the product demand sector, and principally by the value of shipments. For each SIC industry group the factor demand sector contains equations for capital and labor demand in the industry groups, and each industry group is autonomous from others except for the occurrence of R&D variables from other industry groups. The quantity of capital demanded is represented by the capacity-level constant-dollar value of shipments, and it is principally driven by the value of shipments determined in the product demand sector. From the capacity-level shipments and the value of shipments demanded, the utilization rates are derived. Then the capacity utilization rates and the value of shipments determine the demand for employment in an inverted production function. The R&D stocks occur in both the capital and labor demand functions. R&D from any SIC code industry group that may be embodied in either a capital good or a raw material may occur in any capital or labor demand equation, so long as the R&D variable is statistically significant, and so long as its occurrence may be interpreted as representing productivity improvements for the factor. Capital and labor factor demand equations nearly always contain their "own" SIC code R&D variable.

Simulations

A simulation run of the model is made for each of the fourteen SIC code industry groups. In the simulations the amount of constant-dollar R&D expenditure for performance in the SIC group is made to increase in the initial period (the year 1965) by an amount equal to ten percent of the total constant-dollar R&D expenditure for the entire twenty-year simulation period. This one-time initial increase is assimilated into the R&D stock accumulators, and the stock variable is allowed to run down through the twenty-year period. The quality improvements have the effect of increasing demand in the R&D variable's own SIC group, because it represents product development, and also have the effect of increasing demand in other SIC groups because of relationships of complimentary or end use. The R&D increase may also reduce demand where substitution relationships obtain. And where import/export ratios are important for shipments, the R&D increase may enhance exports or reduce imports. The consequent changes in value of shipments are propagated into the factor demand sector, where they usually have the effect of increasing the demand for both capital and labor. But the occurrence of the R&D

variable in the factor demand equation has the contrary effect of increasing productivity, so that their results a net effect on employment that may be either positive or negative.

Findings

The shock imparted to the model in any simulation run is an increase of R&D constant-dollar spending of ten percent over the total level of spending over the twenty-year simulation period. The input is therefore always a ten percent increase relative to twenty years of expenditure. The output is the positive or negative net change for both value of shipments and employment. The amounts of consequent change are summed over the twenty-year period, and then expressed as a percent of the sums of the actual level over the twenty-year period. Finally, the ten percent increase in R&D expenditure for the chosen SIC industry group is divided into the consequent percent changes in shipments and employment for each SIC group and also for all groups together. The resulting ratio of consequent percent change to imparted percent charge is an elasticity. A positive elasticity means that the R&D increase has the effect of a net increase on the other variable and a negative elasticity means a net decrease. A large elasticity, means that the consequence is relatively large. The generated elasticities are given in the appendix.

The percentage growth rates in employment over the twenty-year simulation period may be compared with the R&D elasticities of total net employment as follows:

<u>SIC</u>	<u>Percent Employment Growth</u>	<u>R&D Elasticity of Net Employment</u>
30	68.8	0.080
38	62.7	0.089
36	36.7	0.108
35	25.6	0.065
28	14.8	0.022
24-25	12.7	0.004
34	7.3	0.019
26	6.9	0.025
37	6.2	0.103
29	-2.7	0.001
32	-4.4	0.006
20	-6.8	-0.004
22-23	-18.2	0.000
33	-34.9	-0.003

Application to Indiana

Ideally a quantitative analysis of the impacts of industrial performance of research and development in Indiana would be based on historical time series data for the major industry groups. Unfortunately the needed historical data have not been collected by NSF.

But NSF has disaggregated their 1985 data for Indiana by major

industry group. However, the survey sample was so small that Federal government confidentiality requirements resulted in the suppression of most of the data for Indiana. By using what data the NSF has released, and by applying Indiana's percent of the total number of establishments in the national major industry group to NSF's national R&D data by major industry group, it was possible to estimate roughly the amount of industrial performance of R&D in Indiana in most of the major industry groups. Data is also available for value of shipments and for employment in Indiana by major industry group in 1985.

By applying the national R&D elasticities of shipments and net employment to the Indiana data, it was possible to generate estimates of the impact of Indiana R&D performance on Indiana manufacturers' demand and employment by major industry group. In these simulations a one-million dollar increase in the 1985 level of R&D spending is made to occur, and then the elasticities are applied to their respective Indiana shipments and employment levels for 1985.

A cautious interpretation of the results is necessary. The elasticities are long-run elasticities that include the adjustments and time delays that occur over a twenty-year period. The generated results therefore represent total shipments dollars in 1985 dollars over a twenty-year period, and total employee man-years over a twenty-year period. These estimates are too rough to be taken as reliable measurements, but they may be used as a basis for prioritizing the major industry groups for allocation of public funding of industrial R&D. The Indiana R&D shipments and employment data that were inputted into the system for application of the elasticities, serve to weight the impact of R&D and its consequences on shipments and employment in Indiana. As a result the total net impacts across all industry groups for each R&D increase, will be different than the corresponding national impacts on shipments and employment.

