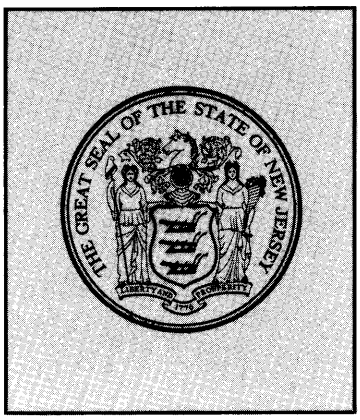

9th Annual Report

Economic Policy Council and Office of Economic Policy

Department of the Treasury
State of New Jersey
September, 1976

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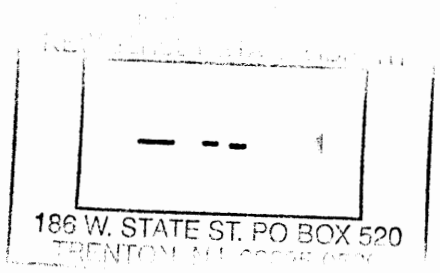

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I

THE ACTIVITIES OF THE ECONOMIC POLICY COUNCIL DURING THE 1975-1976 FISCAL YEAR*

The Economic Situation

The country's worst post-World War II recession continued almost unabated in New Jersey in 1975. In the trough of the recession the unemployment rate reached, and has remained at, the two-digit level—well above the national rate. Even after a full year of recovery of national economic indicators, New Jersey's unemployment rate has responded only sluggishly.** There are convincing signs that our State and possibly the entire Northeast is not participating fully in the national economic recovery (see Chapter II).

The cyclical downturn in New Jersey coincided with the secular shift of economic development to the "Sunbelt" states. In the last several years, the Garden State has joined the other Northeastern states in a trend highlighted by an absolute decline of manufacturing jobs. Population growth and other indicators of economic vigor have slowed considerably.

Along with the national recession and its impact on the State economy, New Jersey was confronted with a school financing crisis. The Supreme Court's decision on the unconstitutionality of financing public schools by local property taxes has triggered a heated public debate on tax reform. The Executive and Legislative branches of government have devoted a great deal of time to devising remedial tax structures. This dominance of the school financing issue has interfered with programs necessary to alleviate the severe economic problems of the State.

In the last two years simultaneous inflation and recession placed major pressures on the State budget and efforts to maintain an undiminished level of services. Because of serious reductions in real purchasing power, the budget could not be balanced without additional tax revenues. The Legislature enacted a package of nuisance and business taxes in the summer of 1975. These taxes did not satisfy the need for a long-term solution founded on a broad-based and sufficiently elastic tax structure. Nor did they attempt to lessen the reliance on property taxes as a source of revenues.

The ambitious Assembly tax package of the spring 1976 legislative session did address both tax reform and property tax relief. A reduced and modified version of this tax program was enacted by the Legislature in July 1976 and

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

** And much of the recent decline in the unemployment rate can be attributed to a large decrease in the labor force rather than expansion of employment.

subsequently signed into law by Governor Byrne. This tax reform is an historic event for the State and constitutes a major beginning to place New Jersey's fiscal structure on a sound basis.

With the effects of the national recession severely felt in New Jersey and the lengthy and consuming debate on school financing, the Council and Office of Economic Policy have proposed a series of short- and long-term measures which would contribute to the improvement of the State's economy.

Short-Term Proposals

—The Council has advised the Governor to give the highest priority to actions and programs which create additional permanent or temporary jobs. It has proposed initiating legislation in the U S. Congress in concert with the New Jersey Congressional delegation which will aid the State's economy.

—The Office developed a proposal for Bicentennial Community Rehabilitation which received approval from Federal authorities. Five New Jersey cities with the highest unemployment rates were granted $2.6 million for this program. Together with the provisions of matching funds by homeowners and private business, a pool of nearly $10 million for construction work has been created.

—A proposal submitted to the Banking Commissioner would stimulate home building by changes in the traditional home mortgage contract. The idea is to increase demand for new homes and hasten home-buying decisions, especially by young couples.

—A proposal to subsidize wages temporarily by offering part of unemployment insurance funds to firms in exchange for hiring workers has gained some recognition. It requires considerable changes in the Federal and State legislation for which there was no immediate backing. However, such proposals, also developed by others, are now considered among the possible counter-cyclical tools by the majority of the Joint Economic Committee of the U.S. Congress.

Long-Term Measures

The Council presented to the Governor and Legislative leaders a list of measures which can improve the State's economy in the long-run. Among the more important suggestions were:

—Recommendations for business tax reform. In particular, the Council suggested the repeal of business personal property taxes and the sales tax on machines and equipment. More generally the Council considered it important to remove all existing impediments to capital formation and technical progress (see Chapter VI).

—A program to assist inventors in the process of transforming feasible inventions into successful commercial products fabricated in New Jersey. This program is now ready for legislation (see Chapter VII).

—The creation of economic incentives for the development of a modern solid waste recovery industry located in various parts of the State.

—A proposal to equalize unemployment compensation taxes throughout the nation which would ease the burden in states with chronically higher rates of unemployment caused by national trends.

—The organization of a Joint Economic Committee in the New Jersey Legislature. This would create a forum for in-depth consideration of economic problems and legislation having a significant impact on the economy. Matthew Feldman, the President of the Senate, and Senator Raymond Garramone have recently introduced a bill to implement this idea.

The Council and Office also addressed several other problems in special studies undertaken during the year and in numerous memoranda. These include the question of migration (see Chapter IX), the economic role of the agricultural sector (see Chapter X), and the implications of a zero growth policy (see Chapter V).

In addition, the Council and Office of Economic Policy have responded to numerous requests from the Governor, Legislature and Executive Departments for comments and critical reviews of various economic issues. An analysis of the Assembly tax package, the development of industrial parks, fee structures in State parks, and Federal revenue sharing were among the most important problems addressed.

