# 14th Annual Report

Economic Policy Council
and Office of Economic Policy

STATE OF NEW JERSEY

Trenton, 1981

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August 28, 1981

The Honorable Brendan Byrne
Governor
State House
Trenton, N. J. 08625

Dear Governor Byrne:

The Economic Policy Council is pleased to transmit its *14th Annual Report* in accordance with Chapter 129 of New Jersey Public Law 1966.

The Council would like to express its appreciation for the opportunity to serve you over the past eight years. Our frequent meetings with you and the Cabinet have been stimulating and have always led to challenging assignments. Despite difficult national economic events, the State's economy has moved forward with significant increases in employment, income and the quality of life. We also note with satisfaction that the performance of the New Jersey economy has become, as it should, the single most important focus for public policy. With this attention and interest, the economic outlook for New Jersey is greatly improved.

In this year's *Report* we have continued our work on topics designed to encourage economic development. We particularly wish to emphasize our belief that a growth strategy based on high technology industry offers large economic benefits for New Jersey. Previous *Reports* have documented the State's advantages in this area. Chapter V in this *Report* outlines the importance of the higher education sector as a necessary complement to this strategy.

We continue in Chapter VI our concern for urban New Jersey and note the economic difficulties that have developed over the past twenty years in the State's major cities. We provide a series of recommendations for state and local policy to increase private sector urban economic activity.

The Council has had a long interest in tax reform and we examine the important relation between business taxation, capital formation and economic growth. We conclude in Chapter VII that several further opportunities exist to change business taxes to assist economic development in the State.

An economic profile of Northern and Southern New Jersey is provided in Chapter VIII and the data reveal no marked economic disparities or inequities between these regions.

Finally, Chapter IX documents the detailed New Jersey input-output model now available for economic impact analyses. We expect this flexible and informative tool to enhance greatly our capacity to provide analyses for a wide range of economic concerns.

As in past years we received valuable assistance from individuals in State government and the academic community. We would like, in particular, to acknowledge the assistance from Dr. Monroe Berkowitz and Dr. Neil Sheflin of Rutgers University's Bureau of Economic Research. We also acknowledge the assistance of Karl Weber of the Legislative Services Office, Bernice Paul of the Atlantic County Divison of Economic Development, Brian Macfie of Labor and Industry and John DeJong of Transportation. Dr. Lewis Dars of Higher Education provided valuable information for the study on the high technology economy. We also wish to thank the State Treasurer, Clifford Goldman; Edward Hofgesang, John Flynn, Nick Caprio, John Polios and Harry Kyriakoudis for their support of the work of our Office. Finally, we like to express our thanks to our secretary, Carol Maslowski, for her skillful preparation of this *Report*.

The Council and Office again wish to express their appreciation for your interest in our work.

Respectfully submitted,

Joseph J. Seneca

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CHAPTER I

ACTIVITIES OF THE ECONOMIC POLICY COUNCIL AND ECONOMIC COUNSELING IN STATE GOVERNMENT*

The significant changes in national economic policy that are now occurring carry with them both opportunities and problems for New Jersey. The full implications of these changes are difficult to assess. One thing, however, is clear. Against the background of a reduced federal economic role—lower taxes and spending, less regulation and decreased state and local aid—it is increasingly evident that State economic policy play an increasing role in determining the performance of the New Jersey economy.

The purpose of this Chapter is to review the activities of the Economic Policy Council over the last year and suggest economic topics that require future attention by State Government. The Chapter also discusses the role of economic counseling in State government, and provides summaries of the research studies appearing in this *Report*.

I. Review of Activities

Some of the highlights of our work over the past year are listed below:

—We met several times with the Governor and the Cabinet, reviewing State and national economic conditions as well as discussing specific policy issues.

Our advice was solicited by several Departments on a variety of topics.

—We provided analyses of the revenue implications of corporate profit and inflation forecasts for *Treasury* as well as an assessment of the impact on New Jersey of the Administration's economic proposals.

—We assisted *Labor & Industry* on a series of issues—the State Data Center, small business programs, and foreign trade and investment.

—In cooperation with *Transportation* we applied input-output analysis (see Chapter IX) to State economic issues.

—The Office and Council, with the cooperation of several Departments, advanced its work on building an econometric model for New Jersey which will be fully developed in the coming year.

We continued our extensive public information activities:

—We issued our quarterly assessments of the New Jersey economy.

—We provided semi-annual forecasts of the economy and reviews of national and State economic trends.

—We published the well-received *New Jersey Profile*. This *Profile* is a unique collection of economic information about New Jersey. It provides a comprehensive source of the basic data on all aspects of the New Jersey

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* Prepared by Dr. Joseph J. Seneca, Chairman, Economic Policy Council.

economy as well as an interpretation of major developments and comparisons with other states and the nation as a whole.

—Members of the Council and Office made presentations to various businesses, professional and educational groups. We also participated in a number of conferences on State economic issues and frequently discussed the New Jersey economy on radio and television programs.

II. Evaluation of Economic Advising

The current State administration is now finishing its eighth year in office; a period that has seen major changes in the economy of New Jersey and in State economic policy. The forthcoming change in administration and legislature makes this an opportune time to review the Council's past experience in providing economic advice to State government. The purpose of this review is to suggest ways to make economic advising more effective.

A. Economic Initiatives

The Council, established by Chapter 129 of Public Law 1966, is an independent, nonpartisan group of professional economists charged with providing economic advice to the Governor, Cabinet, and Legislature. Its professional opinion, void of political content, is a valuable and necessary complement to the political dimensions which accompany State economic issues and problems. In the past years, the Council and the Office have been responsible for several major economic initiatives that have affected economic policy in varying degrees.

1. High Technology as a Growth Strategy

We have, for some time, stressed that New Jersey's comparative economic advantage is in the area of high technology industries. We have documented this in several studies and the idea of an economic growth strategy based on the development of high technology industry is now widely accepted as a promising approach for New Jersey. In this context, we suggested a State program to assist independent investors to trans-

late their inventions into successful business ventures by providing the technical, organizational, and management assistance which new businesses often find so difficult to obtain in their initial years of operation. This discussion culminated in legislation establishing the Office for Promoting Technical Innovation whose charge is to provide such assistance to the independent inventor.

Chapter V in this *Annual Report* continues the idea of stressing high technology growth by investigating its relation to higher education and other attributes of New Jersey's economy and pointing out areas that need to be strengthened.

2. Taxation and Growth

We have continually studied the relationship between the State's tax structure and economic growth. We supported the 1976 tax reform which enacted the personal income tax, removed certain business taxes and reduced the extremely high reliance of New Jersey on property taxes. We have also suggested and supported with evidence the need to maintain a competitive business tax structure by phasing out the business net worth tax and providing a loss-carryover provision.

3. Comprehensive Urban Policy

The Administration's early recognition of the economic problems of urban New Jersey led us to a thorough review of the State's urban condition and an evaluation of economic policies aimed at stimulating private sector economic activity. The *11th Annual Report* was entirely devoted to this topic and Chapter VI in the current *Report* continues our analyses of this critically important issue, it emphasizes the effect of recent federal economic changes on urban policy and the need for further State initiatives.

4. Deregulation

The thrust of our activity in this area has been to attempt to replace administrative mechanisms of regulation with economic incentives. For example, over a long period, we advocated the

elimination of ceilings on interest rates that unnecessarily restricted economic activity in the State when national money market conditions led to historically high interest rates. We have also supported and documented the case for using effluent fees as part of an effective pollution control strategy. We were also instrumental in aligning the State and Federal minimum wage laws and suggested a two-tier minimum wage structure based on age.

5. Foreign Trade Assistance

We suggested to the Governor that New Jersey businesses could expand their participation in foreign trade as a source of additional economic growth and employment as well as providing a measure of counter-cyclical protection from downturns in the U. S. economy. We issued a major report which analyzed New Jersey's export and foreign investment performance and provided a comprehensive plan to increase activity in both of these areas.

This program has been widely read and used in many different contexts. Its technical material, as well as the policy recommendations, appeared in the *12th Annual Report.*

6. Small Business Development Centers

Small business is estimated to employ 52% of New Jersey's total private sector employment. Small business failure, however, is also very high, particularly among *new* enterprises. The office has been instrumental in developing the concept of a network of small business assistance centers. These centers, using university and college resources and locations would provide a comprehensive range of services to small business. This network would take advantage of existing federal legislation. Complementary State legislation necessary for this program has been developed but not yet enacted.

7. Economic Impact Analysis

Our Office has recently acquired a New Jersey Input-Output Model which gives us the unique capacity to provide economic impact analyses for a wide range of activities. The effects of new legislation, policy changes, and market events can be estimated for over 500 sectors of the New Jersey economy. These effects are measurable in terms of employment, income, output, and value added for each sector as well as the impact on State and local tax revenues. The model is described in Chapter IX of this *Report* and several specific policy examples are given—the economic impact of casino gambling in Atlantic City, the effects of closing the Ford plant in Mahwah, and the impact of developing high technology industry.

This flexible and powerful tool is available through our Office to the Executive, Legislature and Departments to use to perform economic impact studies. We are continually refining and extending this model and will soon have the capacity to estimate occupational skill requirements and environmental effects *by sector* in addition to the other economic performance measures listed above. This model represents a major addition to the economic capacity of the State and should prove extremely useful and effective for policy analyses.

8. Econometric Model

We are advancing in work to develop an econometric model for New Jersey. This work is an inter-department effort, in cooperation with Rutgers University, and will provide the State with the capacity to simulate the effects of alternative policy changes and forecast economic activity.

9. New Jersey Profile

This newly issued publication represents a major public information effort by our Office and provides a unique and comprehensive presentation and interpretation of the basic facts and features of our economy. Its publication represents several years of effort and its purpose is to increase citizen understanding of New Jersey's economy and the economic issues it faces. The *Profile* has received widespread attention and will be updated and reissued on a periodic basis.

B. Advisory Role in Retrospect
1. The Executive

The Council has met with the Governor several times each year on a regular basis. These meetings usually consist of a review of the national and state economies, the economic outlook and an analysis of pending or new policy issues. All the initiatives listed above, for example, were originally brought to the attention of the Governor at these meetings, discussed there and given support for further development. Many cabinet-level requests for economic analysis have also been presented at these meetings.

Our more routine contact with the Executive is through the Counsel to the Governor and Chief of Staff. We attach great importance to close cooperation between us and these two groups and we believe that the Economic Policy Council and Office represents a valuable resource to assist them in analyzing the many economic issues that continually come before them. The heavy amount and immediacy of the work that arises in these two offices makes it difficult to utilize the Council and Office continually and to maintain regular communication with us. We suggest that there be routine organizational involvement between us and the Governor's Office, whereby pending topics can be reviewed and decisions reached on what issues the Council and Office can contribute their assistance.

Our working relationship with the Executive Department has grown over the years, with most of the requests for economic advice coming from Treasury. There are occasions when our initiatives encompass areas that are the direct responsibility of a particular department. It is essential that such initiatives be developed in full cooperation and harmony with the leadership of that department. Questions concerning responsibility can then be avoided since it will be clear that the Council's sole aim is to assist in solving an issue important to the State's economy.

2. Legislature

It is clear that the Legislature has continual needs for economic analysis—in hearings and testimony, for capital planning, to perform and evaluate economic impact studies, for tax revenue estimation—and we strongly suggest that it increase its capacity to obtain such advice in these areas. Despite considerable effort to involve the Legislature, we believe that it has not sufficiently utilized our Office for economic advice.

Moreover, we believe that the changes in federal economic policy, which are shifting many federal responsibilities to the states, will require that the Legislature address itself increasingly to economic issues—e.g., how to distribute federal block grants; how to coordinate and *use consistently* existing state economic programs; how to ascertain the aggregate economic effect of the many existing individual state laws and regulations, and any proposed new ones; how to meet public needs with less revenue. These and other issues will be confronting the new Legislature. In summary, the general problem of "the economy" will be (and should be) present, implicitly or explicitly, in almost every legislative consideration.

The Council should present these views to the leadership of the newly-elected Legislature in order to establish a relationship that will better serve the Legislature's needs for economic advice. In the past, the non-partisan character of our work was not sufficiently clear. It is important that both parties in the Legislature realize that we are a resource available to them for independent economic advice.

III. Review of Studies

We briefly summarize below the study chapters of this *Annual Report*. The common theme of these studies is to provide a better understanding of how the performance of the State's economy can be improved.

Chapter V. The High Technology Economy and Higher Education

The Economic Policy Council has, for some time, emphasized the substantial benefits of an economic growth strategy based on the develop-

ment of high technology industries. We have previously noted the State's comparative advantage in the area of research and innovation.[1] We have also pointed to the success several other states have had in significantly increasing economic growth by stressing high technology industries. This Chapter establishes the link between a high technology economy and its supporting higher education network. It compares the educational attainment, higher education enrollment, and expenditure levels in New Jersey with other leading high technology states and the nation as a whole. It also reviews the educational degree profile in the State—both in total and by subject area—and provides comparisons with other states. The Chapter goes on to document the significant problems and costs for New Jersey associated with our export of a large number of college students. We conclude that increased support is needed for higher education in New Jersey, particularly in the areas of the physical and engineering sciences, in order for the State to realize the large economic benefit inherent in an expanding high technology sector.

Chapter VI. New Jersey's Urban Dilemma: Decline Within Growth

Three years ago, the Council devoted its entire *Annual Report* to an evaluation of New Jersey's urban economic problems. This Chapter is designed to update those earlier findings and to re-emphasize the critical need for continued efforts at urban economic growth. The Chapter examines several broad measures of economic performance—population and employment—in New Jersey's major cities over the past twenty years and compares them with the equivalent changes occurring in the rest of the State and the nation as a whole. The conclusion from this overview is that two New Jerseys have emerged. The first, the State's non-urban areas, have essentially kept pace with national economic growth

while the second, the State's major cities have fallen behind both the non-urban areas of New Jersey and the country as a whole. The Chapter goes on to suggest a series of state and federal policies—in land use, safety, tax incentives, environment, education, and small business programs— which together offer a chance to improve urban economic perfomance. The dominant theme of the Chapter remains the same as in our more extended analysis of urban New Jersey three years ago. First, the problems caused by urban economic decline cannot be confined to urban areas alone; they affect everyone—urban and non-urban residents, businesses, and governments. Second, sustainable improvements in urban economic activity must be based on the growth of the private sector.

Chapter VII. Capital Formation and Business Taxes

This Chapter continues our previous work in assessing the relationship between state tax levels and economic activity.[2] The relatively lower capital formation of New Jersey manufacturing industries is documented and a careful analysis of corporate tax rates across 48 states reveals that relatively higher corporate taxes exert a statistically significant negative effect on investment expenditures. A further study of economic growth rates in the 48 states establishes the direct relation between state economic growth and capital formation. Based on these results, a series of business tax changes are proposed—a phase-out of the tax on net-worth, a five-year phased reduction totalling 2 points in the State's corporate income tax rate and the provision in the tax code of a loss-carryover allowance for *new* businesses. The Chapter demonstrates the economic importance of maintaining a competitive business tax structure and the key role which investment spending plays in sustaining economic growth.

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[1] See, A. Broner, "New Jersey's Comparative Advantage for Technical Progress," *9th Annual Report,* Economic Policy Council and Office of Economic Policy, 1976.

[2] See, e.g., J.K. You, "Business Taxes and Regional Economic Growth," *13th Annual Report,* Economic Policy Council and Office of Economic Policy, 1980.

Chapter VIII. Southern New Jersey: An Economic Perspective

Many recent conflicts between State and local government have involved one particular region of New Jersey—its southern and coastal counties. In particular, local economic development interests in these counties have been highly critical of what they view as overwhelming State-imposed restrictions on growth. This Chapter provides a comprehensive economic profile of the eight-county Southern New Jersey region. A systematic comparison is made with the northern part of the State (the remaining 13 counties) in terms of population, housing, employment, industry mix, income and government finance. The analysis reveals that Southern New Jersey has experienced higher economic and population growth, receives relatively *greater* state-aid and spends more per-capita in local government activities. However, the general conclusion is that no glaring economic discrepancies exist between the regions and there is certainly no evidence that Southern New Jersey's income and property are being taxed to pay for public expenditures in the northern counties. The major source of friction between the Southern counties and the State remains the issue of land use.

Chapter IX. Economic Impact Analysis: New Jersey Input-Output Model

This Chapter describes the Input-Output Model that has been adapted for New Jersey by the Office of Economic Policy. The model consists of over 500 sectors of the New Jersey economy and represents a powerful and flexible tool capable of providing detailed economic impact analyses for a wide range of economic issues. Several useful examples of its capabilities are presented including an evaluation of the economic impact of casino gambling and the closing of the Ford Motor Company plant in Mahwah, New Jersey.

Research Agenda

The Office will analyze the economic impact of various changes in Federal economic policies. In order to improve on the quality of such analyses, we are developing with the cooperation of several departments of the State government, and Rutgers University, a New Jersey Econometric Model.

We will continue to investigate the State tax structure with a particular emphasis on property tax differentials and their impact on economic growth.

We intend to continue our interest in charting an economic development strategy that builds on the State's comparative advantages. In particular, we will study ways to strengthen the high technology industries in New Jersey.

Atlantic City growth and the development of the casino industry has had a significant impact on the State's economic performance. There is need to study the potential and implications of further economic growth in this area.

When detailed 1980 Population Census data become available, we intend to study migration patterns over the last decade and assess their implications for New Jersey.

Finally, we wish to examine the development of the banking industry in New Jersey and its role in assisting State economic growth.

II

NATIONAL ECONOMIC OUTLOOK
FOR FISCAL YEAR 1982*

THE RECENT PAST

The recession of 1980 was confined to the second quarter with real GNP down nearly 10% between April and June. A gradual recovery began in the fall, continued through the winter, and culminated in a burst of economic activity during the quarter beginning in January 1981. Now the economy has ground to a halt with a 1.9% decline of real GNP for the period April to June 1981 and a further decline in the July to September quarter. Beyond that, a modest pickup in business is likely, especially in light of the tax cut now enacted by Congress.

An Economic Experiment

The national Administration, elected to office last year, is likely to be given the opportunity to experiment with its supply-side economics. Strictly speaking, there is no such thing as supply-side economics. There is only supply and demand. But since the Keynesian era began in the 1930s, the emphasis of national economic policy has been on stimulating sufficient demand to ensure high employment. The fear of depression governed all economic policy. In the process, the nation lost sight of the efficiency of supply and allowed productivity growth to slacken and even to turn negative. The result has been escalating government spending, huge Federal deficits, mounting inflation, and a loss of competitiveness in domestic and international markets.

The new supply-side economics is intended to rectify the onesidedness of Keynesian economic policies. Whether the specifics of President Reagan's policy will turn the tide of Federal spending, bring about a balanced budget, and encourage productivity growth and lessened inflation, remains to be seen.

The lesson we can learn from the present economic policies in the United Kingdom is that a tight monetary policy alone cannot do the job. If Government spending is allowed to surge, and the national deficit crowds out private investment, the private sector can be quite disastrously affected. For tight money without adequate fiscal restraints puts the entire burden of tight money on private industry. In England, this precipitated a collapse in private spending and investing, a rise in unemployment not seen since the Great Depression and, as a result, increasing government outlays for unemployment and welfare payments.

The U.S. Business Outlook

The prospects for U.S. economic growth over the next few years are still uncertain. Further, there remain questions about projections for Federal spending and deficits through 1985.

Nonetheless, the profile of prospects for 1981-1982 is coming into clearer focus.

After the anticipated recession in the summer and early fall of 1981, the economy is expected

TABLE II.1

ANNUAL RATES OF GROWTH

NATIONAL ECONOMY	1981				1981 / 1980 (calendar)	1982		FY 1982 / FY 1981
	I	II	III	IV		I	II	
GNP in current dollars	19.2	4.0	4.0	7.1	10.2	9.7	10.8	8.0
GNP in 1972 dollars	8.4	−1.9	−2.0	1.0	1.7	3.0	4.0	1.1
Inflation (GNP deflator)	10.0	6.0	6.0	6.0	8.4	6.5	6.5	6.8
Consumer Price Index	10.9	7.6	7.0	7.0	9.4	8.0	8.0	8.1
Unemployment rate	7.3	7.4	7.8	8.0	7.6*	7.6	7.5	7.7**
Personal Income (current dollars)	11.5	8.7	7.5	7.0	10.5	10.5	11.0	9.1
Personal Income (constant dollars)	0.5	1.0	0.5	0.0	1.0	2.3	2.8	0.9

* Calendar year 1981 average.
** Fiscal year 1982 average.

to resume expanding through the first half of 1982. A number of factors lead us to reach this conclusion:

- Inflation rates are at least stabilizing and because of the recent decline in energy and food prices will stay in the 7-8% range during the months ahead. Moreover, as interest rates begin to ease gradually, the housing component of the consumer price index will moderate and lower the overall inflation index.

- The recession of mid-year 1981 will allow the Federal Reserve to ease credit conditions gradually without abandoning its goal of restraining inflation. With changes in monetary policy leading to changes in the real economy about six months later, the real economy should respond by the first quarter of calendar year 1982.

- The tax cuts recently enacted will become effective by the final quarter of this year. Consumers and business will know what their tax saving will be and are likely to anticipate the effect in their spending and investment plans.

- Government defense contracts are heading higher. And though it will take time to build manufacturing momentum, defense outlays will impact the economy by early 1982.

- The demand for housing has been smothered by a lack of mortgage financing within the means of young families. With a sharp growth in young new families now taking place, the demand for housing is being deferred rather than extinguished.

- As economic expansion begins to take hold, productivity growth should improve. It always does in the early stages of a business recovery as output grows faster than the input of labor, so that output per person gains.

- As inflation is restrained to single digit levels, consumer real incomes will once again grow, thereby improving the ability of consumers to buy.

The big question is not whether the expected recovery will take hold by early 1982. We are quite confident it will, with real GNP rising 3 - 4% per annum in the first half of calendar 1982. The troubling question is whether the recovery will once again lead to an acceleration of inflation and to another bout of tight money and business recession. In other words will the economy continue on the roller coaster with each upswing leading to rising inflation and a subsequent downturn? Or have we finally embarked on a new longer-run path of more stable, less inflationary economic growth? These questions cannot be answered with any great degree of con-

fidence. It will depend on whether "supply side economics" over the longer term really produces more savings and capital formation, more venture capital and entrepreneurship, more private initiative and less Federal dominance over national resources and financial markets. In short, whether new policies can be implemented to promote productivity growth and the competitiveness of U.S. industries and firms.

On the whole, the Economic Policy Council believes that the decade of the 1980s stands a good chance of being better than the decade past, that the nation's economic performance will improve.

We think that population trends will favor economic growth as our labor force grows older, more experienced and more productive. We believe that the awareness of our current economic malaise will lead to policies designed to encourage investment and productivity growth through research and development, through new and better technology, and through such enlightened management programs as the quality of work life. We are encouraged by the widespread recognition that monetary and fiscal policies must get their act together, and well before 1984. And we believe that Federal regulations designed to improve health and safety will continue but will scrutinize costs and benefits with greater care.

III

NEW JERSEY ECONOMIC OUTLOOK FOR FISCAL YEAR 1982 AND ECONOMIC REVIEW*

Introduction

The previous Chapter dealt with the current conditions of the national economy and predicted the likely developments in the coming year (FY1982). The national outlook forms the background for forecasting the behavior of New Jersey's economy. There are, however, sufficient reasons to assume that the State economy will not exactly mirror national events. In order to capture State economic trends, the Office of Economic Policy compiles an index of leading indicators for New Jersey. This index is used to predict cyclical turns in New Jersey's economy.

This year it is particularly important to account for the sharp departure in national economic policy and to assess its impact on the State's economy. Section I is devoted to this important subject and also contains our economic outlook for New Jersey. The following two sections provide a detailed review of the national and New Jersey economies during Fiscal Year 1981.

I. Outlook for New Jersey in FY 1982

A. *New Jersey Index of Leading Indicators*

The New Jersey Index of Leading Indicators, compiled and monitored regularly by the Office of Economic Policy, is presented in Figure III.1. The index has four components—new job open-

ings, manufacturing work-week hours, initial unemployment insurance claims and the quit rate in manufacturing. These data, available monthly for New Jersey, are each indexed to a base month (January 1970 = 100) and averaged to obtain a composite profile of labor market conditions for the State. Table III.1 and Figure III.1 present these quarterly averages.

Since the first quarter of 1969 the peaks in the index of leading indicators (PI) have preceded the peaks in total resident employment (PE) by five quarters.[1] The first peak in the index (PI1) was observed in the second quarter of 1969, followed by a peak in employment (PE1) in the third quarter of 1970. The most recent peak in employment (PE3), which took place in the first quarter of 1980, was preceded by the peak in the index (PI3) in the fourth quarter of 1978.

An unusual phenomenon observed during the most recent recession was that the index was double-peaked. Following a peak in the fourth quarter of 1978 (PI3), there was a brief but significant decline in the leading indicators over the next three quarters. However, this was reversed and the index increased until 1980-I (PI4). Similarly, employment peaked in the first quarter of 1980 (PE3) and declined sharply in the second quarter (five quarters after the peak

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[1] On the upturn side of the business cycle, the lead-lag relationship between the trough of the index (TI) and that of employment (TE) is somewhat irregular.

TABLE III.1
NEW JERSEY INDEX OF LEADING INDICATORS AND
TOTAL EMPLOYMENT
1977-1980

	Composite Index (Jan. 1970 = 100)	Total Employment (thousand)
1977:1	75.188	2985.7
II	82.007	3028.7
III	84.773	3054.6
IV	86.377	3078.9
1978:I	85.819	3109.0
II	91.910	3177.0
III	94.934	3202.7
IV	98.524	3224.0
1979:1	93.805	3262.7
II	93.465	3281.7
III	86.817	3300.3
IV	93.127	3323.0
1980:I	101.361	3344.0
II	87.628	3318.3
III	89.327	3307.3
IV	87.994	3325.7
1981:I	89.121	3353.3
II	n.a.	3344.3

Data sources used throughout this chapter are: Council of Economic Advisers. *Economic Indicators;* U.S. Department of Commerce, *Survey of Current Business;* and New Jersey Department of Labor & Industry, *New Jersey Economic Indicators.*

P13). The decline in employment, like that of the index, was brief in duration.

The second of the two peaks (PI4) was observed in the first quarter of 1980. If the historical pattern holds, we expect that employment will begin to slow or decline during the second quarter of 1981. There are preliminary national indicators which show that a slowdown is indeed taking place and total resident employment in New Jersey fell by 9,000 jobs in the second quarter (see Table III.1).

The reversal of the second dip in the leading indicators appears to have started in the third quarter of 1980. However, the pace of recovery in the index is so slow (see Table III.1) that it appears to foretell a slow growth in employment during the latter part of 1981.

Due to the tight-money policy of the Fed, the high rates of interest that have been present since the fourth quarter of 1980 are now beginning to register their anticipated impacts. Al-

though the timing of the slowdown has been delayed, there are signs that it is taking place now in the second half of 1981. For example, the national index of leading indicators declined by 1.8% in May and again in June by 1.3%. Furthermore, unimpressive auto sales during the first half of this year are likely to force another round of production cutbacks and layoffs. Recent GNP data indicate a 1.9% decline (at an annual rate) for the second quarter.

During the recession of 1980, some economists predicted that the business cycle would resemble the letter "W." It appears that the economy has finished the first half of the "W" and has now embarked on the second half. The decline is expected to be mild and last one or two quarters.

B. Impact of National Economic Policy

To a large extent economic forecasting is based on an analysis of past trends (and cycles). To this baseline forecast is factored in any an-

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FIGURE III.1

NEW JERSEY'S REVISED INDEX OF LEADING INDICATORS
AND TOTAL EMPLOYMENT
(Index January 1970 = 100)   (Employment in Millions)
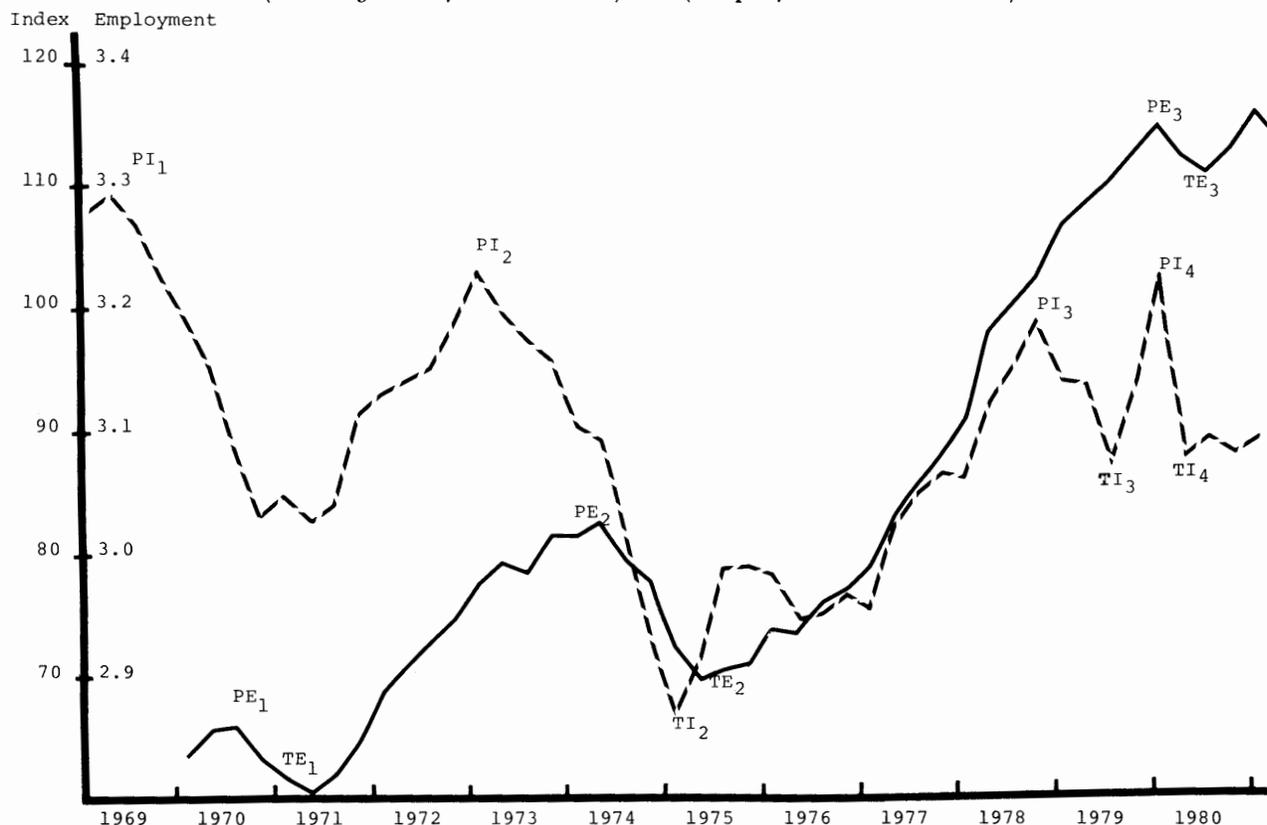
ticipated nonrecurring events such as an increase in the price of OPEC oil, the influence of a lingering drought or the estimated impact of discretionary economic policy.

Our fiscal 1982 outlook considers the Administration's economic package and estimates its impact on the New Jersey economy. In his "Program for Economic Recovery," President Reagan recommended tax cuts for individuals and businesses; reductions in the rate of growth in Federal spending, regulatory reform, a stable monetary policy and a move toward a balanced budget.

The Tax Cut—As a key element in the economic program, the Administration proposed tax cuts intended to encourage work, savings, and investment. Starting in October 1981 there will be a 5% across the board reduction in in-

dividual income taxes which will reduce federal revenues by $27 billion (FY'82). There will be no change in the maximum earned income tax rate of 50%. However, the existing 70% rate for unearned income will be reduced to 50% thus eliminating the distinction between earned and unearned income.

In addition, business taxes will be reduced by $9.7 billion in Fiscal Year 1982 due to accelerated depreciation allowances. This depreciation reform is retroactive to January 1, 1981.

It is possible, as historical evidence indicates, that actual revenue losses due to tax rate reductions will be much less than predicted in the budget. One reason for this, argues the administration, is that lower marginal tax rates and reduced capital gains tax rates will reduce incentives to seek out non-productive tax shelters.

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Reducing Federal Expenditures—The Reagan Administration has reduced planned spending by $44 billion as compared to the budget proposed by President Carter just before leaving office. Initially, the new Administration's cuts were announced in 83 major programs.

Some of the proposed reductions will have a direct bearing on the State budget; others will affect county and municipal budgets and a substantial number will directly reduce benefits to individuals under federal assistance and relief. Even though many social programs are exempt from budgetary reductions (social security, medicare, summer jobs, *etc.*), a broad spectrum of social assistance programs are included in the proposed expenditure reductions. In general, the spending cuts attempt to maintain a social safety net for the most needy while eliminating unintended recipients of social programs, reducing subsidies to middle- and upper-income groups, consolidating categorical grants into a "block grant" program and recovering some program costs with user fees.

Regulatory Reform—Few details have been revealed about regulatory reform. However, it is clear that in addition to speedier deregulation of price of gasoline and oil, and possibly natural gas, regulatory reform has the goal of reducing substantially the volume and cost of regulations to businesses. The program is expected to accelerate the deregulation program of the Carter Administration. · Savings to business resulting from regulatory reform are not spelled out in the President's program. If such savings are forthcoming, they may increase profits of business, result in higher corporate tax receipts and reduce the budget deficits that are now forecast.

Economic Impact on the National Economy

The President's program is a blend of restrictive monetary policy, supply side incentives and demand stimulation. What is new in this program is the magnitude of the budget and tax cuts, and the linking of tax *and* budget cuts. Without the linkage, the program would have been a conventional policy of budget cutting to slow the economy to curb inflation, *or* tax cut-

ting to increase aggregate demand and reduce unemployment.

The new program differs from the measures used in the past in that it is an attempt to *fight inflation* not by creating a recession or a slowdown but through economic growth. Because the planned tax reductions exceed spending cuts, the program, according to conventional economic analysis, would increase the inflation rate. However, there are some new elements which work in the opposite direction.

The new elements are the effect of inflationary expectations, rising productivity, and the possible effect of tax reductions on moderating wage increases. Of these elements, the expectations effect is the most difficult one to predict. According to the Administration, the public, businesses, and capital markets will expect a slower rate of inflation as a result of reductions in government expenditures (this is the so-called rational expectations theory). Furthermore, if these expectations become widely held, they will then be self-fulfilling since business will slow the rate of increase in prices in the belief that others will do the same. This theory is now put to a test; it may or may not work.

Another element is the across-the-board tax cut which preserves the existing marginal tax relationships among income categories. This will result in a general increase of disposable incomes which will be greater for persons in higher income brackets. Under the President's program, the lower 60 percent of households in the income distribution (up to $30,000) will receive about 40 percent of the tax cut while the upper 40 percent of the households receive about 60 percent of the tax reduction. The Reagan economic team argues that such a scheme will result in a greater portion of the tax cut being saved and thus made available for investment than a tax cut targeted at lower income groups whose propensity to consume is higher.

Finally, budget deficits are to be eliminated by 1984 which will reduce the amount of borrowing by the Treasury to monetize additional debt.