Estimates of industrial R&D performance by major industry group for Indiana in millions of 1985 dollars for the year 1985 are as follows:

<u>SIC</u>	<u>NSF SURVEY</u>	<u>IDOC ESTIMATES</u>	<u>COMBINED</u>
20	\$ --	\$20	\$20
22 & 23	0	--	0
24 & 25	0	--	0
26	0	--	0
28	480	--	480
29	0	--	0
30	--	30	30
32	--	40	40
33	15	--	15
34	0	0	0
35	--	250	250
36	--	300	300
37	--	250	250
38	15	--	15
			<u>Total \$1,400</u>

Detail results are given in the appendix. A summary of the simulations results for Indiana ranked in descending order are as follows:

<u>SIC</u>	<u>ALLEMP</u> <u>(000 of man-years)</u>	<u>Jobs Created</u> <u>(000 of persons)</u>
38	3011	150
30	1364	68
36	218	11
35	209	10
37	167	8
20	133	7
32	74	4
28	23	1
33	-121	-6

The number of new jobs created is calculated by dividing the number of employee man-years by twenty. The result is the number of new jobs created in thousands of persons over the twenty-year simulation period. Estimates for major industry groups not shown could not be made because of the lack of adequate base data for Indiana R&D expenditures.

APPENDIX

R&D ELASTICITIES OF DEMAND AND EMPLOYMENT FOR RD20

VS20	0.077	EM20	-0.107
VS22-3	0.007	EM22-3	0.003
VS24-5	0.028	EM24-5	0.028
VS26	0.034	EM26	0.017
VS28	0.028	EM28	0.007
VS29	0.001	EM29	0.000
VS30	0.024	EM30	0.077
VS32	0.007	EM32	0.004
VS33	0.005	EM33	0.003
VS34	0.010	EM34	0.009
VS35	0.006	EM35	0.005
VS36	0.013	EM36	0.003
VS37	0.003	EM37	0.002
VS38	0.044	EM38	0.032
ALLSHP	0.031	ALLEMP	-0.004

DISTRIBUTED OUTCOMES OF INDIANA R&D INCREASE FOR RD20

VS20	27705.8	EM20	-187.5
VS22-3	197.0	EM22-3	1.6
VS24-5	3970.8	EM24-5	47.8
VS26	2628.6	EM26	10.5
VS28	9110.1	EM28	6.1
VS29	144.1	EM29	0.0
VS30	4202.5	EM30	154.9
VS32	594.6	EM32	4.0
VS33	3160.4	EM33	11.1
VS34	2676.0	EM34	24.4
VS35	1947.5	EM35	15.8
VS36	5877.1	EM36	13.9
VS37	1629.8	EM37	9.6
VS38	2333.8	EM38	20.5

SUM OF DISTRIBUTED OUTCOMES RD20

ALLSHP	66178.1	ALLEMP	132.8
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R&D ELASTICITIES OF DEMAND AND EMPLOYMENT FOR RD22 3

VS20	0.000	EM20	0.000
VS22-3	0.015	EM22-3	0.007
VS24-5	-0.001	EM24-5	-0.001
VS26	-0.002	EM26	-0.001
VS28	-0.001	EM28	0.000
VS29	0.000	EM29	0.000
VS30	-0.007	EM30	-0.024
VS32	0.000	EM32	0.000
VS33	0.000	EM33	0.000
VS34	0.000	EM34	0.000
VS35	0.000	EM35	0.000
VS36	0.000	EM36	0.000
VS37	0.000	EM37	0.000
VS38	-0.001	EM38	0.000
ALLSHP	0.001	ALLEMP	0.000

DISTRIBUTED OUTCOMES OF INDIANA R&D INCREASE FOR RD22 3

VS20	0.0	EM20	0.0
VS22-3	0.0	EM22-3	0.0
VS24-5	0.0	EM24-5	0.0
VS26	0.0	EM26	0.0
VS28	0.0	EM28	0.0
VS29	0.0	EM29	0.0
VS30	0.0	EM30	0.0
VS32	0.0	EM32	0.0
VS33	0.0	EM33	0.0
VS34	0.0	EM34	0.0
VS35	0.0	EM35	0.0
VS36	0.0	EM36	0.0
VS37	0.0	EM37	0.0
VS38	0.0	EM38	0.0

SUM OF DISTRIBUTED OUTCOMES RD22 3

ALLSHP	0.0	ALLEMP	0.0
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R&D ELASTICITIES OF DEMAND AND EMPLOYMENT FOR RD24-5

VS20	0.000	EM20	0.000
VS22-3	0.000	EM22-3	0.000
VS24-5	0.012	EM24-5	0.010
VS26	0.001	EM26	0.000
VS28	0.000	EM28	0.000
VS29	0.000	EM29	0.000
VS30	0.013	EM30	0.047
VS32	0.000	EM32	0.000
VS33	0.001	EM33	0.001
VS34	0.002	EM34	0.002
VS35	0.000	EM35	0.000
VS36	0.000	EM36	0.000
VS37	0.000	EM37	0.000
VS38	0.000	EM38	0.000
ALLSHP	0.001	ALLEMP	0.004

DISTRIBUTED OUTCOMES OF INDIANA R&D INCREASE FOR RD24-5

VS20	0.0	EM20	0.0
VS22-3	0.0	EM22-3	0.0
VS24-5	0.0	EM24-5	0.0
VS26	0.0	EM26	0.0
VS28	0.0	EM28	0.0
VS29	0.0	EM29	0.0
VS30	0.0	EM30	0.0
VS32	0.0	EM32	0.0
VS33	0.0	EM33	0.0
VS34	0.0	EM34	0.0
VS35	0.0	EM35	0.0
VS36	0.0	EM36	0.0
VS37	0.0	EM37	0.0
VS38	0.0	EM38	0.0