Personnel Changes

During the year significant personnel changes occurred. Professor Lester V. Chandler, a longtime member and Chairman of the Council, resigned at the end of 1975. We take this opportunity to express our gratitude for his enormous contributions to the Council's activities and for the wisdom he so generously shared with all of us. Professor Chandler continues to serve as Vice Chairman of the Commission for Higher Education.

Professor Dwight M. Jaffee of Princeton University has been appointed to the Council by Governor Byrne. We welcome Professor Jaffee and wish him success in his role as advisor to State government.

Dr. Peter Bearse, Director of the Office of Economic Policy, resigned at the end of 1975 to take a new position as Associate Director of the Center for New Jersey Affairs at the Woodrow Wilson School of Public and International Affairs. In his new post Dr. Bearse remains considerably involved in the State's economic and social matters and we welcome his continuing cooperation.

Dr. Adam Broner, an economist trained at Princeton University with many years of experience in economic research and planning, has been appointed as new Director of the Office. He has been with the Office since July 1974 and has made major contributions to its work. We wish him good luck in his new position.

Dr. Laurence H. Falk has recently joined the staff of the Office of Economic Policy. Dr. Falk's areas of expertise include industrial inducement policies and the economics of energy.

Finally, this year marks the 10th anniversary of the Economic Policy Council. Over the past decade the Council has conducted detailed studies on a wide range of economic issues in addition to its work of providing daily economic advice on specific current problems. Analyses of the state lottery, unemployment trends, the manufacturing sector, fiscal reform, school financing, labor force characteristics, urban problems, industrial inducements, and public transportation are examples of topics which have appeared in our *Annual Reports* over the previous ten years.

The Council and Office look forward to continue our analysis of the State's economic condition and to assist further in policy formation aimed at improving the economic performance of New Jersey.

probably run around 6% in the months ahead. Although the U.S. and most industrialized countries have been through a very serious recession, inflation in double numbers has given way only grudgingly to a level which was once considered unacceptably high even in the peaks of economic prosperity.

The Dilemma of Federal Reserve Policy

This realization that the 'normal' rate of inflation may be in the neighborhood of 6% gives the Federal Reserve very little room in which to maneuver. The dilemma of monetary policy is worth discussing a bit further.

Despite a strong rate of economic recovery, unemployment remains at more than 7%. We used to consider a 7% unemployment rate a national calamity which could be tolerated only in the depths of a recession, but not in a period of strong recovery. If the Federal Reserve were now to stimulate the economy in order to bring down unemployment, it may reaccelerate the forces of inflation. This policy would be feasible if inflation were now at only 2 or 3%. With inflation at 5 to 6%, however, the risk of accelerating inflation is much less acceptable. Any effort to boost the real economy would set off another period of boom and inflation, to be followed by another recession, perhaps more serious than the last.

Thus, the Federal Reserve is faced with a dilemma: It cannot ease monetary controls for fear of more inflation, nor can it afford to tighten up with unemployment remaining above 7%. The Fed has a very narrow channel in which to steer the boat of economic policy. Tighter credit to repress inflation would hamper investment and efforts to increase employment; easier policies to stimulate growth would feed inflation. Investors have been worried about the possibility of tighter money and higher interest rates, a factor which may be responsible for the delay in business expenditures for plant and equipment. For as recent history demonstrates, higher interest rates depress all kinds of asset values, including bonds and stocks.

In months ahead, we expect that the Federal Reserve will manage to steer the economic ship without running into too many shoals and rocks, though the risks are there. Although short-term interest rates may rise a bit further by year end, long-term rates will remain close to their present level if our inflation forecast is correct.

Obviously, inflation is a key element in determining interest rates, particularly long-term rates. But another factor is the demand for funds relative to supply. Fortunately, corporate earnings are likely to rise 25-30% this year and perhaps another 10-15% in 1977. The resulting rise in retained earnings will limit what might otherwise become a torrential demand for external financing. A return to more profitable levels of operation should ease the immediate task and dilemma of Federal Reserve monetary policy and help restrain a rise in long-term rates.

There is one concern which only economists who are inclined to worry are beginning to discuss: Capital spending appears very restrained for this phase of the business cycle. Unless capital spending begins to rise more vigorously, inflation may intensify down the road, although probably not until late 1977 or even 1978. The danger exists that bottlenecks and selected shortages—for example in paper, steel, plastics, or textiles—will begin to mar the economic scene. It is possible that such shortages will not occur because business will begin to slow down, or because imports quicken to meet the pinch, or because business capital spending turns up more sharply than now seems likely. But the dangers are there and need to be recognized.

All considered then, the national economic picture looks encouraging. The unusually rapid rate of expansion in the first quarter has settled down to a more sustainable real rate of growth in the neighborhood of four percent.

The Concensus Forecasts

Most professional economic forecasters expect a continuation of the business expansion, but by no means a boom, in 1977. The business recovery slowed down perceptibly in the second