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It must be noted that the success of this program depends on many other factors. The President needs luck in uncontrollable variables like the weather, OPEC stability, *etc.* In addition, the course of monetary policy is extremely important. The Fed has made it clear that it will continue to pursue a tight money policy in order to combat inflation.

Impact on the New Jersey Economy

The short term impact (FY '82) on the State economy stems from a measure of the benefits received through the tax cuts minus the fiscal loss resulting from reduced federal spending. A further difficulty arises in that the federal fiscal year begins three months later (October 1) than New Jersey's (July 1) thus the State realizes only ¾'s of the Reagan program in its Fiscal Year 1982.

In general, an across-the-board tax cut provides a relative *benefit* to the State because the progressive federal income tax imposes a heavier burden on above average incomes. New Jersey accounts for 3.3% of the nation's population, 3.7% of personal income, and 4% (*a conservative estimate*) of federal income tax payments. Thus, an across-the-board tax reduction will return approximately 4% of the total federal tax reduction to New Jersey taxpayers.

According to preliminary estimates New Jersey taxpayers will receive a total three year tax reduction of close to $6 billion. The details of the expenditure reductions are not yet known but it is reasonable to assume that they will not exceed $4 billion. Hence, an equal reduction of the progressive marginal tax rates should be beneficial to New Jersey since we have proportionately more taxpayers in higher tax brackets.

However, this beneficial feature of the President's economic program will not be felt in the 1982 State Fiscal Year (July 1981 - June 1982). During the 1982 fiscal year only a 5% tax reduction will be effective for three quarters (October 1981 - June 1982) while the full extent of expenditure reductions will be applied.

After adjusting to New Jersey's fiscal year and the 5% rate reduction, the original $44.2 billion tax cut becomes $13 billion. New Jersey's share is about 4% or $520 million in added income. At the same time, the adjusted (for different fiscal years) loss in federal spending in New Jersey is $780 million. The net effect is a loss of about $260 million to New Jersey in Fiscal Year 1982. This net fiscal loss provides additional evidence for slightly reduced rates of expected growth for the New Jersey economy in FY '82.

However, as tax cuts grow in FY '83, the State will receive a net fiscal gain. Based on estimates by the Congressional Research Service, in 1979, for each dollar of federal spending for New Jerseyans, the State's residents paid $1.44 in taxes. Thus, an economic program that over three years equally reduces taxes and federal spending nationwide will benefit the State.

Other positive effects will accrue to the *New Jersey economy* via the accelerated depreciation of capital investment. The business tax cut will accelerate the rate of capital investment in FY '82 and since the New Jersey manufacturing sector is a significant supplier of investment goods (machinery, electric machinery, instruments, etc.), it will benefit the State more than proportionately. It is possible that the investment incentives will have a greater effect on productive plant and equipment in New Jersey whose age is older than the average.

The above factors suggest that the New Jersey economy will be fairly flat during the near future, exhibiting little or no real growth in the next year. Personal income in current dollars should grow from approximately $86.5 billion in second quarter 1981 to $93.5 billion in second quarter 1982. But the increase in 1972 dollars is only $0.15 billion (from $33.47 to $33.62 billion). Real personal income is expected to drop slightly during the third and fourth quarters 1981, and then show a little growth in the first two quarters of 1982 (see Table III.2). Unemployment is expected to rise moderately from 6.6% in second quarter 1981 to 7.5% in the third quarter, and remain approximately at that level through second quarter 1982. Prices should increase less in the second half than in the first half of 1981, and considerably less than in the

TABLE III.2

ANNUAL RATES (%) OF GROWTH OF VARIOUS NEW JERSEY
ECONOMIC MEASURES (1981:I — 1982:II)

Period	81:I	81:II	81:III	81:IV	1981 / 1980	82:1	82:II	FY 82 / FY 81
Personal Income (Current $).	6.9	8.8	6.6	6.1	9.3	9.4	10.4	8.1
Personal Income Real (1972 $)	—4.1	0.9	—0.5	—1.0	0.0	1.2	2.0	—0.1
Consumer Price Index*.....	11.5	7.8	7.1	7.2	9.1	8.1	8.2	8.0
Unemployment Rate	7.0	6.6	7.5	7.6	7.3	7.5	7.4	7.5

* Average of Consumer Price Indexes for the New York Standard Consolidated Area and the Philadelphia SMSA.

first quarter of 1981 (down from an 11.5% annual rate of increase to a little over 7%). A small increase in inflation, to a little over 8%, is expected for the first half of 1982; however, double-digit inflation does not appear to be a threat during the next year.

II. The National Economy in Review

It is now official, according to the National Bureau of Economic Research, that the national economy experienced a recession in 1980, even though the widely accepted definition of two consecutive quarters of decline did not materialize. In the second quarter of 1980, GNP declined by an annual rate of 9.9%—a decline similar to the worst quarterly drop experienced during the 1974-75 recession. Since most forecasts were for a less severe recession, the severity of the second quarter decline surprised many economists. However, even more astounding was the sudden reversal of the recession after only a one quarter decline.[2] Table III.3 shows the recent performance of several key economic indicators.

Personal Income

Disposable Personal Income is the purchasing power available to households after deductions of various direct taxes. Adjusting nominal disposable income for price increases (using the Consumer Price Index) shows that real purchasing power declined by 0.8% from 1980-I to 1981-I (Table III.3, line 2a). However, the Consumer Price Index exaggerates price increases by attaching too much weight to the housing component, especially at a time of rising mortgage rates. The consumer expenditure component of the GNP Implicit Price Deflator is probably a better measure of overall inflation, and deflating disposable income by this measure of inflation (Table III.3, line 2b) shows that the overall change in disposable income has been positive since 1980-I (+1.2%).

TABLE III.3

ANNUAL RATES (%) OF GROWTH OF VARIOUS REAL INCOME MEASURES, U.S.
(1979:I — 1981:I)

Period		79:I	79:II	79:III	79:IV	80:I	80:II	80:III	80:IV	81:I	81:I / 80:I
1. GNP		3.9	—1.7	4.1	0.6	3.1	—9.9	2.4	3.8	8.4	0.9
2. Disposable Personal Income	(a)	1.6	—3.9	—0.1	—1.7	—2.6	—7.8	5.1	—0.1	0.0	—0.8
	(b)	2.0	0.4	3.6	0.9	1.2	—5.0	4.3	2.9	2.9	1.2

[2] Extensive study is needed to explain the sudden interruption of the 1980 recession. The answer to this reversal will certainly have to do with the wide gyrations in monetary policy, changes in inflation expectations and federal fiscal policy. These policies are briefly discussed in later sections.

Inflation

While there is unanimous agreement that prices have risen significantly, there is a degree of controversy as to the magnitude of inflation. The well publicized Consumer Price Index (CPI) in 1981-I shows an 11.2% increase over a year ago. Although food, apparel, and medical care have increased less than the average, the cost of services, transportation, and home ownership have experienced above-average increases.

The leading criticism of the CPI is that it measures changes in the prices of a fixed basket of goods and services purchased by a "typical" urban consumer. However, when relative prices change, consumers respond by buying less of a good if its price rises, and more if the price falls. The result is that the basket of goods purchased changes. For example, consumers have learned to conserve relatively expensive gasoline and home heating oil.

The Gross National Product deflator (or implicit price deflator) measures changes in the prices of items actually purchased in each time period. The GNP deflator increased 9.9% last year in comparison to 11.2% for the CPI. The smaller increase reflects the fact that households, businesses, and government purchase relatively less of goods and services whose prices are rising. Recently, the CPI has been increasing at an annual rate of less than 10%. Whether this trend represents a genuine improvement or a temporary development is not yet clear.

A third well recognized measure of inflation is the Producer Price Index (PPI). This index measures changes in prices received in primary markets by producers of commodities in all stages of processing. The sample used to calculate the index contains prices of 2,800 commodities. In contrast to other measures of inflation, the PPI increased 10.6% last year. Above average increases were observed in the prices of fuels and transportation equipment; while processed foods and feeds, furniture and textiles were below average. Table III.4 summarizes the three measures of price changes.

Monetary Policy

Since October 1979 the Federal Reserve Board attempted to steer the supply of money within

TABLE III.4

MEASURES OF INFLATION*
(1979:I — 1981:II)
(percents)

	CPI	GNP Deflator	Producers Price Index
1979			
I	11.2	8.4	14.0
II	12.9	7.8	9.4
III	13.4	7.8	12.6
IV	13.5	8.1	15.0
1980			
I	16.5	9.3	17.2
II	13.2	9.8	10.5
III	9.8	9.2	14.1
IV	12.9	10.7	8.8
1981			
I	10.9	10.0	9.1
II	7.6	6.0	9.8
1980:I — 1981:I	11.2	9.9	10.6

* Seasonally adjusted annual rates.

the pre-announced range with much less regard to the levels of interest rates than before. As a result, if the weekly releases of money statistics showed that the supply of money grew faster than the announced range, the Fed would be expected to tighten money supply during the ensuing weeks. In anticipation, credit demand then increased before credit supply became scarce.

Figure III.2 shows that the interest rate on three-month Treasury Bills rose sharply since October 1979 whenever the supply of money (measured by M1-B; demand deposits, currency in circulation and checkable savings deposits) exceeded or came close to the announced range of 4% to 6.5% growth. From October 1979 to January 1980, interest rates rose moderately in response to the Fed's announcement of new mon-

etary strategy. Despite the Fed's new commitment, money supply during February 1980 rose above the target range, causing a dramatic rise in interest rates during the months of February and March 1980.

Failure to curb monetary growth during February 1980 and the acceleration of inflation, which came close to a 20% annual rate, forced the Fed to adopt a strict credit control policy. Consequently, both money supply and interest rates during the second quarter of 1980 fell. Partly for fear of a deep recession, the Federal Reserve Board eased the monetary squeeze during the next quarter. The continued rise in money supply eventually pushed the quantity of money over the target levels, creating another surge in interest rates.

FIGURE III.2
MONEY SUPPLY AND INTEREST RATE
(October 1979 — June 1981)
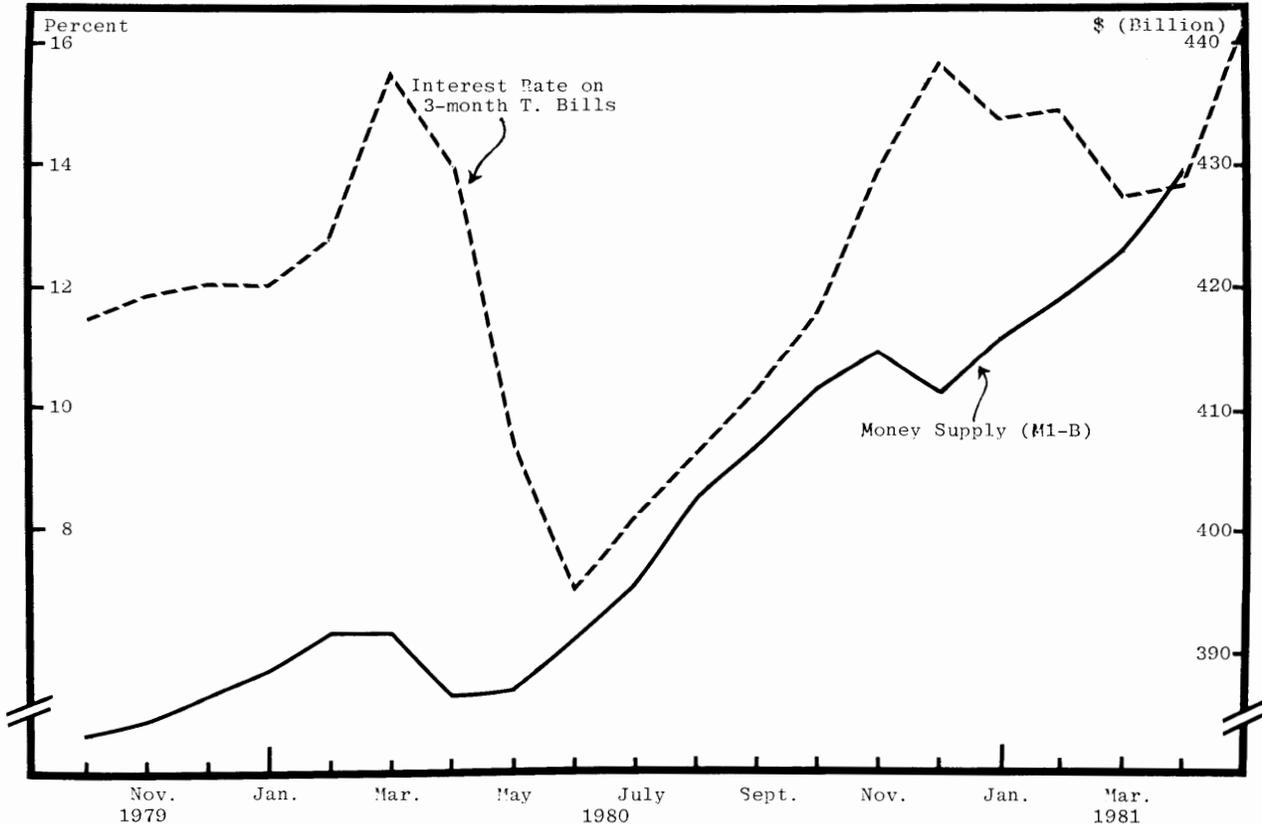
TABLE III.5

FEDERAL RECEIPTS AND EXPENDITURES, 1979:I – 1981:I
(billion dollars at annual rates)

	Total Receipts	Total Expenditures	Deficit
1979:I	477.0	488.4	−11.4
II	485.9	494.0	− 8.1
III	500.6	515.8	−15.2
IV	514.0	538.6	−24.5
1980:I	528.4	564.7	−36.3
II	520.9	587.3	−66.5
III	540.8	615.0	−74.2
IV	573.2	641.1	−67.9
1981:I	619.9	664.3	−44.4

The prime rate in December 1980 reached a record high of 21.5%. Interest rates remained extremely high during the entire first half of 1981. These high interest rates are likely to have slowed the economy during the second and third quarters of 1981. On the other hand, the slowdown in economic activity means a decrease in credit demand, which in turn, will lower interest rates. Thus, it appears that interest rates will fall during the second half of 1981. The extent interest rates fall depends on many factors, including the reactions to the new administration's monetary and fiscal attitude. However, if the Fed does not repeat the drastic credit controls of March 1980, interest rates are not likely to fall by as much as they did in the spring of 1980.

Federal Fiscal Policy

The federal budget deficit increased in 1980-81. In the first quarter of 1981 the annualized deficit was $44.4 billion and the deficit for the entire calendar year 1980 was $61.2 billion (see Table III.5).

The recession of 1980 diminished the flow of federal revenues, especially in the second quarter of 1980. Expenditures, however, have not been reduced, thus causing the increase in the federal budget deficit.

The pace of federal expenditures can also be judged from changes in the level of government purchases. Federal purchases of goods and services reached during calendar 1980 $198.9 billion, over 18.5% higher than those of 1979 (in constant, 1972 dollars, $108.1 billion in 1980 compared to $101.7 billion in 1979, or a 6.3% increase).

On the other hand, state and local government purchases after inflation increased by only 1% over that same period ($181.9 billion vs. $180.1 billion). Therefore, there is evidence for concluding that federal fiscal policy was expansionary in 1980.

Employment

In 1980 there were 372 thousand fewer full-time jobs than a year earlier. At the same time, part-time jobs increased by 684 thousand. Overall, the job situation in 1980 deteriorated as a result of the recession. The total number of persons unemployed in 1980 was nearly 1.5 million higher than in 1979. The major setback in employment opportunities took place during the second quarter of 1980. Since then employment rose continuously and was 1.9% higher by 1981-II. However, employment for the last month of the second quarter (June) fell at an annual rate of 9.7% indicating that the expected economic slowdown had begun (see Table III.6).

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TABLE III.6

UNITED STATES CIVILIAN
EMPLOYMENT IN THOUSANDS
(1979:I — 1981:II)

1979:I	96,425
II	96,467
III	97,230
IV	97,665
1980:I	97,718
II	97,040
III	97,061
IV	97,276
1981:I	98,012
II	98,868

Productivity and Production Costs

Productivity in the private business sector (output per man-hour) declined by an average annual rate of 0.5% (see Table III.7).

This decline in productivity together with a 10.2% increase in labor compensation caused unit labor costs to rise by 10.7%. The increase in business sector prices (implicit price deflator) were slightly below (10.0%) the rise in unit labor costs. Barring an increase in productivity or a drop in the rate of increase of compensation per hour, inflation is likely to remain near the 10% level.

Inventories

Businesses were cautious and avoided excessive inventory accumulation prior to the widely forecasted 1980 recession. For some perspective, we note that the ratio of inventories to sales reached a peak of 1.65 during the 1974-75 recession. Table III.8 lists the recent monthly behavior of the inventory-sales ratio. In 1979, the ratio hovered around 1.42. The January 1980 ratio was 1.38 and it increased over the first half of the year to 1.51 in May but declined thereafter—until January 1981 (1.35). Since January, the ratio has risen slightly indicating a weakening in the economy.

Capacity utilization in manufacturing fell from a high of 85-86% in 1979 to the 75% range by mid-1980 with very slow improvements subsequently. Similar results can be seen in manufacturers unfilled orders. Orders declined to a level of $112 billion in August 1980 from a high of $123 billion one year earlier and have continued to drop since.

Consumer Spending and Saving

The decline of real incomes and the psychology to "buy now" because of inflationary expectations caused the share of disposable personal income devoted to savings to decrease. In 1973,

TABLE III.7

PRODUCTIVITY AND PRODUCTION COSTS, 1979:I — 1981:I
(Seasonally Adjusted Annual Rates)

	Productivity	Compensation Per Hour	Unit Labor Costs	Private Business Sector Implicit Price Deflator
1979:I	−0.8	11.6	14.4	8.8
II	−0.2	10.9	11.2	8.4
III	−1.5	8.5	10.1	8.2
1980:I	−1.1	8.6	9.8	7.4
II	1.3	10.4	9.0	9.7
III	1.5	9.7	8.1	9.8
IV	1.5	9.7	8.1	9.8
1981:I	−2.8	8.4	11.5	9.9
81:I/80:I	−0.5	10.2	10.7	10.0

TABLE III.8
INVENTORIES, UNFILLED ORDERS AND CAPACITY
UTILIZATION

	Total Business Inventory/Sales	Manufacturing Capacity Utilization Rate (%)	Manufacturer's Unfilled Orders (Bill $)
1980:1	1.38	83.9	120.9
2	1.40	83.5	120.1
3	1.43	82.8	119.6
4	1.49	80.3	118.6
5	1.51	77.6	117.0
6	1.50	75.7	114.8
7	1.46	74.9	113.4
8	1.45	75.5	112.3
9	1.42	76.7	113.0
10	1.39	78.2	112.4
11	1.38	79.4	112.1
12	1.36	79.9	112.8
1981:1	1.35	80.0	112.3
2	1.36	79.8	111.8
3	1.36	79.0	111.2
4	1.36	80.0	111.0
5	1.37	80.1	111.2

the savings ratio was 8.6% of disposable personal income. This ratio declined reaching a low of 4.7% in the fourth quarter of 1979 and again the first quarter of 1981. The extraordinary measures adopted in March 1980 to curtail consumer credit had a slight effect on the saving ratio for the second and third quarters of 1980. However, after the credit restrictions were removed, the saving rate declined again (see Table III.9).

TABLE III.9

SAVING RATIO

Period	Ratio	Period	Ratio
1973	8.6	1979:II	5.6
1974	8.5	III	5.4
1975	8.6	IV	4.7
1976	6.9	1980:I	4.9
1977	5.6	II	6.2
1978	5.2	III	6.1
1979	5.2	IV	5.1
1980	5.6	1981:I	4.7
		II	4.5

Retail Sales

Table III.10 shows total retail sales in constant prices for the period beginning with the first quarter of 1979. Real retail sales in the first quarter of 1981 had recovered to the pre-recession 1980 first quarter level, but still lower than the 1979:I level. However, the effects of tight money and continued inflation have caused sales to decline in the second quarter of 1981.

Automobiles

The automobile industry bore the major brunt of the 1980 recession. The decline in passenger car retail sales (9.3 million units in 1980, down from 10.7 million in 1979) was entirely absorbed by domestic manufacturers. Even domestic small cars (sub-compacts and compacts) sales declined. Imported car sales were up from 2.3 million in 1979 to a record 2.45 million and accounted for 27% of total sales (see Table III.11). Rebate programs in the first quarter of 1981 pushed sales up but, subsequently, sales have been declining.

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TABLE III.10
RETAIL SALES IN 1967 PRICES
(Seasonally Adjusted)

Period	Total Sales ($ Million)	Percent Change From Previous Quarter
1979:I	107,754	−1.14
II	105,117	−2.39
III	106,111	0.89
IV	105,101	−0.95
1980:I	104,425	−0.64
II	99,806	−4.42
III	101,703	1.90
IV	101,845	0.14
1981:I	104,465	2.57
II	102,122*	−2.24*

* preliminary

The decline in the volume of automobile sales can be attributed to a number of economic and financial developments. Real disposable income steadily declined during 1979 and 1980. Record high interest rates and constraints on the availability of credit discouraged new car purchases —of which about 60% are purchased on credit. Finance charges on auto installment loans had been about 12% at the beginning of the 1980 model year but rose to 15½% during the second quarter, and are now (June 1981) around the 20% level.[3]

The 1980 model car sales were also hampered by a high level of inventories accumulated during 1979. Gradual reductions in production helped reduce inventories, but resulted in significant layoffs. During the second quarter of 1980 production fell to 5.3 million units, the lowest level since 1975 while the number of workers on indefinite layoff was nearly 250,000, considerably above the 205,000 peak registered during the 1974 recession.

Housing

Economic downturns are especially harsh to the cyclically sensitive housing industry and the 1980 recession was no exception. The cumulative effect of rising prices for materials, declining

TABLE III.11
RETAIL SALES OF NEW PASSENGER CARS IN MILLION UNITS
(Seasonally Adjusted Annual Rate)

	Total	Domestic	Imported	Import Share of Market (%)
1979:I	11.6	9.3	2.3	19.8
II	10.5	8.0	2.5	23.7
III	10.7	8.6	2.2	20.2
IV	9.8	7.5	2.3	23.7
1980:I	10.8	7.9	2.9	26.6
II	7.5	5.5	2.1	27.9
III	8.8	6.5	2.3	25.8
IV	9.1	6.7	2.5	27.0
1981:I	10.2	7.4	2.8	27.1

[3] Some institutions such as credit unions, lend at lower rates than commercial bank rates.

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real incomes, and tight credit markets reduced housing starts to 1.3 million units in 1980, down from 1.7 million units in 1979 and a drop of 26% (see Table III.12). Due to underlying commitments in commercial and industrial construction, total employment in the construction sector fell a modest 0.3% in 1980.

Sales of homes have also suffered as potential buyers experienced difficulty in locating and arranging mortgage commitments. Other factors that contributed to the reluctance of buyers to purchase were: mounting uncertainty about job security as the unemployment rate rose, and losses in the value of monetary assets.

Despite weakness in both the supply and demand for housing, inventories of unsold houses actually declined during the year. This is in stark contrast to the 1974 recession where builders were caught with about 0.5 million completed housing units. The relatively low level of unsold houses provides a stepping stone for future new construction as new household formation fuels the demand for residential housing.

III. The New Jersey Economy in Review

This mid-year assessment finds the State's economy to have grown modestly through the first quarter of 1981. However, there is evidence that the economy is now experiencing a cyclical downturn. The 1981 New Jersey fiscal year began in the third quarter of 1980 on a low note as the State's economy felt the effects of the sharp although brief 1980 national recession. Total resident employment fell by 43 thousand jobs between February and August 1980, and the New Jersey (unofficial) unemployment rate rose to 7.6% (in July 1980). A mild recovery began after the State's economy reached a turning point in the third quarter of 1980. The recovery was strong enough to sustain the economy through the spring of 1981 despite economic forecasts of another downturn. The following provides a brief analysis of the recovery period noting both areas of strength as well as sources of continued concern.

New Jersey versus the United States

The strength of the State's economy can be measured by its relative performance vis à vis the U.S. For such a comparison, we rely on an index which summarizes the relative growth of New Jersey compared to the nation in several broad areas of economic performance—employment, personal income, and retail sales. The Comparative Economic Index (CEI) expresses New Jersey's economic activity in these three areas relative to the nation's. This Index, in current dollars, shows a steady decline since reaching a peak in mid-1978 (Figure III.3). However, since two of the three CEI components (income and sales) are valued in dollar terms, the CEI is sensitive to differing rates of inflation between the State and the nation. After adjusting for the differential rates of inflation in New Jersey and the U.S., the CEI in constant dollars shows that New Jersey has paralleled national economic performance since the third quarter of 1979.

It should also be noted that the CEI in Figure III.3 reflects changes in total economic activity. However, the absolute size or growth rate of the

TABLE III.12

NEW HOUSING STARTS IN THOUSAND UNITS
(Seasonally Adjusted Annual Rates)

1979:I	1615	1980:I	1234
II	1834	II	1055
III	1834	III	1390
IV	1604	IV	1535
		1981:I	1391
		II	1246*

* Average of April and May figures.

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FIGURE III.3
PER CAPITA COMPARATIVE ECONOMIC INDEX—ANNUAL
(in constant $)
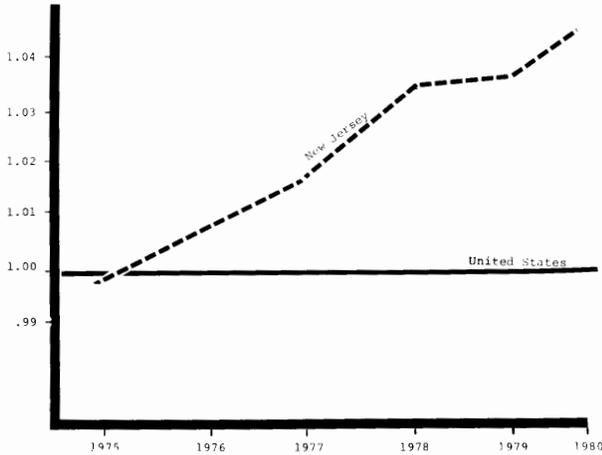
economy by itself is not entirely indicative of the economic well-being of the State's residents. Growth in aggregate income, sales and employment is, in part, due to population increases. Therefore, a meaningful adjustment to the CEI is to account for differing rates of population growth. Accordingly, a *per capita* CEI (also in real terms) is shown in Figure III.4.

Since New Jersey's population has grown more slowly than the nation's during the 1975-80 period, the per capita CEI improves the State's

FIGURE III.4
COMPARATIVE ECONOMIC INDEX
1975 = 1.00
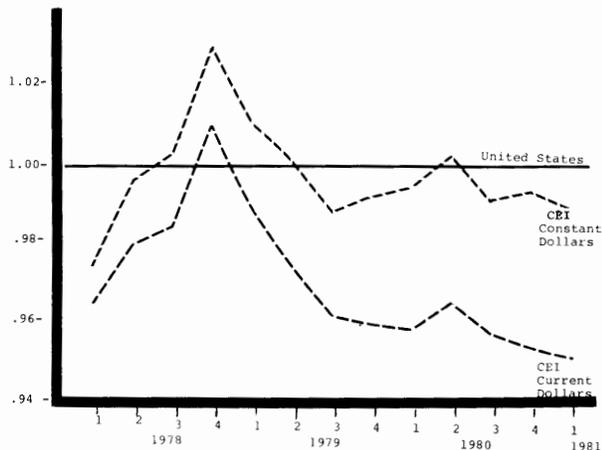
relative standing, and the index remains above 1.0 throughout the 1975-80 period.

On a per capita measure, New Jersey residents appeared to outperform the United States average. Adjustments in price levels also improved the State's economic standing. However a slow or declining population may portend some longer-term economic problems for the State. A closer look at the Index's components points out several areas of strength for the State.

Employment

For most of the 1970's, New Jersey's unemployment rate remained one or two percentage points *above* the national average. During that time slow employment growth caused by a structural decline in the manufacturing sector could not fully absorb an expanding labor force. However, the latest unemployment statistics suggest a reversal of that trend (see Table III.13). Since the third quarter of 1980, New Jersey's unemployment rate has been below the nation's. The reason behind the State's improved performance is not, however, a dramatic increase in new jobs, but rather a slowdown in the growth of the labor force. The State's labor force which grew by about 2% annually through the 1970's increased by only .2% during the past fiscal year. Additional evidence from the 1980 Census shows New Jersey's population growth has slowed significantly since 1970, when migration into the State was a major cause of increases in the labor force.

TABLE III.13
UNEMPLOYMENT RATE, NEW JERSEY (unofficial) AND UNITED STATES

	New Jersey	United States
1970	4.6%	4.9%
1975	10.2	8.5
1980	7.2	7.1
1980:I	7.0	6.2
II	7.4	7.4
III	7.4	7.5
IV	7.1	7.5
1981:I	7.0	7.3
II	6.7*	7.4**

* April and May only.
** April, May and June.

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TABLE III.14

NEW JERSEY EMPLOYMENT

	Total Non-Agricultural Employment (thous.)	Percent Change Annual Rate	Manu-facturing (thous.)	Percent Change Annual Rate	Construc-tion (thous.)	Percent Change Annual Rate	Service	Percent Change Annual Rate	Govern-ment	Percent Change Annual Rate
1979:I	3015.7	....	798.5	....	111.6	....	1585.0	....	517.8	....
II	3018.9	.4%	800.2	+ .9	113.2	+5.9	1586.1	+ .3	516.6	− .9
III	3031.1	+1.6	799.4	− .4	114.1	3.2	1598.7	3.2	516.3	− .2
IV	3043.4	+1.6	794.4	−2.5	115.7	5.7	1610.7	3.0	516.1	− .2
1980:I	3067.1	+3.15	799.3	+4.5	116.8	3.9	1628.1	4.4	520.4	+3.4
II	3051.3	−2.04	785.2	−6.9	108.4	−25.9	1679.2	.3	526.0	+4.4
III	3039.2	−1.58	773.7	−5.7	108.8	1.5	1629.9	.2	524.4	−1.2
IV	3061.6	+2.9	776.4	1.4	110.0	4.5	1645.4	3.9	527.3	+2.2
1981:I	3088.7	+3.6	780.0	1.9	118.2	33.5	1663.9	4.5	529.4	−2.2
II	3079.8	−1.4	776.6	−1.5	107.8	−25.5	1672.6	+2.1	520.2	−3.2
1980	3053.7		783.4		110.7		1632.9		524.5	

Table III.14 shows that the State has gained over 28 thousand jobs since 1980:II or a .9% increase. Nationally, employment growth over the same period was 1.8%. Total nonagricultural employment in New Jersey was rising until the 1980 recession when the number of jobs fell at an annual rate of 2% and 1.5% in the second and third quarters of 1980. The fourth quarter recovery was strong (almost 3%) and carried over into 1981 with employment rising at the rate of 3.6% in the first quarter of 1981. However, total employment slipped by−1.4% in the second quarter of 1981.

Manufacturing employment, as usual, was more cyclically sensitive as the number of jobs fell at the rate of 6.9% and 5.7% during the two recessionary quarters of 1980. Despite the relative intensity of the manufacturing decline, recovery has been less dramatic with annual rates of improvement of about 1.5% to 2% since 1980:IV. Manufacturing employment did not recover to its pre-recession peak of 799,300 reached in the first quarter of 1980. Moreover, preliminary data for the second quarter of 1981 reveal a decline (−1.5%) in manufacturing employment.

Construction employment declined only in the second quarter of 1980. Despite this drop, construction employment in New Jersey in the second quarter of 1981 is still 1.2% *higher* than one year earlier.[4]

Service employment did not experience an absolute loss of jobs during the recession, but its rate of growth slowed in both the second and third quarters of 1980. During the recovery period, services grew at an annual rate of about 4% until the second quarter when growth slowed to 2%. With the prospect of additional casino openings this year, service employment is expected to remain near these current rates of growth.

Government employment was declining before the recession, but countercyclical measures temporarily increased the number of job holders. Public employment during the recovery has been somewhat erratic; increasing in 1980:IV but declining since. Moreover, in light of federal budget reductions, a further decline in government employment is expected.

Income and Prices

Total personal income in New Jersey rose 9.8% during the past year from $77 billion in 1980:I to $84.7 billion in 1981:I (see Table III.15). The increase can be separated into an actual increase in earnings and increases due to inflation. The percentage change in real (inflation-adjusted) income illustrates the impact

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[4] It should be noted that during the period, residential construction contracts increased by 12%, but the increase was over the severely depressed base period of 1980:II.

TABLE III.15

NEW JERSEY PERSONAL INCOME, ANNUAL RATES

	Personal Income (Current $)	Real Personal Income (1967 $)	N.J. Quarterly Change at Annual Rate	U.S. Quarterly Change at Annual Rate
1980:I	$77.2 bill.	$33.66	+ .2%	+ .9%
II	78.3 bill.	33.11	—6.8	—8.7
III	80.1 bill.	33.06	— .7	+5.4
IV	83.3 bill.	33.8	+9.1	+2.8
1981:I	84.7 bill.	33.4	—4.1	+ .5
1980	$79.7 bill.	$33.4 bill.		

of the 1980 recession with a sharp decline in the second quarter (—6.8%). The fall in employment and earned wages and salaries during the recession contributed to the decline in personal income. A strong recovery (+9.1%) was observed in the fourth quarter of 1980, but the following quarter, 1981:I, again showed a loss in purchasing power (—4.1%). Nationally, real personal income rose by .5% in the first quarter of 1981.

In the late 1970's the New Jersey Consumer Price Index[5] tended to lag behind the national CPI. Over the last year (from 1980:II), national prices have risen (9.3%); slightly faster than New Jersey prices (9.0%) (see Table III.16). The New Jersey CPI accelerated in the first quarter

of 1981 (11.5%) because of rising costs of home ownership, fuels and other utilities, and increases in the cost of public transportation. Despite the recent deceleration in energy prices, that component of the New Jersey CPI was 19.7% higher than a year earlier.

The latest Consumer Price data for June, 1981 reflect a deceleration in inflation, with rates of increase falling below 8% for both New Jersey and the nation.

Retail Sales

Retail sales generate more than $30 billion of economic activity in New Jersey and are a key indicator of the health of the economy (see Table III.17).

TABLE III.16

CONSUMER PRICE INDEX,* NEW JERSEY, UNITED STATES
(All Urban Consumers)   (1967 = 1.00)

Period	Index		Percent Change at Annual Rate	
	New Jersey	United States	New Jersey	United States
1980:I	229.3	236.5	13.8%	16.6%
II	236.5	245.0	13.2	15.2
III	242.2	249.6	10.0	7.7
IV	246.4	256.7	7.1	11.0
1981:I	253.2	262.9	11.5	10.9
II	258.7	269.0	9.0	9.7

* Not adjusted for seasonal variations.

[5] This index is a population weighted average of the New York and Philadelphia Consumer Price Indices.