SUM OF DISTRIBUTED OUTCOMES RD24-5

ALLSHP	0.0	ALLEMP	0.0
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R&D ELASTICITIES OF DEMAND AND EMPLOYMENT FOR R026

VS20	0.000	EM20	0.000
VS22-3	0.014	EM22-3	0.007
VS24-5	0.053	EM24-5	0.047
VS26	0.100	EM26	0.050
VS28	0.062	EM28	0.016
VS29	0.000	EM29	0.000
VS30	0.062	EM30	0.203
VS32	0.004	EM32	0.002
VS33	0.005	EM33	0.003
VS34	0.013	EM34	0.011
VS35	0.002	EM35	0.002
VS36	0.006	EM36	0.002
VS37	0.002	EM37	0.001
VS38	0.027	EM38	0.020
ALLSHP	0.021	ALLEMP	0.025

DISTRIBUTED OUTCOMES OF INDIANA R&D INCREASE FOR R026

VS20	0.0	EM20	0.0
VS22-3	0.0	EM22-3	0.0
VS24-5	0.0	EM24-5	0.0
VS26	0.0	EM26	0.0
VS28	0.0	EM28	0.0
VS29	0.0	EM29	0.0
VS30	0.0	EM30	0.0
VS32	0.0	EM32	0.0
VS33	0.0	EM33	0.0
VS34	0.0	EM34	0.0
VS35	0.0	EM35	0.0
VS36	0.0	EM36	0.0
VS37	0.0	EM37	0.0
VS38	0.0	EM38	0.0

SUM OF DISTRIBUTED OUTCOMES R026

ALLSHP	0.0	ALLEMP	0.0
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R&D ELASTICITIES OF DEMAND AND EMPLOYMENT FOR RD28

VS20	0.000	EM20	0.000
VS22-3	0.022	EM22-3	0.010
VS24-5	0.088	EM24-5	0.075
VS26	0.005	EM26	-0.021
VS28	0.098	EM28	-0.007
VS29	0.001	EM29	0.000
VS30	0.041	EM30	0.142
VS32	0.006	EM32	0.004
VS33	0.010	EM33	0.007
VS34	0.022	EM34	0.019
VS35	0.004	EM35	0.003
VS36	0.011	EM36	0.003
VS37	0.003	EM37	0.002
VS38	0.044	EM38	0.032
ALLSHP	0.025	ALLEMP	0.022

DISTRIBUTED OUTCOMES OF INDIANA R&D INCREASE FOR RD28

VS20	0.0	EM20	0.0
VS22-3	26.4	EM22-3	0.2
VS24-5	526.2	EM24-5	6.4
VS26	14.8	EM26	-0.5
VS28	1310.9	EM28	-0.3
VS29	5.3	EM29	0.0
VS30	296.0	EM30	11.9
VS32	21.0	EM32	0.1
VS33	283.3	EM33	1.0
VS34	236.4	EM34	2.2
VS35	51.4	EM35	0.4
VS36	215.2	EM36	0.5
VS37	59.8	EM37	0.4
VS38	96.4	EM38	0.8

SUM OF DISTRIBUTED OUTCOMES RD28

ALLSHP	3143.5	ALLEMP	23.1
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R&D ELASTICITIES OF DEMAND AND EMPLOYMENT FOR R029

VS20	0.000	EM20	0.000
VS22-3	0.004	EM22-3	0.002
VS24-5	0.000	EM24-5	0.000
VS26	0.000	EM26	0.000
VS28	0.000	EM28	0.000
VS29	0.010	EM29	0.012
VS30	0.003	EM30	0.009
VS32	0.000	EM32	0.000
VS33	0.000	EM33	0.000
VS34	0.000	EM34	0.000
VS35	0.000	EM35	0.000
VS36	0.000	EM36	0.000
VS37	0.000	EM37	0.000
VS38	0.000	EM38	0.000
ALLSHP	0.001	ALLLEMP	0.001

DISTRIBUTED OUTCOMES OF INDIANA R&D INCREASE FOR R029

VS20	0.0	EM20	0.0
VS22-3	0.0	EM22-3	0.0
VS24-5	0.0	EM24-5	0.0
VS26	0.0	EM26	0.0
VS28	0.0	EM28	0.0
VS29	0.0	EM29	0.0
VS30	0.0	EM30	0.0
VS32	0.0	EM32	0.0
VS33	0.0	EM33	0.0
VS34	0.0	EM34	0.0
VS35	0.0	EM35	0.0
VS36	0.0	EM36	0.0
VS37	0.0	EM37	0.0
VS38	0.0	EM38	0.0

SUM OF DISTRIBUTED OUTCOMES R029

ALLSHP	0.0	ALLLEMP	0.0
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R&D ELASTICITIES OF DEMAND AND EMPLOYMENT FOR RD30

VS20	0.000	EMP0	0.000
VS22-3	0.141	EMP2-3	0.070
VS24-5	0.060	EMP4-5	0.050
VS26	-0.006	EMP6	-0.003
VS28	0.057	EMP8	0.030
VS29	0.300	EMP9	0.072
VS30	0.214	EMP0	0.683
VS32	0.000	EMP2	0.000
VS33	0.045	EMP3	0.029
VS34	0.064	EMP4	0.056
VS35	0.017	EMP5	0.014
VS36	0.017	EMP6	0.004
VS37	0.076	EMP7	0.041
VS38	0.030	EMP8	0.021
ALLSHP	0.070	ALLEMP	0.080