Forecast Source:	Percent Change 1977 from 1976			1977 Percent Annual Average		
	Growth in Real GNP	Inflation	Rise in Pre-Tax Profits	Interest Rates Short Term*	Interest Rates Long Term**	Unemployment
International Paper	6.3H	6.2	16.3	NA	NA	5.9L
University of Ill. (B.T.)	6.2	4.6	14.3	7.0	8.7	6.6
Pennzoil Company	5.8	5.9	13.4	7.6	9.2	6.3
Morgan Guaranty	5.8	5.3	17.5	NA	NA	6.7
Manufacturers Hanover	5.6	5.4	13.8	7.0	7.8L	6.4
Prudential Insurance	5.6	6.0	13.5	NA	NA	6.6
E.I. Du Pont	5.6	5.7	12.7	5.5L	8.3	6.6
Eggert Economic Enterprises	5.5	5.5	14.5	7.6	8.9	6.4
Mellon Bank	5.5	5.6	11.1	6.8	8.8	6.4
Bank of America	5.4	6.0	13.9	NA	NA	6.8
Data Resources, Inc.	5.4	5.4	11.8	6.9	8.9	6.5
Conference Board	5.3	5.9	16.8	NA	NA	6.7
Equitable Life	5.3	6.6	16.0	6.8	9.1	6.5
Lehman Brothers	5.3	7.6H	12.0	7.0	9.5	6.9
Chase Manhattan	5.3	5.9	18.7H	7.8	9.5	6.5
Security Pacific Bank	5.2	5.6	11.8	7.4	9.1	6.5
U.S. Trust	5.2	5.5	11.0	6.7	9.2	6.8
C.J. Lawrence	5.1	4.5	11.7	6.8	8.9	6.6
Philadelphia National Bank	5.1	6.0	12.0	7.3	9.3	6.6
Citicorp	5.0	4.3L	11.5	7.1	8.4	7.0H
Union Carbide	5.0	5.7	13.7	7.5	9.5	6.9
Chase Econometrics	5.0	6.4	16.6	8.3H	10.0H	6.8
W.R. Grace	5.0	6.0	13.2	7.2	9.3	6.5
Monsanto Company	5.0	6.0	15.0	7.5	9.0	6.4
American Express	4.9	5.5	11.2	NA	NA	6.6
Dean Witter	4.9	5.1	12.5	7.1	9.3	6.9
General Electric Company	4.7	6.2	13.1	7.3	9.3	6.5
Arthur D. Little	4.7	6.6	15.0	7.5	8.5	6.5
B.F. Goodrich	4.5	5.8	9.3L	6.5	8.3	6.4
A.G. Becker	3.5L	7.3	12.0	7.7	9.4	6.7
AVERAGE	5.2	5.8	13.5	6.9	9.0	6.6

* As measured by 3-month commercial paper.

** As measured by AA Utility Bonds.

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quarter of this year and into the summer months. Nonetheless, fears that the recovery is grinding to a halt and that a new recession threatens are groundless.

To get to the bottom line: A recent survey of professional economic forecasters shows that, on average, they expect a 5.2% growth in real (non-inflation) GNP in 1977 and a 5.8% rise in prices. Thus, they anticipate an increase in dollar GNP of 11%. Of course, there are differences of opinion.

For the growth in real GNP, the lowest estimate is 3.5% (note: no decline, though) made by A. G. Becker's economists. The highest estimate of real growth comes from International Paper at 6.3%.

The divergence of views on inflation includes a high estimate of 7.6% by Lehman Brothers and a low of 4.3% by Citicorp.

The preceding table identifies the forecast sources and the specific estimates, not only for real growth and inflation but also for profits, short-term interest rates, long-term interest rates, and unemployment.

Our own feeling is that the average opinion is a reasonable prediction. It means continued, though unspectacular, growth. It means real GNP up about 5% and inflation close to 6%. It portends a further rise of 13.5% in pre-tax corporate profits. It means a commercial paper rate close to 7%, roughly its present level. It means a long-term rate of interest at 9%, just a shade above its current level. And it means an unemployment rate of 6.6% compared with 7.8% last month.

It spells the kind of unexciting but steady recovery which we need: Not enough to generate a new round of accelerating inflation; and, unfortunately, not quite enough to put a big dent into unemployment.

II. THE NEW JERSEY ECONOMY

In its annual outlook statement of a year ago, the Economic Policy Council painted a grim picture regarding prospects for the first half of 1975, but expressed the expectation that New Jersey's economy would be back on an expansionary course before the year ended. Except for underestimating the depths to which the economy would fall before turning back up, the prognosis was pretty much on target.

The year began with the State and national economies already well into what ultimately proved to be the worst recession since the 1930's. Industrial, construction, and retail activity had declined throughout 1974, causing sharp increases in unemployment and business failures. As the Council anticipated, these trends continued well into 1975. Unemployment in New Jersey soared to 13%, numerous business concerns were forced into bankruptcy, and the slump's worsening impact spread into service sectors to a much greater extent than during earlier recessions of the post-World War II era. The public sector was also among the victims. New Jersey's unemployment trust fund ran dry, making it necessary to borrow from the Federal government in order to continue payments to the unemployed. Some social services had to be cut because of the combined impact of inflation and tax revenue shortfalls.

Fortunately, the seeds of recovery began to grow as the year progressed. Easier money and a backlog of housing demand contributed to an upturn in housing starts, business inventory liquidation finally ran its course, and consumer spending quickened somewhat because of Federal tax cuts, moderation of the inflation rate, and the fact that purchases to replace some worn out automobiles and household appliances could be deferred no longer. By midyear employment started to edge up in some industries, and by year's end a majority of New Jersey economic indicators were pointing to better times for most—but not all—sectors in 1976.

A Dismal Year Statistically

Though the economy was on an upbeat as the year ended, the better statistics of the second half were far outweighed by their dismal performance while business was still moving downward earlier in the year. For 1975 as a whole,

New Jersey's total personal income totaled $48.5 billion, up only 6% in current dollars despite an inflation rate of about 8%. In *real* (inflation-adjusted) terms, income actually declined about 2.1% following a 2% drop a year earlier.* Total employment in the State averaged about 2,979,300 for the full year of 1975, down 115,700 (or 3.9%) from 1974. With the combination of an expanding labor force and sharply reduced demand for labor, unemployment climbed from 8.0% in 1974 to an average of 12.2% in 1975.**

Sales by New Jersey's retail outlets totaled about $19.6 billion in 1975. This represented an increase of 8.9% over 1974. The increase was illusory, however, since it was due mostly to rising prices. After adjusting for inflation, the volume of retail sales was up only 1%, following an 11% drop in 1974. Among the biggest contributors to the 10% drop in *real* retail sales has been a severe two-year slump in new car purchases, which since 1974 has overshadowed increased spending on staples and some other non-deferrable items. The number of new cars registered with the New Jersey Division of Motor Vehicles totaled only 298,900 in 1975, down 15% from 1974 and off 34% from the year before that. After bottoming-out in December, new car sales rose dramatically in the spring of 1976, reflecting renewed consumer confidence in the economic recovery. At the present monthly selling rate new car registrations will grow by 433,000 in 1976, or by 45% over depressed 1975 levels.