TABLE III.17

RETAIL SALES, NEW JERSEY

	Retail Sales (Current $) Annual Rate	Real Retail Sales (1976 $) At Annual Rate	Quarterly Change At Annual Rate	Real Retail Sales Per Dollar of Real Personal Income
1980:I	$31,268 mill.	$13,636 mill.	— .2%	$.41
II	31,060	13,133	—14.0	.40
III	31,880	13,166	+1.0	.40
IV	32,448	13,168	+0.6	.39
1981:I	33,684	13,303	+4.2	.40
1980	31,664	13,276		

Retail sales in current dollars increased 8% during the last four quarters. But growth in sales is partly due to rising prices. After adjusting for price changes, real retail sales *fell* 2.2% during the past fiscal year. The quarterly rates of change show a sharp decline in sales during the second quarter of 1980, followed by a modest recovery through the first three months of 1981.

Real retail sales per dollar of real income shows little change in the last year with consumer spending, on the average, of 40¢ of each dollar.

One significant component of retail sales has suffered seriously. New automobile sales have been hard hit as consumers resist rising car prices and the high costs of financing. As a result, during the past year, new car registrations fell 11.8% (see Table III.18). If we assume that the average new car costs the buyer $8,000, the decline in auto sales accounts for a $370 million decrease in retail sales. State sales tax collection would also have dropped by $32 million.

County Personal Income

The Atlantic City metropolitan area received widespread attention recently when the U.S. Department of Commerce ranked that area first in the nation in the rate of growth of personal income between 1978 and 1979, the latest available figures. The 20% growth rate in total personal income reflects the impact of casino gambling and its effects on overall economic activity in Atlantic County.

TABLE III.18

NEW CAR REGISTRATIONS

	Number (Annual Rates)	Quarterly Change at Annual Rate
1980:I	451.4 thousand	
II	389.3	—44.7%
III	371.7	—16.9
IV	390.9	+22.3
1980:I	346.5	—30.1
II*	343.2	— 3.7
1980	400.8 thousand	

* April, May only.

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TABLE III.19
TOTAL AND PER CAPITA PERSONAL INCOME BY COUNTY, 1977-79

Counties	Total Personal Income (million $)			Average Rate of Growth	Per Capita Personal Income			Rank In State 1979
	1977	1978	1979		1977	1978	1979	
Atlantic	$1248	$1403	$1685	16.2%	6601	7415	8801	12
Bergen	8743	9638	10659	10.4	10015	11148	12369	1
Burlington	2484	2747	3059	11.0	6856	7575	8307	17
Camden	3292	3644	4025	10.6	6944	7735	8468	15
Cape May	512	569	640	11.8	6745	7406	8086	18
Cumberland	830	907	992	9.3	6292	6956	7770	19
Essex	6684	7237	7946	9.0	7882	8722	9689	7
Gloucester	1205	1370	1513	12.1	6183	6867	7400	21
Hudson	4156	4511	4970	9.4	7380	8141	9158	11
Hunterdon	672	762	858	13.0	8124	9029	9894	6
Mercer	2444	2695	2978	10.4	7706	8525	9461	9
Middlesex	4766	5357	5946	11.7	8072	9078	10024	5
Monmouth	3883	4331	4841	11.7	7848	8696	9674	8
Morris	3634	4065	4549	11.9	9081	10087	11202	3
Ocean	2063	2304	2593	12.1	6449	6971	7600	20
Passaic	3357	3696	4085	10.3	7463	8315	9190	10
Salem	435	481	519	9.2	6903	7679	8370	16
Somerset	1996	2238	2512	12.2	9692	10796	11956	2
Sussex	763	870	983	13.5	7229	7984	8718	13
Union	4426	4874	5387	10.3	8620	9592	10645	4
Warren	577	647	717	12.1	7011	7742	8567	14
New Jersey	$58171	$64347	$71454	10.8	7928	8796	9746	

SOURCE: Survey of Current Business, U.S. Dept. of Commerce, April 1981.

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The per capita income of $8,801 in the metropolitan area (which encompasses all of Atlantic County) was, however, below the New Jersey average of $9,746.

Table III.19 summarizes the trend in personal income and per capita income by county for the past three years. After Atlantic County, the rural-suburban counties of Sussex, Hunterdon, and Somerset led the State in personal income growth between 1977 and 1979. Essex County was the slowest growing county over the same period.

Despite a growth rate below the state average, Bergen County still ranks first in per capita income of $12,369, with Somerset and Morris Counties next in order.

Other Economic Indicators

Construction activity in New Jersey survived the 1980 recession. Second quarter construction employment is 1.2% above year ago levels, and residential building permits are 9.6% higher. Despite the modest improvement, new home construction did not keep pace with demand. There are 2.8 million housing units in New Jersey according to the 1980 Census of Housing. The annual rate of growth in housing

since 1970 has been 1.5%, which means a net increase of about 41 thousand homes annually during the 1970's.

NEW JERSEY HOUSING STOCK
(thousands)

1970	1980	Annual Rate of Change
2381.9	2768.8	1.5%

Taking into consideration current population growth and other demographic factors, new household formation in New Jersey should continue to increase the demand for housing. The State's aging housing stock also requires new construction to replace dilapidated and other unfit dwellings. Assuming that a modest one percent of the housing stock, or 28 thousand units need replacing each year, annual demand could possibly exceed 70 thousand units. At the current rate of residential construction, 21 thousand units will be built.[6]

Non-residential construction contracts (adjusted for inflation) have declined since last year. Aside from construction activity in Atlantic City, the non-residential market is weak.

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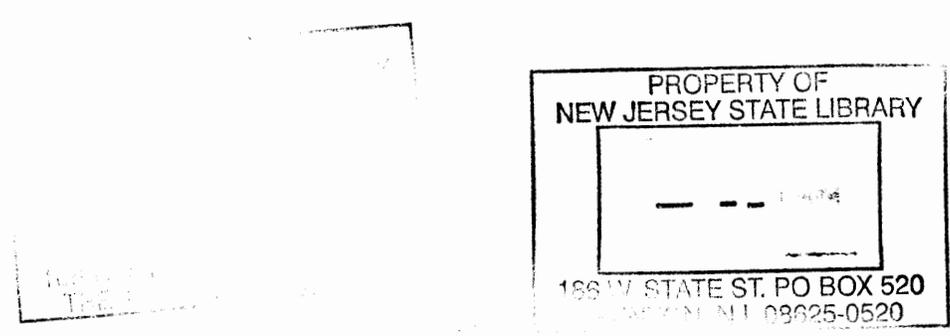
[6] Long-run housing demand forecasts for the State are quite strong; see D. Jaffee, "New Jersey Housing Prospects," *12th Annual Report*, Economic Policy Council and Office of Economic Policy, Trenton, 1979.

IV

ECONOMIC LEGISLATION: A REVIEW OF THE ROLE OF GOVERNMENT IN THE NEW JERSEY ECONOMY*

The new administration in Washington supports a significant change in economic affairs, especially in the area of intergovernmental relations. In the past, that term largely referred to the role the Federal government played in collecting tax revenues and distributing those funds to State and local governments through a network of subsidies and grants-in-aid. Federal tax cuts and budget reductions will significantly reduce the flow of funds from Washington despite plans to rely on a block grant approach. This development creates a dichotomy of choice for New Jersey lawmakers; should Trenton contribute to Federal efforts by selectively de-emphasizing State government's role in the economy or should the State accept the responsibility for supplying some or all of the social services being reduced or eliminated from the federal budget?

During the past year the New Jersey legislature did not have to deal with these recent developments and, as a result, few new economic measures were signed into law. Prior expenditure commitments and the prospect of declining federal assistance helped restrain the agenda for broad-based economic programs.

Section one examines the new State laws which contain significant economic consequences and briefly outlines their objectives and effects. Section two highlights a selected number of recently introduced legislative bills that are currently winding their way through the law-making process and, if signed into law, would have measurable economic impacts.

I. The Economy and the Laws of 1981

Foremost among new economic legislation has been the creation of a separate New Jersey Department of Commerce and Economic Development, *Chapter 122, 1981.* This law reorganizes and consolidates many economic development functions which are currently scattered among different departments and agencies. Although the new Department will not expand the state bureaucracy, it will centralize economic development programs; provide information about the economy, conduct economic research, and recommend new economic policies.

The brevity of *Chapter 56, 1981* belies its importance as the principal fiscal message of the year. Commonly referred to as the State Budget, this law appropriated $5.1 billion to be spent during FY 1981. This represented a 7% increase in nominal terms over the prior year's budget.

Throughout the year additions and deletions to the orignal budget appropriation are presented. One significant increase was made in the credit senior citizens receive against their utility bill. The "Lifeline Credit Program," approved in 1979, established a $100 annual utility bill credit. Since the credit was fixed in nominal dollars, inflation has eroded its value. *Chapter 92, 1981* increases the credit to $125, but again, makes no provision for future price or rate increases. The Lifeline Credit is funded by a State tax on Atlantic City casinos.

On the tax side of the ledger, there were no significant increases (decreases) or reforms to the State tax structure in 1981.

New Jersey was among the leaders in imposing expenditure caps on its governmental units. The Cap on *state* spending is *flexible* in that it limits increases to changes in state per capita income. However, the ceiling on increases in *local* government spending is fixed at 5%. At the time the spending cap was approved, the annual rate of inflation was also 5%. Although the 'cap' legislation intended to limit the growth of government, accelerating inflation has led to a reduction in local services and mounting requests to exempt expenditure items from the cap. *Chapter 56, 1981* represents such an amendment by exempting increased expenditures for public utilities, fuel oil, gasoline, or heating oil. Local governments argue that these items are necessities whose price increases are unavoidable and have far exceeded the fixed 5% cap.

Another long standing fiscal issue deals with the burden of financing welfare programs. In New Jersey, county, State and the federal government share the burden according to a specific formula. However, even with the distribution formula, there exists dramatic differences among counties in the per capita welfare burden. *Chapter 60, 1981* seeks to *equalize* the county welfare tax burden by appropriating funds from the State general fund to those counties whose per capita welfare burden exceeds the statewide average. It should be noted, however, that this equalization program bears no relationship to the county's ability to pay.

Two capital spending programs were developed last year which New Jersey voters approved in last fall's general election. One program authorizes $159 million of bonded debt to construct and improve public institutions serving the mentally retarded, veterans, aged, and the disabled, *Chapter 119, 1981*. Projects such as these provide a dual impact on the economy by: (1) alleviating, in part, some of the State's pressing social problems and (2) by providing jobs in the construction industry which has been hard-hit by prolonged high interest rates. In many instances voter approved capital spending projects involve considerable time between the planning and design stage and actual construction. Implementation of these projects should be achieved quickly before inflation and other unforeseen cost increases diminish the purchasing power of the bond issue.

In *Chapter 70, 1981*, voters approved an additional $145 million in capital projects. The National Resources Bond Act of 1980 will finance resource recovery facilities, sewerage treatment, and water supply projects. Prompted by prolonged drought conditions, the first appropriation from the fund has been approved, *Chapter 29, 1981*. This bill appropriated $8 million for the design and construction of water supply inter-connection facilities and other specific water supply projects.

New Jersey was one of the leading states in creating an agency with a specific role to encourage the development of high technology into commercial products. The Office for Promoting Technical Innovation (OPTI) was established in 1978 to provide a clearing house for business-new venture related information and services. Finding that usual financial sources are wary of the risk embodied in a new venture, the Office intends to provide direct financial assistance. *Chapter 53, 1981* redefines the role of OPTI as a lender and prescribes a number of agreements the agency can enter with a client firm. For example, OPTI may lend funds to a developing firm in return for contract rights, royalties, or options and hold an interest

in patents, copyrights and trademarks. The legislation, however, prevents the public agency from assuming an ownership interest in a client firm.

State agencies have, for many years, assisted in financing local housing. The Mortgage Finance Agency (MFA) lends public funds to financial institutions thereby increasing the pool of mortgage funds to prospective buyers. *Chapter 171, 1981* expands the role of the MFA to encourage lenders into loan programs to rehabilitate and improve the energy efficiency of older homes. Since New Jersey's housing stock was largely constructed before the era of high cost energy, the MFA program plans to ease the housing shortage problem by encouraging solar and other energy saving improvements in older homes and also to meet the goal of reducing the consumption of energy by households.

Banking is perhaps the most regulated sector in the State's private economy. Many of the regulations were drafted in fixed terms which do not change along with the economy nor do they (often) allow for, or encourage innovations within the industry. In light of recent dramatic changes in financial markets, State lawmakers are finding it necesary to modify existing regulations. One attempt is to eliminate differential treatment among types of financial instiutions. For example, it was common practice to maintain different interest rate ceilings for different institutions. The State Bank Parity Act, *Chapter 4, 1981*, now eliminates those differences and treats State Chartered savings banks, banks, savings and loan, and credit unions on an equal basis with regard to interest rates.

Branch banking is also strictly regulated by State authorities. Previously, if the home office of a bank or savings bank resided in a community with a population of ten thousand or less, branch banking by a competitor was disallowed. A recent amendment of the Banking Act of 1948, *Chapter 24, 1981*, eliminates home office protection thus creating competition among financial institutions to the benefit of the consumer.

The cumulative impact of tight monetary conditions, high interest rates and the outflow of funds from traditional financial institutions to high yield money market funds has created difficulty for home buyers in locating and arranging mortgage loans. Unsettled mortgage market conditions have also created a role for intermediaries, or mortgage brokers, to close the gap between lenders and borrowers. *Chapter 18, 1981*, establishes definitive rules for the licensing of these 'brokers.'

There is widespread agreement of the need to protect senior citizens from adverse effects on housing markets. In particular, the apartment to condominium conversion often forces the eviction of renters on fixed incomes. Senate 3028 (now signed into law) offers a solution by "protecting" elderly tenants' right to rent their apartment for a forty year period following a condominium conversion, as long as they have an annual income of less than three times the level of county per capita income. Currently, this means an annual income of about thirty thousand dollars.

There are many dangers associated with this bill. First, landlords may be unwilling to rent to seniors given the bill's specifications. Second, entrepreneurs would see less profit in apartment rentals, thus reducing the incentive to invest in this market. Fewer apartments will also limit the housing options of young couples with modest incomes.

In general, the cost of assisting senior citizens should not be borne by landlords or the construction industry; housing for the elderly is a social problem of the entire citizenry.

Lastly, efforts to discourage housing in the State is harmful to economic development. Sustained economic growth will not occur in the absence of new housing, and in the long run, a shortage of rental units will be harmful to the State's economy and to establishing jobs for the unemployed.

II. Legislation and the Economy—1981

The following section reviews legislative bills that are working their way through the law-

making process. Although the review is not a definitive assessment of all economic legislation, it does examine the major proposals presented during the past year.

Economic Development

The importance of small businesses to the overall development of the State's economy has been long recognized. However, the mortality rate of new business start-ups is astoundingly high. Assembly bill 2295, 1981, creates a Small Business Development Board which is intended to be an advocate of small business interest and will administer a program of technical and managerial assistance to small business. The program would be partly funded with a federal matching grant and will be administered at selected universities around the State.

A common thread weaving through economic legislation deals with directing economic growth to specific areas and municipalities. For example, Senate 3015 suggests the establishment of a corporate income tax credit for *newly* organized businesses locating in 'urban growth areas.' The extent of the credit would be based on the firm's increase in employment. Senate 3016 provides the necessary definition of urban growth zones.

A similar plan is expressed in Assembly 1803 which recommends the creation of Enterprise Zones which are intended to attract private investment by relaxing government controls and regulations in these areas. Specifically, the legislation would allow public agencies that own land within an Enterprise Zone to sell it at auction (for economic development) and provides a five year decreasing tax abatement for privately owned property within a 'zone.' This bill attempts to alleviate a problem where many urban governments find themselves as being major landowners (either by way of default or condemnation) without a workable program to encourage private investment and recycle these properties back into the tax base of the community.

The Local Development Assistance Act as defined in Senate 1547 outlines State government financial and technical assistance to local development corporations. Senate 1548 recommends the creation of a fund which would provide direct financial assistance to local industrial projects. The fund would be created by selling $85 million in general obligation bonds. Also, the State's Department of Labor & Industry would be required to provide technical assistance to troubled urban communities (Senate 1550).

The original Casino Control Act, 1977, requires casinos to invest 2% of their gross revenues in New Jersey. Senate 1551 would alter that requirement by directing these investments to certain depressed urban centers.

There is legitimate concern that non-casino development in Atlantic City is not keeping pace with casino and tourist development in the seaside community. Assembly 1950 proposes an Atlantic City Regional Commission which will oversee all phases of economic development, some of which spill over into neighboring jurisdictions. The bill also creates a regional tax base sharing program.

Senate 3012, if approved, would create a commission with the task of regulating and discouraging corporate relocations *within* the State. However, rather than keep currently urban-based corporations in place, this measure may have an unintended side effect of encouraging employers to relocate to another state.

Senate Resolution 38 encourages the State's Departments of Agriculture and Labor and Industry to convene an export forum to promote and encourage international trade.

Tax Policy

Although the New Jersey personal income tax has but two rates (2 and $2\frac{1}{2}\%$), there are arguments for indexing the tax brackets each year to keep pace with inflation (Assembly 1738). The adjustment will also index personal exemptions and the standard deduction to reflect changes in the Consumer Price Index.

Under present law, public utilities pay a State-imposed sales tax on gross receipts which has increased dramatically in the face of unprecedented utility price hikes. Utility consumers who ultimately pay the tax have experienced increased taxes because of fuel adjustment clauses and inflation. Senate 1490 recognizes that the public purpose of this tax is to encourage conservation and thus changes the tax to one based on units of use (or an excise tax). If approved, the level of taxation should decline as New Jerseyans continue to conserve energy.

Budget difficulties in the city of Camden have prompted a measure (Assembly 3254) authorizing the imposition of a local income tax. Although this bill is limited to a single city, the principle of expanding both the local tax base and tax options of local governments deserves further legislative debate.

Continued efforts to deregulate the State's banking sector is blurring the distinction between types of financial institutions and the services they provide. One legislative proposal grants to State-chartered savings banks the same powers authorized for federal mutual savings banks (Senate 1592). Another measure (Assembly 2045) authorizes mergers between savings and loan institutions and savings banks.

The motive behind this year's banking legislation is to improve that sector's ability to provide financing for investment in New Jersey. Several states have increased the supply of bank capital by encouraging foreign ownership of domestic financial institutions. New Jersey, in some cases, limits foreign participation to only a 5% share. A recent bill (Senate 1484) would permit foreign firms or individuals to invest in *new* issues of stock of New Jersey Banks and bank holding companies.

New Jersey law prohibits banks to make secondary mortgage loans; Assembly 2201 seeks to grant banks that privilege.

Mortgage financing problems have led to the design of innovative mortgage instruments. One innovation, the shared appreciation mortgage (Assembly 3214), provides the lender a share of the appreciated value of the property upon sale of the property (or maturity of the loan), in return for a reduction in the fixed interest rate payable on the loan.

Environment

The current legislative session faced two major environmental issues; water supply and solid waste disposal. A package of water supply legislation is led by a proposal to issue $345 million in general obligation bonds to finance the rehabilitation of old water supply systems and to construct new facilities (Senate 1610). A related proposal (Senate 1611) would grant the State's Department of Environmental Protection authority over water supply programs and would include a uniform fee and permit system.

Senate 1428 recommends the imposition of a tax on the disposal of solid waste in sanitary landfills. Resulting tax revenues would be used to establish a fund to insure the safe and proper closure of the landfill and to provide compensation to persons adversely affected by the landfill (such as contamination of water supplies).

Labor and Industry

An oversight in the State's minimum wage laws exempts public employees. Senate 1522 seeks to amend the law to include public sector workers placing State and local governments on the same basis as private employers.

The burden of recession is largely borne by employees and employers. However, a recent bill proposes the public sector to share the cost of reduced work time and wages by establishing a work-shared unemployment program. An employer would be able to avoid laying off employees during slowdowns by reducing hours worked which would make each affected employee eligible for unemployment benefits in proportion to the reduction in wages and hours. The intent is to encourage employers to retain skilled, experienced workers and reduce employer expenses of recruiting, hiring, and training new employees when the business cycle improves. Employees are also spared the hard-

ships of full unemployment. There is no estimate as to what the proposal may cost the financially-troubled unemployment insurance fund.

Review and Future Outlook

This legislative session may have culminated an era in which the Federal Government increasingly entered into the economic affairs of state and local governments. Gradually, New Jerseyans have realized that federal grants-in-aid were very expensive. The combination of higher than average household incomes and a progressive federal income tax have raised the tax cost to New Jerseyans of a dollar of federal aid to the State to over one dollar and twenty five cents.

Much of this year's economic legislation dealt with inflation. Many programs established years ago were designed with fixed parameters; that is they were based on fixed sums which no longer retain their meaning after years of persistent high inflation. Inflation has also influenced the distribution of wealth so several bills sought to realign incomes according to a more 'desirable' scale. In the area of banking, efforts were made to loosen the web of State regulation and encourage competition.

Next year the State is expected to lose significant amounts of federal aid. How New Jersey lawmakers respond will be a key determinant to the State's economic climate for the next several years. In general terms the State must become more involved in issues of economic growth. This may include a careful review of the State's business climate and regulatory structure with a particularly hard examination of those elements that discourage investment and new business formation. Perhaps the new Department of Commerce and Economic Development will provide a starting point for discussion on the future of New Jersey's economy.

V

THE HIGH TECHNOLOGY ECONOMY AND HIGHER EDUCATION*

Introduction

New Jersey's future economic prosperity will depend to a large extent upon the State's success in nurturing and augmenting its high technology industries. The State can no longer rely on traditional manufacturing for most of its growth. Nor can we expect that the State's service industries can take up all of the slack. Although services are expected to continue to expand, both absolutely and as a share of total employment, their growth appears to be closely linked to manufacturing gains, hence restricted by the same factors which limit manufacturing increases (Falk, 1980).

In coming years, most economic growth in the State must originate in science-based industries competing in such new fields as genetic engineering, robotics, semiconductors, microcomputers, fiber optics, satellite communications and laser applications; in already established fields such as pharmaceuticals and chemicals; and in fields producing items which are yet to be conceived and made practical through invention, research and development, particularly in the area of energy production and conservation.

Five factors are necessary if a state is to attract science-based industries:

(1) A large output of inventions from both a well-developed network of research and develop-

ment institutions and a significant number of independent inventors.

(2) A well-established network of colleges and universities with strong research capabilities in many fields of technical innovation and with the ability to produce graduates ranging from AAS-technicians (associates in applied sciences) to holders of doctoral degrees.

(3) A broad and sophisticated manufacturing base with a tradition of high technology industries.

(4) A diversified and highly-skilled labor force.

(5) An overall business environment conducive to economic growth.

The State does reasonably well in meeting most of these requirements. It contributes more than proportionately to the total U. S. research and development effort with its sizable number of large laboratories and numerous independent inventors. According to the U. S. Department of Commerce, Patent and Trademark Office, New Jersey's total output of patents, designs and plants in 1979 ranked third among the 50 states (second in number per capita).

The State's manufacturing sector includes firms in such advanced technology industries as pharmaceutical manufacturing (including firms

that work with the latest gene-splicing techniques), telecommunications, and fusion energy research. The productivity of New Jersey's labor force is higher than average (Broner, 1980). And the business climate has benefited from a number of recent improvements in tax laws, workman's compensation provisions and industrial inducement programs.

Higher education is one notable exception in the matching of attributes to requirements for a high technology economy. While New Jersey has quality community colleges, four year colleges and universities, it lags behind most states in student enrollment and expenditure per student and, as a result, in the output of graduates in high-technology fields.

In the following sections we examine the higher education sector of New Jersey to assess its strengths of weaknesses *vis à vis* the U. S. and make specific comparisons with California, Massachusetts and New York, three states which have rapidly-developing high technology sectors and which not only rank high among the 50 states in output of patents, designs and plants (shown in Table V.1), but also are leaders in developing, producing, and marketing the resulting products.

Table V.1 shows the three states and New Jersey all ranking high among the 50 states in patents, designs and plants. New Jersey's 0.3634 patents, *etc.*, per 1,000 population is more than twice the rate for the U. S. and considerably higher than the selected states. But, unlike the other states, New Jersey often does not develop and produce the resultant products. All too frequently this occurs in other states such as the three we have selected.

In recent years there have been established in Massachusetts, in the vicinity of Boston, many science-based manufacturing firms. The large number of high technology firms there is more than proportional to the state's patent output. A large part of the explanation can be found in the state's higher education system; educational institutions in the area (notably MIT and Harvard) have stimulated the growth of science-based industry by: (Deutermann, 1966)

(1) Spinning off companies established by professors or graduates.

(2) Providing employees for the firms.

(3) Providing consultants to the firms to help solve technical problems.

(4) Providing consultants to banks (and thus easing financing).

(5) Providing professors who serve on boards of directors of firms and banks.

If a state is to develop a viable high technology economy, it must be able to provide these benefits for science-based firms through a first-rate higher educational system.

Background

The history of higher education in the Northeast differs significantly from that of the rest of

TABLE V.1

PATENTS, DESIGNS AND PLANTS ISSUED TO RESIDENTS—
U. S. & SELECTED STATES, CALENDAR YEAR 1979

	Patents, Designs and Plants			
	Total	Rank Among 50 States	Per Thousand Population	Rank Among 50 States
U. S.	33,124	—	.1504	—
Calif.	4,769	1	.2101	6
Mass.	1,380	9	.2392	4
N. J.	2,664	3	.3634	2
N. Y.	3,061	2	.1734	10

SOURCE: *Commissioner of Patents and Trademarks Annual Report*, 1979.

the country. New Jersey as well as the other states in the Northeast traditionally depended heavily on private higher educational systems, while states outside the region stressed large land-grant state universities. Until very recently New Jersey enrollment still reflected the non-public emphasis. In 1967, 40.8% of enrollments in higher education in New Jersey were in private institutions versus only 30.3% nationwide. By 1978, the New Jersey proportion had fallen to 22.9%, very close to the national level, 21.6%, which had also fallen, but not as rapidly.

Much of the recent growth in public higher education in New Jersey has come from expansion of the two-year community college system. The State now has 17 community colleges, 9 state colleges, the New Jersey Institute of Technology and Rutgers—The State University with campuses in New Brunswick, Newark and Camden. The College of Medicine and Dentistry of New Jersey, also with three campuses, offers the Ph.D., in addition to its medical and dental degrees. The State has 31 private colleges and universities with Princeton, Fairleigh Dickinson, Drew, Stevens Institute of Technology and Seton Hall numbered among them.

Any investigation of the State's system of higher education must consider both public and private institutions. Additionally, it must take into account the division between universities, other four-year colleges and two-year institutions as well as the full time/part time proportions of enrollments in each category.

Finally, to shed light on the interface between high technology industry and higher education, the output of degrees in technically-oriented fields must be examined. These elements are considered in the following sections.

Education of the New Jersey Labor Force

Some indication of the educational attainment of the New Jersey labor force, and, it is hoped, its suitability for higher technology industry, may be gained by examining years of school completed in the U. S. and the three selected states (Table V.2).

The education level of New Jersey's working-age population is apparently below those of the U. S. and competitor states. The State's median school years completed (12.4 years) is slightly lower than the U. S. median of 12.5 and lower yet compared to the medians of California (12.7) and Massachusetts (12.6), two states which have well-established high technology industrial sectors. In New Jersey, the percentage of the working population with one or more years college training (29.6) is below the U. S. average (30.6) and the rates for the selected states. However, New Jersey's percentage with four years college or more (14.9) exceeds that of the U. S. (13.9) though it still falls below the other state

TABLE V.2

MEDIAN SCHOOL YEARS COMPLETED AND PERCENT OF POPULATION 18 AND OVER WHICH HAD COMPLETED ONE YEAR OR MORE OF COLLEGE IN 1976*

	Median School Years Completed	Percent		
		1-3 Years College	Four Years or More College	Total (1 or More Years College)
U. S.	12.5	16.7	13.9	30.6
Calif.	12.7	23.4	16.8	40.2
Mass.	12.6	18.3	16.8	35.1
N. J.	12.4	14.7	14.9	29.6
N. Y.	12.5	16.2	16.0	32.0

* This is the latest year for which comprehensive data are available which permit state and national comparisons.
SOURCE: Calculated from U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, 1979.

TABLE V.3

ENROLLMENT IN HIGHER EDUCATION AS A PERCENT OF POPULATION 18-24, 1978

	Public	Private	Total
United States	30.7	8.5	39.1
California	48.8	5.8	54.5
Massachusetts	21.2	27.6	48.8
New Jersey	27.2	8.1	35.3
New York	25.0	18.8	43.8
N. J.'s Rank Among 50 States ..	32nd	13th	27th

SOURCE: Calculated from U.S. National Center for Education Statistics, *Fall Enrollment in Higher Education*, 1978; and U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, 1979.

levels, and its record in the 1-3 years category explains it overall deficit versus the U. S.

Enrollments

Another measure of a state's educational effort is the proportion of the educable population that is enrolled in college. Table V.3 presents this information for the U. S. and selected states.

In 1978, enrollments in institutions of higher education in the State represented only 35.3% of the population between 18 and 24 years of age. This compares to 39.1% for the U. S. and 49% and 55%, respectively, for Massachusetts and California. While the State's private enrollment rate ranked relatively high, it was offset by a low public enrollment. It will be seen later that the total proportion of New Jersey 18-24

year olds receiving higher educations, both in-State and out-of-State, compares more favorably with the U.S. and the selected states.

The enrollment-population ratio measure is of limited utility because a large part of the population in the 18-24 age cohort is past undergraduate college age and relative population changes can blur interstate differences. Accordingly, confirmations of findings of Table V.3 are presented in Table V.4 which compares first-time enrollments in colleges to new high school graduates.

New Jersey's performance, as measured by percentage of high school graduates enrolled remains poor relative to the nation and selected states. The table's greater than 100% figure for California can be explained mainly by its large

TABLE V.4

FIRST-TIME ENROLLMENTS AS A PERCENT OF HIGH SCHOOL GRADUATES, 1977

	First-Time Enrollments Fall, 1977 (thousands)	High School Graduates (1976-77) (thousands)	Enrollments As A Percent of Graduates
United States	2,394.4	3,146.7	76.1
California	358.4	288.1	124.4
Massachusetts	81.3	90.4	89.9
New Jersey	62.5	113.4	55.1
New York	171.4	255.1	67.2

SOURCE: Calculated from U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, 1979.

number of student imports; but California may also have an unusual number of first-time enrollments who are persons returning to school some years after completing high school.

The data in both Tables V.3 and V.4 could reflect two separate effects (besides the population cohort problem of Table V.2): (1) the differences in the proportions of high school graduates attending college, and (2) the differences in each state's imports and exports of students. These effects are discussed in the next section.

Migration and Total Enrollments

Some states are net exporters of students and, of course, some are importers. New Jersey is a net exporter. It is, in fact, the largest net exporter among all 50 states. According to figures received from the State Department of Higher Education, in Fall 1979, 41,362 New Jerseyans left the State to attend college in other states. The State imported only 7,673 students at that time, leaving a net export total of 33,689 by far the largest total of any state in the nation. Moreover, the State also ranks first in net exports per capita with a ratio of 4.77 per 1,000 population. Alaska is second with 4.73 and Connecticut, with 4.48 is third. No other state comes close. While the trend in New Jersey student migration has for some time been downward (Delehenty and Miller, 1976), New Jersey clearly

maintained its position as top net exporter of college students in 1979, the latest year for which data are available.

Since recent data for population aged 18-24 are only available for the year 1978 and since complete student resident information is only available for 1975, Table V.5 estimates resident enrollment as a percent of population, utilizing data for those years.

From Table V.5 it can be seen that the proportion of 18-24 year old New Jerseyans receiving higher educations (either in-State or away) compares favorably with the U. S. and other states. New Jersey's percentage (47.0) is significantly higher than that of the nation (38.4) and among the selected states only California (49.4) exceeds it. Since the State's total education rate is relatively high, the disparity in its enrollments rates versus other states as shown in Tables V.3 and V.4 is evidently due mainly to its status as the country's largest exporter of students. Equity related considerations aside, this situation might not be viewed as unfavorable: New Jersey citizens obtain educations on a par with other states. However, the exporting of students is a source of serious "brain drain" upon New Jersey, at least potentially and probably actually. It is likely that many away-from-home students take jobs away from home upon graduation.

TABLE V.5

ACTUAL 1975 AND ESTIMATED 1978 TOTAL RESIDENT ENROLLMENTS AND
ENROLLMENTS AS A PERCENT OF POPULATION AGED 18-24

	Actual Student Residents, 1975 (thousands)	Net Migration (thousands)	Net Migration Rate (%)	Estimated Resident Enrollment, 1978 (thousands)	Estimated Resident Enrollment As A Percent of Population 18-24
United States	10,961	219	2.0	11,003	38.4
California	1,622	167	10.3	1,496	49.4
Massachusetts	351	34	9.7	346	44.5
New Jersey	396	−99	−25.0	408	47.0
New York	1,068	−61	−5.7	1,006	46.4

SOURCE: Calculated from U.S. Department of Health, Education and Welfare, National Center for Education Statistics, *Migration of College Students*, 1975 and U.S. Dept. of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, 1979.

Economic Costs of Exporting Students

Perhaps the most serious cost associated with the State's exportation of students is a loss of graduates in high technology fields. Deutermann's study (1966) of science-based firms in the Boston and Philadelphia area found many instances in which firms in one of these locations had been founded by persons who had adopted the place as home "during the long time spent in graduate school or working in the region." It is logical to expect that New Jersey's high net exportation rate occasions a loss of many science-based majors, a loss which can severely retard development of a high technology sector.

But there are other losses as well. Income (and employment) is lost to the State as a result of tuition, fees and room and board sent to other states. Moreover, it can be safely assumed that New Jersey institutions would receive more endowment income, federal grants, private grants, income from sales and services, *etc.* if the State were not a net exporter. Based on a projection of fiscal 1978 tuition, fees and other costs in the states receiving New Jersey students and a multiplier of 1.55 (Schaffer, 1981), we estimate that approximately $1.3 billion in income will be lost to the State in academic 1981-82.

Reason for High Exportation Rate

Several possible explanations for New Jersey's status as an exporter come immediately to mind. Some exporting would probably result if the tuition, fees and room and board charges of the State's higher education institutions were significantly higher than those in other states. An examination of the available data reveals no glaring differences between the charges of this State and others. In some comparisons New Jersey's charges were higher than the U. S. average, but on balance, they do not appear out of line.[1] A second possible explanation for New Jersey's high exportation rate may lie in relative expenditures on higher education among the states. If New Jersey does not provide sufficient higher education opportunities by failing to devote enough of its resources to its colleges and universities, some of its citizens will be required to look elsewhere for their college education. The expenditure explanation and others have been empirically investigated and the results are given in the Appendix to this Chapter.

Since New Jersey's below-average enrollment rates and above-average rate of exportation may be at least partly due to inadequate support of higher education, we compare expenditures in the following section.

Expenditures

We first consider total educational expenditures among states. Since the public-private division differs among states, it is appropriate to consider *all* expenditures for higher education. For comparability, of course, the figures can be divided by population, enrollments, or income. Table V.6 compares expenditures per capita, per student,[2] and per person of college-age.