DISTRIBUTED OUTCOMES OF INDIANA R&D INCREASE FOR RD30

VS20	0.0	EMP0	0.0
VS22-3	2779.3	EMP2-3	23.2
VS24-5	5683.1	EMP4-5	67.9
VS26	-295.9	EMP6	-1.1
VS28	12079.1	EMP8	17.3
VS29	49335.1	EMP9	9.8
VS30	24757.8	EMP0	910.6
VS32	-13.6	EMP2	0.0
VS33	19784.5	EMP3	71.2
VS34	11161.9	EMP4	101.6
VS35	3759.4	EMP5	30.4
VS36	5126.3	EMP6	12.0
VS37	24807.3	EMP7	111.7
VS38	1046.0	EMP8	9.0

SUM OF DISTRIBUTED OUTCOMES RD30

ALLSHP	160010.1	ALLEMP	1363.6
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R&D ELASTICITIES OF DEMAND AND EMPLOYMENT FOR RD32

VS20	0.000	EM20	0.000
VS22-3	0.002	EM22-3	0.001
VS24-5	0.010	EM24-5	0.008
VS26	0.016	EM26	0.008
VS28	0.010	EM28	0.001
VS29	0.000	EM29	0.000
VS30	0.010	EM30	0.035
VS32	0.030	EM32	0.018
VS33	0.004	EM33	0.003
VS34	0.009	EM34	0.008
VS35	0.001	EM35	0.001
VS36	0.002	EM36	0.001
VS37	0.001	EM37	0.000
VS38	0.005	EM38	0.003
ALLSHP	0.006	ALLEMP	0.006

DISTRIBUTED OUTCOMES OF INDIANA R&D INCREASE FOR RD32

VS20	0.0	EM20	0.0
VS22-3	32.4	EM22-3	0.3
VS24-5	682.2	EM24-5	8.2
VS26	598.3	EM26	2.4
VS28	1570.5	EM28	0.6
VS29	12.0	EM29	0.0
VS30	870.8	EM30	34.8
VS32	1270.0	EM32	8.4
VS33	1333.2	EM33	4.9
VS34	1125.7	EM34	10.4
VS35	237.4	EM35	1.9
VS36	481.0	EM36	1.1
VS37	133.4	EM37	0.8
VS38	127.4	EM38	1.1

SUM OF DISTRIBUTED OUTCOMES RD32

ALLSHP	8474.1	ALLEMP	74.9
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R&D ELASTICITIES OF DEMAND AND EMPLOYMENT FOR RD33

VS20	0.000	EM20	0.000
VS22-3	0.000	EM22-3	0.000
VS24-5	0.002	EM24-5	0.001
VS26	-0.001	EM26	0.000
VS28	-0.001	EM28	0.000
VS29	0.000	EM29	0.000
VS30	0.002	EM30	0.007
VS32	-0.002	EM32	-0.001
VS33	0.012	EM33	-0.028
VS34	0.000	EM34	0.000
VS35	0.000	EM35	0.000
VS36	0.000	EM36	0.000
VS37	0.000	EM37	-0.000
VS38	0.000	EM38	0.000
ALLSHP	0.001	ALLEMP	-0.003

DISTRIBUTED OUTCOMES OF INDIANA R&D INCREASE FOR RD33

VS20	0.0	EM20	0.0
VS22-3	-4.8	EM22-3	0.0
VS24-5	302.7	EM24-5	3.7
VS26	-92.1	EM26	-0.4
VS28	-239.5	EM28	-0.1
VS29	-1.0	EM29	0.0
VS30	429.3	EM30	17.7
VS32	-222.4	EM32	-1.5
VS33	10282.4	EM33	-139.8
VS34	-40.0	EM34	-0.4
VS35	-8.9	EM35	-0.1
VS36	-40.9	EM36	-0.1
VS37	-11.4	EM37	-0.1
VS38	-17.7	EM38	-0.2

SUM OF DISTRIBUTED OUTCOMES RD33

ALLSHP	10335.6	ALLEMP	-121.2
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R&D ELASTICITIES OF DEMAND AND EMPLOYMENT FOR RD34

VS20	0.000	EM20	0.000
VS22-3	0.038	EM22-3	-0.013
VS24-5	0.053	EM24-5	0.045
VS26	0.000	EM26	-0.399
VS28	0.006	EM28	0.001
VS29	0.035	EM29	0.008
VS30	0.069	EM30	0.242
VS32	-0.027	EM32	-0.519
VS33	0.200	EM33	0.130
VS34	0.306	EM34	0.173
VS35	0.066	EM35	0.056
VS36	0.061	EM36	0.015
VS37	0.196	EM37	0.051
VS38	0.031	EM38	0.022

ALLSHP	0.110	ALL EMP	0.019
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DISTRIBUTED OUTCOMES OF INDIANA R&D INCREASE FOR RD34

VS20	0.0	EM20	0.0
VS22-3	0.0	EM22-3	0.0
VS24-5	0.0	EM24-5	0.0
VS26	0.0	EM26	0.0
VS28	0.0	EM28	0.0
VS29	0.0	EM29	0.0
VS30	0.0	EM30	0.0
VS32	0.0	EM32	0.0
VS33	0.0	EM33	0.0
VS34	0.0	EM34	0.0
VS35	0.0	EM35	0.0
VS36	0.0	EM36	0.0
VS37	0.0	EM37	0.0
VS38	0.0	EM38	0.0