Calendar year statistics, of course, never capture the full amplitude of business cycles. Over the specific period during which employment in New Jersey was contracting—from June 1974 to July 1975—the total job loss actually amounted to 164,000 or 5.9%. Similarly, personal income, retail sales, and most other indictors declined more steeply and reached lower depths than comparisons of annual totals would suggest.

The recession actually began late in 1973. At that time the New Jersey economy was still licking the wounds inflicted by the 1969-71 recession, from which it had not fully recovered. The new recession brought the healing process to an abrupt halt. As a result, rising unemployment has been the dominant theme of New Jersey's labor market throughout the 1970's.

After averaging about 4.5% during the boom of 1967-69, the State's unemployment rate climbed to 7.1% in early 1971, edged down only fractionally during the ensuing period of partial recovery to about 6.5% by the first quarter of 1973, and then resumed a rising trend that accelerated with the onset of the most recent recession. By September 1975, the rate had climbed to 13.6%, triple its level of 1969—the highest since the Depression of the 1930's. Over the six-year period from September 1969 to September 1975, the number of unemployed had risen from 131,000 to 476,500. It was this long, sustained, and steep rise in unemployment spanning two closely spaced recessions that caused the State's unemployment insurance fund to go broke.

An Upturn Unfolds

Signs that relief might be on the way began to emerge during early 1975 and they multiplied as the months passed. Most notable were a marked lengthening of the average factory workweek. As of May 1976, approximately 39% of

* The trend of personal income suggests a Gross State Product for 1975 on the order of $57.5 billion, down somewhere between 5% and 6% from 1974 (after allowing for inflation) and down 7% or 8% from 1973. Estimates of Gross State Product are prepared using a very crude technique and should be regarded only as rough approximations.

** Procedures for estimating state and labor market area employment are currently the subject of litigation in Federal court. New procedures mandated by the U.S. Department of Labor's Bureau of Labor Statistics about two years ago have been challenged by the State of New Jersey. Pending the outcome of the suit, the N.J. Department of Labor and Industry is preparing estimates based on both the mandated Federal method and a modified version of the method used by all states prior to 1974. The State's preferred statistics are used in the text of this analysis. Under the Federal method, unemployment levels are lower for the State as a whole and most areas within the State, but trends are very much the same as those yielded by the State's preferred method. The average federally computed statewide unemployment rate for 1975 was 10.2%, compared with 6.3% a year earlier.

the recessionary decline in total factory man-hours worked had been recovered. Considering the rise in labor productivity, this suggests that industrial output had rebounded nearly 50%. Other improving indicators include expanded electric power use by industry, a reduction of initial claims for unemployment insurance, and a reversal of a steep two-year decline in housing starts. The monthly volume of new businesses incorporating in the State has increased to a record pace while business failures are receding.

These advance signals were followed in August by an upturn in employment that was sustained for the balance of the year. Between July's low point and December, nonfarm wage and salary jobs in New Jersey rose 21,000. Though part of this increase reflected atypical influences, including settlement of a strike that had distorted the July statistics, more than half reflected real underlying expansion of the private economy.

These employment gains were accompanied by stabilization of the State's unemployment rate at slightly above the 13% level until December when the rate dropped to 12.5%.*

The year closed with widely varying unemployment rates from one labor market area to another. As of December, conditions were the worst in Cumberland, Passaic, and Hudson Counties, which had jobless rates of 15.1%, 15.2%, and 15.4%, respectively. All of these counties suffered severe job losses in manufacturing. At the other extreme was Mercer County, where the heavy concentration of relatively stable government employment helped hold the rate at an above-average but still uncomfortable 9.2%. Other major areas with unemployment significantly less severe than the statewide average were relatively suburbanized Bergen and Monmouth Counties, where October's jobless rates were 10.2% and 10.9%.

Manufacturing Starts To Recover

The biggest job losses in New Jersey during the recent recession were in manufacturing, a sector that has turned in a dismal performance in the State throughout the 1970's. Factory employment edged down only moderately as the recession began to unfold in late 1973 and early 1974, but by the second half of 1974 a precipitous decline was underway. By the time employment in this sector reached its recession trough in July 1975, a total of 123,000 jobs had been erased, with all major industry groups sharing in the decline. When added to the permanent losses following the 1969-71 recession, manufacturing employment in the State had declined by about 185,000, or 21%, over a six-year period.

While manufacturing employment was still declining during the first half of 1975, some employers began to stretch their workweeks. Historically, this had been a reliable indication that a cyclical turn-around was in the making. When orders begin to pick up, employers typically first accommodate the increased demand by restoring normal workweeks. Beyond this, they often utilize overtime hours until they are sure that the improvement will be sufficiently sustained to warrant recalls or recruitment of new employees. The workweek indicator proved itself to be reliable again in 1975. By December the average workweek of New Jersey production workers had risen by two hours over a ten-month period and, at 41.3 hours, was nearly back to its pre-recession high. Four months earlier factory employment had registered the first of three consecutive monthly increases that mark the beginning of recovery.