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[1] In academic year 1974-75, the latest year for which data are available, weighted average basic student charges in the U.S. and New Jersey were:

	UNITED STATES		NEW JERSEY	
	In-State	*Out of State*	*In-State*	*Out of State*
Undergraduate				
Public Tuition	$493	$1,391	$597	$1,202
Private Tuition	2,131	2,131	2,219	2,219
Room and Board				
Public	1,147	1,147	1,304	1,304
Private	1,255	1,255	1,431	1,431
Graduate				
Public Tuition	627	1,591	898	965
Private Tuition	2,382	2,382	2,435	2,435

SOURCE: U.S. Department of Health, Education and Welfare, National Center for Education Statistics, *Basic Student Charges 1974-75.*

[2] We have used total students, full-time and part-time, in making per-student estimates. We are aware that this tends to understate "efforts" when the part-time/total enrollment ratio is high, since it is less costly to provide one year's schooling to a part-time than a full-time student. However, the alternative use of full-time equivalent (FTE) enrollment errs, as well; many expenditures (library, for example) are related to *total students* so expenditures per FTE students tends to overstate "efforts."

TABLE V.6
EXPENDITURES ON HIGHER EDUCATION, 1978

	Per Capita ($)	Per Student ($)	Per Population Aged 18-24 ($)
United States	211	4,096	1,603
California	254	3,430	1,878
Massachusetts	319	4,842	2,365
New Jersey	143	3,418	1,205
New York	252	4,722	2,069
N. J.'s Rank Among 50 States	46th	44th	42nd

SOURCE: Calculated from U.S. National Center for Education Statistics, *Financial Statistics of Institutions of Higher Education*, 1978: and U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the U.S.*, 1979.

New Jersey ranks very low in all three of the measures. While the State's per-student figure approximates California's, the per-population 18-24 figure is considerably below that of California, reflecting the import-export differences of the two states. The per-capita measure relates to the burden of expenditures on the populace; however, this measure ignores ability-to-pay. More appropriate measures of effort would consider both the number and incomes of persons "footing the bill." Table V.7 is an attempt to estimate the "burden" of educational expenditures on the populace (or, as it is often called, the "educational effort" of the populace).

New Jersey's effort ranks very low among states. In the per-student/per-capita income measure, it ranks 46th; in the per-person 18-24/per-capita income measure, it is 49th.

A finer disaggregation of the data is necessary, however, for a better understanding of spending figures. Expenditures per student can vary with the full-time/part-time student ratio even if all other factors are equal. Spending will also vary with proportions of public and private institutions; on the average, private institutions spend more per student. The proportions of institutions that are universities, other four-year colleges and two-year colleges will also affect per-student average. Table V.8 provides

TABLE V.7
"BURDEN" OF EDUCATIONAL EXPENDITURES
(Fiscal 1978 Expenditures, 1978 Population, and Fall 1977 Enrollments)

	Per Capita Income ($) 1978	Spending Per Student As A Percent of Per Capita Income, 1978	Spending Per Person 18-24 As A Percent of Per Capita Income, 1978
United States	7,810	52.5	20.5
California	8,850	38.8	21.2
Massachusetts	8,063	60.1	29.3
New Jersey	8,818	38.8	13.7
New York	8,267	57.1	25.0
N. J.'s Rank Among 50 States	6th	46th	49th

SOURCE: Calculated from U.S. National Center for Education Statistics, *Financial Statistics of Institutions of Higher Education*, 1978; and U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, 1979.

TABLE V.8

EXPENDITURES PER STUDENT AND FULL TIME/TOTAL ENROLLMENT RATIOS BY INSTITUTIONAL TYPE
(Expenditures Fiscal Year 1978, Enrollments Fall 1977)

	Publicly Controlled						Privately Controlled					
	Universities		Other 4 Year		2 year		Universities		Other 4 Year		2 year	
	$/Student	% Full Time	$/Student	% Full Time	$/Student	% Full Time	$/Student	% Full Time	$/Student	% Full Time	$/Student	% Full Time
U. S.	$6,242	77%	$4,206	66%	$1,464	40%	$9,910	70%	$4,898	73%	$2,533	78%
Calif.	12,150	93	4,968	62	1,247	29	11,518	71	7,169	66	4,000	100
Mass.	5,520	84	2,263	63	1,133	48	9,306	67	4,542	73	2,529	76
N. J.	4,529	68	3,838	56	1,505	43	11,667	73	3,458	58	1,571	57
N. Y.	6,361	72	4,703	67	2,076	59	8,795	64	4,668	65	2,500	84

SOURCE: Calculated from U.S. National Center for Education Statistics, *Financial Statistics of Higher Education*, 1978 and U.S. National Center for Education Statistics, *Fall Enrollment in Higher Education*, 1977.

expenditure figures broken down by various categories to allow for more accurate interstate comparisons.

For the most part, New Jersey per-student spending remained significantly below the United States and the selected states. This is particularly true for the State's public university (Rutgers), where per-student spending ($4,529) is far below the U. S. average ($6,242) and those of the chosen states for public universities. However, private university spending in the State is high compared to the U. S. and the three states. This is primarily due to the high per-student expenditures of Princeton. And New Jersey's two-year colleges appear to spend somewhat more than the U. S. and two of the states.

A caveat is in order. Although the figures in Table V.8 show general tendencies, a number of facts may prevent their accurate portrayal of relative educational effort levels. Included are variations in the full-time/part-time ratio; variation in enrollments throughout the school year—particularly the drop in enrollment from Spring to Summer; and variation in the number of non-credit courses being offered. Differences in these items among states can make the per-student expenditure figures vary considerably even when it cannot be said that any variation exists in "educational effort" (standardized

spending per student).[3] Research spending also varies among institutions, and below-average research would cause total expenditures per student to appear low even if instructional spending is high.

Thus, precise comparisons of New Jersey spending to spending elsewhere by type of institution may not be justified. But on a more general level the picture that is portrayed appears to be correct: New Jersey spending on higher education is below par.

Table V.9 examines output of degrees—bachelor's, master's, and doctor's—per thousand population in five highly technical areas: biological sciences, computer and information sciences, engineering, mathematics and physical sciences. The State's high technology sector cannot achieve rapid growth, unless sufficient graduates, at all levels, are available in these five areas. Moreover, any shortages of personnel educated in management science and business, particularly at the master's and doctor's levels, will adversely affect the establishment and development of high technology firms. Hence, this area is also included in Table V.9.

A number of interesting comparisons may be made from the figures in Table V.9. New Jersey's output of bachelor's degrees per 1,000 population is less than the U. S. average in all

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[3] We have made estimates of spending differences that would exist if part-time/full-time ratios were equal everywhere, and we find our general conclusion unchanged: New Jersey's educational effort is below the U.S. and specified states (especially for universities).

TABLE V.9

DEGREES AWARDED BY NEW JERSEY INSTITUTIONS IN HIGH TECHNOLOGY MAJOR FIELDS PER THOUSAND POPULATION, 1976-77

	Bachelor's Degrees					Master's Degrees					Doctorate's				
	U.S.	Ca.	Mass.	N.Y.	N.J.	U.S.	Ca.	Mass.	N.Y.	N.J.	U.S.	Ca.	Mass.	N.Y.	N.J.
Biological Sciences	.2473	.2959	.3800	.2893	.2318	.0329	.0300	.0388	.0431	.0377	.0157	.0199	.0284	.0217	.0113
Business & Management	.7012	.5149	.8766	.6659	.6750	.2133	.2446	.5442	.3103	.2096	.0040	.0040	.0078	.0047	—
Computer & Informational Sciences	.0294	.0224	.0331	.0420	.0157	.0126	.0150	.0104	.0234	.0179	.0010	.0016	.0009	.0019	.0003
Engineering	.2239	.1759	.4334	.2328	.2006	.0733	.1130	.2048	.0952	.0657	.0119	.0209	.0327	.0129	.0101
Mathematics	.0651	.0541	.1381	.0913	.0601	.0171	.0154	.0234	.0340	.0142	.0038	.0044	.0125	.0060	.0055
Physical Sciences	.1025	.0847	.1809	.1172	.0785	.0244	.0215	.0396	.0288	.0240	.0154	.0194	.0445	.0177	.0125

SOURCE: Calculated from U.S. Department of Health, Education and Welfare, Office of Civil Rights, *Data on Earned Degrees Conferred by Institutions of Higher Education by Race, Ethnicity and Sex, 1976-1977*, Vols. 1 and 2; and Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, 1979.

six categories. It should be noted, however, that merely meeting the U. S. average should not be the State's goal. If the State is to attain eminence in high technology industry, its degree production should compare favorably with that of states that have already developed thriving high technology sectors. For the most part, New Jersey's rates fall below those of the comparison states by even more then the U. S.- New Jersey difference since the rates of those states usually exceed the U. S. average. Exceptions are New York's shortfall in the business and management area, and California's shortfalls in management science and business, engineering and mathematics.

New Jersey does reasonably well in output of master's degrees in biological sciences, exceeding both the U. S. and California rates. In the computer and information sciences area, the State does even better, exceeding U. S., California, and Massachusetts rates. In physical sciences, the New Jersey rate of output of master's degrees only exceeds California's. In the remaining areas (management science, engineering and mathematics), the State's output falls far short of the U. S. and selected state rates.

The State's doctorate output rates in all areas except mathematics fall below those of the U. S. In mathematics, the State's rate exceeds the U. S. and California. With only these two exceptions,

the Ph.D. rates in New Jersey are significantly lower than the U. S. and comparison state levels.

In general, New Jersey's output of degrees per 1,000 population in the necessary major fields falls short of U. S. output of degrees at all levels. And probably more importantly, the State's performance compares even more unfavorably with states which have already been successful in establishing high technology sectors.

The State's share of total U. S. degrees are shown below for each of the six fields in Table V.10.

Table V.10 shows New Jersey's degree output in various fields as a proportion of total U. S. output in each field. New Jersey's shares of U. S. degrees in all fields, including the six of special interest and all other majors, are .028 for bachelor's, .027 for master's, and .023 for doctor's. Proportions are above these levels for all except computer and informational sciences bachelor's and doctor's, business and management doctor's degrees and physical sciences bachelor's degrees. Thus, for all but these areas, New Jersey appears to be placing appropriate stress on the high technology studies. This is, perhaps, some consolation for the State's deficiencies in high technology degree production per 1,000 population, and it indicates a positive factor upon which the State may build.

TABLE V.10

NEW JERSEY SHARE OF TOTAL U. S. DEGREE OUTPUT
1976-77

	Bachelor's	Master's	Doctor's
Biological Science	.032	.039	.024
Business & Management	.033	.033	—
Computer & Information	.018	.048	.009
Engineering	.030	.030	.029
Mathematics	.031	.028	.049
Physical Sciences	.026	.033	.028
All Fields (technical and non-technical)	.028	.027	.023

SOURCE: Calculated from Department of Health, Education and Welfare, Office of Civil Rights, *Data on Earned Degrees Conferred by Institutions of Higher Education by Race, Ethnicity and Sex, Academic Year, 1976-1977,* Vols. 1 and 2.

That New Jersey's high technology degree deficiency lies more with the total number of degrees per 1,000 population than with a lack of stress on high technology fields receives confirmation in Table V.11.

New Jersey's total degree production per capita falls far below that of the U. S. and comparison states at all levels of higher education. This comes as no surprise, of course; we have already seen that the New Jersey enrollment and expenditure measures fall short of those of other states.

There is need for graduates at all levels: associate, bachelor's, master's, doctor's and first professional. We do not neglect associate degrees, since associates in applied sciences are properly qualified for many positions in science-based firms. The State's very low output of total associate degrees per 1,000 population indicates that associates in applied sciences may be in short supply, posing a problem for the growth of the high technology sector.

Summary—Status of Higher Education in New Jersey

The educational level of the New Jersey population is generally below that of the U. S. and selected states. In 1976, only 29.6% of the New Jersey working population had completed one year or more of college. This compared to the nationwide figure of 30.6%, and 40.2, 35.1 and 32.0% for California, Massachusetts and New York, respectively. And while New Jersey's 14.9% proportion of working population with

TABLE V.11

TOTAL NUMBER OF DEGREES CONFERRED PER THOUSAND POPULATION
(Degrees Conferred 1976-1977, Population 1977)

	Bachelor's	Master's	Doctor's	First Professional	Associate
U. S.	4.229	1.459	0.153	0.296	2.332
Calif.	3.765	1.421	0.168	0.360	3.778
Mass.	6.475	2.533	0.343	0.600	3.140
N. J.	3.480	1.167	0.104	0.180	1.586
N. Y.	4,809	2.104	0.194	0.309	2.944

SOURCE: Office of Civil Rights, Department of Health, Education and Welfare, *Data on Earned Degrees Conferred by Institutions of Higher Education by Race, Ethnicity, and Sex, Academic Year 1976-1977,* Vols. 1 and 2; and U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States,* 1979.

four years or more of college exceeded the nation's 13.9%, it was less than the proportion for California (16.8%), for Massachusetts (16.8%) and for New York (16.0%).

New Jersey's 1978 enrollment as a percent of population aged 18-24 was below the U. S. average and ranked 27th overall among the 50 states. For the State's private institutions the rank was 13; the deficit lay mainly with public colleges and universities which ranked 32nd. When the State's college enrollments are compared to the number of high school graduates, the result again compares quite unfavorably with the U. S. and other states.

However, the State's enrollment deficits are largely explained by its export of students to other states. The total percentage of New Jersey college-age residents attending college both in-state and out-of-state is comparable to other states and exceeds that of the U. S. The major problem associated with New Jersey's exportation is the actual and potential "brain drain"—a loss of technically-trained graduates for high technology industry. In addition, exportation of students occasions a loss of income (and employment) in the State. In academic year 1982-83 this loss is expected to be approximately $1.3 billion.

Higher education expenditure figures place New Jersey even lower than enrollment rankings. The State ranks 46th in higher education expenditures per capita; 44th in expenditures per student; and 42nd per population aged 18-24. When related to income, New Jersey's expenditures rank even lower; the State's spending per person 18-24 ranked 49th when related to per capita personal income.

Disaggregation shows that public university spending is the area where New Jersey's spending falls farthest below other states. New Jersey's above average part-time enrollment ratios account for some, but apparently not all, of the difference.

Finally, an examination of degree output in high technology major areas again shows New Jersey to be clearly deficient. But the problem seems to be more in the *total* number of degrees rather than in any lack of emphasis on high technology areas.

Policy Considerations

In most of the requirements for a high technology economy, New Jersey compares very favorably with other states including those which have received most of the recent science-based industrial growth. However, the situation in higher education is not at all encouraging.

If the State is to achieve economic growth based on high technology industry, it must correct the shortcomings apparent in its higher-educational offerings. Steps must be taken to reduce the exportation of students to other states and to increase the average education level of New Jersey's work force, particularly in the areas of the physical sciences, engineering and management science.

Reducing the exportation of students is an objective of prime importance. But before acting we must first consider the factors that prompt student migration. State policy can eliminate or alter some factors; others, however, are completely beyond State control. In the Appendix to this Chapter, we attempt to empirically identify the determinants of student migration. Our objective is to establish the amount of total exportation the State can reasonably expect to eliminate through its own policy measures.

Expanding the State's output of educations in high technology areas will require careful management and budgeting of funds for its colleges and universities, both public and private. New Jersey's private sector should also join in the effort by providing donations of funds and equipment to colleges, by providing internship programs for college students and by furnishing professorial talent for the State's university and colleges—teaching talent which is matched by practical experience.

Expansions and improvements of the State's higher education system will certainly require greater State expenditure; New Jersey's support

of higher education seems clearly inadequate compared to other states—particularly those high-technology states which are our competitors. But the State's role in the remediation of the problems of higher education need not always involve additional funds. Existing funds can be allocated to different uses. For example, shifts can be made toward high technology study areas from other areas of lower priority.

Higher education in the State must undergo many changes, in both scope and direction if the promise of a high technology economy is to be realized. In the absence of appropriate far-reaching restructuring of higher education with emphasis on physical sciences, engineering and management sciences (especially at the graduate level) the economic outlook for New Jersey is unnecessarily dim.

APPENDIX

The Determinants of Student Migration

In the main body of this Chapter we pointed out a number of problems that plague the New Jersey higher education sector. Most disconcerting among them is the State's history of exporting large numbers of students to colleges in other states. In 1979, 41,347 New Jerseyans migrated to the other 49 states and to the District of Columbia to attend universities and colleges. Only New York exported a larger number (49,684) in that year. But the rate of outmigration in New York was only half that of New Jersey (2.82 students per 1,000 population versus New Jersey's 5.64).

Connecticut's outmigration rate (6.32 per 1,000) was the only one to exceed New Jersey's rate, but total exportation from Connecticut in 1979 was less than half (19,678) that of New Jersey. Moreover, as previously pointed out, the New Jersey *net migration rate,* exports minus imports per capita, is the highest in the nation. Thus, New Jersey emerges preeminent among the states in its exportation of students.

Excessive outmigration of students appears to be the most difficult problem associated with higher education in New Jersey. As shown in Chapter V, Table V.5, New Jersey youths receive educations at a rate comparable to the rest of the nation, but only when the large percentage attending colleges out-of-state is included in the calculation. The problem is that many outmigrants do not return to New Jersey upon graduation, and this resultant "brain drain" jeopardizes development of the State's high technology sector.

With this in mind, we have studied the determinants of student outmigration and present our results in this Appendix. Our objective has been to find out how much of the State's total outmigration might be eliminated by appropriate state policy. There is, of course, some "natural" amount of outmigration that occurs as a result of non-policy influences, as well as a policy-susceptible amount which is the difference between actual and natural outmigration. In the following sections we outline our empirical estimation of these amounts.

The Study Approach

A gravity model has been utilized to study the factors that influence exports of students. Cross-sectional regression analysis has been used with dependent-variable observations taken to be the outmigration of students from any state (in Fall, 1979) to every other state and the District of Columbia. Hence, there are 50 observations of student exports for each state (and D. C.) and a total of 2,550 observations for the 51 entities. The dependent variable (called XIJ in its final logarithmic form) is the number of students exported from state i to each receiving state j, in 1979.

Explanatory variables of the model are discussed below: (in the regression, all variables have been converted to logarithms)

DIJ. The distance in miles from the sending state (i) to each state (j) (and D. C.) receiving the migrants. A point was chosen in each state to approximate the "center" of college population, and distances were measured between the assigned points.

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PI. Population of state i, the exporting state in 1979.

EI. Higher education expenditure per full-time equivalent in the exporting state (both public and private expenditures; fiscal year 1978 expenditures divided by Fall 1977 FTE enrollments).

YI. Per capita income in the exporting state in 1979.

CI. An index (U. S. urban average = 100) of comparative costs based on a budget for a 4-person low-income family in the exporting state (i) in Autumn 1976.

PJ. Population of receiving state (j) in 1979.

VJ. A dummy variable (taking values e^1 and e^0 in raw form, so that the values are 1 and 0 in the logarithmic form). In final (logarithmic) form 1 if state j is generally considered to be an interesting, physically attractive place to visit or live, and 0 if not.

WJ. A dummy variable (related to VJ) also taking values e^1 and e^0 in raw form and 1 and 0 in final form. In final form 1 if state j is considered to be an uninteresting place to visit or live and 0 if not.

Some states in the U. S. are generally considered to be attractive places to live or visit, because of their climates, mountains, lakes, beaches, and other recreational as well as cultural opportunities. Others are generally considered to be uninteresting places because they lack these qualities for the most part. A third group falls in between: neither interesting nor uninteresting. *VJ* and *WJ* allow for all 3 possibilities:

	VJ	WJ
Interesting	1	0
Neutral	0	0
Uninteresting	0	1

Classifications assigned to VJ and WJ were from a small sample of opinions. The results are believed to reflect accurately common opinion about states since the independently arrived at ratings for the states were generally in agreement.

AJ. Areas of the receiving state in square miles.

Data sources include: H.E.W.; National Center for Education Statistics for student exports, enrollments and expenditures; and U. S. Department of Labor, Bureau of Labor Statistics for family budget index. Population, income and area figures were taken from the Bureau of the Census, *Statistical Abstract of the United States*, 1980.

Hypothesized Relationships

Distance from state i to state j is hypothesized to be an important determinant of outmigration. Other things equal, fewer students will migrate to far away states and more to closer ones, for economic as well as non-economic reasons. Further distances require more travel money and limit students' contact with family and friends in the home state. Moreover, prospective students and their families know less about colleges in distant states and more about those in nearby states, and, thus, more should select colleges in nearby states. Accordingly, we expect the DIJ parameter to take a negative sign.

It is also expected that *more* students will migrate from a state, the larger is the exporting state's population, simply because a greater *number* will migrate for any given migration *rate*. The hypothesized sign for PI is thus positive.

Greater expenditures per student in the exporting state should be associated with *less* exporting. The expenditure variable (EI) should be directly related to the quality of a states' higher education institutions (both public and private) and the higher the quality in the home state, the less should be the need, or desire, to migrate. EI's sign should be negative.

We expect the YI sign to be positive. The higher the per capita income in a state, the greater is the ability of its families to send students to colleges or universities out of state.

CI represents cost of living for low-income persons in the home state. If cost of living is relatively high in state i, it should occasion some migration to other states where student non-educational expenses are expected to be lower. Thus, the expected sign for CI is positive.

Population of the receiving state (PJ) is related directly to educational opportunities in that state. Greater population means more educational institutions, hence more possibilities for matriculation in state j. A positive PJ parameter is therefore expected.

It is reasonable to believe that, other things considered, students prefer to migrate to "interesting" states. Thus, we would expect that the dummy variable (VJ) which assigns the number 1 to receiving states that are commonly considered interesting states, and 0 to those that are not, will take a positive sign.

Similarly, receiving states that are generally considered "uninteresting" should attract fewer students than other states. The dummy WJ should take a negative sign.

Along with population, area of the receiving state, AJ, should also be related to educational opportunities in the importing state. A large-area state will generally have more campuses, if not student slots. Students constrained by distance to out-of-state schools will find more importing institutions in their acceptable range of travel in large-area states than in small. Accordingly, AJ should take a positive parameter.

Other variables entered into regressions did not prove to be statistically significant determinants of student outmigration, but a brief discussion of these variables is in order:

RI and RJ. Variables intended to measure the quality of higher educational institutions in both exporting and importing states. (The variables were created as rough averages, weighted by enrollments of published ratings (Gourman, 1980 and 1967[4]) of each state's colleges and universities). It was expected that the RI variable

would carry a negative sign—few students would migrate if home schools are highly rated—and RJ was expected to be positive, the higher the average rating in state J, the more it should import students from state I. The effects of RI and RJ are not completely ruled out since they are collinear with the population variables PI and PJ respectively ($r_{RIPI} = .519$, $r_{RJPJ} = .534$).

EJ. Expenditures per full-time equivalent in the *receiving* state, again a measure of the quality of state j's colleges. The expected sign was positive; the better the quality of schools in the receiving state, the more should students be exported to them. (EJ and YJ are correlated ($r = .394$) an indication that collinearity may cause them to appear insignificant.)

YJ. Per capita income in the importing states. It was expected that income in receiving states would be directly related to the number of educational opportunities. YJ was thus expected to be positive.

Regression Results

All of the variables discussed were entered into least-squares regressions as logarithms implying a multiplicative, rather than additive relationship for the model. No *a priori* reason can be given for this approach, but our results seem to indicate that the assumption is a reasonable one.

Regression results are given below:

Parameter	Estimate	Standard Error of Estimate	t
Intercept ..	−27.863	1.384	−20.13
DIJ	−1.217	0.027	−44.94
EI	−0.624	0.118	−5.28
PI	0.816	0.021	39.05
YI	1.254	0.195	6.44
CI	4.643	0.309	15.04
PJ	0.538	0.020	27.04
VJ	0.893	0.049	18.15
WJ	−0.105	0.046	−2.28
AJ	0.193	0.015	12.93
F = 652.11		$R^2 = 0.701$	

[4] 1980 Gourman ratings cover only the top 59 institutions in the nation. These ratings were assigned to their appropriate states then weighted in (by enrollments) with an estimate of the average rating of the remaining colleges in each state. The average for the remaining colleges was roughly based on the 1967 Gourman report which rated 1,200 institutions nationwide.

All parameter signs are as hypothesized. WJ, the "uninteresting" dummy, is significant at the 0.0225 level (97.75% level of confidence). All other variables are significant at the 0.0001 level (99.99% level of confidence). R^2 for the regression is 0.701, a relatively high R^2 for cross-sectional regressions.

Since the regression was in logarithmic form, parameters for variables are elasticities and can be interpreted as the percentage change in exports (XIJ) that will result from a one percent change in the particular independent variable under consideration.

For example, from the regression results, a one percent increase in distance can be expected to lead to a decrease in exports of about 1.2%. More importantly, from a policy perspective, the results show that a one percent increase in expenditure per full-time equivalent student in the "home" state is estimated to result in a 6/10ths percent reduction in that state's student exports.

Income, population, and cost of living differences among the sending states all have large positive effects on exports. CI shows the highest export elasticity of all the variables but any change in this variable will be small since it is expressed as a state's percent of U. S. average budget cost in Autumn 1976. A one percent increase in relative per capita income in the exporting states should lead to a proportionately greater (about 1.3%) increase in exports. A one percent increase (decrease) in population in the exporting state is estimated to occasion a 0.8% increase (decrease) in exports.

Coefficients of VJ and WJ, the "interesting" and "uninteresting" variables cannot be interpreted as elasticities since the assigned values 1 and 0 (e^1 and e^0 in the raw form) are arbitrary. Nevertheless, they can be (and are) used in our estimates of "natural" exports from a state. The positive sign of VJ and the negative sign of WJ mean that, all things equal, interesting states draw more students; uninteresting states draw less. (Since these signs are as hypothesized, the

procedure for assigning values to the various states appears justified.)

The elasticity indicated by the PJ parameter implies that a one percent increase (decrease) in the population of the importing state is attended by a half of one percent change, in the same direction, in any state's exports to it. Finally, the area of the receiving state is a significant variable, but a given increase in size across states results in a student migration increase only one-fifth as large.

Reducing Student Exports

It is clearly undesirable for New Jersey to continue exporting large numbers of students to other states, especially given the relatively small numbers of students being imported. But, the State cannot eliminate all exports. Some of the determinants of exportation cannot be altered by government policy. Distances, of course, cannot be changed nor can areas, climate or other physical characteristics of states; furthermore, per capita income and price levels are also essentially beyond a state's control. So no matter what steps are taken by the New Jersey government, the State will continue to export some college students to other states.

Still, the State can bring about a reduction in student exports through available policy measures. Per student expenditures, one of the variables of the model, can be altered by the State. Moreover, the model predicts that New Jersey should have exported only 37,780 students in Fall 1979 rather than the actual 41,347—a difference of 3,567 students. While the model does not specify any causes for this residual amount, it is quite likely that at least some reduction can be obtained through state action; and, of course, part of the remainder may be due to unspecified factors which cannot be changed by the state. Among the possibilities for non-expenditure policies are: (1) more efficient allocation of currently existing money resources to programs in greater demand than present programs; (2) more efficient use of classroom space and other facilities; and (3) better use of faculty and administrative personnel.

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The expenditure parameter indicates that a 0.624 percent reduction in the number of export students could be achieved by a one percent increase in education expenditures. Thus, we estimate that an increase in expenditures from the 1978 actual New Jersey public and private average of $4,930 per full-time equivalent student to *the U. S. average* of $5,500 would decrease New Jersey exports by 2,983 students.

It may be more appropriate to examine the effect of increasing expenditures to a high, rather than average, level. New Jersey and its economic competitors are prosperous states; the competitor states spend more than New Jersey. Massachusetts, with its especially noteworthy progress in attracting high technology industry, spent $6,304 per full-time-equivalent student in 1978. If New Jersey raised its per student spending to the Massachusetts level, exports would fall by 7,191—a full 17.4% of the Fall 1979 total.

Benefits from Reducing Outmigration

Many benefits, both economic and non-economic, would accrue to the State as a result of reducing outmigration. Two economic benefits stand out: first, the "brain drain" to other states would be lessened, and more New Jersey graduates would be available for employment in the high technology sector and to establish new firms in that sector. The importance of these gains cannot be underestimated. In the long run, greater employment opportunities and higher incomes cannot be sustained without advances in the high technology sector.

Second, reducing student exports would increase personal income in the State. Student spending, tuition and fees, room and board and government and private endowments and grants are now lost to the State income stream as a result of exports.

The State would realize an income gain of about $38 million in the first year if per-student expenditure were increased to the U. S. level. If the increase were to the Massachusetts level, the gain would be about $92 million. But these are the gains for the first year of reduction only. After a few years when the reductions affect the number of upperclass students who are away, as well as the first year students, the total gains would be several times more. Increasing expenditures to the U. S. level would result in an income gain to the State of $100 million per year or more; an increase to the Massachusetts level would result in an income increase of around $300 million. While it is true that there would be increased costs (higher expenditure per student) to weigh against these benefits, it is also true that there are other perhaps much more important benefits like those in the high technology sector, that have not been considered in the income gains.

Finally, we should consider the potential gains from other (nonexpenditure) policies. Here up to 3,600 students might be restored to New Jersey. The income benefit associated with this gain would be about $46 million. It is also true that some portion of the residual export figure may be due to non-policy factors, thus $46 million (around $150 million after several years) is our estimate of the maximum income benefit that could be gained by non-expenditure policies.

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VI

NEW JERSEY'S URBAN DILEMMA: DECLINE WITHIN GROWTH*

With unprecedented inflation, economic uncertainty and persistently high unemployment characterizing the nation's economy over the last decade, it is not surprising that economic issues have increasingly drawn the attention of state governments and local communities. This has been particularly true for the older states of the Northeast since their economies have also experienced profound structural changes in the last ten years and have shared disproportionately in the repercussions of three national recessions.

The purpose of this essay is to identify one important dimension of New Jersey's economic problems and to offer for discussion a series of policy proposals aimed at improving this critical aspect of the State's economy.

In particular, this chapter argues that the single largest economic problem facing New Jersey has been in the 1970's, and remains in this new decade, the decline of its major urban centers.

This essay is divided as follows: Section I presents disturbing evidence on the emergence of two New Jersey's. The first is the State's non-urban areas, which have essentially kept pace with national economic growth over the past two decades, while the second consists of the State's major cities which have fallen badly behind both the rest of the State and the country as a whole. Section II provides a policy agenda

to stimulate discussion on how State and local government working closely with the business community can arrest this trend and begin to improve economic activity in New Jersey's cities.

I. State Economic Changes: A Broad View

It is revealing to examine the long term (20-year) changes in population and basic economic conditions in New Jersey and its cities and compare these changes with national trends. Although such a comparison can be made for numerous indicators, population and employment are used here. This restriction is made only for brevity and ease of exposition. (More detailed measures of economic performance reveal the same trends.)

Population

We begin with population, and Table VI.1 provides data from the last three national censuses. Since 1960, the State's population has grown 20.9% (row 2, column 6) compared with a 26.3% increase nationally (row 1, column 6). However, this 20-year period has two distinct components. In the 1960's, New Jersey's population grew faster than the nation's—18.2% versus 13.3% (rows 2 and 1, column 4). This situation was reversed in the 1970's when the State's population increased by 2.3% compared to the national increase of 11.3% (rows 2 and 1, column 5).

TABLE VI.1

POPULATION (millions)

	Total			Percentage Changes		
	1960	1970	1980	1960-1970	1970-1980	1960-1980
	(1)	(2)	(3)	(4)	(5)	(6)
1. United States	179.30	203.20	226.50	+13.32%	+11.32%	+26.33%
2. New Jersey Total ...	6.07	7.17	7.34	+18.20	+ 2.30	+20.92
3. 6 N. J. Cities	1.16	1.11	0.97	— 4.90	—12.28	—16.57
4. N. J. Less 6 Cities ...	4.90	6.06	6.37	+23.68	+ 4.96	+29.82

SOURCE: U.S. Department of Commerce, Bureau of the Census.

To a considerable extent, this reversal is attributable to the population loss experienced by New Jersey's largest cities. With New Jersey divided into its six largest cities (Camden, Elizabeth, Jersey City, Newark, Paterson and Trenton) and the rest of the State, Table VI.1 shows that these six cities lost 16.5% of their population in the last two decades (row 3, column 6) while the rest of the State gained 29.8%. Even in the 1970's when the nation's population grew considerably more than New Jersey's (11.3% versus 2.3%), the population of the rest of the State, without its cities, increased by almost 5% (row 4, column 5).[1]

While a slowdown in population growth does not necessarily imply economic distress (indeed, it could potentially translate into higher per capita incomes, less congestion and improved environmental quality), the numbers in Table VI.1 are—nevertheless, disturbing. They indicate clearly that the slowdown in population growth in New Jersey *is not* the result of an evenly distributed population decline. Rather, Table VI.1 reveals the development of a dichotomy within the State; with a large and increasing population decline occurring in the State's major cities while the population of the remaining areas of the State continued to in-

crease modestly. This growing division necessarily implies urban economic distress, the potential for social divisiveness, and long run fiscal problems for the State *as a whole*.

Employment

The economic implications of this dichotomy is apparent in Tables VI.2 and VI.3 which measure employment changes over the same 20-year period. Employment growth in New Jersey during the 1960's (26.1%) exceeded the national rate of increase (19.5%, see row 2 vs. row 1, column 4 of Table VI.2). However, this situation was reversed in the 1970's and New Jersey's employment growth (16.8%) trailed the nation's (23.7%, row 2 vs. row 1, column 5). However, if the State is divided once more into its major cities and everywhere else (Table VI.3), the source of this reversal is readily apparent.[2]

The glaring conclusion from Table VI.3 is that the cities experienced accelerating employment losses in the last 20 years (—5.6% in the 1960's, and —23.1% in the 1970's; see row 2, columns 4 and 5) while the rest of the State kept pace with the nation in job growth (48.5% vs. 195% in the 1970's and 32.3% vs. 23.7% in the 1970's; see row 3, columns 4 and 5 of Table VI.3 vs. row 1, columns 4 and 5 of Table VI.2).[3]

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[1] It should be noted that several additional cities which experienced population losses are included in the "rest of the State" category. If these were deleted from that group, the comparison between the nation and the rest of the State would be even closer.

[2] The only data available for cities are data on employment covered by unemployment insurance. This explains the differences in the New Jersey totals between Table VI.2 and Table VI.3. It should also be noted that over time there were some changes in the definition of covered employment and this will influence the comparisons. However, the basic result in comparing the cities and the rest of the State would not be significantly changed.

[3] The comparison is not completely consistent since the U.S. data are for *all* employment while the city and non-city data for New Jersey are for only covered employment. Thus, the apparent higher job growth for non-urban New Jersey in both decades may be somewhat overstated by the numbers presented here.

TABLE VI.2
TOTAL EMPLOYMENT

	Thousands			Percentage Changes		
	1960	1970	1980	1960-1970	1970-1980	1960-1980
	(1)	(2)	(3)	(4)	(5)	(6)
1. United States	65,778	78,627	97,270	+19.53	+23.71	+47.88
2. New Jersey Total ...	2,257	2,846	3,323	+26.10	+16.76	+47.23

SOURCE: U.S. Department of Commerce, Bureau of the Census and Bureau of Economic Analysis; New Jersey Department of Labor and Industry.

This comparison leads to the conclusion that the State's recent economic difficulties were (are) due almost entirely to the economic deterioration of its cities.