SUM OF DISTRIBUTED OUTCOMES RD34

ALLSHP	0.0	ALL EMP	0.0
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R&D ELASTICITIES OF DEMAND AND EMPLOYMENT FOR RD35

VS20	0.122	EM20	0.007
VS22-3	0.111	EM22-3	-0.253
VS24-5	0.220	EM24-5	0.155
VS26	0.052	EM26	0.026
VS28	0.090	EM28	0.025
VS29	0.069	EM29	-0.060
VS30	0.012	EM30	-0.020
VS32	0.019	EM32	-0.078
VS33	0.298	EM33	0.053
VS34	0.436	EM34	0.178
VS35	0.502	EM35	-0.089
VS36	0.466	EM36	0.118
VS37	0.504	EM37	0.357
VS38	0.293	EM38	0.067
ALLSHP	0.361	ALLEMP	0.065

DISTRIBUTED OUTCOMES OF INDIANA R&D INCREASE FOR RD35

VS20	3489.6	EM20	1.0
VS22-3	261.9	EM22-3	-10.1
VS24-5	2523.4	EM24-5	30.2
VS26	317.3	EM26	1.3
VS28	2302.4	EM28	1.7
VS29	1766.5	EM29	-1.0
VS30	173.0	EM30	-3.2
VS32	132.4	EM32	-5.9
VS33	15595.0	EM33	15.7
VS34	9170.4	EM34	39.0
VS35	13436.4	EM35	-22.6
VS36	17214.7	EM36	40.9
VS37	19821.2	EM37	118.0
VS38	1247.2	EM38	3.5

SUM OF DISTRIBUTED OUTCOMES RD35

ALLSHP	87451.4	ALLEMP	208.5
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R&D ELASTICITIES OF DEMAND AND EMPLOYMENT FOR RD36

VS20	0.084	EM20	0.005
VS22-3	0.414	EM22-3	0.149
VS24-5	0.695	EM24-5	0.056
VS26	0.251	EM26	0.025
VS28	0.729	EM28	-0.150
VS29	0.636	EM29	0.122
VS30	0.622	EM30	2.011
VS32	0.038	EM32	0.023
VS33	0.134	EM33	-0.063
VS34	0.376	EM34	0.331
VS35	0.069	EM35	0.047
VS36	0.195	EM36	-0.145
VS37	0.051	EM37	-0.282
VS38	0.385	EM38	0.131
ALLSHP	0.340	ALLEMP	0.108

DISTRIBUTED OUTCOMES OF INDIANA R&D INCREASE FOR RD36

VS20	2006.9	EM20	0.6
VS22-3	815.2	EM22-3	5.0
VS24-5	6634.6	EM24-5	7.6
VS26	1283.7	EM26	1.0
VS28	15551.5	EM28	-8.7
VS29	10474.0	EM29	1.7
VS30	7193.0	EM30	268.1
VS32	214.8	EM32	1.4
VS33	8021.9	EM33	-15.6
VS34	6600.5	EM34	60.4
VS35	1539.3	EM35	10.1
VS36	5992.6	EM36	-41.9
VS37	1661.8	EM37	-77.6
VS38	1365.9	EM38	5.6

SUM OF DISTRIBUTED OUTCOMES RD36

ALLSHP	69355.6	ALLEMP	217.7
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R&D ELASTICITIES OF DEMAND AND EMPLOYMENT FOR RD37

VS20	0.000	EM20	0.000
VS22-3	0.173	EM22-3	0.083
VS24-5	0.062	EM24-5	0.032
VS26	0.050	EM26	0.010
VS28	0.038	EM28	0.013
VS29	0.038	EM29	-0.141
VS30	0.067	EM30	0.166
VS32	0.066	EM32	-0.084
VS33	0.091	EM33	0.030
VS34	0.268	EM34	0.159
VS35	0.073	EM35	0.062
VS36	0.068	EM36	0.017
VS37	0.338	EM37	0.219
VS38	0.046	EM38	0.033
ALLSHP	0.146	ALLEMP	0.103

DISTRIBUTED OUTCOMES OF INDIANA R&D INCREASE FOR RD37

VS20	0.0	EM20	0.0
VS22-3	409.2	EM22-3	3.3
VS24-5	704.9	EM24-5	5.2
VS26	303.6	EM26	0.5
VS28	960.8	EM28	0.9
VS29	758.9	EM29	-2.3
VS30	934.6	EM30	26.6
VS32	453.0	EM32	-6.4
VS33	4736.8	EM33	9.0
VS34	5637.7	EM34	34.8
VS35	1966.9	EM35	16.0
VS36	2523.5	EM36	6.0
VS37	13290.1	EM37	72.2
VS38	196.3	EM38	1.7

SUM OF DISTRIBUTED OUTCOMES RD37

ALLSHP	32876.3	ALLEMP	167.4
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R038

SIC 38

R&D STOCK

INSTRUMENTS

R&D ELASTICITIES OF DEMAND AND EMPLOYMENT FOR R038

VS20	0.167	EM20	0.010
VS22-3	0.045	EM22-3	0.021
VS24-5	0.198	EM24-5	0.167
VS26	0.060	EM26	0.030
VS28	0.123	EM28	0.022
VS29	0.018	EM29	0.004
VS30	0.150	EM30	0.505
VS32	0.060	EM32	0.036
VS33	0.097	EM33	0.061
VS34	0.163	EM34	0.146
VS35	0.078	EM35	0.062
VS36	0.378	EM36	0.096
VS37	0.098	EM37	-0.094
VS38	0.432	EM38	-0.074
ALLSHP	0.187	ALL EMP	0.089