By December, manufacturing employment had risen about 10,000 more than seasonally from July's recession low point. Half of the major industry groups had already shown at least some improvement, though in most cases

* Analysts of the Department of Labor and Industry's Division of Planning and Research believe that conventional seasonal adjustment techniques distorted trends in 1975. Based on an experimental alternate procedure, which they feel may yield a more realistic trend, the jobless rate peaked at 13.5% in June and declined gradually during the rest of 1975. See the N.J. Department of Labor and Industry's February 27, 1976, issue of NEW JERSEY ECONOMIC INDICATORS, p. 2. A more detailed discussion of the technical issues relating to seasonal adjustment techniques appeared under the title "A Seasonal Adjustment Dilemma" in the June 30, 1972, issue of the same monthly publication.

the number of jobs added was still small. While next year's expansion will not be of boom proportions, it will not equally benefit all sectors, and will probably not reduce unemployment much more than a couple of percentage points to the 10-11% range. Industries in which upturns had occurred include textiles, apparel, paper, plastic products, chemicals, petroleum and coal, fabricated metals, furniture, and stone, clay and glass products. Industries not yet expanding, but at least no longer declining, include printing, electrical machinery, non-electrical machinery, and transportation equipment.

With industrial activity expected to remain on a rising trend nationally, there is every reason to believe that the recovery of manufacturing employment now underway in New Jersey will continue through 1976. While this expansion will be moderate and will probably lag behind national trends, the State's performance vis-à-vis the nation is not likely to be as bad as during the past several years when there was a major washout of marginal high-cost operations, many of which had been living on borrowed time during the extraordinarily long and strong expansionary period that spanned the entire decade of the 1960's. With the nation's industrial sector straining at capacity during the second half of that decade, despite heavy investment in new facilities, many older plants (heavily concentrated in the Northeast) and some relatively inefficient businesses were able to survive. The sharp drop in demand during the 1969-70 recession changed all this. Marginal operations faced their day of reckoning and many deferred relocations and business failures were compressed into a short period of time. This abnormally severe period of adjustment may be largely behind us, with the most vulnerable of New Jersey's marginal operations already gone.

Other factors could also contribute to a slower rate of industrial out-migration during the years immediately ahead. These include the sharp rise in transportation costs (which should improve the competitiveness of some industries in areas like New Jersey with favorable market-center locations and with proximity to ports), reductions of labor cost differentials as other parts of the nation become more industrial and more unionized, the trend toward more uniformity among the states in federal regulatory and social program standards. Other efforts already underway to improve this State's business climate include the creation of an Economic Development Authority to help finance new facilities and the establishment of an Office of Business Advocacy in the Department of Labor and Industry.

Though the rate of geographical shift will slow—there is little chance that this State will be able to reverse the long-term trend toward geographical redistribution of industry, which has reduced New Jersey's share of the nation's factory jobs from 5% in the late 1940's to 3.9% in mid-1975.* Population and markets are dispersing, land availability in New Jersey is diminishing, and a relatively affluent and amenity-oriented populace is demanding greater attention and less preoccupation with economic growth per se. In light of these economic and social changes, it would be quite unrealistic to expect an advanced and highly urbanized economy like New Jersey's to match growth rates of the nation's relatively underdeveloped states.

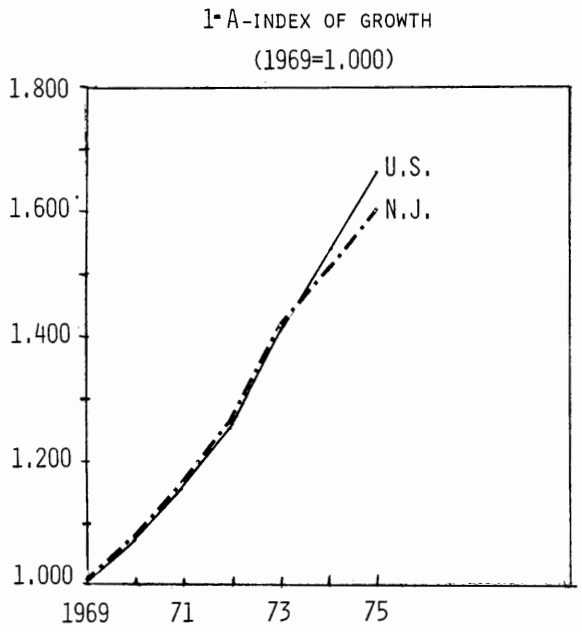
Construction Slump Continues

The construction sector has experienced a severe slowdown over the past two years. Employment in this industry hit an all-time high of 129,000 in August 1973 and remained at nearly that level throughout that year of exceptionally strong homebuilding activity. Then the bottom fell out as nearly all kinds of construction contracted simultaneously. Layoffs mounted throughout 1974 and the first half of 1975. Before employment in this industry had leveled

* It is worth noting that, despite the massive industrial dispersion of the past several years, New Jersey still has a disproportionate share of the nation's industrial activity. As of mid-1975, the State had about 3.5% of the nation's population and 3.9% of the nation's factory jobs.