These changes in employment are disaggregated further in Table VI.3 into manufacturing and non-manufacturing sectors (rows 4 to 9). The data reveal the sharp decline in manufacturing employment in the State's cities—a decline markedly more severe than that for the State as a whole. In fact, in the 1960's, the State, excluding its six largest cities, experienced a 19% increase in manufacturing employment (row 6, column 4) while the six cities lost over 23% of their manufacturing employment base (row 5, column 4). This loss of urban manufacturing jobs accelerated to 32% in the 1970's (row 5, column 5) and although the decline in manufacturing employment was widespread throughout the Northeast during this time, the State's decline outside of its cities was only one percent (row 6, column 5).[4]

TABLE VI.3
COVERED EMPLOYMENT

	Thousands			Percentage Changes		
Total Employment	1960	1970	1979	1960-1970	1970-1979	1960-1979
	(1)	(2)	(3)	(4)	(5)	(6)
1. New Jersey Total	1581.1	2095.8	2529.1	+32.55	+20.67	+ 59.96
2. New Jersey 6 Cities ..	466.8	440.8	338.9	— 5.57	—23.12	— 27.40
3. New Jersey Less 6 Cities	1114.3	1655.0	2190.2	+48.52	+32.34	+ 96.55
Manufacturing Employment						
4. New Jersey Total	807.8	867.4	802.0	+ 7.38	— 7.54	— 0.72
5. New Jersey 6 Cities ..	227.5	174.4	118.0	—23.34	—32.34	— 48.14
6. New Jersey Less 6 Cities	580.3	693.0	684.1	+19.42	— 1.28	+ 17.89
Non-Manufacturing Employment						
7. New Jersey Total ...	773.3	1228.4	1727.1	+58.85	+40.60	+123.34
8. New Jersey 6 Cities ..	239.4	266.4	221.0	+11.28	—17.04	— 7.69
9. New Jersey Less 6 Cities	534.0	962.0	1506.1	+80.15	+56.56	+182.04

SOURCE: *Covered Employment Statistics*, New Jersey Department of Labor and Industry.

[4] Again, it should be noted that the "rest of the State" category still includes other urban areas (e.g., Atlantic City, New Brunswick, Plainfield, Perth Amboy, Passaic and the Oranges) that are known to have lost population and manufacturing employment.

Thus, while the oft-cited claim "we have lost our manufacturing base" is a true one, it should be noted that it is essentially a statement about our *urban* manufacturing base.

A frequently heard argument is that the State's economy is maturing, and in the process there is a fundamental structural change away from dependence on manufacturing and towards a broader, more diversified non-manufacturing (i.e., service) economy. There is no question that this has indeed occurred. The share of manufacturing employment in total employment in New Jersey has dropped from 26% in 1960 to 24% in 1979 (closely approximating the current national average of 22%). The last three rows of Table VI.3 document this shift and show a 58% and 40% growth in non-manufacturing employment statewide in the last two decades (line 7, columns 4 and 5).

Thus, on a statewide basis, it is true that the service sector has registered major gains, as New Jersey's economy has shifted away from its former heavy dependence on manufacturing. However, while growth in the service sector has filled in well for the relative decline in manufacturing activity, the large increases in service employment have not been shared by the cities. Although the cities experienced some service

employment growth in the 1960's (11%, see row 8, column 4), this growth turned into a significant decline of 17% in the 1970's. To realize the implications of this, the 17% decline should be put in the perspective of the 57% *increase* in service employment occurring outside the cities over the very same time. For the entire 20-year period, service jobs fell by over 7% in the cities while they increased elsewhere in the rest of the State by a remarkable 182% (row 8 and 9, column 6).

Accordingly, at least for the cities, the maturing economy argument—namely, that the loss in manufacturing is a natural economic maturation process and that service employment gains will tend to replace those losses—did not hold. New Jersey cities lost *both* manufacturing *and* service employment over the last twenty years (while the rest of the State lost only one percent in manufacturing and gained 182% in the service sector).

A more detailed analysis of the changes within the State's major cities reveals that this urban economic distress has not been distributed evenly. In terms of population Table VI.4 shows that in the last decade, Camden (—17%), Jersey City (—14%), Newark (—14%) and Trenton (—13%) lost significant numbers of people. Although it is true that the growth in the State's

TABLE VI.4
NEW JERSEY POPULATION

	Population			Population Change (Percent)		
	1960	1970	1980	1960-1970	1970-1980	1960-1980
	(1)	(2)	(3)	(4)	(5)	(6)
1. Camden	117,159	102,551	84,763	—12.47	—17.35	—27.65
2. Elizabeth	107,698	112,654	105,384	+ 4.60	— 6.45	— 2.15
3. Jersey City	276,101	260,350	222,764	— 5.70	—14.44	—19.32
4. Newark	405,220	381,930	329,498	— 5.75	—13.73	—18.69
5. Paterson	143,663	144,824	138,025	+ 0.80	— 4.70	— 3.92
6. Trenton	114,167	104,786	90,699	— 8.22	—13.44	—20.54
7. Total 6 Cities	1,164,008	1,107,095	971,133	— 4.90	—12.28	—16.57
8. New Jersey Less 6 Cities	4,903,000	6,064,000	6,365,000	+23.68	+ 4.96	+29.82
9. New Jersey Total	6,067,008	7,171,095	7,336,033	+18.20	+ 2.30	+20.92

SOURCE: New Jersey Department of Labor and Industry.

TABLE VI.5

INSURANCE COVERED EMPLOYMENT

	Manufacturing			Non-Manufacturing			Total Employment		
	1960	1970	1979	1960	1970	1979	1960	1970	1979
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1. Camden	39,722	20,671	11,996	19,161	20,913	16,627	58,883	41,584	28,623
2. Elizabeth	20,841	20,189	14,832	17,078	30,106	32,258	37,919	50,295	47,090
3. Jersey City	30,957	26,904	18,553	35,774	44,696	41,097	66,731	71,600	59,650
4. Newark	81,839	62,687	43,491	119,133	123,915	91,594	200,972	186,602	135,085
5. Paterson	29,000	28,442	20,184	22,000	22,492	21,240	51,000	50,934	41,424
6. Trenton	25,094	15,509	8,900	26,225	24,301	18,176	51,319	39,810	27,076
7. Total 6 Cities	227,453	174,402	117,956	239,371	266,423	220,992	466,824	440,825	338,948
8. New Jersey	807,785	867,417	802,017	773,343	1,228,381	1,727,123	1,581,128	2,095,798	2,529,140
9. New Jersey Less 6 Cities	580,332	693,015	684,061	533,972	961,958	1,506,131	1,114,304	1,654,973	2,190,192

SOURCE: *Covered Employment Statistics*, New Jersey Department of Labor and Industry.

population slowed considerably in the 1970's (2% in the 1970's vs. 18% in the 1960's), the loss of population in these four cities was markedly disproportionate to the population change occurring in the State as a whole.

Table VI.5 gives an overview of the actual changes in the number of jobs in each of the six cities. From 1960 to 1979, Camden, Jersey City, Newark and Trenton together lost more than half of their manufacturing employment (177.6 thousand in 1960 to 82.9 thousand in 1979). Camden, Newark and Trenton also lost non-manufacturing employment as well over the same time).

It is also disturbing to note that in the 1970's except for a gain in service employment in Elizabeth, *all* the cities lost jobs in *both* the manufacturing and non-manufacturing sectors and no city was immune from this urban employment deterioration.

Finally, Table VI.6 examines the *employment-population* ratio. In 1960, the State's ratio was 26.0 (row 9, column 1), indicating that 26 New Jerseyans out of every 100 were employed.[5] It is noteworthy that at the same time (1960) the six cities' ratio was *considerably* higher (40.1) than the State average (see row 7, column 1). Moreover, the even larger difference between the cities' ratio (40.1) and that for the rest of the

State, 22.7 (see row 8, column 1) clearly indicated that in 1960 the cities had a disproportionate share of the State's employment *vis à vis* non-urban areas.

By 1980, however, the cities' ratio and that of the rest of the State became virtually identical (34.4, see rows 8 and 9, column 2). In the intervening twenty years, the cities lost their dominance as places of employment. In fact, by 1980, the ratios for Trenton (29.8), Jersey City (26.7), Paterson (30.0), and Camden (33.7) all fell *below* the State average (34.4). The inescapable conclusion from these specific numbers confirms in detail what was obvious to the casual observer, namely that over this time New Jersey's suburbs became vital areas for new business location and employment growth. The cities, meanwhile, simultaneously lost much of their former role as major employment centers where *both* city residents *and* suburbanites worked.

The urban economic distress that accompanied these changes was inescapable as urban unemployment rates rose: local government fiscal conditions deteriorated; the exodus of business and people continued; the quality of urban life declined; and an ever-expanding (and expensive) relief and fiscal aid role for both the State and federal governments became part of our urban condition. In light of these condi-

[5] The actual number of employed was higher since the above statistics do not include uninsured employees. For New Jersey, the employment-population ratio was 37.14 in 1960 and 44.86 in 1980. However, a comparison between the State and its cities can be made only on the basis of covered employment. It is assumed that the proportion of covered and non-covered employment in the cities and the rest of the State does not differ significantly.

TABLE VI.6

EMPLOYMENT/POPULATION

| | Total Employment/Population | |
	1960	1980
	(1)	(2)
1. Camden	50.25	33.77
2. Elizabeth	35.21	44.68
3. Jersey City	24.17	26.78
4. Newark	49.60	41.00
5. Paterson	35.50	30.01
6. Trenton	44.95	29.85
7. Total 6 Cities	40.10	34.90
8. New Jersey Less 6 Cities	22.73	34.41
9. New Jersey Total	26.06	34.47

SOURCE: New Jersey Department of Labor and Industry.

tions, we turn now to several suggestions on how to increase economic activity in New Jersey's cities.

II. Urban Economic Policy

Previously, the Economic Policy Council has noted that effective and lasting urban revitalization progress must be firmly based on the growth of the private sector (Seneca, 1978). That conclusion, made several years ago, is even more meaningful today. The imminent prospect of significant reductions in a wide range of federal urban aid programs will bring sharply constrained resources to both state and local government. Moreover, the decrease in federal income maintenance programs of many types will also cause major personal financial hardships for large numbers of New Jersey's urban residents. Both of the effects will heighten the economic distress of our cities which is so apparent in the analyses of Section I. Accordingly, it is even more important now than in the past that the State pursue an immediate and aggressive policy designed to expand *private sector* employment in urban New Jersey. Given the federal fiscal environment, there is simply no alernative to this other than one of accelerating economic depression for our cities.

It is important to understand from the outset, however, that urban economic problems cannot be simply left to urban governments, although in a period of contracting state and federal fiscal resources, this temptation is a considerable one. Urban economic decline cannot be confined to fixed geographic areas. If not reversed, it will continue to spread, affecting more people, more businesses, more neighborhoods, more towns and more counties with debilitating effects on employment, economic activity, the quality of life, local government resources and services, and, ultimately, the state *and* federal governments *as well as all* their taxpayers.[6]

The obvious question looms, however, namely —what can the State do to assist urban economic activity, particularly at a time when its resources promise to fall short of existing commitments and programs? In such an environment it becomes doubly important for a higher degree of State involvement in urban problems. As a first principle, the State should maintain a visible urban commitment and make available its personnel and resources for assistance in solving problems of the cities. This assistance should serve the purpose of encouraging, building, and strengthening the effectiveness of private sector calculations committed to urban revitalization. Such intangible commitment and visibility,

[6] There is already evidence that the economic problems of the 1960's in New Jersey's cities have spread in the 1970's to the counties in which these cities are located (You, 1980).

interest and involvement, *does not need* to entail higher cost, but it can bring substantial benefits.

A second essential element in an urban program is the development of a coordinated, comprehensive economic strategy on a city-by-city basis. While many urban problems are common to all cities, potential strengths and economic advantages differ across cities. It is important that the State add its assistance to support and develop with the local business community and government in each city a program that makes economic sense for *that particular city*. The recent successes in several New Jersey cities (e.g., New Brunswick and Atlantic City) point to the effectiveness of such tailoring of economic development programs to the local economic base. The most recent example of private and public cooperation in urban economic development is the renaissance of Newark. This effort deserves strong support from the State's entire business community and State government. The basic intent of this individualized city approach is to concentrate on those things which make sense to the private sector from the point of view of economic growth and profitability, and can serve, therefore, as a base for enduring economic expansion.

With these general principles as a background, we turn to listing some specific suggestions for a State urban policy. (For greater detail see Seneca, 1978.) These suggestions are not meant to be definitive, nor will all of them be popular. They are presented here in order to stimulate thought and debate about urban issues. Some do not cost money, others do; many will be politically difficult, and we clearly recognize that not all (or even a few) can be easily implemented given the current State fiscal outlook. Nevertheless, they are put forward in the hope that careful discussion and evaluation now may lead to effective and efficient policies.

—Absent the effective implementation of the Mount Laurel decison; the State should continue to assume an increased share of local government welfare, public housing and related programs on the argument that the concentration of low-income families in urban areas is a *State* problem requiring a statewide solution.

—The State penal code reform and the success of the Safe and Clean Street program point to the need for continued progress to be made in the areas of urban safety.

—A State-organized land-grant program should be established whereby tax defaulted property in urban areas is *given* to business and commercial users under conditions that economic development of these properties will follow immediately.

—The expansion of the State's in-lieu tax payment for properties used by government agencies and educational institutions is needed to assist cities in providing the services that such tax-exempt facilities use, as well as compensating for the loss in revenues inherent in tax-exempt properties.

—The development of regional tax sharing arrangements whereby a portion of the *incremental* tax revenues from *new growth* in a region would be *shared* by urban areas. This is *not* a new or higher tax proposal. Such programs have been used successfully elsewhere in the country (Reschovsky, 1980).

—We renew our suggestions for a Metropolitan Pricing Commission to determine if any artificial inequities exist in utility and transportation prices between cities and suburbs and, if so, to suggest ways to remove them; e.g., a transportation pricing policy which allows urban governments to recover some of the substantial highway maintenance costs imposed on them by suburban business and commuter traffic.

—The State Department of Environmental Protection should be prepared to implement quickly the (likely) federal relaxations on "new source" air pollution controls for non-compliance areas.

—The Legislature should enact provisions for investment and employment tax credits for *urban small businesses*.

—There should be a regional sharing of the tax-abatement revenues losses to urban governments under the Fox-Lance property tax relief program.

—A State bond issue devoted to the physical reconstruction of urban schools. The broader and critical problem of restoring the quality and attractiveness of urban public education requires a solution as an *essential* pre-condition for the economic revival of New Jersey cities.

—A more rigorous definition of "urban aid areas" to reduce the number from the current 23 so that available monies will not be simply diluted to ineffective amounts.

—The enactment of a loss-carryover provision for *small, urban* businesses in the State's corporate income tax code.

—The establishment of a network of Management Assistance Programs for small businesses in the State's urban centers.

—Further reform in the Gross Utility Tax to allow a wider sharing of these revenues.

—Land use policies aimed at curtailing economic growth in non-urban areas of the State in the hope of directing this growth to New Jersey's cities though well-intentioned, are not wise. They should be re-evaluated and while legitimate environmental objectives should be maintained, any component designed to deflect growth to urban areas should be deleted. General growth-inhibiting policies cause economic harm to *both* urban and non-urban residents.

This is a long and, in many parts, controversial list of urban policy suggestions. Nevertheless, it is by no means meant to be a comprehensive assessment of urban proposals, nor can any single group expect to set the agenda of State urban initiatives. This list is intended to be a beginning of a policy debate, not an end.

Finally, we should note that while the federal fiscal outlook presents a bleak picture for New Jersey cities, there does appear to be some room for federal urban assistance to the State.

—The State and Northeast-Midwest Congressional Coalition should press for the inclusion of an investment tax credit or accelerated depreciation for the *restoration of existing plant and equipment* in the proposed federal business tax incentive program.

—While the replacement of a range of federal categorical grant programs with block grants will undoubtedly result in a net loss of urban aid revenue, the increased reliance on block grants will provide greater flexibility and, therefore, offer the *potential* for resources to be targeted more precisely to those areas with the greatest leverage in terms of stimulating private sector employment.

—Proposed federal legislation establishing "enterprise zones" will, if passed, offer the potential to supplement the effectiveness of state urban economic development programs. This legislation, known as the "Urban Jobs and Enterprise Zone Act" was introduced in 1980 by Representatives J. Kemp and R. Garcia, both of New York State. It allows for the designation of urban "enterprise zones" based on economic distress[7] and then dramatically reduces federal taxes (social security, capital gains, and corporate income) on all businesses within the zone. It requires local government to phase-in a four year 20% reduction in property taxes. We believe this legislation offers promising opportunities for New Jersey and should be supported.

—Additional state incentives can be enacted to supplement the federal incentives for enterprise zones. Possible state incentives include several of the previously mentioned proposals (e. g., loss carryover, investment

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[7] The criteria are based on local unemployment rates *vis à vis* the national average and/or the numbers of families in the area below the poverty level.

tax credit, a reduction in state corporate income tax rates). It should be noted that a reduction of the federal corporate income tax rate in the enterprise zones would make a state tax incentive more efficient; part of any state tax reduction is lost because federal taxable income, hence federal tax, is increased. Lowering the federal tax rate reduces this loss.

—It is also critical that the State and its national representatives emphasize that the urban problem is a *national* problem. The federal government must continue to recognize that it should be actively involved in restoring and fostering the economic vitality of its cities. So-called "solutions" to urban problems which encourage the migration of people out of declining cities must be rejected by a national consensus. Such "solutions" imply an accelerated economic decline of now-troubled urban areas *plus* the imposition of large, sudden (and unwanted) costs on the growing areas of the country.[8] The combination of these two costs—on both the receiving and sending areas—is unacceptable.

Conclusion

In closing, we should reiterate the theme and principle of the programs proposed here. First, urban economic distress is not a local problem, it is a *state* and *national* issue. Accordingly, it is in *everyone's* self-interest to address this problem. Second, the only successful long-term solution to urban economic problems lies in the expansion of the private-sector within the context of a sustained, profitable business climate for New Jersey's cities.

Much has been accomplished in New Jersey in the last part of the 1970's to recognize urban problems and develop policies aimed at coping with them. This progress cannot be allowed to be slowed or reversed under the new federal fiscal constraints. In fact, it is even more imperative, though admittedly it will also now be more difficult, to formulate and implement an enlightened, future-oriented State policy of economic revitalization of its cities. Recently, New Jersey has dealt effectively with difficult economic realities and their resulting unattractive choices. We are confident that with the leadership of its business community and elected officials, New Jersey can continue to make its cities attractive, self-sustaining, and economically viable places to live and work.

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[8] For a rejection of this "solution" by the Governors of two states which would likely be on the receiving end, see Rockefeller and Lamm, 1981.

VII

CAPITAL FORMATION AND BUSINESS TAXES*

Introduction

Increased capital formation and productivity growth are the key requirements for solving many of the recent economic problems confronting the United States. The same issues have their special dimension in New Jersey, because capital formation in New Jersey has been lagging behind the national pace.

The significance of capital formation in promoting technical progress is twofold. First, an increase in the capital-labor ratio, i.e., each person working with more capital as in the case of automation or computerization, will mean more output per worker. Second, new technologies are often introduced by using new equipment, i.e., through new capital expenditures. For these two reasons, we single out capital formation as the most important source of productivity growth.

Aggregate Trends in Capital Formation in New Jersey

The extent of underinvestment in New Jersey can be seen from Table VII.1. Throughout the entire period of 1958-1977, New Jersey's manufacturing sector as a whole spent smaller percentages of its value added for capital investment than the national averages (see column 7). This implies that the manufacturing capital stock in New Jersey was not growing as fast as the national stock. Consequently, slower expansion of

manufacturing employment in New Jersey than in the U.S. has been observed during the period of 1958-77 (2.2% vs. 26.7% according to manufacturing census data).

The comparisons shown in Table VII.1 may overstate the extent of underinvestment in New Jersey because of the State's industry mix. For example, the chemical industry group accounted for 30.5% of total value added of the State's manufacturing sector in 1977. Since the State's chemical industry group invested substantially less than the national average for the same group, which accounted for only 11.4% of the national total of value added, the aggregate investment ratio for New Jersey will appear to be low even though there might be many New Jersey industries which invested proportionately more than the national ratios.

Table VII.2 shows the 1977 ratios of new capital expenditures to value added for 19 major manufacturing industries at the two-digit level for both the U.S. and New Jersey. The distribution of investment ratios shows the systematic pattern of underinvestment in New Jersey. For example, only three out of 19 industry groups (Textile Mill Products, Petroleum and Coal Products, Leather and Leather Products) showed higher investment ratios in New Jersey than in the U.S., while the rest shows relative underinvestment.[1]

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* Prepared by Jong Keun You, Research Economist, Office of Economic Policy.

[1] The probability of three (or less) out of 19 in a non-systematic sample (i.e., determined randomly with 50-50 chances) is less than 0.3%. Therefore, we conclude that New Jersey's under-investment is a systematic phenomenon.

TABLE VII.1

CAPITAL EXPENDITURE-VALUE ADDED RATIOS
New Jersey versus United States Manufacturing Sectors

Year	New Jersey			United States			NJ Ratio
	C.E.*	V.A.**	Ratio (1:2)	C.E.	V.A.	Ratio (4:5)	US Ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1977	1502	23,165	.065	47,687	581,641	.082	.791
76	1216	20,288	.060	40,770	511,471	.080	.752
75	1200	17,741	.068	37,262	442,486	.084	.803
74	1203	18,394	.065	35,696	452,468	.079	.829
73	955	17,754	.054	26,979	405,624	.067	.809
72	940	16,409	.057	24,073	353,974	.068	.842
71	798	14,394	.055	20,941	314,138	.067	.832
70	902	14,414	.063	22,164	300,227	.074	.848
69	933	14,362	.065	22,291	304,441	.073	.887
68	765	13,503	.057	20,613	285,059	.072	.783
67	824	12,738	.065	21,503	261,984	.082	.788
66	776	12,246	.063	20,235	250,880	.081	.786
65	617	11,269	.055	16,615	226,940	.073	.748
64	502	10,217	.049	13,294	206,194	.064	.762
63	525	9,957	.053	11,370	192,083	.059	.891
62	533	9,495	.056	10,436	179,071	.058	.963
61	468	8,758	.053	9,780	164,281	.060	.898
60	473	8,632	.055	10,098	163,999	.062	.890
59	436	8,354	.052	9,140	161,535	.057	.922
58	450	7,500	.060	9,544	141,541	.067	.890

* C.E. = Capital Expenditures in millions of dollars.

** V.A. = Value Added in millions of dollars.

SOURCES: U.S. Department of Commerce, *Census of Manufactures* and *Annual Survey of Manufactures,* various issues.

Capital Formation Trends at the Industry Level

In order to examine the investment performance of the New Jersey industries at a more disaggregated level, all four-digit industries of New Jersey with investment data available have been compared with the same industries of the U.S. for the manufacturing census years of 1958, 1967 and 1977. In 1958, 73 of the 185 New Jersey industries (39.5%) in the sample showed higher investment ratios than the national ratios. This is significantly less than 50% which would be the expected proportion if there was no systematic difference between the New Jersey and national ratios. In 1967 the fraction of New Jersey industries showing higher investment ratios than the national averages was down to 28.8% (55 out of 191), indicating a deepening erosion of New Jersey's manufacturing sector.[2]

The worsening of the New Jersey industries investment performance in 1967 was followed by a negative trend in manufacturing employment in the State from 1969 to 1975. A reversal of this trend took place in 1976, and the 1977 census data (the most recent available) show an improvement in New Jersey's investment ratios. Of the 181 industries for which 1977 data are available, 66 (36.5%) show higher investment ratios for New Jersey than the U.S.[3] Although the percentage had not returned to the 1958

[2] The decrease from 1958 to 1967 in the fraction of New Jersey industries showing investment ratios higher than the national ratios is statistically significant at the 5% level.

[3] The increase in the percentage (from 28.8% to 36.5%) is significant at the 6% level, although not at the conventional 5% level.

TABLE VII.2

CAPITAL EXPENDITURE-VALUE ADDED RATIOS FOR 19 MAJOR MANUFACTURING INDUSTRIES, 1977

Industry	New Jersey			United States		
	C.E.*	V.A.**	Ratio (1:2) Percent	C.E.	V.A.	Ratio (4:5) Percent
	(1)	(2)	(3)	(4)	(5)	(6)
Food & Kindred Products	108.5	1196.4	9.07	4191.9	56232.8	7.45
Textile Mill Products	10.8	133.1	8.11	1220.9	15965.2	7.65
Apparel & Other Textile Products	15.8	852.9	1.85	442.9	19448.1	2.28
Lumber & Wood Products	5.7	120.8	4.72	1552.5	16168.0	9.60
Furniture & Fixtures	6.4	191.7	3.34	387.2	8797.5	4.40
Paper & Allied Products	83.9	842.2	9.96	3279.6	21699.4	15.11
Printing & Publishing	57.8	1166.0	4.96	1587.2	31543.6	5.03
Chemicals & Allied Products	438.0	6189.0	7.08	8488.9	56522.5	15.02
Petroleum & Coal Products	62.8	209.5	29.98	2317.5	16223.7	14.28
Rubber & Miscellaneous Plastic Products	72.4	991.0	7.30	1631.7	19834.3	8.23
Leather & Leather Products	3.7	120.0	3.08	92.5	3650.5	2.53
Stone, Clay & Glass Products	65.8	921.9	7.14	1774.4	18800.1	9.44
Primary Metal	37.2	708.7	5.25	4526.3	37298.2	12.14
Fabricated Metal	83.4	1710.0	4.88	2542.1	44943.0	5.66
Machinery Except Electrical	85.1	1750.6	4.86	4447.1	67406.0	6.60
Electric & Electronic Equipment	88.3	1929.6	4.58	2833.2	49708.3	5.70
Transportation Equipment	62.6	1174.9	5.33	4769.0	64166.4	7.43
Instruments	39.4	885.7	4.45	959.5	18692.1	5.13
Miscellaneous Manufacturing	26.4	596.5	4.43	461.5	10197.7	4.53
Total	1373.9	22830.6	6.02	47505.9 (47687.4)†	577297.4 (581640.9)†	8.23 (8.20)†

SOURCE: U.S. Department of Commerce, *Census of Manufactures*, 1977.

  * C.E. = Capital Expenditures in millions of dollars.

  ** V.A. = Value added in millions of dollars.

  † Figures in the parentheses include Tobacco Products industry, which does not exist in New Jersey.

level, the investment performance of the New Jersey industries in 1977 was better than in 1958 —in terms of the standardized ratio to be explained below.

The low investment ratios of New Jersey's chemical industries tend to lower the State's aggregate investment ratio relative to the national ratio because of the industries' domination of the New Jersey manufacturing sector. In order to neutralize the industry-mix effect on the aggregate ratio, a standardized investment ratio was computed for New Jersey. Standardization assumes the distribution of value added among the four-digit industries of New Jersey is the same as the national distribution, and using this distribution as the weights, computes the weighted average of the industry level investment ratios. The standardized investment ratio for the group of 181 industries in 1958 was 4.8% compared to 5.5% for the non-standardized ratio, and 6.3% for the U.S. In other words, the New Jersey industry mix in 1958 had the effect of raising the average investment ratio, or, to say the same thing, New Jersey's average ratio appeared better than the standardized ratio. The same phenomenon could be observed from the 1967 data; the national ratio was 7.6%, New Jersey's non-standardized ratio 6.1%, and the standardized ratio was 5.8%.

The effect of standardization in 1977, however, reverses the phenomenon observed in 1958 and 1967. The national ratio was 8.3% and the non-standardized New Jersey ratio 5.8% compared to 8.0% for the standardized ratio. In other words, New Jersey's manufacturing industries investment appears better if we take account of the industry-mix effect. Of course, the fact that important industries like chemicals did not invest proportionately as much as the national average is no cause for joy, but neither is it a cause for despair. The chemical industries in New Jersey are still healthy. However, it is also important that the chemical industries avoid the employment decline of the last ten years experienced by other manufacturing industries of the State. In sum, the investment performance of the New Jersey industries in 1977 was a significant improvement over 1967, although more gains must be made to reach the national level.

Implications of the Trends

The above analysis lead to the conclusion that, despite some improvement in 1977, New Jersey's capital formation has been substantially slower than that of the national economy during the past two decades. Paradoxically, however, productivity of the State's manufacturing industries has remained higher than the national productivity level (see Broner, 1980). One tentative explanation of this result is that the State's manufacuring industries have maintained their relative productivity levels by shutting down submarginal plants, thus raising the average. It is clear that while this process enables the State's industries to hold their ground against the national productivity levels, it does so at the cost of shrinking the State's share of manufacturing activities. The process cannot be continued indefinitely.

Another possibility is that industries in New Jersey are more likely to invest in plant modernizations than in new plants. This can keep productivity up and at the same time keep investment to value-added ratios relatively low. However, this process should not be expected to continue in the long run; possibilities for modernizing existing plants are limited. Eventually productivity must suffer unless new plants are built.

Business Taxes and Investment

There are many factors influencing business investment. These are usually summed up as "business climate" and include variables that are beyond control of the government as well as those that are subject to government influence.

Among the variables subject to government actions, perhaps the most important ones are the business tax structure and regulations. In order to estimate the effects of business taxes on capital investment, a statistical model has been tested to examine why new capital expenditures differ over the 48 states.[4]

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[4] Because of data inconsistency, South Dakota had to be excluded from the sample.

The estimated statistical equations using the data for 47 continental states are:

(1) $\text{CAPEXP} = 12.8316 - 0.6823\text{TAXRATE}$
$\quad\quad\quad\quad\quad\quad\;(13.43)\quad\;(4.476)$
$\quad R^2 = 0.3081 \quad\quad\; F(1,45) = 20.04$

(2) $\text{CAPEXP} = 12.8450 - 0.6937\text{TAXRATE}$
$\quad\quad\quad\quad\quad\quad\;(13.36)\quad\;(4.497)$
$\quad\quad\quad\quad\quad\quad - 0.0207\text{WAGE}$
$\quad\quad\quad\quad\quad\quad\;\;(0.676)$
$\quad R^2 = 0.3152 \quad\quad\; F(2,44) = 10.13$

where CAPEXP stands for the 1977 capital expenditure as a percentage of value-added, TAXRATE for the corporate net income tax rate (September 1976) as applicable to the highest bracket,[5] WAGE for the 1976 state wage rates in percent deviations from the national average. The figures in the parentheses are the absolute values of the t-statistics.

The above equations demonstrate that the corporate income tax rate has a statistically significant and negative effect on the rate of capital expenditures. Relative wage rates, on the other hand, do not appear to be a significant factor (see equation 2, t = .67) in determining the rate of capital expenditures. Experiments with standardized wage rates, wage rates adjusted for labor productivity and the share of durable goods industries in total manufacturing employment did not improve the results. However, the effect of corporate tax rate was found to be significantly negative in all variants of the model.

Our concern for the determinants of business investment originates from the fact that investment is one important key to economic growth. If the rate of investment is affected by the corporate tax rate, so is the overall economic growth rate. Previously, the role of state corporate taxes on investment expenditures has been indirectly tested by the use of a "semi-reduced form" equation (see You, 1980). That statistical test linked state's total personal income growth to employment growth and capital growth, where capital growth was presumed to be determined by the corporate tax rate, relative wage rate, and share of manufacturing in total employment. The direct test, reported here, confirms the negative effect of corporate tax rate on investment expenditures.

The negative effect of corporate tax rates on investment will also show a similar effect on employment and, consequently, on total income growth.[6] The ultimate effect on total income growth can be accounted for by the "reduced form" equation which explains income growth by those factors which affect the capital and labor input growth. The estimated reduced form equation is given by:

(3) $\text{GROWTH} = 9.4020 - 0.3222\text{TAXRATE}$
$\quad\quad\quad\quad\quad\;\;(12.73)\quad\;(3.47)$
$\quad\quad\quad\quad\quad - 0.0044\text{WAGE} - 0.090\text{MFG}$
$\quad\quad\quad\quad\quad\;\;(0.26)\quad\quad\quad\quad\;(2.84)$

$\quad R^2 = 0.4316 \quad\quad F(3.43) = 10.88$

where GROWTH stands for the 1976-78 annual rate (in percent) of growth of state personal income (minus farm income and transfer income[7]) in real terms, and MFG for the 1976 share of the manufacturing sector in the state's total non-agricultural employment.

According to the above equation, a relative reduction by one percentage point of a state's corporate tax rate (i.e., assuming that all other states do not change their tax rates) would result in an increase in the growth of real personal income by slightly over 0.3 of a percentage point. Since farm income and transfer payments (which are excluded from the dependent variable) account for slightly more than 10% of New Jersey's total personal income, a reduction in New Jersey's corporate business tax rate by a percentage point is expected to result in an additional growth in total real personal income by slightly less than 0.3 percentage point.

[5] New Jersey's tax rate, 7.5% during the sample period, is adjusted to 9% for the reason to be explained in the next section.

[6] This is not the case if labor-saving investment replaces the old equipments. Historically, however, net investment requiring additional employment has been dominant over the labor-saving replacement investment.

[7] The reasons for excluding farm income and transfer payments are that farm income is subject to strong exogenous influences such as the weather, and grain export embargo; and transfer payments are negatively associated with state economic conditions.

Policy Implications

The results of the statistical analysis reported above suggest that the State can promote faster economic growth by improving its tax structure. Suggestions for tax reform are presented below.

1. Net-Worth Tax

We believe that *the State can phase out the net-worth tax with no losses in revenues.*

The net-worth tax rate of 2 mills per dollar for the first $100 million is equivalent to an additional 2 percentage points in the net income tax rate at the 10% rate of return on investment, and to 1.33 percentage points at the 15% rate of return. For net worth exceeding $100 million, the net-worth tax rate decreases as the size of net worth increases. On the average, therefore, the net-worth tax in New Jersey is equivalent to about 1.5% of net income. An examination of the actual tax data shows that the net-worth tax has been about 1.4% to 1.5% of the allocated net income.

A straightforward application of this figure to the previously discussed effect of the corporate income tax on economic growth leads to the conclusion that a phaseout of the net-worth tax would generate about 0.4% per year additional real personal income growth in New Jersey. Since the current system of taxing net worth discourages new investment, a phaseout of this tax is likely to be more stimulative than an equivalent reduction in the corporate income tax.

According to the estimates by the Office of Economic Policy, a percentage point increase in the State's real personal income would result in an increase in the State's tax revenues by about 0.9%, which amounts to approximately $45 million in FY 1982. Thus, *additional revenues from economic growth resulting from the phase out of the net-worth tax would be about $18 million in FY 1982.*

New Jersey tax data indicate that the net-worth tax revenue expected from the *increases in net worth* for FY 1982 is about $10 million. Phasing out the tax by exempting new invest-

ment from tax liability means a loss of $10 million in FY 1982. This is less than $18 million of additional revenues expected from faster economic growth due to the tax phase out. Even after allowing for the possible overstatement in the estimate of the growth effect, it appears that the net-worth tax can be phased out with no loss of tax revenues.