DISTRIBUTED OUTCOMES OF INDIANA R&D INCREASE FOR R038

VS20	79736.5	EM20	23.2
VS22-3	1754.4	EM22-3	14.3
VS24-5	37854.2	EM24-5	456.4
VS26	6088.6	EM26	24.2
VS28	52534.5	EM28	25.2
VS29	5809.5	EM29	1.1
VS30	34701.3	EM30	1346.0
VS32	6832.0	EM32	45.4
VS33	84726.2	EM33	305.5
VS34	57780.1	EM34	531.8
VS35	34844.0	EM35	263.1
VS36	232844.0	EM36	554.9
VS37	64571.7	EM37	-516.0
VS38	30639.4	EM38	-64.0

SUM OF DISTRIBUTED OUTCOMES R038

ALLSHP	730716.4	ALL EMP	3011.2
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TOURISM AND OUTDOOR RECREATION

**Great Lakes Commission
Economic Analysis and Policy Task Force**

**Final Draft
October 1987**

GREAT LAKES COMMISSION
TOURISM/TRAVEL SURVEY
OF
GREAT LAKES STATE TOURISM OFFICES: ASSESSMENT

During the summer and fall of 1986, the Great Lakes Commission's Economic Analysis and Policy Task Force conducted a survey of the Region's state travel/tourism directors. The short questionnaire was designed to elicit information on tourism data and research needs as well as policy priorities of the states. Also, a listing of research/data resources for each state was obtained through the survey. A list of the questions is attached.

A review of the survey results can be divided into two general categories: data needs and policy priorities. In some questionnaire responses the two issue areas were linked reflecting the importance state tourism offices place on having accurate data particularly for promotional program purposes.

Tourism/Travel Data Needs

The eight Great Lakes states utilize travel/tourism data from numerous and diverse sources. Well-known national data sources are used among all of the states. However, statistical reliability of some of the data is suspect for various reasons including insufficient sample size and excessive reliance on secondary data. Information voids characterize part of the federal government's effort in this area. Budget difficulties and a policy of encouraging private sector initiatives partly explain the problems with comprehensiveness. Even the leading private data collector, the U.S. Travel Data Center, cannot justify increased sampling or data development without responsive support from data subscribers. Such travel/tourism data collected on a national level allows qualified comparison on a state basis--it is for all practical purposes the only comparative information available.

The questionnaire responses generally listed several data categories where information was desired, but data was sparse or currently unavailable. The majority of states in the survey identified the need for more comprehensive tourist/traveler demographic information such as age, sex and income. Trip characteristics including detailed origin-destination information, duration, activity selection, mode of travel and purpose of trip was also indicated as a data priority. A basic information need, but one difficult to obtain broad-traveler detail for, is the number of travelers or tourists. This volume figure and participation rate factor is perceived as important for state program and marketing planning. Another need is visitor or traveler expenditure data, preferably by activity and geographically delimited. Responses by a number of states identified the need for improved program evaluation information, so as to facilitate review of state marketing and promotion effects.

Tourism/Travel Survey Assessment

Implicit in much of the data requirement responses is the need to tailor particular state promotion efforts for effective delivery of products and wise expenditure of public monies. Several of the states indicated that shortcomings with widely available national/state data and pressing needs for accurate and timely specific data have prompted them to generate their own data in-house, either in cooperation with other state agencies or the university/private sector. For example, in Pennsylvania, state-level tourism data are generated primarily by the Pennsylvania Bureau of Travel Development. One aspect of the agency's tourism data management effort is the publication of the research-oriented quarterly newsletter, Pennsylvania Travel Review. The Tourism Development Division of the Indiana Department of Commerce relies extensively on periodic tourism research reports and studies contracted through Purdue and Indiana Universities. In 1986, the Michigan Travel Bureau within the state's Commerce Department helped fund development of, Travel and Tourism in Michigan: A Statistical Profile. This summary of travel related data in Michigan was prepared by Michigan State University's Travel, Tourism and Recreation Resource Center. The report is intended to be updated on a periodic basis.

The diverse sources and research methodologies for state-generated travel/tourism data do not permit state-by-state comparisons without substantial explanation and appropriate adjustments. The questionnaire responses surprisingly did not address data needs and their linkage, if any, with Great Lakes region information. There was acknowledgment that the usual Census state groupings or other regional formats do not correspond to an eight-state Great Lakes Region. However, several states did point out that certain business tax receipt and employment information was available to all of the Great Lakes states. The question as to whether this information is routinely analyzed in terms of travel related characteristics was not elicited in the Great Lakes Commission survey.

Other specific responses deserve separate mention. Data on overseas visitors to the United States is available from federal and private data sources. However, this information has been criticized on accuracy grounds. One state in the survey indicated bluntly that there was "no good information available on foreign visitor impact". In light of increased interest in cooperative promotion programs aimed at foreign visitors, the Great Lakes states may well recognize this data and research need as an obstacle to future multi-state initiatives in this area and take steps to counter the problem.