FIGURE 1

PERSONAL INCOME, U.S. AND NEW JERSEY



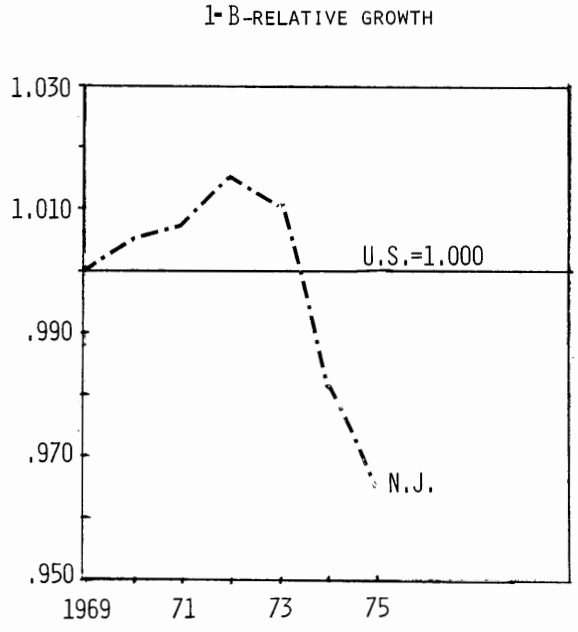
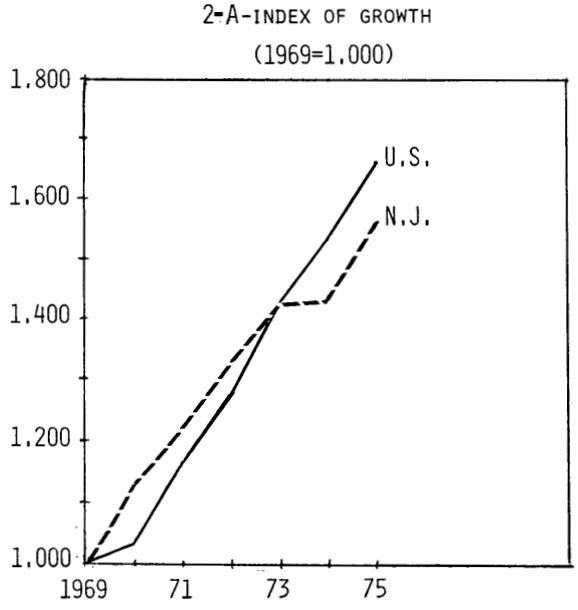


FIGURE 2

TOTAL RETAIL SALES



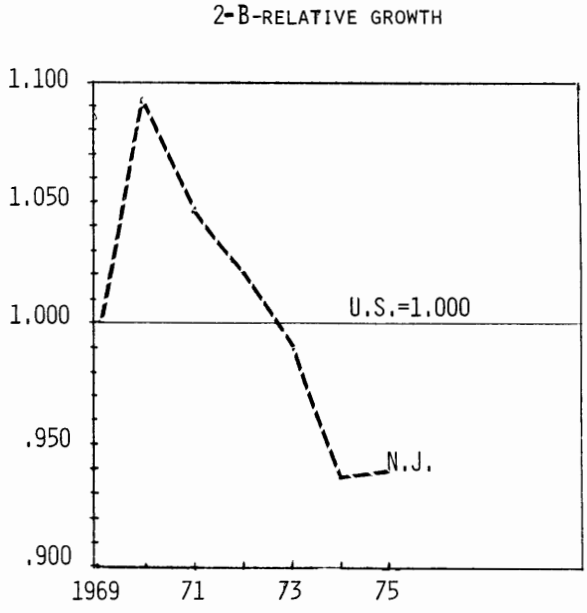


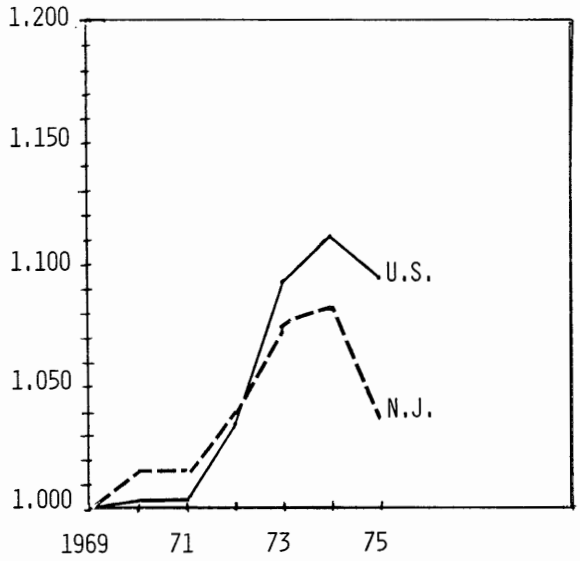
FIGURE 3

TOTAL NONAGRICULTURAL EMPLOYMENT,

U.S. AND NEW JERSEY

3-A-INDEX OF GROWTH

(1969=1.000)