One argument in favor of keeping the net-worth tax is that it is a stable source of revenues. However, since the net-worth tax accounts for a small fraction (less than 2%) of total revenues, its stability is not very meaningful. *A phase out would promote economic growth with no loss in State revenues.*

2. Corporate Income Tax

Unlike the phase out of the net worth tax, a reduction in the corporate net income tax rate would involve a net revenue loss to the State. For example, a reduction of the corporate income tax rate by one point will result in a loss in business tax revenues of about $100 million compared to $13 million gain from faster economic growth.[8]

However, *a commitment to a phased reduction of the rate by* 0.4 points each year for five years would minimize annual revenue losses while maximizing economic stimulation. The estimated losses in revenues would be no more than $35 million in FY 1982. In the long run, revenues would grow faster compared to the current tax rate, because the lower tax rate will generate more rapid economic growth.

3. Loss Carry-over for New Business Firms

A loss carry-over provision in the corporate tax code has been frequently recommended by the State's business community and the Economic Policy Council. A major objective of the loss carry-over is to help business survive the cash flow problems created by national recessions. However, most established business firms ought to be able to cope with business cycles. On the other hand, *new* establishments often suffer initial losses, and the additional adverse effects of

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[8] The estimated loss of $100 million includes additional loss resulting from prepayment adjustment.

the downturn in the national business cycle may force closing of some firms that would be profitable in the long run if they could only survive their first few years.

In order to help new business firms, a loss carry-over could be allowed for firms during the first five years of operation. If these firms never make profits, they will go bankrupt and pay no net income taxes anyway. On the other hand, if they survive because of the loss carry-over, the State would gain an addition to the tax base which would have otherwise been lost. The revenue decline from this program cannot be accurately predicted, but it is not expected to be significant.

4. Property Tax Reform

New Jersey has been heavily dependent on property taxes as a source of revenue. For example, in FY 1975, property taxes accounted for 57% of total State and local tax revenues in New Jersey compared to 36% nationwide. With the introduction of the Gross Income Tax in FY 1977 and the accompanying property tax relief, the burden of property taxes has been lowered. In FY 1977, property taxes in New Jersey accounted for 50% of total State and local taxes while the nationwide figure remain unchanged at 36%.

Table VII.3 presents county and State averages of municipal property tax rates and their

TABLE VII.3

EFFECTIVE PROPERTY TAX RATES BY COUNTY: 1976 vs. 1980

County	No. of Municipalities	Average Tax Rates (%)		Coefficient of Variation	
		1976	1980	1976	1980
Atlantic	23	3.829	2.360*	0.319	0.193
Bergen	70	2.825	2.409*	0.299	0.282
Burlington	40	3.065	2.525*	0.169	0.166
Camden	37	3.905	3.251*	0.320	0.141
Cape May	16	2.180	1.709*	0.393	0.386
Cumberland	14	3.517	2.940*	0.103	0.114
Essex	22	5.041	4.151*	0.259	0.255
Gloucester	24	2.837	2.454*	0.193	0.140
Hudson	12	4.464	4.385	0.285	0.277
Hunterdon	26	2.693	2.171*	0.247	0.228
Mercer	13	3.503	3.042*	0.235	0.279
Middlesex	25	2.873	2.368*	0.219	0.208
Monmouth	53	3.420	2.725*	0.205	0.255
Morris	39	2.999	2.168*	0.166	0.207
Ocean	33	2.335	2.169*	0.282	0.283
Passaic	16	3.054	2.633*	0.191	0.197
Salem	15	3.129	2.337*	0.305	0.286
Somerset	21	2.813	2.437*	0.197	0.209
Sussex	24	3.305	2.746*	0.162	0.194
Union	21	3.039	2.547*	0.534	0.614
Warren	23	2.733	2.237*	0.267	0.232
New Jersey	567	3.260	2.680*	0.305	0.306

Asterisks denote that 1980 values are significantly lower than the 1976 value at the 1% level. Paired-difference test was used for the averages.

SOURCE: Computed from data in *Annual Report of the Division of Taxation,* 1976 and 1980, New Jersey Dept. of the Treasury.

coefficients of variations[9] for FY 1976 and FY 1980. The Table demonstrates that average tax rates have been reduced since 1976 in all counties of the State and the size of reduction is statistically significant in all counties except Hudson County. However, the degree of inequality in the tax rates measured by the coefficient of variation has increased in some counties and decreased in others. The statewide coefficient of variation has remained virtually unchanged (0.305 in 1976 and 0.306 in 1980), indicating that the degree of inequality in the property tax rates has not been affected by the adoption of the Gross Income Tax. The reduction in the average tax rate coupled with the same coefficient of variation implies that the tax burden has been lowered, more or less proportionately, on the average. In order to reduce the inequality, municipalities with above average tax rates would have to have a more than proportionate reduction.

While one can applaud the reduction in the average property tax rate in the State, the disparities in the tax rates need to be reduced. Table VII.4 shows the top ten and bottom ten municipalities of the State in terms of the 1980 effective tax rates. The highest rate (9.37, Winfield Township) is almost twenty times as high as the lowest rate (0.49, Chester Borough). In addition, some counties have higher average rates than others. For example Hudson (4.385) and Essex (4.151) counties have average tax rates that are more than twice as high as the lowest county average (1.709, Cape May).

It is well known that high property tax rates in the urban areas together with other disamenities contribute to business decline which, in turn, usually leads to tax increases, creating a further negative effect on economic activity. The empirical evidence of the negative effect on economic growth of property tax rates has been documented in an earlier study (You, 1980). A program designed to alleviate the property tax burdens, particularly in the urban areas, remains desirable (see Chapter VI, this *Report*).

TABLE VII.4

TEN HIGHEST AND TEN LOWEST MUNICIPALITY
PROPERTY TAX RATES IN 1980

Highest			Lowest		
Rank	Municipality (County)	Effective Rate (%)	Rank	Municipality (County)	Effective Rate (%)
1	Winfield Twp. (Union)	9.37	1	Chester Bor. (Morris)	0.49
2	E. Orange City (Essex)	6.70	2	Holland Twp. (Hunterdon) ..	0.52
3	Orange City (Essex)	6.20	3	Ridgefield Bor. (Bergen)	0.52
4	Asbury Park City (Monmouth)	6.04	4	Pahaquarry Twp. (Warren) ..	0.59
5	Union City (Hudson)	5.72	5	Upper Twp. (Cape May)	0.64
6	W. New York (Hudson)	5.63	6	Rockleigh Bor. (Bergen)	0.65
7	Trenton City (Mercer)	5.54	7	Teterboro Bor. (Bergen)	0.67
8	Jersey City (Hudson)	5.48	8	Walpack Twp. (Sussex)	0.70
9	Weehawken Twp. (Hudson) ..	5.06	9	Lower Alloways Creek Twp. (Salem)	0.84
10	Newark City (Essex)	5.01	10	Blairstown Twp. (Warren) ...	0.87

SOURCE: New Jersey Department of the Treasury, *Annual Report of the Division of Taxation*, 1980.

[9] The coefficient of variation is defined as the ratio of the standard deviation to the average, and measures the degree of dispersion of the distribution of the municipal tax rates relative to the average tax rate. If, for example, all tax rates are proportionately reduced, then the coefficient of variation would remain unchanged, although the converse is not necessarily true. More than proportionate reductions of rates now above the average and less than proportionate reductions of rates now below would reduce the coefficient of variation. The extreme case is when all rates are identical. Then the coefficient of variation equals zero.

5. Unemployment Compensation Law

The process of reforming the State's unemployment compensation law is an important part of the overall effort to improve the business climate in New Jersey. We support the intent of several legislative proposals made recently to tighten eligibility requirements and ultimately to bring the unemployment compensation expenditures in line with other states.

Epilogue

In this paper, trends and determinants of business capital investment are examined and some policy recommendations are discussed. It should also be clear that tax policy changes designed to increase capital formation will be less effective if well-intentioned but ill-devised regulations are imposed on business. Capital formation in the presence of such regulations may not be improved even by lowering business tax burdens.

For example, rent controls and laws restricting the options of landlords in converting the apartments into condominiums will discourage construction of new apartment buildings creating apartment shortages, rent (implicit and explicit) increases as well as unemployment (see Chapter IV, this *Report*).

Regulatory reform will be a powerful complement to tax reduction in creating a more favorable business climate in the State. This is not to suggest that regulations are not needed. However, regulations can be devised so as to meet the regulatory objectives while minimizing the adverse effects on the economy.

It is recommended that all existing regulations be reviewed and revised, if necessary. It is also recommended that the administration and the legislature request economic impact analyses befor formulating new regulations and revising existing ones. The Economic Policy Council and Office of Economic Policy have the capability and are willing to contribute to these analyses. State governments have limited scope of operation in attempting to attract new businesses. On the other hand, inefficient regulations can easily discourage new and old businesses. Avoiding such regulatory mistakes is a sound economic policy.

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VIII

SOUTHERN NEW JERSEY:
AN ECONOMIC PERSPECTIVE*

Introduction

During the 1970's State Government instituted a number of environmental controls on growth in ecologically sensitive areas. These are predominantly located in the southern part of the State.

On election day 1980 a significant number of voters in Southern New Jersey counties indicated their preference to secede from New Jersey and establish a sovereign state. The impetus behind the non-binding referendum reflected views that State government is dominated by Northern New Jersey and has imposed unreasonable constraints on the development of Southern New Jersey, and more importantly, on the property rights of its residents.

The purpose of this essay is to provide a comparison of the economic development of the northern and southern parts of New Jersey.

Population

Although sparsely populated, Southern New Jersey has been growing faster than Northern New Jersey.[1] During the past twenty years the average annual population growth rate in the South exceeded that of the North, 2.02% to .64%. During the 1960's and 1970's population movements in the State reflected national trends;

the heavily populated northeastern counties (Bergen, Passaic, Hudson and Union) declined as residents migrated to suburban and largely rural areas in the western and southern counties (Figure VIII.1). In 1970, 22% of the State's population resided in the Southern New Jersey communities. By 1980, the South had 1.8 million residents or 25.1% of New Jersey's population.

One attraction Southern New Jersey offered was open space and the opportunity for suburban living. Despite the South's growth, the 1980 population density of 500 persons per square mile was only about one-third of the North's 1,470 persons per square mile.

Based on the latest available information, there appears to be significant differences in the population characteristics between the northern and southern counties (Table VIII.1). In general, there are proportionately more young (under 20 years of age) and more elderly (65 years and over) people residing in Southern New Jersey. In 1980, these groups accounted for 45.3% of the South's population and 42.1% of the North's. Since the so-called dependent population (young plus elderly is somewhat larger, the remainder, the prime-age work force in the South, is proportionately smaller than in the North, 54.7% to 58.0%.

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* Prepared by George R. Nagle, Research Economist, Office of Economic Policy.

[1] The eight Southern New Jersey counties are: Atlantic, Burlington, Cape May, Camden, Cumberland, Gloucester, Ocean and Salem. For the purposes of this paper, the remaining 13 counties constitute Northern New Jersey. For brevity we adopted the terms South and North for the two distinct regions.

FIGURE VIII.1
NEW JERSEY POPULATION TRENDS, 1960-80

	1960	1970	1980
North New Jersey			
Population (thousands)	4832.2	5594.2	5492.4
Density (persons per square mile)	1293	1497	1470
Annual Rate of Change		+1.5%	-.2%
South New Jersey			
Population (thousands)	1234.6	1576.9	1843.4
Density (persons per square mile)	335	428	500
Annual Rate of Change		+2.5%	+1.6%

South Jersey Population Trends, By County

County Key
1) Average Annual Population Growth Rate 1970-80.

2) 1980 Population Density - Persons Per Square Mile

1) 1.1%
2) 441

1) 5.1%
2) 540

1) 1.4%
2) 597

1) 1.3%
2) 2121

1) .7%
2) 184

1) .8%
2) 334

1) .9%
2) 263

1) 3.3%
2) 312

COUNTY KEY MAP
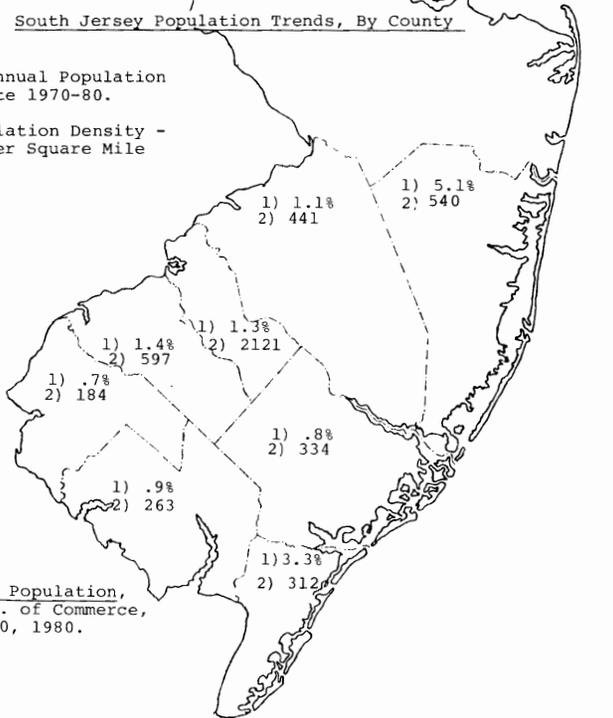
SOURCE: Census of Population, U.S. Dept. of Commerce, 1960, 1970, 1980.

FIGURE VIII.2
HOUSING STOCK 1970, 1980, RATES OF CHANGE
(in thousands of units)

	Northern New Jersey Housing Stock	Southern New Jersey Housing Stock
1980	1999.7	769.1
1970	1801.8	580.1
Net Change in Housing Stock	197.9	189.0
Average Annual Rate of Change	+1.0%	+2.9%

Southern New Jersey Housing Stock, 1970, 1980

County Key
1) Number of Housing Units 1980 (in thousands).
2) Number of Housing Units 1970 (in thousands).
3) Net Change in Housing Units.
4) Average Annual Rate of Change 1970-80.

1) 120.7
2) 88.2
3) 32.5
4) 3.2%

1) 172.7
2) 110.3
3) 62.4
4) 4.6%

1) 69.1
2) 51.7
3) 17.4
4) 2.9%

1) 173.6
2) 143.3
3) 30.3
4) 2.9%

1) 24.2
2) 19.6
3) 4.6
4) 2.1%

1) 89.4
2) 73.8
3) 15.6
4) 1.9%

1) 47.3
2) 40.0
3) 7.3
4) 1.7%

1) 72.1
2) 53.2
3) 18.9
4) 3.1%

COUNTY KEY MAP
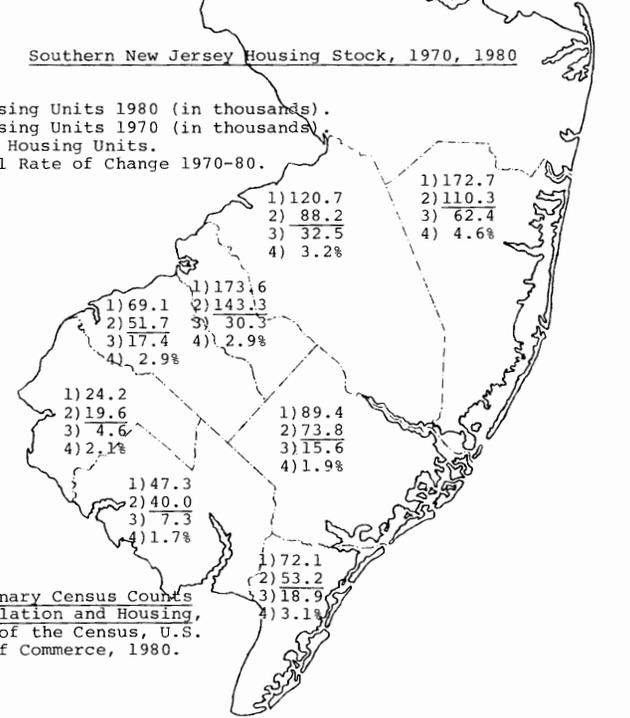
SOURCE: Preliminary Census Counts of Population and Housing, Bureau of the Census, U.S. Dept. of Commerce, 1980.

TABLE VII.1

CHARACTERISTICS OF THE POPULATION,
NORTH AND SOUTH NEW JERSEY, 1978

	North New Jersey		South New Jersey	
	1970	1978	1970	1978
Population Less Than 20 Years Old	37.3%	31.3%	39.3%	33.1%
Prime Work Age Population	53.1	58.0	50.3	54.7
Population 65 Years and Older	9.5	10.8	10.4	12.2
Median Age	30.3 Yrs.	31 Yrs.	29.4 Yrs.	29.6 Yrs.
Dependency Ratio (%)—20 and Under + 65 Years and Older	46.8%	42.0%	49.7%	45.3%

SOURCE: *County Total Resident Population Estimates By Age, Race, And Sex 1976*, 1977, 1978, N. J. Dept. of Labor and Industry, 1980.

One consequence of a relatively large dependent population is the demand of that group for services such as schools for the young and medical care for the elderly. These services are often provided by local governments and financed by property taxes.

Until the details of the 1980 census become available, it is not possible to trace the *sources* of Southern New Jersey's population growth, but earlier statistics show that growth during the 1964-1970 period was evenly divided between natural increase and net in-migration. During this time, 30% of the migrants came from Pennsylvania; 25% from Northern New Jersey; 12% from New York, and 33% from elsewhere. These figures tend to reinforce the view that about one-half of Southern New Jersey's population is composed of migrants from older urban areas.

Housing

Residential construction in Southern New Jersey closely parallels trends in population growth. Based on early 1980 census data, 189 thousand new residential units were added to the region's housing stock during the 1970's.

This represents an average annual rate of growth of 2.9% versus 1.0% in Northern New Jersey (Figure VIII.2).

Employment

Employment growth in the South has also advanced with population. In 1970, non-agricultural employment in the South was 449.5 thousand or 17% of the statewide total (Table VIII.2). By 1978, employment reached 572 thousand, a 3.1% average annual rate of growth. In contrast, employment in the North grew by (only) 1.3% annually (1970-78). The South now represents 19% of total non-agricultural employment in New Jersey.[2]

Despite the apparent "health" of the Southern New Jersey economy, manufacturing employment declined between 1970 and 1978 from 124 thousand to 115 thousand jobs, an annual rate of —.9%.

Government employment expanded at the annual rate of 4.8% and accounts for almost 20% of Southern New Jersey's jobs. This relatively large "public" sector is a reflection of rapidly expanding local governments and school systems.

[2] Despite its rate of growth, Southern New Jersey's employment share (19%) lags behind its share of population (25%). The discrepancy can be easily resolved. First, agriculture, a significant industry in the South, employs local residents who are not counted in non-agricultural employment. Secondly, income statistics reveal significant numbers of South Jerseyans working outside the region who are counted in the Philadelphia and Northern New Jersey statistics. Also, in the South the unemployment rate (1978) is higher than in the North, 7.6% versus 7.1%.

TABLE VIII.2

NONAGRICULTURAL EMPLOYMENT, 1970, 1978

	Northern New Jersey	Southern New Jersey
Nonagricultural Employment (1978)	2389.1 thous.	572.2 thous.
Nonagricultural Employment (1970)	2156.7 thous.	449.5 thous.
Net Change (1970-1978)	232.4	122.7
Annual Rate of Growth	1.3%	3.1%
Unemployment Rate (1978)	7.1%	7.6%
Unemployment Rate (1970)	4.6%	4.5%

SOURCE: *Employment Trends,* and *New Jersey Covered Employment Trends,* New Jersey Dept. of Labor & Industry.

A number of military bases and other federal installations in the region also contribute to public sector employment.

Steady job creation in the southern counties is attributed largely to "service" industries, which in 1978 employed six out of every ten workers (Table VIII.3). The cyclically sensitive manufacturing sector employed only two out of every ten workers, the remainder is accounted for by government employment.

Service industries account for the largest number of new jobs in the South, 86 thousand between 1970 and 1978. The annual rate of growth of 4.2% exceeds service job growth in the North, which averaged 1.9%. There are two broad explanations for this "service" employment growth. One, population growth increases the demand for service jobs by creating opportunities in such areas as retail, business, education, and real estate services (Table VIII.4). Other service sectors with above-average growth include legal and health services; both are related to the South's retirement population.

Secondly, service jobs have blossomed in response to the South's growing tourist industry which attracts more than one million visitors annually. Included in this category are recrea-

TABLE VIII.3

INDUSTRY MIX—NORTH AND SOUTH NEW JERSEY, 1970, 1978

Industry Mix	1970	1978	Net Change 1970-78	Average Annual Rate of Change
NORTH:				
Manufacturing	34.2%	28.1%	— 65.0 thous.	—1.1%
Services	52.1	54.8	+186.3 thous.	+1.9
Government	13.7	17.1	+111.1 thous.	+4.6
	100.0	100.0		
SOUTH:				
Manufacturing	27.5%	20.0%	— 8.9 thous.	— .9%
Services	55.1	60.1	+ 96.1 thous.	+4.2
Government	17.4	19.9	35.5 thous.	+4.8
	100.0	100.0		

SOURCE: Calculations based on data supplied by the New Jersey Department of Labor & Industry, various years.

TABLE VIII.4
SERVICE EMPLOYMENT IN SOUTHERN NEW JERSEY

	Number Employed in 1978	Average Annual Rate of Growth 1970-78
Health Services	35.0 thousand	7.6%
Finance	27.8	5.6
Eating and Drinking	27.7	5.2
General Merchandise Retailer	17.5	1.3
Auto Dealers & Repair Services	17.2	3.1
Business Services	16.2	7.7
Miscellaneous Retail (drug store,		
liquor, novelty, jewelry, etc.)	15.4	7.0
Food Retailer	15.1	2.3
*Hotel and Lodging	7.5	0.0
Apparel Retailer	6.9	6.0
Amusements & Recreational		
Services	5.9	14.8
Real Estate	5.6	4.0
Furniture Retailer	3.9	3.6
Education Services	3.9	3.3
Legal Services	3.4	8.4

SOURCE: *County Business Patterns*, U. S. Dept. of Commerce.

* The apparent lack of growth in the Hotel and Lodging Sector is largely due to the offsetting influences of Atlantic City hotel closings (during the early 1970's) and modest growth in other Southern New Jersey communities. Since the opening of Atlantic City casinos in May 1978 (after these statistics were collected) hotel service employment has grown rapidly. Atlantic City alone employs more than 14,000 hotel and lodging employees (March 1980).

tional services, apparel (retail), eating and drinking, and miscellaneous retailing. Since this component of service industry demand is not prevalent in Northern New Jersey, it is not surprising to observe a slower rate of service employment growth in those counties.

Manufacturing

Just like the rest of the State, Southern New Jersey has experienced declining employment in the manufacturing sector. The decline was felt the hardest in South Jersey's largest manufacturing industries (Table VIII.5); all five of the regions' leading industries declined during the eight-year period. The biggest losses were in Apparel, 3,830 jobs; Electrical Machinery, 3,600; and Chemicals, 3,334 jobs. The Stone-Clay-Glass industry, despite a modest loss in employment, remains the single largest employer in the region. Employment gains were recorded in Printing and Publishing, 3,238 jobs; Instruments, 1,928 jobs; and Machinery, 1,210 jobs. The net effect

of gains and losses has reduced the share of factory jobs in total non-agricultural employment from 28% in 1970 to 20% in 1978.

On a county basis there were differences in manufacturing growth rates. Ocean and Burlington Counties gained manufacturing jobs over the 1970-78 period while losses were predominantly in urban Camden County and Atlantic County. When Camden and Atlantic City were excluded from the comparison, the remainder of the region shows a net gain in manufacturing jobs.

Income

The economic growth of Southern New Jersey has raised the level of personal income from $6.3 billion in 1970 to $13.3 billion in 1978 (Table VIII.6). The 1970-78 annual rate of growth was 9.7% compared to 8.1% in Northern New Jersey; as a result, in 1978 the South accounted for 20.8% of New Jersey's total personal income, an increase from 18.9% in 1970.

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TABLE VIII.5

MANUFACTURING INDUSTRY MIX—SOUTHERN NEW JERSEY

SIC	Industry	1978 Employment	Industry Share	Average Annual Rate of Change 1970-78
32	Stone-Clay-Glass	17,418	15.1%	— 0.2%
28	Chemicals	14,118	12.2	— 2.6
36	Electrical Machinery	12,627	10.9	— 3.1
20	Food	9,809	8.5	— 1.8
23	Apparel	9,325	8.1	— 4.2
34	Fabricated Metals	7,320	6.3	+ 1.2
35	Machinery	7,291	6.3	+ 2.3
27	Printing & Publishing	7,171	6.2	+ 7.8
30	Rubber & Plastic	3,391	2.9	+ 5.3
33	Primary Metals	2,972	2.6	— 5.4
22	Textile	2,909	2.5	— 2.0
37	Transportation Equipment	2,880	2.5	+ 0.1
39	Misc. Manufac.	2,753	2.4	+ 2.4
38	Instruments	2,383	2.1	+23.0
26	Paper	2,309	2.0	— 0.4
29	Petroleum	2,305	2.0	+ 6.1
24	Lumber & Wood	1,706	1.5	+ 2.5
25	Furniture	1,196	1.0	+ 5.9
	Other, Not Allocated	5,686	4.9	
	TOTAL	115,569	100.0	— .9%

SOURCE: *County Business Patterns,* U. S. Department of Commerce.

TABLE VIII.6

PERSONAL INCOME—NORTH AND SOUTH NEW JERSEY, 1970, 1978

	1970	1978	Average Annual Rate of Change
Total Personal Income			
North	$27,317 Bil.	$50,956 Bil.	8.1%
South	6,363	13,347	9.7
South/Total N. J.	18.9%	20.8%	
Per Capita Personal Income			
North	$4,883	$9,235	8.3%
South	4,035	7,309	7.7
South/North	83.6%	79.1%	

SOURCE: Bureau of Economic Analysis, U. S. Dept. of Commerce.

When population growth between the regions is considered, we find the growth in Southern New Jersey per capita income to lag behind that in the North. In 1970, per capita income in the South was 83% of the North's; but by 1978, this ratio *fell* to 79.1%. One reason for the difference is the lower incomes of the relatively large senior citizen population in the shore communities and a smaller percentage of working age population. Residents in the South receive proportionately more non-wage incomes, such as social security payments and pensions. Moreover, Southern New Jersey has a relatively large service sector which pays lower wages than skilled manufacturing jobs which are more common in Northern New Jersey.

Within the region, per capita incomes were the highest in Camden County, $7,673 in 1978, where commuting to Philadelphia-based jobs is convenient. The lowest were observed in Gloucester County, $6,775. Overall, Southern New Jersey residents have relied to a large degree on income earned elsewhere; in 1970, 17.5% of total personal income was earned outside the region. By 1978, the economy had become somewhat more self-sufficient as 14% of the region's personal income was earned outside the eight county area. In contrast, only 6% of Northern New Jersey's personal income by residence was received from jobs outside the region.

The Urban South

Within the boundaries of Southern New Jersey lie two of the State's sizable cities, Camden and Atlantic City, and despite the economic progress of the region, both communities display characteristics of declining urban centers (Table VIII.7).

Both cities have experienced population declines during the 1970's, and only Atlantic City has shown positive employment growth (largely attributed to casino construction and operations). Urban economic decline is also reflected through the (equalized) property tax base. Tax base *ratables* increased by *3.5%* in Camden and *5.3%* in Atlantic City, but these rates are one-half to one-third the property tax base growth in the remainder of the region. Moreover, the nominal rates of growth in the Atlantic City and Camden tax base are less than the observed rate of inflation. The net effect is a *decline* in *real* (inflation-adjusted) tax ratables.

Although the size of the welfare caseload of the State's northern communities has been well documented, the problem also exists to a larger degree than suspected in the South. The region has a relatively large dependent population (under 16 years, and 65 years and over) which is supported by a relatively smaller working population. The concentration of senior citizens and the location of two urban centers contributes to the potential public assistance population. In 1960, one in a hundred Southern New Jersey residents received AFDC (Aid to Families of Dependent Children), while one out of 125 Northern New Jersey residents qualified for the aid. By 1978, one of 14 Southern New Jersey and one of 16 Northern New Jersey residents

TABLE VIII.7

SELECTED INDICATORS OF URBAN CHANGE,
ANNUAL RATES OF GROWTH, 1970-80

	Camden City	Atlantic City	Rest of South Jersey
Population	—1.9%	—2.2%	+ 1.9%
Nonagricultural Employment	—3.7	+2.5	+ 3.3
Manufacuring Employment ..	—5.9	—6.6	+ .1
Property Tax Base (1969-78) (equalized value of real property)	+3.5%	+5.3	+13.2

FIGURE VIII.3

PUBLIC ASSISTANCE, 1960, 1970, 1978

North

	1960	1970	1978
Number of Welfare Recipients	1 in 125	1 in 21	1 in 16

Average Annual Growth Rate(s)   1960-70 = 21.5%
in Welfare Recipients   1970-80 = 2.9%

South

	1960	1970	1978
Number of Welfare Recipients	1 in 100	1 in 17	1 in 14

Average Annual Growth Rate(s)   1960-70 = 22.2%
in Welfare Recipients   1970-80 = 4.3%

Source: New Jersey Department of Human Services.

FIGURE VIII.4

GOVERNMENT FINANCE, 1969, 1978

		1969	1978	Aver. Annual Rate of Growth
North				
Total	Equalized Property Value	$39539(mil.)	$89134(mil.)	9.3%
	Per Capita Equalized Value	7067	16200	9.7
	Equalized Tax Rate (per $100 of assessed value)	$3.55	$3.00	
South				
Total	Equalized Property Value	$9034(mil.)	$27372(mil.)	13.1%
	Per Capita Equalized Value	5729	14990	11.3%
	Equalized Tax Rate (per $100 of assessed value)	$3.38	$2.59	

Southern New Jersey - Per Capita Property Value, Rate of Growth, 1969-78

County Key
1) Per Capita Equalized Value 1978
2) Average Annual Rate of Growth, Per Capita Equalized Value (1969-78)

1) $20328
2) 7.8%

1) $12675
2) 12.2%

1) $11837
2) 11.2%

1) $13402
2) 11.5%

1) $12974
2) 13.5%

1) $15005
2) 11.1%

1) $9951
2) 10.6%

1) $36494
2) 10.7%

COUNTY KEY MAP

SUSSEX PASSAIC
WARREN MORRIS BERGEN
ESSEX HUDSON
HUNTERDON UNION
SOMERSET MIDDLESEX
MERCER MONMOUTH
CAMDEN OCEAN
GLOUCESTER BURLINGTON
SALEM ATLANTIC
CUMBERLAND CAPE MAY

collected welfare assistance (Figure VIII.3). Although there are fewer welfare recipients in the South, the rate of growth in recipients has exceeded the growth rate in the North since 1960. In light of liberalized qualifications and expanded benefits, Southern New Jersey has a *proportionately larger* welfare problem than in Northern New Jersey. The South has 25% of New Jersey's population (1978) and 27% of the State's welfare caseload.

Government Finance

The distribution of wealth and how that wealth is taxed has been the subject of recurring public debate and underlies much of the disagreements between North and South New Jersey. Figure VIII.4 summarizes property wealth in the North and South and the levels of taxation for 1969 and 1978. Although the South had 25% of the State's population in 1978, it had 23% of the property value. Per capita equalized property value was $14,990 in the South and $16,200 in the North. The location of large-scale manufacturing plants in the North accounts for

most of the North-South property base differential.

Commensurate with population growth, the South's property base has been growing *faster* than in the North, an average annual rate of 13.1% versus 9.3%. Within the Southern New Jersey region, per capita property values ranged from $9,951 in Cumberland County to $36,494 in sparsely-populated Cape May County.

One might conclude that with a smaller property base, tax rates in Southern New Jersey communities would be higher than in the North. This is not true; in 1978, the overall equalized tax rate was $2.59 in the South and $3.00 in the North.

It is somewhat paradoxical that local governments in Southern New Jersey with a smaller tax base and a lower tax rate tend to spend about the same amount per person as local governments in Northern New Jersey. Local government spending per capita in 1977 was $895 in the South and $871 in the North (Table VIII.8).

TABLE VIII.8

LOCAL GOVERNMENT REVENUES AND EXPENDITURES,
PER CAPITA 1977

	South	North
Revenues:	$915	$905
From		
Own Source	570	608
State Aid	258	227
Federal Aid	87	70
Expenditures:	895	871
On		
Environment and Housing	104	78
Transportation	55	36
Administration	52	47
Education	388	391
Social Services & Income Maintenance	95	109
Public Safety	70	93
Investment:		
Capital Outlay	110	67
Long Term Debt	722	565

SOURCE: *Compendium of Government Finances,* Census of Government, U. S. Dept. of Commerce, 1977.

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We can speculate that the combination of a "large" dependent population and population growth in general has increased the demand for added public services and expenditures for local infrastructure. Southern New Jersey finances higher per capita spending with revenues from tourism, and higher *per capita aid* (compared with the North) from State and federal sources.

Northern communities finance 67% of their spending from own-source funds while southern communities finance 62%. In 1977, the South received $345 per capita in intergovernment aid (State and federal), while the North received $297. This is not a one year aberration. In 1967, Southern New Jersey received 27% of its revenues from State and federal sources; while the Northern areas received 20%.

Even though local government per capita spending in Southern New Jersey is higher, there are fundamental differences (with Northern New Jersey) in how public monies are spent. Per capita spending in the South is higher for environment and housing, and transportation; while in the North, local governments spent more per capita on social services and public safety. Typical of developing areas, southern New Jersey has higher per capita expenditures for capital outlays and long-term debt.

Land Use Regulations

Private property rights characterize one's right to acquire, use, and dispose of personal property according to one's wishes. However, when unguided activities create broader social problems and costs, regulation often results as a way to "correct" market behavior. In Southern New Jersey, the State has imposed restrictions on land use in order to preserve and protect environmentally-sensitive areas that are experiencing development pressures. In addition to publicly-owned land (parks, open space, public institutions, *etc.*) increasing amounts of privately-owned land have come under State and federal land-use regulations. Development in the coastal areas has been subject to State govern-

ment regulation since the mid-1970's. Recently, the effort to protect the Pinelands, a one million acre preserve in Southern New Jersey, has greatly expanded the State's role in controlling the South's development.

There are approximately 2½ million acres in Southern New Jersey and development in at least ¾ths of this total is either precluded or regulated by higher levels of government. As a result, Southern New Jersey has become a focus for divergent public and private interests. On one side, the economic demand for Southern New Jersey land remains strong. This is attributable to above-average population growth resulting in housing development and the need for other infrastructure construction. On the other side of the coin is a reduction in available space to accommodate that growth.

Development of the Atlantic coastline is under the control of the State Department of Environmental Protection. Also, the Pinelands Preservation Area is close enough to Atlantic City as to deter significant development in the "suburban ring" around the City.

Conclusion

This profile of Southern New Jersey counties reveals a number of similarities and contrasts with the northern part of the State. Among the contrasts is the rate of population growth in the southern counties (1960-80) which has been more than three times that of northern counties. A growing population also created demand for residential housing, the growth of which was triple the growth rate in Northern New Jersey (2.9% annually versus 1.0% annually).

Employment in southern counties also grew relatively faster. There were, however, similarities in the changing industrial mix between the North and South. In both regions, service jobs recorded the largest numerical gains followed by growth in government employment. The South's tourist industry provided an additional stimulus for growth in that region. Both regions, however, experienced a net loss in manufacturing jobs between 1970 and 1978.