One state recognized a need for a tourism multiplier study. Although this response could be listed under the expenditure category, its emphasis is on the indirect economic impact of tourism/travel activity in a state. General agreement on such a spending/economic activity model could foster more intra-regional data comparisons and perhaps induce more uniformity in data development methodology.

Tourism/Travel Survey Assessment

Policy Priorities

Each state in the Great Lakes Region has its own tourism program and set of related priorities. One goal of the Commission's Task Force is to review the tourism/travel policies with the respective states and assess whether a broader regional policy agenda is possible beyond that which currently exists. In recent years, several regional initiatives have been undertaken through the Great Lakes Council of State Travel Directors. As part of the Task Force process, the survey was developed. The questionnaire asked the respondent to "identify and rank, in order of importance, policy issues facing your state in the area of tourism development and enhancement."

The answers to the policy question reveal a strong focus on intrastate issues. Considerable diversity as to issue identification and relative priority reflects not only different program development characteristics for the states but specific public policy concerns that pose current challenges. Irrespective of the differences in issue selection, a common concern was funding of state tourism promotion programs. Apparently, agency budget fluctuations result in program planning problems.

Program funding also establishes a link with data needs particularly as they pertain to developing new promotion initiatives and justifying current efforts. Data requirements for both economic impact determination and better market research are deemed necessary although not expressly identified as a policy priority by a majority of respondents.

Examples of the diverse policy issues mentioned include: liability insurance availability and premium costs, indian hunting and fishing rights, expansion of the tourism advertising market beyond current boundaries, use of shoreland for commercial use, promotions aimed at two-income households, interagency coordination, state welcome centers, and increased public/private sector cooperation. In several instances it should be noted that similar policy issue concerns were shared by a number of states. For example, several states listed the need for a more effective policy concerning public/private sector cooperation. Subsidiary issues dealt with respecting "turf" concerns and the extent of and prospects for financial assistance to tourism businesses. Another intrastate issue that was mentioned several times concerned state highway welcome centers or visitor information centers, as they may be called. The usual reference was the need for building more or the upgrading of existing centers. One state even posed a question as to the role these centers should play in a state's tourism infrastructure program. Nevertheless, these centers may have an expanded tourism role in the future. Travel researchers have begun to look at them as data generators with new information gathering responsibilities such as surveys, etc.

Tourism/Travel Survey Assessment

The listing of "regional" policy issues was substantially shorter than that for state specific concerns. It is clear from the survey, that several of the states believe the development of a regional marketing program to be a priority. Pennsylvania indicated that "regional" (intra and interstate) cooperation in tourism promotional efforts was desirable "in order to take advantage of the economy of scale". Limited regional marketing efforts have been undertaken in the past. A focus on international visitors is usually the common denominator. Illinois responded to the question by relating it to the regional "critical mass" issue or the degree of attractiveness a region has for the purpose of sustaining a tourist flow.

Inherent in "regional marketing" responses is the issue of a regional or "Great Lakes image". A 1984 tourism marketing study prepared for the Council of Great Lakes Governors revealed a lack of a strong image of the Great Lakes Region among consumers and the travel trade. This issue contains a common connecting factor for all of the region's states, the Great Lakes, themselves. Even though the states engage in substantial competitive tourism practices, the idea of an umbrella concept to give each state program a regional context has merit and may well become an element of a regional marketing program.

TOURISM DEFINITION

Defining Tourism

One of the problems in discussing tourism is the lack of a common definition of "tourist". Without such a definition, the data development and analysis is made more difficult. For example, many data are collected for the hospitality industry. For this group, travelers not spending the night are of minor interest and those using neither restaurants nor hotel/motels are of no interest. On the other hand, those interested in tourist behavior are not necessarily concerned with economic impact; hence, they make distinctions that either complicate economic analysis or make it impossible.

The first step in defining tourism is to distinguish between tourism and recreation. The National Urban Recreation Study defines recreation as "refreshment of people's minds and bodies through noncompulsory free time activities usually in contrast to or as a diversion from day-to-day routines. Recreation activities may be pursued for many purposes, including physical and mental fulfillment, personal recognition, stimulation, learning and socializing." Recreation is one of the reasons for becoming a tourist, although no definition of tourist or tourism incorporates the idea of recreation. The confusion comes because recreationists are often a principal source of tourist dollars and the lay person frequently thinks of a tourist as one taking a pleasure trip.

Rather than recreation, the common element in all definitions of tourism is that tourist is synonymous with traveler. Activity is irrelevant. People traveling for business, conferences, visiting friends and relatives, study, health and holidays are tourists. Tourism, then, includes all transients who have no permanent relationship with the visited community (e.g., students, military personnel and certain transport personnel would be excluded).

Beyond agreement on travel, most definitions have distance traveled or distance plus time spent as additional requirements. The most common travel distance required (used by both the U.S. Travel Data Center and the U.S. Census Bureau) is 100 miles from the travelers origin, although a minimum of 50 miles is used in some impact models. Some definitions also include the specification that a night or 24 hours be spent in the place visited. This leads to a designation of a traveler who does not spend the night as an "excursionist."

The specification of distance and time as factors that make the traveler a tourist is generally an attempt to differentiate between those who have economic impact on the area visited and those who do not. However, in certain areas, these specifications may not be appropriate. The distance that travelers must go to have an economic impact depends on both the regional level examined and geography. Since dollars from outside the region have the most impact, the significant distance will vary according to whether concern is with nation, state, region, metropolitan area or city. In fact, distance may be irrelevant on the borders of these regions. For many Great Lakes states, proximity to the Canadian border provides an excellent source of dollars from exported tourism; yet, the traveler may only come a few miles. The rationale in setting arbitrary distances is that differences in inclusions and exclusions balance out, making the total volume of travel expenditures reasonably accurate. For national data, this may be true; but for specific regions, this approach may be questionable.