3-B-RELATIVE GROWTH

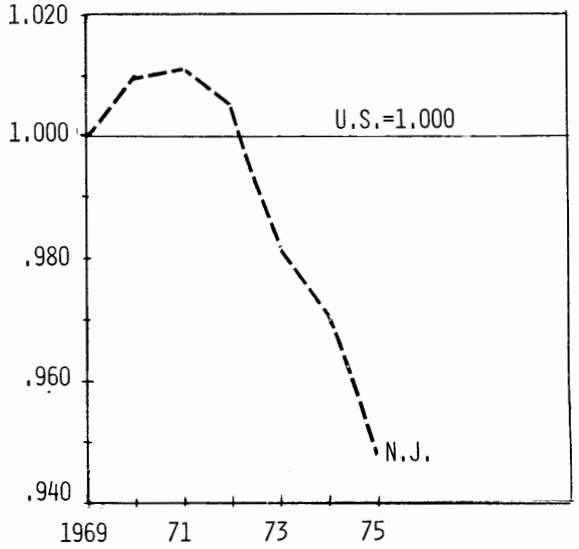


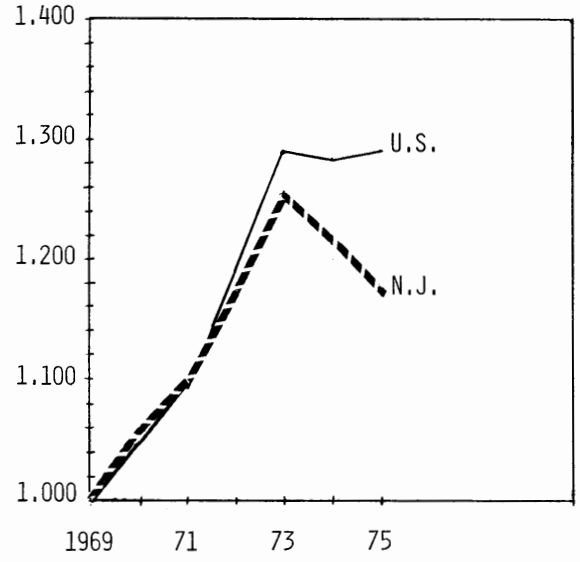
FIGURE 4

ELECTRIC POWER SALES TO INDUSTRY AND COMMERCE,

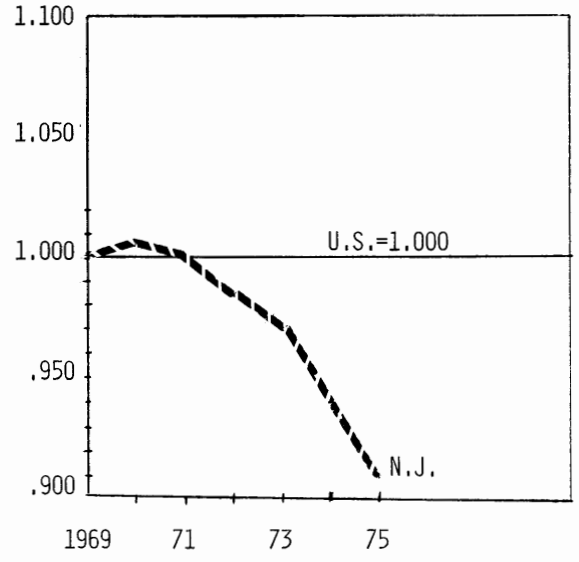
U.S. AND NEW JERSEY

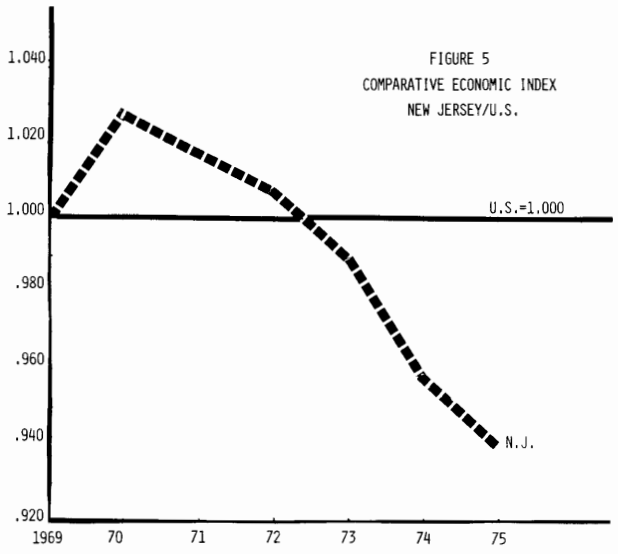
4-A-INDEX OF GROWTH

(1969=1.000)



4-B-RELATIVE GROWTH





process of economic recovery. Thus, calculations of the CEI for each month reveal whether the recovery in New Jersey is similar in strength and speed to the national recovery. Each component of the CEI is shown monthly for 1975 and 1976 in Figure 6. Figure 7 presents the results of monthly computations of the Index.

Indices of relative economic performance were also calculated for various sectors and industries in New Jersey. These reveal specific activities which have been particularly troublesome during the recovery. In this report, only relative employment components are presented. Employment in manufacturing, construction, transportation, services, trade and finance are compared in Figures 8-10.

Figure 11 depicts total nonagricultural employment in New Jersey and the U.S.; Figure 12 shows the N.J./U.S. comparative employment index. Comparative economic indices for the Middle Atlantic and New England States are diagrammed in Figures 13-16.

New Jersey's Relative Economic Performance

Between 1969 and 1972, New Jersey's economy grew at a faster rate than the U.S. economy. Therefore, the CEI was greater than 1.0 (see Figure 5). After 1972, the index fell below that of the U.S. and in 1975 showed a six percentage point gap. A closer look shows that this decline in the relative performance of the New Jersey economy dates back to 1970-1971. In 1970, the CEI was 1.028; that is, 2.8 percentage points above the U.S. level. It has declined steadily since.

The pace of economic recovery can be seen in Figures 6 and 7. The CEI was at its highest point in December 1975, due mainly to good Christmas sales which paralleled sales on the national level. The second half of 1975, as well as the first months of 1976, exhibit a downward trend of the CEI. We will return to this at a later point when comparisons are made with other Northeastern States.

Employment trends in the private sectors of the economy show that, in all areas, New Jersey was lagging behind the United States. The most serious decline appears in the construction industry and the manufacturing sector (Figure 8). The loss of jobs in manufacturing industries was, and continues to be, very serious and troublesome. From a peak of 894,000 persons employed in 1969, employment fell to only 735,000, in May 1976—a decline of nearly 160,000 jobs. There are no signs, as yet, of genuine recovery in this section of New Jersey's economy. Compared to the U.S., the relative index of employment was 0.877 in May 1976—more than 12 percentage points below the national figures.

The worst situation appears in the construction industry. Here the comparative employment index fell to 0.773 in 1975 and has not improved since. In May 1976, the index was 0.714—that is, employment in the construction industry was nearly 30% below the 1969 level. In the U.S., the May 1976 figure was only one percent below the 1969 level. Even the services sector (trade, transportation, services, finance), which traditionally is less vulnerable in a recession, is showing signs of serious trouble (Figures 9 and 10).