Despite its rate of growth, Southern New Jersey's non-agricultural employment share (19%) in the State's total is well below its share of population (25%). The relative age distribution of the population, higher rates of unemployment, agricultural employment (which is not included), and a relatively large work force commuting to jobs outside the region explain this difference.

Total personal income is growing faster in southern counties. But a larger share of low-paying service jobs has caused per capita incomes to lag behind the State average. Differences in population growth and age composition also contribute to the lower per capita income in the South. In 1978, the South's per capita income was 79 percent of per capita income in Northern New Jersey.

Urban decline in Camden, Atlantic City and several other communities have paralleled similar processes in the northern counties. Southern New Jersey has relatively more residents (1 in 14) receiving welfare assistance (AFDC) than in the North (1 in 16).

Real estate values and tax rates are lower in the South, but local government spending is supplemented with relatively more per capita State and federal aid.

Overall, this survey reveals no large economic differences between the regions. The sensitive issue of the distribution of State aid, if anything, seems to favor Southern New Jersey. Most of all, there is no evidence that the South's wealth is being taxed to pay for public expenditures in the northern counties. However, the southern region's ability to grow in the future may be imperiled by land use restrictions in the Pinelands and CAFRA zone. It is likely that this issue will remain the key source of friction between Southern New Jersey and the State.

IX

ECONOMIC IMPACT ANALYSIS:
NEW JERSEY INPUT-OUTPUT MODEL*

Introduction

The Office of Economic Policy has now the capability of quantitatively analyzing the impacts of economic changes such as a major plant opening or closing, construction of new highways, port facilities, and fiscal policies of federal, state and local governments. The analysis uses an input-output model which is designed to trace out the interrelationships among producers both as buyers of each others' outputs, and as sellers to final consumers.

I. The Concept of Input-Output Analysis

Consider the example of the casino industry development in Atlantic City. In the short run, the construction of new casinos creates construction jobs. Over time, these construction jobs will disappear and will be replaced by other employment created by the casinos. In addition to the new jobs *directly* created by construction and casino industries, more jobs are *indirectly* created in the industries which supply the inputs to the construction and casino industries.

Beyond these direct and indirect effects, employment and wages paid by both the directly and indirectly-affected industries will generate additional purchases of goods and services by households. In order to meet the increased demand for goods and services, other industries increase output, which also triggers a series of ripple effects. The summary effect of this feedback from the household sector is referred to as the *induced effect,* and the total (direct, indirect and induced) effect is called the *multiplier effect.*

Illustration

Quantitative analysis of the multiplier effect described above requires an input-output table. An input-output table is based on inter-industry accounting identity as shown by the following example (see Table IX.1).

Column (1) of Table IX.1 shows that the Agriculture sector purchased $11 billion of agricultural products; $5 billion of industrial output, and $5 billion of services for its use as intermediate inputs and produced $41 billion of output. The difference between the total output and the intermediate input is accounted for by primary input (or value added), payments for which include wages, interest, rents, royalties and profits. Row (1) of Table IX.1 shows that $11 billion of agricultural output is sold to the Agricultural sector; $19 billion to the Industry sector; $1 billion to the Services sector, and $10 billion to the final users (households).

Similarly, column (2) of Table IX.1 shows that the Industry sector produced $240 billion of out-

TABLE IX.1

UNITED STATES INTERINDUSTRY DATA, 1947
(in billions of dollars)

PRODUCING SECTOR		Agriculture (1)		Industry (2)		Services (3)		Final Use (4)		Total Use (5)
Agriculture	(1)	11	(0.268)	19	(0.079)	1	(0.005)	10	(0.041)	41
Industry	(2)	5	(0.122)	89	(0.371)	40	(0.216)	106	(0.436)	240
Services	(3)	5	(0.122)	37	(0.154)	37	(0.200)	106	(0.436)	185
Primary Input (value added)	(4)	20	(0.488)	95	(0.396)	107	(0.578)	21	(0.087)	243
Total Output	(5)	41		240		185		243		709

Column headers span PURCHASING SECTOR

SOURCE: Hollis B. Chenery and Paul G. Clark, *Interindustry Economics,* New York, 1959. p. 20.

put using $19 billion of agricultural output; $89 billion of industrial output, and $37 billion of services as intermediate inputs and $95 billion of primary input. Row (2) shows that, of this $240 billion of industrial output, final users (households and businesses)[1] claimed $106 billion and intermediate uses accounted for the rest (Agriculture $5 billion, Industry $89 billion, and Services $40 billion).

It is important to notice that the source of purchasing power of the final users is the value added. Therefore, at the aggregate level, total value added (national income) and total final use (national output) was equal.[2] It is also important to notice that intermediate uses are not included in the national output to avoid double counting. Finally, column (4), row (4) of Table IX.1 showing the final use of primary input, represents the purchases of services by the household sector directly from the household sector.

By dividing the purchases of inputs by the industry output, i.e., dividing column entries by the column total, we obtain inputs (in dollars) per dollar of output. These figures are pre-

sented in the parentheses of Table IX.1 and are referred to as the technical coefficients because they represent technical relationship between various types of inputs and the output. For example, the production technology of the U. S. economy in 1947 required for each dollar of industrial output, 8¢ of agricultural products; 37¢ of industrial products; 15¢ of services, and 40¢ of primary input.

For a regional or state input-output model, it is necessary to account for the fact that substantial fractions of purchases leak out of the region or state. The method accounting for the leakage in the New Jersey Input-Output Model is to incorporate Regional Purchase Coefficients (RPC) into the model. RPC's are the fractions of purchases supplied by the firms or households within the region. As an illustration, suppose that the technical coefficients are given by the following hypothetical table:

In Table IX.2, primary input is disaggregated into labor input and other primary input (other value added).[3] The payments to other primary inputs are not returned to the system as purchases of goods and services. RPC's, row (6) of

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[1] Business investment (purchases of capital goods) is treated in the National Income Accounting as final purchase.

[2] This identity is the basic principle of National Income Accounting and reflects the fact that the ultimate source of national income is the sales of goods and services produced in the nation. In practice, however, National Income and Gross National Product are not equal because business transfer payments, indirect business taxes, capital consumption allowances (depreciation), etc. are not treated as part of National Income but included in GNP.

[3] Row (5), column (4) of Table IX.2 represents the faction of houshold income not used for purchases of goods and services, i.e., saving ratio.

TABLE IX.2
HYPOTHETICAL INPUT-OUTPUT TABLE

PRODUCING SECTOR		PURCHASING SECTOR			
		Agriculture (1)	Manu-facturing (2)	Services (3)	Households (4)
Agriculture	(1)	0.1	0.1	0	0.1
Manufacturing	(2)	0.1	0.2	0.1	0.3
Services	(3)	0.1	0.1	0.1	0.4
Households (Labor)	(4)	0.6	0.5	0.7	0
Other Primary Input	(5)	0.1	0.1	0.1	0.2
Regional Purchase Coefficients	(6)	0.5	0.6	0.8	0.9

Table IX.2, imply that 50% of the purchases of agricultural output is satisfied by the suppliers within the region and the rest is supplied by the out-of-the-region suppliers, and so on. RPC for the household sector implies that 90% of labor input is supplied by the people residing within the region.

In order to trace out the process of the multiplier effect, suppose a sudden increase in U. S. defense expenditures required the delivery of $100 million of additional manufacturing output from the region. In order for the manufacturing sector to produce $100 million of additional output, it requires, according to column (2) of Table IX.2, $10 million of agricultural output, $20 million of manufacturing output, $10 million of services and $50 million of labor input. However, actual first-round increases in regional outputs and wages to satisfy the needs of the manufacturing sector are reduced by the regional purchases coefficients; $5 million for Agriculture ($10 million x 0.5); $12 million for Manufacturing ($20 million x 0.6); $8 million for Services ($10 million x 0.8), and $45 million for Households ($50 million x 0.9).

The first-round increases in outputs and household income generate additional output and household income. For example, in order for the Agriculture sector to increase the output by $5 million first-round increase), it needs $0.5

million of agricultural output ($5 million x 0.1); $0.5 million of manufacturing output ($5 million x 0.1); $0.5 million of services ($5 million x 0.1), and $3 million of labor input ($5 million x 0.6), of which, according to the RPC's, $0.25 million of agricultural output ($0.5 million x 0.5); $0.3 million of manufacturing output ($0.5 million x 0.6); $0.4 million of services ($0.5 million x 0.8), and $2.7 million of labor ($3 million x 0.9) are satisfied within the region. A complete calculation of the second-round effects on the regional industries is demonstrated in Table IX.3.

Table IX.3 shows that the second-round effects on regional outputs due to first-round change in agricultural output (by $5 million) are $0.25 million in Agriculture; $0.3 million in Manufacturing; $0.4 million in Services, and $2.7 million in household income. Similarly, the first-round increase in Manufacturing output by $12 million generates second-round increases in regional outputs by $0.6 million in Agriculture; $1.44 million in Manufacturing; $0.96 million in Services, and $5.4 million in household income. Also, additional household income ($45 million) generated in the first-round results in additional purchases of goods and services generating additional regional outputs as shown by the second row from the bottom of Table IX.3. Total second round increases are $3.10

TABLE IX.3

ILLUSTRATION OF SECOND ROUND EFFECTS

Initial Change: $100 Million in Manufacturing

DUE TO FIRST ROUND CHANGE IN		SECOND ROUND CHANGES (in millions of dollars)			
		Agriculture	Manu-facturing	Services	Households
Agriculture	(5)	0.25	0.30	0.40	2.70
Manufacturing	(12)	0.60	1.44	0.96	5.40
Services	(8)	0.00	0.48	0.64	5.04
Households	(45)	2.25	8.10	14.40	0.00
Total		3.10	10.32	16.40	13.14

NOTE: Figures in the parentheses are the first round changes in millions of dollars.

million in Agriculture; $10.32 million in Manufacturing; $16.40 million in Services, and $13.14 million in household income.

The second-round increases in regional outputs and household income will again generate third-round increases, which in turn will generate fourth-round increases, *ad infinitum.* However, increases in each successive round will be smaller than the previous round and ultimately become insignificant. Total increases in regional outputs by sector for the first ten-rounds are shown in Table IX.4.

In principle, calculation of the multiplier effect shown in Table IX.4 can be carried out to infinite rounds. However, since the changes become progressively smaller approaching zero after about ten rounds, total changes will not increase without limit, but converge to constants. These theoretical limits can be calculated by the use of an inverse matrix.[4] Total changes in regional outputs and household income in the above hypothetical example calculated using the inverse matrix are $12.4 million for Agriculture; $138 million for Manufactur-

TABLE IX.4

ILLUSTRATION OF THE MULTIPLIER EFFECT

Round	OUTPUT (OR INCOME) CHANGES (in Millions of Dollars)			
	Agriculture	Manufacturing	Services	Households
0	0.000	100.000	0.000	0.000
1	5.000	12.000	8.000	45.000
2	3.100	10.320	16.400	13.140
3	1.328	4.774	6.590	16.650
4	1.137	4.045	6.343	6.997
5	0.609	2.194	3.161	6.431
6	0.462	1.647	2.535	3.308
7	0.271	0.973	1.430	2.587
8	0.192	0.685	1.042	1.485
9	0.118	0.423	0.629	1.068
10	0.080	0.288	0.435	0.650
Total	12.297	137.348	46.566	97.316

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[4] See the Technical Appendix for a mathematical derivation of the multiplier effect.

ing; $47.4 million for Services and $98.6 million for household income. These are not much different from the total changes for the first ten rounds shown in Table IX.4. Thus, a ten-round iteration can be used as a reasonable approximation to the ultimate total changes.

Total regional output change for all sectors for the above example is $197.7 million according to the inverse matrix, and $196.2 million according to the ten-round approximation.[5] Since the initial change in output was assumed to be $100 million in Manufacturing output, total change in regional output is 1.977 times the initial change, or the output multiplier is 1.977. Notice, however, that the total output change includes the initial change which triggered the subsequent changes in regional output throughout all sectors. Thus, the net change in regional output induced by the initial change is $97.7 million, or 0.977 times the initial change.

As demonstrated above, the basic principle of input-output analysis is straightforward. In practice, however, the size of the actual input-output table is much larger than the hypothetical Table IX.2. The New Jersey Input-Output Model, originally constructed by the Regional Science Research Institute and adapted by the Office of Economic Policy with the cooperation of the Bureau of Economic Research of Rutgers University, contains over 500 sectors (industries). A computer program calculates the multiplier effect in the same manner as the above ten-round iteration and also calculates employment, value added, State and local taxes by sector.

Two auxiliary programs designed to calculate occupational skill requirements and pollution generated by economic activities will soon be attached to the New Jersey Input-Output Model. These analyses will become important tools for manpower planning and environmental policy. Furthermore, these programs can be used to help design an economic development

strategy which will maximize the benefits of development while minimizing the environmental damages. A mathematical programming model, explained in the Technical Appendix, enables planners to determine a development strategy which will satisfy policy objectives as efficiently as possible.

In order to demonstrate how the New Jersey Input-Output Model can be applied to practical economic problems of the State, three examples have been studied. These are the economic impact of the Atlantic City casino industry development, the economic impact of the Ford Mahwah plant closing, and a comparison of the effect of developing a group of high-technology industries with that of low-technology industries. The analysis of these examples is discussed below.

II. Examples of Input-Output Impact Analyses

1. *Economic Impact of the Casino Industry*

Casino gambling in Atlantic City, made possible by the 1976 referendum and accompanying legislation (P. L. 1977, Chapter 110), has been looked upon as an economic stimulant which will help revitalize the Atlantic County economy. Although the development of the casino industry has not been completed yet, it seems appropriate to assess the industry's accomplishments and potential impact on the State's economy.

Since the opening of Resorts International on May 1978, six more casinos opened and two more are due to open this year.[6] Total employment by the industry by mid-1981 stood at about 27,000, accounting for 0.9% of total nonagricultural employment in the State. Industry total payroll exceeded $200 million in 1980 and is expected to increase to about $500 million in 1981. By these measures alone, the casino industry does seem to contribute significantly to the State's economy.[7]

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[5] Note that household income is not added to avoid double counting. Since output includes intermediate inputs and primary inputs, a part of which is labor input, household income is already included in total output.

[6] An eighth casino (Del Webb's Claridge) opened on July 20, 1981.

[7] Social problems associated with gambling are not discussed here. This, of course, is not to dismiss them as unimportant.

Economic impact of the casino industry goes beyond the industry itself. As explained in the preceding section, the multiplier effect will create a substantially greater number of jobs, more income and taxes than the direct effect of the industry. In order to evaluate the full multiplier effect of the casino industry, actual employment change (27,000 as of June 1981) has been allocated by function (e.g., 11,730 in Amusement and Recreation; 9,395 in Eating and Drinking Places, etc.) and fed into the I-O model.

Note, however, that construction employment change is not included in the direct impact, since it is only a temporary change. Of course, temporary increases in construction jobs will also trigger a temporary multiplier effect, which can be calculated by the I-O model. However, in this report only permanent changes will be discussed. Notice also that, with openings of additional casinos, direct and induced effects will become greater than those reported below. For each additional casino, a proportionate adjustment (based on employment) can be made to obtain the multiplier effect.

Table IX.5 presents a summary of the economic impact of the casino industry. According to this calculation, seven casinos now in operation with 27,000 employees can be expected to create additional 30.8 thousand jobs in the State and generate $65 million of State and local taxes (in 1975 dollars) in addition to the Casino Revenue Fund. Total employment directly or indirectly related to the casino industry is therefore 57.8 thousand, or 2.14 times the casino employment. This will account for more than 1.5% of the State's total nonagricultural employment.

Table IX.6 shows expected net changes in employment, gross output, wage income and value added as a result of indirect and induced effect of casino industry. Due to the nature of the casino industry, the greatest impact is felt by the Services sector followed by Finance, Insurance and Real Estate; Retail Trade; Transportation, Communication and Public Utility; and Wholesale Trade. Overall, the multiplier effect of the casino industry is greater than those of the manufacturing industries discussed in other examples of this Chapter.

It is important to understand that the impact in Table IX.5 cannot be guaranteed. The figures shown in Table IX.5 can be considered reasonable expectations under normal circumstances. However, environmental concerns have led to some regulatory restrictions on the Pinelands area development. The limitations of

TABLE IX.5

ECONOMIC IMPACT OF CASINO INDUSTRY

	Direct Effect (Initial Change) (1)	Multiplier Effect (Total Change) (2)	Indirect & Induced Effect (Net Change) (2) - (1)
Gross Output*	833,323	1,677,390 (2.01)	844,067
Wage Income*	189,279**	492,718 (2.60)	303,439
Value Added*	243,921	756,235 (3.10)	512,314
State and Local Taxes* ..	......	64,804***	......
Employment	27,000	57,807 (2.14)	30,807

* Thousands of 1975 dollars.

** The average annual wage in Atlantic County rose by 68% between 1975 and 1980. Thus, initial change in wages in 1980 dollars is aboue $320 million. This compared with casino industry's actual payroll of $210 million in 1980. The difference is due to the fact that not all casinos operated for a full year.

*** Not including Casino Revenue Fund, which was $68,333 thousand in 1980.
Figures in parentheses are the multipliers computed by dividing column (2) by column (1).

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TABLE IX.6

IMPACT OF CASINO INDUSTRY: NET CHANGES BY SECTOR

Sector	Employment	Gross Output*	Wage Income*	Value Added*
Agriculture, Forestry and Fishery ...	141	7,841	2,010	4,072
Mining	5	229	67	139
Construction**	549	40,365	8,041	8,934
Manufacturing	565	47,623	6,547	17,716
Transportation, Communication and Public Utilities	1,981	89,560	28,185	60,439
Wholesale Trade	1,040	28,849	15,758	22,208
Retail Trade	5,429	76,520	43,817	50,249
Finance, Insurance and Real Estate .	7,836	281,857	74,617	173,564
Services	12,236	228,136	103,536	143,724
Government Enterprises	0	12,260	8,902	9,891
Administrative and Auxiliary Offices.	1,025	30,829	11,958	21,377

* Thousands of 1975 dollars.
** Not including temporary changes associated with Casino construction.

housing supply in the Atlantic City labor market area could also somewhat dampen the multiplier effect.

A final point of observation is that the multiplier effect takes time to be realized. Because of speculative bidding of real estate prices in Atlantic City, development activities have been limited to casino, construction, and transportation industries. The development of other economic activities have been delayed but its potential has not disappeared. However, unless the potential development is accommodated by relaxing the Pinelands regulations, a part of that may disappear.

2. Economic Impact Analysis—The Loss of a Manufacturer

Impact analysis is commonly employed to measure the *benefits* of new investment. However, the technique can also measure the damage to the region following a withdrawal from the economy, such as a strike by construction workers, a drought affecting local agriculture, or layoffs by a local manufacturer. The latter possibility can be illustrated with facts and figures derived from the closing of the Ford assembly plant in Mahwah, New Jersey.

Almost 4,700 workers were put out of work by successive shutdowns of truck and auto assembly operations in 1979 and 1980. Since the facility lies near the New York border, we measured the impact of the loss of jobs to *New Jersey residents only*. Based on average annual employment figures, direct job loss was estimated and divided among auto and truck assembly because each sector will have a different effect on interrelated industries. Impact analysis begins with the initial layoffs and estimates the corresponding loss in output and wages. In 1975 dollars, this amounts to $237.9 million and $25.6 million, respectively (see Table IX.7).

The wage income loss after converting into 1980 dollars (by applying a measure of real wage increases and inflation) was about $39 million. Again, keep in mind, this figure represents the loss of income to New Jersey residents only. Although a correction was made for employees who were transferred to another Ford facility. No adjustment was made for those who might have been reemployed by neighboring firms and no calculation was made for the dollar value of unemployment insurance, supplemental unemployment benefits, or trade-adjustment transfers, all of which cushion the direct loss in wages and salaries.

TABLE IX.7

DIRECT EFFECTS OF MAHWAH CLOSING

Sector	Employment Loss	Loss of Gross Output (in Thous. of 1975 $)	Loss of Wage Income
Truck Assembly	387	18,857	3,890
Auto Assembly	1,422	219,045	21,712
Total	1,809	237,902	25,602

The total losses in employment, output, and income do not stop at the gate of the Ford assembly plant. Firms who once supplied the Mahwah plant with goods and services will experience losses which are called "indirect effects." Certainly, there will be less demand for railroad freight service, electricity and natural gas, and janitorial services, to name a few.

Less income in the hands of former employees and consumers in general means less business for area merchants—this is the induced effect and we expect to see declines in many retail sectors such as grocery stores, apparel, and even in services as banking, insurance, and day care services. Table IX.8 summarizes the aggregate (direct, indirect and induced) effect on the State's economy.

After factoring in the loss to suppliers and area merchants, employment falls by about 3,900, output $306 million, income $48 million, and value added by $107 million. The income loss ($73.4 million in 1980 dollars) is, by the way, about 1/10th percent of total State personal income ($79.7 billion in 1980).

The multipliers cited in Table IX.8 measure the magnitude of the ripple effect. In other words, an initial loss of one auto assembly job will result in the total loss of 2.2 jobs, or 1.2 additional jobs in the State's economy. Other multipliers should also be interpreted this way.

An extension of the economic impact is to compute the loss in state and local tax revenues stemming from the reduction in economic activity. Again, in 1975 dollars, we estimated the loss in State and local taxes to be about $8 million.

Table IX.9 summarizes the *net* economic impact on the State, that is, the effect on all sectors *except* the Ford Mahwah plant. As illustrated, one can see that the loss of a manufacturing plant is not a neighborhood or local problem; the impacts are felt statewide. Other manufacturers lose $12.6 million in output (value of shipments) if there is no Ford Mahwah plant; wholesalers lose $13.3 million, and even the agriculture/mining sector loses $0.3 million in output. A more detailed analysis would reveal losses in such diversified industries as chewing

TABLE IX.8

AGGREGATE ECONOMIC IMPACT (loss)

(dollars measured in 1975 prices)

	Number	Multipliers
Employment	3,916	2.16
Gross Output	$305.6 million	1.28
Income	$48.3 million	1.89
Value Added	$106.9 million	1.61

TABLE IX.9

IMPACT (LOSSES) OF MAHWAH PLANT CLOSING:
NET CHANGES BY SECTOR

Sector	Employment	Gross Output*	Wage Income*	Value Added*
Agriculture, Fishing, Forestry, Mining	4	$261	$58	$138
Construction	30	2,224	443	492
Manufacturing	202	12,566	2,266	5,192
Transportation, Communication, Public Utilities	223	8,795	3,101	5,629
Wholesale Trade	299	13,279	4,623	10,601
Retail Trade	505	7,105	4,102	4,702
Finance, Insurance, Real Estate	214	9,963	2,146	5,052
Services	480	8,588	3,977	5,403
Government Enterprise	0	359	361	290
Administrative and Auxiliary	151	4,547	1,764	3,153

* Thousands of 1975 dollars.

gum, women's handbags, and beauty and barber-shops.[8]

3. High Technology Industries

It is often suggested that the State should base its strategy of economic development on a selected group of manufacturing industries. The selection of industries for targeted programs should take into account the comparative cost advantages New Jersey enjoys in relation to other states, especially in the Sunbelt. One of the advantages the State has is its highly skilled labor force. However, both nationwide and in New Jersey, there are no large reservoirs of unemployed skilled labor needed in high technology industries. What is more abundant and readily available is semiskilled or unskilled labor for which jobs in traditional industries are more suitable.

It is, therefore, argued that the development of traditional industries not requiring a large share of highly technical skills can be a more reasonable economic growth goal. The fallacy of both of these approaches stems from their limited understanding of the demand for skilled or unskilled labor created by developing one or the other type of industries. In reality, the initial growth in one industry creates demand for inputs in a series of other industries. The final effect of direct and induced demand for skilled or unskilled labor is determined by input-output relationships, i.e., by the secondary needs for labor created in a variety of manufacturing and service industries. Therefore, the impact of selecting high technology industries for targeted development on the utilization of the available semi-skilled or unskilled labor force is appropriately judged by applying an input-output model. Ideally, the model should be able to translate the industry employment effects into requirements for labor in various occupations. Such an extension of the basic input-output model will be available soon. At present, however, we can answer the question of which strategy is more suitable for a situation in which a majority of unemployed workers are semi-or unskilled by comparing the overall employment multiplier effect in high technology vs. low technology industries.[9]

For this purpose we selected a group of 15 high technology industries and a group of 15 "traditional" industries in the manufacturing

8 500-sector details are available upon request.

9 This is a necessary simplification which abstracts from the fact that even high technology industries provides some semi-skilled or unskilled jobs and vice versa.

TABLE IX.10

ECONOMIC IMPACT OF DEVELOPING HIGH TECHNOLOGY
VS. TRADITIONAL INDUSTRIES

	Direct Effect (Initial Change)		Multiplier Effect (Total Change)		Indirect and Induced Effect (Net Change)	
	(1) High Technology	(2) Tradi- tional	(3) High Technology	(4) Tradi- tional	(5) High Technology	(6) Tradi- tional
1 Gross Output*	580,406	535,648	879,010	756,039	298,604	220,391
2 Wage Income*	118,930	116,935	220,560	193,428	101,630	76,493
3 Value Added*	289,246	241,423	461,926	367,688	172,680	126,265
4 Employment	10,000	10,000	20,269	17,449	10,269	7,449
5 State and Local Taxes*	......	......	34,075	28,293	......	......

* Thousands of 1975 dollars.

sector.[10] We assumed that each total industry group increases its employment by 10,000 jobs, each industry in the proportion of its actual numerical growth in the U. S. during 1973-1978. We then calculated the multiplier effects for employment, wage income, gross output, and value added. We also computed state and local taxes generated by the development of these various groups of industries. The results are presented in Table IX.10.

The initial increase of 10,000 jobs in the high technology industries creates 10,269 additional jobs (column 5, line 4 of Table IX.10) while the secondary effect of developing the traditional industries is only 7,449.[11] Not only is the employment multiplier larger for the high technology

industries, but so are the income, value added and gross output multipliers (Table IX.11).

It is clear that more employment opportunities in traditional industries would be created by adopting a strategy of developing high technology industries. The distribution of the indirect employment opportunities shows the major differences are in services, retail trade and in the finance, insurance and real estate sector (see Table IX.12).

Even though the multiplier effects are more favorable for a strategy of developing high technology industries, the overall (direct and indirect employment) number of traditional jobs created by developing traditional industries only is larger. This follows from adding the 10,000

TABLE IX.11

MULTIPLIER EFFECTS

Multiplier For:	In High Technology Industries	In Traditional Industries
Gross Output	1.52	1.41
Wage Income	1.86	1.65
Value Added	1.60	1.52
Employment	2.03	1.74

[10] Classification of the high technology industries is based on the Massachusetts study.

[11] The initial increase of 10,000 jobs in the traditional *or the high technology* industries also creates some secondary demand for high technology industries. These effects, however, are minimal and are not reported here.

TABLE IX.12

IMPACT OF HIGH TECHNOLOGY VS. TRADITIONAL INDUSTRIES:
NET CHANGES BY SECTOR

Sector	Employment		Gross Output*		Wage Income*	
	(A)	(B)	(A)	(B)	(A)	(B)
Agriculture	15	15	383	362	156	151
Mining	4	11	172	436	53	134
Construction	165	118	12,156	8,647	2,421	1,722
Manufacturing	729	535	53,644	36,088	8,590	5,965
Transportation, Communication and Public Utilities	822	826	34,236	35,440	11,356	11,491
Wholesale Trade	669	602	17,970	18,473	10,169	9,215
Retail Trade	2,867	2,067	39,995	29,086	21,624	16,686
Finance, Insurance and Real Estate	1,163	832	60,045	40,657	11,292	8,275
Services	3,266	2,003	59,832	35,762	27,639	16,564
Government Enterprises	0	0	2,164	1,462	1,564	1,050
Administration and Auxiliary Offices	572	442	17,208	13,308	6,675	5,162
TOTAL**	10,269	7,449	298,604	220,391	101,630	76,493

* Thousands of 1975 dollars.
** Minor discrepancies in totals are due to rounding.
NOTE: Columns (A) are for the high technology industries and (B) for traditional industries.

and 7,449 jobs in the traditional industries vs. only 10,269 jobs in the case of high technology industries. Which strategy is more favorable for creating traditional jobs after all?

For an answer we have to look at our initial assumption about creating 10,000 jobs in the two different industry groups. The high technology industries are growing fast across the nation, while the traditional industries are rather slow-growing industries. The probability of succeeding in developing high technology industries is good. The task of creating new jobs in the traditional industries as a growth strategy may be extremely difficult or may not succeed at all. The growth strategy based on high technology is more feasible and realistic. Therefore, the end result may be the addition of highly skilled jobs in the high technology industries that will *also* create jobs in the traditional industries. The opposite strategy is unlikely to succeed.

TECHNICAL APPENDIX TO CHAPTER IX

An input-output model is based on the following algebraic equations:

(1) $x_i = a_{i1}x_1 + a_{i2}x_2 + \ldots + a_{in}x_n + x_i^0$,
    $i = 1, 2, \ldots, n.$

where x_i is the total output of the i-th industry (x_n represents labor income), x_i^0 represents exogenous demand for output of the i-th industry and a's are the technical coefficients. Equation (1) implies that output of i-th industry (x_i) is partly used as inputs to other industries ($a_{ij}x_j$, $j = 1, 2, \ldots, n-1$), and the rest is sold to meet the household demand ($a_{in}x_n$) and exogenous demand (x_i^0). In matrix form, the set of equations (1) can be written as:

(2) $x = Ax + x^0$

where x is a vector of outputs of industries (x_1 to x_{n-1}) plus the labor income (x_n), x^0 a vector of exogenous demands and A is a matrix.

The solution to equation (2) is given by:

(3) $x = (I - A)^{-1}x^o$

where I is an identity matrix. However, the process of multiplier effect (popularly known as the *ripple effect*) can be understood better by the following approach. Suppose that x and x^o represent *change* in total output and *change* in exogenous demand. Initially, x is zero (null vector). A change in exogenous demand x^o (or initial disturbance) results in the first-round change in output which is exactly equal to x^o. The latter (x^o) requires additional output of the industries to be used as inputs for producing x^o. Thus, the second-round increase in output is the technical coefficient matrix (A) times the first-round increase in output (x^o). Similarly, the second-round increase in output (Ax^o) generates third-round increase which is equal to the technical coefficient matrix (A) times the second-round increase in output (Ax^o), i.e., A^2x^o. The infinite series of changes is thus given by:

(4) $x = x^o + Ax^o + A^2x^o + A^3 x^o + \ldots \ldots$
   $= (I - A)^{-1}x^o$

For a regional input-output model using regional purchase coefficients to account for leakages, equation (2) can be modified as:

(5) $x = RAx + x^o$

where R is a diagonal matrix whose principal diagonal elements are the regional purchase coefficients. The multiplier effect for the regional economy is then:

(6) $x = (I - RA)^{-1}x^o$

For the hypothetical example given in Table IX.2, we have:

$$R = \begin{bmatrix} 0.5 & 0 & 0 & 0 \\ 0 & 0.6 & 0 & 0 \\ 0 & 0 & 0.8 & 0 \\ 0 & 0 & 0 & 0.9 \end{bmatrix} \quad A = \begin{bmatrix} 0.1 & 0.1 & 0 & 0.1 \\ 0.1 & 0.2 & 0.1 & 0.3 \\ 0.1 & 0.1 & 0.1 & 0.4 \\ 0.6 & 0.5 & 0.7 & 0 \end{bmatrix} \quad x^o = \begin{bmatrix} 0 \\ 100 \\ 0 \\ 0 \end{bmatrix}$$

and thus,

$x = (I - RA)^{-1}x^o$

$$= \begin{bmatrix} 1.126380 & 0.124475 & 0.066805 & 0.104143 \\ 0.329958 & 1.378866 & 0.347284 & 0.375825 \\ 0.499247 & 0.473738 & 1.528219 & 0.599265 \\ 1.071252 & 0.986161 & 1.161950 & 1.602896 \end{bmatrix} \begin{bmatrix} 0 \\ 100 \\ 0 \\ 0 \end{bmatrix} = \begin{bmatrix} 12.4475 \\ 137.8866 \\ 47.3738 \\ 98.6161 \end{bmatrix}$$

In order to translate the output changes into employment changes, let y_i be the employment of i-th industry and let e_i be the employment-output ratio of i-th industry, then, by definition, $y_i = e_ix_i$, which can be written in matrix form as:

(7) $y = Ex$

where y is a vector of industry employment and E a diagonal matrix whose principal diagonal elements are the employment-output ratios (e_i). Substituting (6) into (7) gives:

(8) $y = E(I - RA)^{-1}x^o$

which is the total change in employment due to initial change in exogenous demand. If the initial disturbance is in the form of employment change, $x^o = E^{-1}y^o$, where y^o is the initial employment change, can be substituted into (8) to obtain:

(9) $y = E(I - RA)^{-1}E^{-1}y^o$

which gives total change in employment resulting from the initial change in employment (y^o).

Job creation may in itself be an important policy objective. However, the job creation potential may not be realized in the region if the occupational skill requirements cannot be met by the available labor force of the region, or the jobs may be taken by the residents out of the region leaving the unemployed of the region still jobless. It is therefore important to target the development activities so as to create jobs suitable for the locally available labor force. In addition, it is also desirable to minimize pollution resulting from the increased economic activities. Policy makers may also introduce additional criteria, such as various tax revenues.

Let us assume that policy makers have a group of objectives to be considered, z^1, ..., z^k, and each subgroup, z^i, is composed of one or more elements. For example, $z^1 = (z_1^1, \ldots, z_g^1)$, may represent various types of occupational skill requirements, $z^2 = (z_1^2, \ldots, z_h^2)$, various types of pollution, and so on. These variables are linked to employment levels by:

(10) $z^i = B^iy$

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where B^i is a matrix of coefficients relating z^i to the employment levels (y). By stacking up the vectors z^i, $i = 1, 2, \ldots, k$, to form a new vector z and also by stacking up the matrices (B^i's) to form a new matrix B, we have:

(11) $z = By$.

Substituting equation (9) into (11), we get:

(12) $z = BE\,(I - RA)^{-1}E^{-1}y^o$
         $= Cy^o$

where $C = BE\,(I - RA)^{-1}E^{-1}$. Equation (12) facilitates the calculation of occupational skill requirements, pollution in various types, etc., resulting from the initial job creation of y^o.

Suppose that based on the existing economic conditions and public opinion, the policy makers set the policy targets in terms of the desired values of the elements of z. For example, z^*, the desired or target value of z, may include the occupational skill requirements which will eliminate existing unemployment, and desired pollution levels. Suppose further that the overall criterion is to minimize the weighted sum of squares of deviations of z from z^*:

(13)   minimize $L = (z^* - z)\,'W(z^* - z)$

where W is a diagonal matrix designed to give different weights to different components of the squared deviations.

It is sometimes said that the quadratic loss function given by equation (13) equally treats overachievements and underachievements. This can be avoided by setting the target levels appropriately. For example, targets for the job creations in various occupational skill requirements may deliberately be set at an unrealistically high level. This will insure underachievement and the objective is to minimize the degree of this underachievement. Conversely, targets for the variables such as various forms of pollu-

tions may be set to be zeroes, even though it is not possible to avoid any level of pollution while increasing economic activity. Again, the objective is to minimize the degree of *overachievement* in pollution.