In order to define tourism, the examination of certain hypotheses about the region and the economic impact of tourism may be useful; for the issues they raise ultimately affect the kind of data sought.

- 1) Dollars brought from outside the region are more desirable than those generated within the region.
- 2) It is better to keep local dollars within the region than to let them go elsewhere for recreation, although their impact on the region will be less than dollars from exported tourism.
- 3) Economic impact increases with time spent and, therefore, is a function of distance. If one travels 100 miles or more from home, there is greater likelihood of expenditure in the hospitality industry and, perhaps increased use of attractions.
- 4) Good quality of life within the region (which includes good recreation) has economic consequences in both attracting business and holding business. Therefore, regional attractions should be developed and promoted with local as well as export needs in mind.

Attracting dollars from outside the region is the prime goal of tourism. Therefore, any definition that is concerned with the regional economic impact of tourism must focus on dollars coming from outside the region. Boundaries rather than distance traveled are particularly important in the Great Lakes Region. Because of its size and geography, distance is a poor indicator of the source of dollars. People traveling 100 miles or more may well be from within the region, while those traveling a few miles may cross a national border

The determination of regional boundaries, however, is complicated. Making regional boundaries congruent with state boundaries creates problems since many states include areas that are outside the Great Lakes' sphere of influence. Some states, such as Pennsylvania, barely touch the Great Lakes. Others, like New York, have significant areas that are tied to Great Lakes interests, while having other areas (e.g., the New York City area) where tourist activity is totally insulated from the core region. Inclusion of such areas challenges regional logic and makes a strong case for creating a natural region.

Arguments for a natural region are also supported by research that points out the importance of region being consistent with user perceptions of a natural region or focus of activity. A Michigan study of tourism shows that even on a state level, people's concepts of region do not necessarily correspond to political boundaries. Joseph D. Fridgen, in a Michigan Sea Grant study, proposed that to "promote tourism and recreation, communities or counties could unite in cooperative regions corresponding to the tourist-perceived recreation regions" identified in his study.

On one hand, splitting states may create intrastate competition. Although areas within states do compete for tourists, there has been a healthy move toward promotion of a state as a region to visit, with sub-regions within the state featured. Since there is a logic to state economic analysis, there are those who would reject partitioning a state for tourism development. On the other hand, creation of a natural region that crosses state lines (even national

lines, in the case of the Great Lakes) may well be to the advantage of the local areas involved and the state, if increased tourism results.

While those concerned with tourism must deal with boundaries and export dollars if they are concerned with total economic impact of travel, they must additionally recognize the importance of intraregional visitors and attempt to keep dollars within the region rather than having them spend in other regions. Intraregional travel may also support activity and attractions within the region, helping tourist development. The Great Lakes region has a large proportion of its travel activity generated within the region. According to the 1985 National Travel Survey, 42 percent of total person trips with destinations in the East North Central Region had origins in the East North Central Region. This suggests the importance of measuring internal travel flows. Understanding such movement may influence how promotion dollars are used both by the region and by individual states within the region. Such intraregional flows are also a strong argument for regional strategies in tourist planning and development. Competition between states may be expensive, particularly when a cooperative approach is logical because of the existence of a natural region. In a recent article in the *Wall Street Journal*, it was reported that some state tourist offices have raised questions about the efficacy of large state tourist promotion budgets that attract tourists from bordering states. It is believed that tourists in many instances are simply being exchanged between states, resulting in a very expensive exchange of dollars.

In addition to generating and holding tourist dollars, the development of regional attractions may have further economic impact because of its relationship to the quality of life of a region. Although a prime factor in the location of businesses is not the quality of recreation in a region, for certain kinds of enterprises it may be a consideration in attracting and holding business and influencing job selection. A recent article in the *Futurist* reports that quality of life ratings are currently being used "by industry, real estate, and marketing firms to help with relocation decisions and marketing strategies." This means that development and support of regional attractions have consequences beyond the hospitality industry, providing a further argument for intraregional measurement and promotion.

One can see that the economic well-being of a region that flows from its attractions is influenced both by interregional travel and intraregional travel and use. Any economic analysis of the impact of attractions or decisions regarding development and promotion of attractions should examine both kinds of activity. At the same time, because of the importance of dollars from exported recreation and hospitality, one should distinguish clearly between them and those generated within the region. Tourism for the Great Lakes should be defined as travel originating outside the region, however, it is designated (boundaries - political or natural). There should be no distance or time qualifications. All other travel should be defined as intraregional travel. (In small regions, only recreation should be measured within the region, but in the case of the Great Lakes Region, distances are so great that all travel should be considered.) However, because of the influence of travel distance on dollars spent, research on travel patterns should always include questions on distance traveled (differentiating those traveling 100 or more miles from place of origin from others). Combining data on distance traveled with data on dollars generated on tourism and intraregional travel would give better economic data than are now available and would make it possible to make comparisons with existing travel data.

This lack of commonality and, at times, serious confusion is due, in part, to the complex array of tourist activities and, also to the fact that different interests are concerned with different aspects of tourist activity.