Since there are many different variables in the objective function, the policy makers need to assign priorities by the use of weights in the W matrix. Those that are considered to be more important than others are given greater weights, and so forth. It is also possible to study the effect of changes in priorities on the development strategy. This can be done by changing the weights and comparing the resulting development strategies.

Derivation of the optimal strategy which minimizes the loss function given by equation (13) is shown below. First, substitute equation (12) into (13) to obtain:

(14)   minimize $L = (z^* - Cy^o)\,'W(z^* - Cy^o)$
         $= z^{*\prime}Wz^* - 2z^{*\prime}WCy^o$
         $+ y^{o\prime}C'WCy^o$

Differentiating equation (14) with respect to y^o and setting it equal to zero (null vector), we get:

(15) $\dfrac{dL}{dy^o} = -2C'Wz^* + 2C'WCy^o = 0$

(16) $y^o = (C'WC)^{-1}C'Wz^*$

where $C = BE\,(I - RA)^{-1}E^{-1}$. Equation (16) determines the optimal values of initial job creation, $y^o = (y_1^o, y_2^o, \ldots, y_n^o)$, which will satisfy equation (13). Once the optimal values of y^o is determined by (16), the development authority should, to the extent that it can, attempt to direct the new economic activities to satisfy (16) as closely as possible. Note that the optimal solution depends on z^*, the target values, and W the weights. Naturally, changes in target values and/or priorities must result in changes in the optimal strategy.

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X

APPENDIX

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STATISTICAL TABLES

TABLE 1

POPULATION AND EMPLOYMENT, NEW JERSEY, 1956-1980

Year	Resident Population	Work/Labor Force**	Total Employment	Unemployment Number (000)	Unemployment Rate (Percent)	Insured Unemployment Rate (Percent)
		In Thousands				
1956 ...	5,516.1	2,406.6	2,263.2	138.6	5.8	4.6
1957 ...	5,631.7	2,448.1	2,290.0	156.8	6.4	5.3
1958 ...	5,739.8	2,472.6	2,248.1	222.5	9.0	7.6
1959 ...	5,960.0	2,483.1	2,303.2	175.5	7.1	5.5
*1960 ..	6,066.8	2,507.4	2,337.2	168.5	6.7	5.7
1961 ...	6,222.2	2,543.5	2,355.9	185.5	7.3	6.0
1962 ...	6,370.7	2,575.1	2,415.0	159.0	6.2	5.2
1963 ...	6,503.2	2,618.4	2,447.9	168.8	6.4	5.4
1964 ...	6,614.6	2,655.5	2,489.6	162.1	6.1	4.8
1965 ...	6,720.3	2,724.5	2,582.2	140.0	5.1	3.9
1966 ...	6,821.1	2,790.3	2,665.3	122.6	4.4	3.2
1967 ...	6,917.5	2,803.0	2,701.0	102.0	3.6	3.4
1968 ...	7,012.8	2,829.0	2,730.0	99.0	3.5	3.3
1969 ...	7,103.3	2,898.0	2,805.0	93.0	3.2	3.3
*1970 ..	7,171.0	2,983.0	2,846.0	137.0	4.6	4.4
1971 ...	7,282.0	2,991.0	2,819.0	171.0	5.7	5.4
1972 ...	7,337.0	3,103.0	2,923.0	179.0	5.8	5.1
1973 ...	7,332.0	3,171.0	2,994.0	177.0	5.6	4.7
1974 ...	7,335.0	3,204.0	3,002.0	202.0	6.3	5.7
1975 ...	7,341.0	3,240.0	2,908.0	332.0	10.2	7.8
1976 ...	7,344.0	3,292.0	2,949.0	344.0	10.4	6.4
1977 ...	7,342.0	3,353.0	3,038.0	315.0	9.4	5.6
1978 ...	7,356.0	3,425.0	3,179.0	246.0	7.2	5.1
1979 ...	7,373.0	3,538.0	3,292.0	245.0	6.9	4.7
*1980 ..	7,364.0	3,582.0	3,323.0	258.0	7.2	4.7

* Population figures for 1960, 1970 and 1980 are April 1 census counts. Estimates for intercensal years are as of July 1, and those estimates from 1971 to 1979 are subject to revision.

** For data prior to 1970, persons involved in labor-management disputes are included in total workforce and excluded from employment and unemployment. After 1969, persons involved in labor-management disputes are included in employment.

NOTES:

The rate of insured unemployment is based on weekly averages of insured unemployment (State UI Program) expressed as a percent of the average total number of jobs covered by the State Unemployment Compensation Program.

Work/labor force, employment, and unemployment estimates are adjusted to latest benchmarks.

Labor force estimates for 1970 to 1980 are obtained directly from the Current Population Survey conducted for the U.S. Department of Labor.

Annual averages may not add due to rounding.

Source: N.J. Department of Labor, Division of Planning and Research.

TABLE 2

WAGE AND SALARY WORKERS IN NONAGRICULTURAL ESTABLISHMENTS, MAJOR INDUSTRY DIVISIONS, NEW JERSEY, 1947-1980

(In thousands)

Year	Total Non-Agricultural Payroll Employment	Manu-facturing	Mining	Contract Construction	Transportation and Public Utilities	Wholesale and Retail Trade	Finance, Insurance and Real Estates	Services and Miscellaneous	Government
1947	1,622.6	782.6	4.0	65.4	142.2	249.7	63.1	158.8	156.8
1948	1,657.1	786.3	4.1	74.6	141.0	260.5	67.0	163.7	159.9
1949	1,595.6	721.8	4.0	72.5	134.0	264.5	66.5	166.2	166.1
1950	1,657.1	756.4	4.3	81.2	135.4	273.7	68.3	166.8	171.0
1951	1,768.1	821.2	4.5	95.4	143.9	285.8	69.8	169.8	177.7
1952	1,804.0	832.9	4.6	91.9	146.7	295.6	70.7	174.0	187.6
1953	1,850.2	856.2	4.7	90.3	147.8	303.4	73.6	180.6	193.6
1954	1,820.8	802.1	4.3	93.6	146.1	312.4	76.1	186.0	200.2
1955	1,865.3	811.1	4.0	98.7	148.4	322.5	78.8	195.4	206.4
1956	1,933.5	834.8	4.3	100.7	153.8	336.6	81.8	208.4	213.1
1957	1,968.3	835.0	4.4	96.4	154.3	349.1	85.2	222.7	221.2
1958	1,911.8	776.0	3.7	88.9	148.2	351.0	86.4	230.5	227.0
1959	1,970.9	801.9	3.6	96.3	147.0	360.3	86.7	241.6	233.5
1960	2,017.1	808.8	3.5	98.7	149.5	374.5	88.0	252.0	242.1
1961	2,033.6	791.5	3.4	100.0	150.1	380.1	90.6	264.2	253.6
1962	2,095.8	812.8	3.4	101.3	150.8	393.1	92.8	279.9	262.8
1963	2,129.4	809.4	3.5	101.2	151.9	405.3	94.5	291.5	272.1
1964	2,168.7	806.7	3.6	106.8	153.4	420.0	96.6	301.6	280.0
1965	2,259.0	837.5	3.5	110.6	157.0	438.5	98.6	315.6	295.4
1966	2,359.1	879.3	3.0	111.2	162.2	459.6	101.0	330.8	312.0
1967	2,421.5	882.8	2.8	112.2	166.3	472.0	104.7	351.6	329.2
1968	2,485.2	885.3	3.1	115.6	166.3	489.5	108.4	372.6	344.4
1969	2,569.6	892.5	3.3	118.1	176.2	514.9	111.3	393.2	360.1
1970	2.606.2	860.7	3.2	120.4	182.2	538.0	116.5	410.4	374.8
1971	2,607.6	818.3	3.0	117.6	181.1	558.3	120.4	421.0	388.0
1972	2,674.4	823.3	3.2	121.6	181.2	577.3	124.6	437.9	405.3
1973	2,760.8	842.6	3.3	126.8	186.4	596.9	131.0	456.8	417.1
1974	2,783.4	825.9	3.2	118.7	185.8	603.5	136.5	469.9	439.9
1975	2,699.9	747.9	2.8	99.2	174.3	599.3	135.2	471.1	470.2
1976	2,753.7	756.2	2.7	93.9	176.0	618.5	138.0	488.0	480.5
1977	2,836.9	767.3	2.9	94.5	178.2	637.3	142.9	509.8	504.0
1978	2,962.4	786.8	2.6	105.3	188.5	665.9	147.7	542.7	523.0
1979	3,027.4	799.1	2.6	113.7	190.4	678.6	153.6	572.5	516.7
1980	3,053.9	783.4	2.4	110.7	192.1	677.1	157.1	606.6	524.5

Series have been adjusted to March 1980 benchmarks.
SOURCE: N.J. Department of Labor, Division of Planning and Research.

TABLE 3
WAGE AND SALARY WORKERS IN MANUFACTURING, DURABLE GOODS, NEW JERSEY, 1947-1980
(In thousands)

Year	Total Durable Goods	Lumber and Wood Products	Furniture and Fixtures	Stone, Clay and Glass Products	Primary Metal Industries	Ordnance and Fabricated Metals	Machinery, Except Electrical	Electrical Machinery	Trans-portation Equipment	Instruments and Related Products	Miscellaneous Manu-facturing Industries
1947	403.0	6.9	7.7	31.0	45.8	45.7	56.0	108.9	47.4	18.2	35.5
1948	397.2	7.0	8.2	31.4	44.2	44.3	53.8	106.7	45.9	18.8	36.9
1949	346.1	6.5	7.6	29.0	37.6	40.7	48.8	87.3	37.5	17.9	33.2
1950	372.3	6.8	8.9	31.7	40.5	44.2	49.9	97.2	40.1	17.8	35.3
1951	427.9	7.1	9.1	35.3	46.5	48.3	60.0	115.1	47.5	22.4	36.6
1952	446.6	6.4	8.5	33.4	45.3	50.5	61.7	121.7	60.2	24.7	34.3
1953	470.4	6.3	8.6	33.8	46.2	57.2	64.0	132.5	62.7	26.5	32.6
1954	431.3	6.4	8.2	32.5	42.6	54.6	60.6	116.7	56.5	24.9	28.3
1955	435.5	6.4	8.5	34.1	43.9	55.7	59.1	117.5	57.1	25.3	27.8
1956	455.9	6.4	9.1	34.3	47.3	55.5	65.8	124.3	57.4	27.9	27.9
1957	457.3	6.3	9.2	33.9	46.9	56.7	65.5	125.6	55.9	29.4	27.9
1958	412.5	5.6	8.7	31.9	40.9	51.5	57.0	115.0	48.7	27.4	25.8
1959	431.1	5.9	9.2	33.1	41.7	54.3	57.8	121.4	50.5	30.2	27.0
1960	436.8	5.7	9.8	33.7	42.6	54.8	61.0	122.3	48.5	31.7	26.8
1961	421.9	5.6	9.0	34.4	40.7	54.2	57.3	119.5	41.7	31.9	27.6
1962	436.3	5.8	9.7	34.6	40.1	56.1	60.3	125.2	42.5	32.4	29.9
1963	426.0	5.7	8.9	34.9	38.6	55.7	60.1	121.7	39.0	32.9	28.7
1964	419.1	5.6	9.0	35.6	37.9	57.2	61.4	115.1	35.6	31.0	30.7
1965	438.7	5.6	9.4	36.9	39.8	60.8	65.4	118.4	36.8	32.7	32.9
1966	463.4	5.2	10.5	39.3	40.4	64.7	70.8	129.9	36.4	34.3	31.9
1967	464.6	5.0	11.0	39.1	38.6	66.2	75.0	131.1	32.0	36.5	30.0
1968	460.9	5.3	10.2	38.8	38.5	67.5	75.8	127.6	31.7	35.8	29.7
1969	463.3	5.2	11.0	40.9	39.4	69.8	76.2	124.5	31.4	34.7	30.2
1970	434.3	4.9	10.5	39.6	37.2	67.0	72.8	115.2	26.3	33.2	27.5
1971	404.6	4.5	10.6	39.0	33.3	62.9	66.3	104.6	25.3	32.4	25.6
1972	405.9	5.1	10.8	39.9	31.8	63.5	65.8	102.9	25.7	35.1	25.2
1973	420.5	5.3	10.6	40.8	32.0	66.2	72.1	108.1	25.3	34.4	25.9
1974	413.2	5.0	10.3	40.5	31.2	64.4	76.1	105.1	21.1	33.9	25.6
1975	363.1	4.6	8.9	36.0	26.1	58.1	68.4	88.1	19.3	31.2	22.4
1976	363.0	5.3	8.7	36.1	23.9	59.4	67.5	86.8	19.8	31.3	24.0
1977	370.0	5.8	8.9	35.1	23.0	61.1	71.0	87.9	20.7	32.0	24.5
1978	382.8	6.0	10.0	35.2	24.5	64.1	74.2	89.8	20.9	32.3	25.7
1979	395.9	6.7	10.3	35.3	25.5	64.5	76.4	92.9	21.6	35.6	27.1
1980	386.7	5.8	9.8	33.5	25.8	60.9	75.4	92.6	18.4	37.3	27.3

Series have been adjusted to March 1980 benchmarks.
SOURCE: N.J. Department of Labor, Division of Planning and Research.

TABLE 4
WAGE AND SALARY WORKERS IN MANUFACTURING, NONDURABLE GOODS, NEW JERSEY, 1947-1980
(In thousands)

Year	Total Nondurable Goods	Food and Kindred Products	Tobacco Manufactures	Textile Mill Products	Apparel and Related Products	Paper Allied Products	Printing, Publishing and Allied Industries	Chemicals and Allied Products	Petroleum Refining and Related Industries	Rubber and Miscellaneous Plastic Products	Leather and Leather Products
1947	379.6	56.9	5.5	61.1	78.9	21.7	18.6	80.1	15.6	29.5	11.7
1948	389.1	57.1	5.1	64.7	85.6	22.2	19.9	77.6	16.2	28.4	12.3
1949	375.7	55.9	4.9	57.8	88.9	21.8	21.4	71.9	16.3	24.7	12.1
1950	384.1	56.5	4.6	58.2	89.0	23.5	22.8	73.7	16.5	26.4	12.9
1951	393.3	59.8	4.4	53.7	89.8	24.8	23.4	79.1	17.3	28.4	12.6
1952	386.3	61.3	4.4	50.1	88.7	24.2	23.5	78.5	16.3	27.3	12.1
1953	385.8	60.9	4.3	48.3	85.0	26.5	24.8	79.2	16.4	28.4	12.0
1954	370.8	62.2	4.0	41.9	79.7	26.0	25.9	78.0	15.2	26.7	11.2
1955	375.6	61.7	3.4	42.7	79.6	26.3	27.1	80.8	14.5	27.5	11.9
1956	378.9	63.5	2.6	41.6	79.7	27.2	28.1	81.8	14.3	28.3	11.8
1957	377.7	62.9	2.0	38.6	79.2	28.3	30.5	83.3	13.8	27.7	11.4
1958	363.6	62.9	1.9	33.0	76.7	28.0	30.3	80.8	12.2	26.6	11.1
1959	370.8	62.3	1.8	33.2	79.2	28.3	31.5	82.4	11.8	29.3	11.1
1960	372.0	62.9	1.7	31.4	77.7	28.0	32.3	86.4	11.5	29.2	11.0
1961	369.6	63.9	1.6	29.1	76.4	28.1	32.6	87.0	11.1	29.2	10.8
1962	376.5	64.2	1.5	28.6	75.8	29.7	33.0	91.0	10.7	30.7	11.5
1963	383.4	64.9	1.4	27.9	74.5	31.4	34.6	94.8	10.5	31.7	11.7
1964	387.6	65.0	1.5	27.8	74.6	31.5	35.8	96.4	9.7	34.2	11.2
1965	398.8	66.4	1.4	28.5	77.3	31.3	37.5	98.9	9.8	36.0	11.5
1966	415.9	67.2	.8	29.6	80.3	33.0	39.6	105.5	10.5	37.2	12.2
1967	418.1	65.3	.6	29.1	78.5	33.7	41.5	110.9	9.6	37.7	11.3
1968	424.5	64.5	.3	30.5	78.7	34.5	42.2	113.1	9.7	39.9	11.5
1969	429.2	63.2	.3	30.8	77.2	35.0	43.3	117.4	10.0	41.4	10.6
1970	426.4	63.5	.3	29.6	72.3	35.3	44.8	120.9	10.1	40.0	9.6
1971	413.7	61.7	.3	29.4	68.9	35.9	43.8	117.5	10.1	36.8	9.4
1972	417.4	59.8	.3	30.5	68.9	35.9	46.0	119.3	10.6	37.2	8.9
1973	422.1	68.7	.2	31.3	68.7	36.8	46.9	124.1	10.9	35.5	9.0
1974	412.7	56.7	.2	28.8	63.1	35.4	47.8	126.6	11.8	34.0	8.4
1975	384.9	53.6	.2	24.5	57.9	32.1	46.4	121.0	12.1	29.3	7.9
1976	393.2	52.7	.2	23.9	61.1	33.2	47.4	122.4	11.9	32.0	8.3
1977	397.3	50.2	.3	22.8	59.7	33.4	49.7	127.2	11.9	34.2	7.9
1978	404.0	49.9	.5	22.4	59.3	33.7	51.7	130.0	11.9	37.3	7.3
1979	403.3	49.5	.4	21.5	56.5	33.9	54.3	129.6	11.9	38.8	6.9
1980	396.7	49.8	.4	20.4	55.3	32.2	55.0	127.9	12.1	37.6	6.1

Series have been adjusted to March 1980 benchmarks.
SOURCE: N.J. Department of Labor, Division of Planning and Research.

TABLE 5

EMPLOYMENT, HOURS, AND EARNINGS OF PRODUCTION WORKERS ON MANUFACTURING PAYROLLS, NEW JERSEY, 1947-1980

Year	Employment (thousands)	Average Weekly Hours	Average Weekly Earnings (dollars)	Average Hourly Earnings (dollars)
1947	n.a.	40.7	52.26	1.28
1948	n.a.	40.5	56.37	1.39
1949	n.a.	39.4	56.97	1.45
1950	n.a.	40.8	61.65	1.51
1951	n.a.	41.1	67.28	1.65
1952	n.a.	41.1	71.02	1.73
1953	n.a.	40.9	74.32	1.82
1954	n.a.	39.8	74.43	1.87
1955	n.a.	40.7	79.16	1.94
1956	n.a.	40.5	82.98	2.05
1957	n.a.	39.9	85.23	2.14
1958	563.7	39.4	86.80	2.20
1959	583.8	40.3	92.45	2.29
1960	580.8	39.6	93.93	2.37
1961	563.1	40.0	97.60	2.44
1962	576.0	40.5	101.66	2.51
1963	567.5	40.5	104.90	2.59
1964	564.4	40.6	108.40	2.67
1965	587.1	41.0	112.34	2.74
1966	616.5	41.3	117.29	2.84
1967	616.7	40.6	118.96	2.93
1968	616.9	40.7	125.76	3.09
1969	621.3	40.8	132.60	3.25
1970	592.6	40.3	139.44	3.46
1971	564.4	40.4	150.29	3.72
1972	561.1	40.9	163.35	3.99
1973	582.3	41.4	176.41	4.26
1974	559.8	40.7	186.11	4.57
1975	494.8	39.9	199.68	4.99
1976	501.0	40.4	215.33	5.33
1977	513.0	41.1	239.20	5.82
1978	511.2	40.8	256.22	6.28
1979	524.6	41.4	278.21	6.72
1980	501.9	41.0	299.71	7.31

FOOTNOTE

n.a.—not available.

Series have been adjusted to Jan. 1979 benchmarks.

SOURCE: N.J. Department of Labor, Division of Planning and Research.

TABLE 6

CONSUMER PRICE INDEXES*
FOR URBAN WAGE EARNERS AND CLERICAL WORKERS

$(1967 = 100.0)$

Year	United States	New York SCA[a]	Philadelphia SMSA[b]
1947	66.9	67.0	66.4
1948	72.1	71.5	71.7
1949	71.4	70.7	70.9
1950	72.1	71.2	71.3
1951	77.8	76.5	77.9
1952	79.5	77.7	79.5
1953	80.1	78.2	79.8
1954	80.5	78.7	80.7
1955	80.2	78.2	80.6
1956	81.4	79.4	81.6
1957	84.3	82.0	84.2
1958	86.6	84.5	85.8
1959	87.3	85.6	86.8
1960	88.7	87.3	88.4
1961	89.6	88.1	89.4
1962	90.6	89.4	90.1
1963	91.7	91.3	91.8
1964	92.9	92.8	93.2
1965	94.5	94.3	94.7
1966	97.2	97.5	97.3
1967	100.0	100.0	100.0
1968	104.2	104.3	104.8
1969	109.8	110.8	110.4
1970	116.3	119.0	117.8
1971	121.3	125.9	123.5
1972	125.3	131.4	127.0
1973	133.1	139.7	135.5
1974	147.7	154.8	151.6
1975	161.2	166.6	164.2
1976	170.5	176.3	172.4
1977	181.5	185.5	183.5
1978	195.3	195.4	194.8
1979	217.7	212.8	214.7
1980	247.0	236.8	242.5

FOOTNOTES

[a] Standard Consolidated Area: New York-Northeastern New Jersey including Bergen, Essex, Hudson, Middlesex, Morris, Passaic, Somerset, and Union counties.

[b] Standard Metropolitan Statistical Area, including Camden, Burlington, and Gloucester counties.

* Annual averages.

SOURCES: U.S. Department of Labor, Bureau of Labor Statistics.

TABLE 7

PERSONAL INCOME, NEW JERSEY AND UNITED STATES,
1948-1980

Year	Total Personal Income New Jersey	United States (millions of current dollars)	Per Capita Personal Income New Jersey	United States (current dollars)	New Jersey[a]	United States[b] (1967 dollars)
1948	8,063	208,876	1,689	1,430	2,359	1,983
1949	8,131	205,793	1,663	1,384	2,349	1,938
1950	8,541	226,197	1,753	1,496	2,460	2,075
1951	10,151	253,232	2,028	1,652	2,627	2,123
1952	10,934	269,769	2,134	1,733	2,715	2,180
1953	11,750	285,456	2,247	1,804	2,844	2,252
1954	11,957	287,607	2,231	1,785	2,799	2,217
1955	12,688	308,266	2,306	1,876	2,904	2,339
1956	13,719	330,479	2,443	1,975	3,035	2,426
1957	14,550	348,460	2,536	2,045	3,052	2,426
1958	14,553	356,956	2,471	2,050	2,902	2,367
1959	15,655	380,033	2,603	2,146	3,020	2,458
1960	16,477	396,036	2,700	2,201	3,073	2,481
1961	17,250	411,301	2,753	2,248	3,102	2,509
1962	18,502	436,894	2,902	2,353	3,233	2,597
1963	19,415	459,075	2,973	2,436	3,247	2,656
1964	20,782	491,341	3,120	2,572	3,355	2,769
1965	22,400	532,022	3,310	2,750	3,503	2,910
1966	24,269	579,158	3,542	2,963	3,637	3,048
1967	26,107	620,020	3,768	3,142	3,768	3,142
1968	28,536	677,786	4,074	3,401	3,897	3,264
1969	31,302	747,536	4,412	3,714	3,989	3,383
1970	34,118	803,922	4,745	3,945	4,008	3,392
1971	36,592	861,904	5,025	4,167	4,030	3,435
1972 (R).	39,538	944,852	5,389	4,515	4,171	3,603
1973 (R).	42,986	1,058,902	5,860	5,010	4,259	3,764
1974 (R).	46,625	1,162,203	6,356	5,448	4,149	3,689
1975 (R).	49,811	1,259,430	6,785	5,845	4,102	3,626
1976 (R).	54,044	1,386,772	7,359	6,374	4,220	3,738
1977 (R).	58,741	1,533,768	8,001	6,979	4,337	3,845
1978 (R).	64,658	1,717,816	8,789	7,735	4,505	3,961
1979 (R).	71,934	1,939,486	9,756	8,637	4,564	3,967
1980 (P).	80,724	2,162,936	10,924	9,521	4,558	3,855

FOOTNOTES

[a] The average of the Consumer Price Indexes for the New York Standard Consolidated Area and the Philadelphia SMSA was used to express New Jersey per capita personal income in constant 1967 dollars.

[b] The Consumer Price Index for the United States was used to express United States per capita personal income in constant 1967 dollars.

(R) Revised estimates. Estimates of state total and per capita personal income for 1954-68 have been revised following the 1976 benchmark revision of the national income and product accounts. Estimates for the year 1969-80 have been revised following the 1980 benchmark revision.

(P) Preliminary estimates.

SOURCES: U.S. Department of Commerce; U.S. Department of Labor, Bureau of Labor Statistics.
Prepared by N.J. Department of Labor, Division of Planning and Research.

TABLE 8
PRODUCTION AND TRADE, NEW JERSEY, 1948-1980

	Electric Power Sales			Value of New Dwelling Units Authorized	Construction Contracts Awarded	Retail Store Sales*	Registration of New Vehicles	
Year	Total	Large Industrial and Commercial Users	Small Industrial and Commercial Users				Passenger Cars	Commercial Vehicles
	(kilowatt hours in thousands)			($000)	($000)	($000,000)	(number)	(number)
1948	6,887,131	3,736,931	1,359,854	n.a.	406,476	n.a.	116,847	25,504
1949	7,026,664	3,578,396	1,483,196	n.a.	408,007	n.a.	165,179	23,544
1950	8,023,122	4,161,454	1,630,075	n.a.	747,771	n.a.	210,436	27,229
1951	8,944,201	4,648,835	1,806,808	n.a.	676,458	n.a.	178,862	25,002
1952	9,578,722	4,837,880	1,969,215	n.a.	690,770	n.a.	149,168	19,335
1953	10,435,872	5,191,330	2,180,598	n.a.	793,889	n.a.	208,313	23,048
1954	10,931,039	5,214,694	2,348,391	n.a.	886,947	n.a.	207,242	20,601
1955	12,184,077	5,874,199	2,584,701	n.a.	1,010,459	n.a.	258,079	22,262
1956	13,224,653	6,323,544	2,807,035	n.a.	1,106,452	n.a.	219,297	21,903
1957	14,196,487	6,642,234	3,097,755	n.a.	1,048,449	n.a.	219,865	20,320
1958	14,949,906	6,829,115	3,322,774	n.a.	1,143,484	n.a.	183,770	17,616
1959	16,632,611	7,683,942	3,719,151	n.a.	1,303,736	n.a.	219,305	20,374
1960	17,569,054	8,125,141	3,967,306	497,534	1,256,532	n.a.	266,299	22,532
1961	19,248,349	8,730,727	4,471,379	553,029	1,307,832	n.a.	250,432	24,606
1962	20,630,556	9,506,486	4,848,024	549,825	1,392,618	n.a.	285,955	24,713
1963	22,077,818	10,108,217	5,309,982	608,660	1,534,448	8,992	318,127	26,804
1964	23,848,214	10,773,759	5,872,988	704,809	1,622,048	9,768	325,293	28,417
1965	25,964,004	11,712,402	6,433,961	727,586	1,555,689	10,396	378,768	30,980
1966	28,512,856	12,814,406	7,043,455	588,874	1,651,494	10,711	352,573	31,072
1967	30,146,448	13,147,596	7,620,829	572,646	1,906,577	10,947	302,680	27,471
1968	32,616,153	13,863,329	8,394,581	597,980	2,380,846	12,030	356,762	30,724
1969	35,637,643	15,042,515	9,214,088	562,616	2,205,705	12,582	356,583	34,616
1970	38,156,144	15,394,352	10,185,005	599,034	2,740,746	14,274	348,304	36,027
1971	39,919,508	15,564,483	11,056,580	876,144	2,409,797	15,359	370,004	35,255†
1972	42,318,122	16,192,817	12,143,135	1,062,430	2,948,735	16,399	443,628	50,545
1973	45,540,943	17,018,962	13,233,603	1,030,506	2,513,229	17,874	453,334	53,735
1974	43,995,014	16,390,080	12,904,974	588,291	2,353,822	18,024	351,103	51,663
1975	43,477,908	14,927,694	13,509,510	574,101	1,950,095	19,636	298,926	31,493
1976	45,605,101	15,759,346	14,289,144	832,433	2,063,615	21,833	384,407	45,731
1977	46,398,759	15,659,679	14,774,406	998,931	4,805,407 (R)	24,076	448,669	61,578
1978	48,113,001	16,386,752	15,474,339	1,262,831	4,096,430 (R)	27,483 (R)	436,849	65,772
1979	48,783,424	16,593,515	15,782,667	1,274,353	3,613,237 (R)	30,027 (R)	402,484	63,867
1980	49,587,000	16,343,000	16,445,000	1,010,084	3,606,148 (P)	31,762	396,150	56,390

FOOTNOTES
* Data prior to 1976 are based on different sample design and are not strictly comparable with later retail sales figures.
† Years 1948-70 compiled by N.J. Auto List. Years 1972-80 are from the N.J. Division of Motor Vehicles.
(P) —Preliminary estimates.   (R) —Revised.   n.a.—not available.
SOURCES: Electric Power Sales: Edison Electric Institute and U.S. Department of Energy. New Dwelling Units Authorized: N.J. Department of Labor and Industry in Cooperation with U.S. Department of Commerce. Construction Contracts Awarded: F.W. Dodge Corporation. Retail Sales: U.S. Dept. of Commerce, Registration of New Vehicles: New Jersey Auto Lists, Inc.; N.J. Division of Motor Vehicles.
Prepared by N.J. Department of Labor, Division of Planning and Research.

TABLE 9
BUSINESS ACTIVITY, NEW JERSEY, 1948-1980

Year	Business Telephones Net Gains	Business Failures (number)	Liabilities of Business Failures ($000)	New Incorpora- tions (number)	New Jersey Turnpike	
					Toll Revenue ($000)	Number of Vehicles (000)
1948	19,106	219	15,286	5,510	n.a.	n.a.
1949	10,014	366	16,246	5,411	n.a.	n.a.
1950	20,134	346	10,926	6,009	n.a.	n.a.
1951	29,806	307	11,961	5,581	n.a.	n.a.
1952	29,044	319	18,627	6,146	16,241	17,948
1953	26,613	360	25,856	6,651	19,193	22,005
1954	24,664	385	20,086	7,276	20,756	24,555
1955	31,659	456	29,753	8,386	21,123	25,888
1956	37,452	582	33,919	8,839	24,513(R)	31,588
1957	29,856	565	39,604	8,097	29,023(R)	39,270
1958	21,892	778	43,475	8,757	30,159(R)	41,615
1959	35,051	639	27,619	10,436	33,318(R)	46,199
1960	38,543	714	49,071	10,172	35,584(R)	49,083
1961	28,825	717	53,282	9,650	37,193(R)	51,738
1962	39,383	591	58,468	9,984	39,240(R)	54,901
1963	29,716	509	256,075	9,716	40,779(R)	56,677
1964	36,771	442	49,261	10,023	44,149(R)	60,708
1965	47,251	512	96,334	10,439	46,122(R)	64,958
1966	54,650	442	61,191	9,656	48,610(R)	69,850
1967	48,620	414	64,215	10,220	51,230(R)	73,529
1968	53,293	423	42,692	12,038	55,340(R)	78,205
1969	73,211	343	53,141	13,168	57,637(R)	80,618
1970	58,787	463	142,196	13,958	63,934(R)	89,655
1971	45,401	428	102,738	15,563	70,124(R)	98,553
1972	66,989	453	173,428	16,462	75,940(R)	107,933
1973	87,064	491	201,463	16,312	78,997(R)	110,422
1974	55,327	643	110,411	15,410	75,243(R)	106,628
1975	31,164	768	213,209	16,022	84,385(R)	105,633
1976	53,040	660	174.457	18,270	91,082(R)	109,234
1977	76,351	535	194,995	19,366	95,112	113,664
1978	73,114	415	198,834	20,381	100,838	120,623
1979	67,957	421	194,188	21,172	100,970 (R)	121,031
1980	69,040	430	182,709	21,484	118,698	122,588

FOOTNOTES
n.a.—not available.   (R)—Revised.
SOURCES: Business Telephone Net Gains: N.J. Bell Telephone Company. Number and Liabiliteis of Business Failures and New
Incorporations: Dun and Bradstreet, Inc. Apparent Consumption of Distilled Spirits: Distilled Spirits Institute. New Jersey
Turnpike-Toll Revenue and Number of Vehicles: New Jersey Turnpike Authority.
Prepared by N.J. Department of Labor, Division of Planning and Research.

TABLE 10

AGRICULTURE, NEW JERSEY, 1950-1980

Year	Number of Workers on Farms (thousands)	Cash Receipts from Farm Marketings		
		Total	(thousands of dollars) From Livestock and Products	From Crops
1950	66	292,430	188,694	103,736
1951	65	348,831	229,976	118,855
1952	61	342,447	215,156	127,291
1953	58	346,187	223,750	122,437
1954	59	314,259	194,605	119,654
1955	58	307,674	200,178	107,496
1956	53	330,372	202,117	128,255
1957	51	314,627	193,991	120,636
1958	51	304,569	191,946	112,623
1959	45	288,814	170,273	118,541
1960	44	296,510	166,126	130,384
1961	42	285,007	154,547	130,460
1962	41	276,598	143,854	132,744
1963	39	267,965	134,962	133,003
1964	37	259,477	124,079	135,398
1965	33	268,493	118,031	150,462
1966	27	269,839	120,262	149,577
1967	23	250,927	102,337	148,590
1968	23	252,599	100,797	151,802
1969	21	248,982	103,694	145,288
1970	20	246,631	98,962	147,669
1971	19	244,045	90,679	153,366
1972	20	240,784	90,910	149,874
1973	19	302,035	111,204	190,831
1974	20	339,876	113,269	226,607
1975	21	325,998	102,915	223,083
1976	22	335,534	109,599	225,935
1977	23	348,793	98,237	250,556
1978 (R)	23	398,944	121,759	277,185
1979 (R)	20	415,206	127,681	287,525
1980 (P)	21	431,686	122,311	309,375

FOOTNOTE

(P) —Preliminary estimates.　　　(R) —Revised.

SOURCES: U.S. Department of Agriculture; N.J. Department of Agriculture.

Prepared by N.J. Department of Agriculture.

TABLE 11

RESIDENT POPULATION
FOR NEW JERSEY COUNTIES

1970, 1980

	Census	
County	April 1 1970	April 1 1980*
Atlantic	175,043	194,119
Bergen	897,148	845,385
Burlington	323,132	362,542
Camden	456,291	471,650
Cape May	59,554	82,266
Cumberland	121,374	132,866
Essex	932,526	850,451
Gloucester	172,681	199,917
Hudson	607,839	556,972
Hunterdon	69,718	87,361
Mercer	304,116	307,863
Middlesex	583,813	595,893
Monmouth	461,849	503,173
Morris	383,454	407,630
Ocean	208,470	346,038
Passaic	460,782	447,585
Salem	60,346	64,676
Somerset	198,372	203,129
Sussex	77,528	116,119
Union	543,116	504,094
Warren	73,960	84,429
State Total	7,171,112	7,364,158

* The 1980 figures are subject to changes pending the outcome of the various lawsuits dealing with the census counts.

Prepared by New Jersey Department of Labor, Division of Planning and Research.