A New Jersey Comparative Economic Index which has declined even after the national economy started its recovery, seems to contradict earlier statements in this chapter that a recovery process is underway in New Jersey. But the apparent contradiction is superficial. After reaching a low point in July 1975, employment

FIGURE 6

COMPONENTS OF THE COMPARATIVE ECONOMIC INDEX BY MONTHS

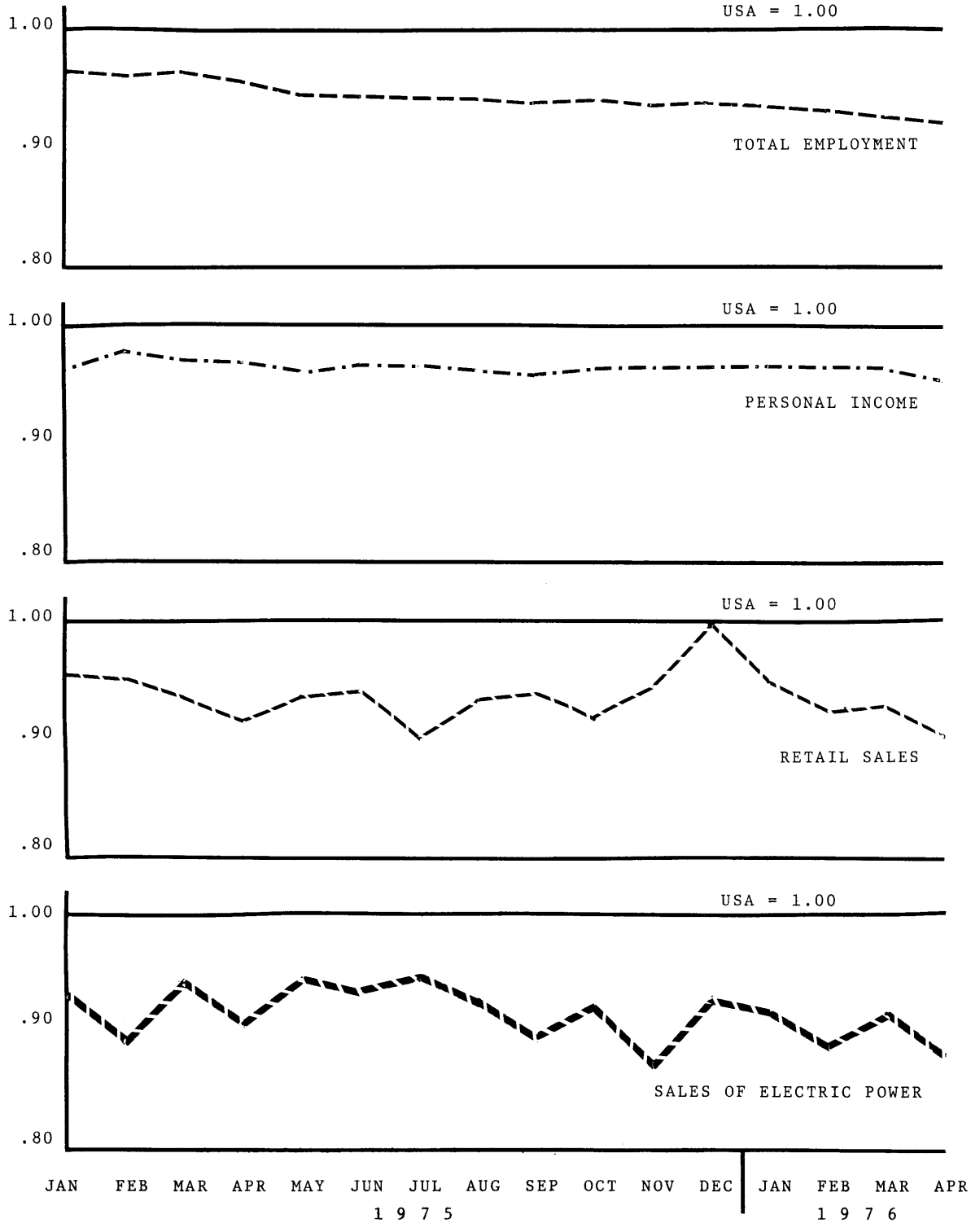


FIGURE 7

THE NEW JERSEY COMPARATIVE ECONOMIC INDEX BY MONTHS

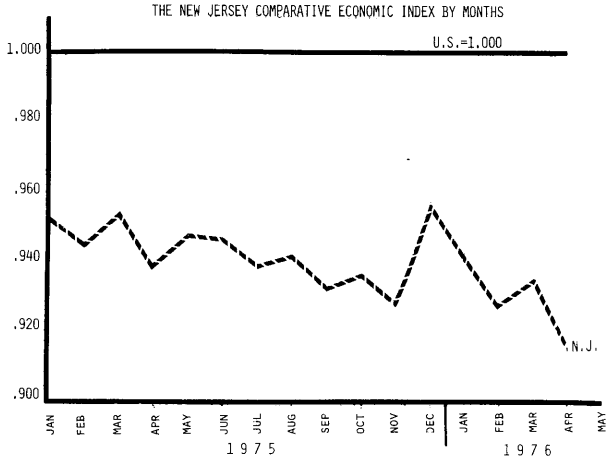


FIGURE 8

RELATIVE CHANGES IN EMPLOYMENT, NEW JERSEY/USA, MANUFACTURING AND CONSTRUCTION INDUSTRIES

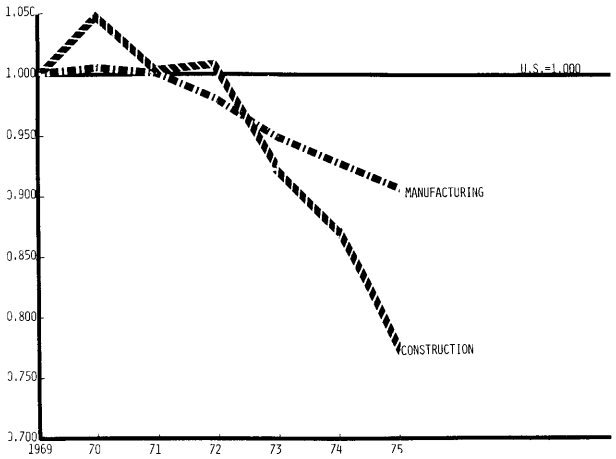


FIGURE 9

RELATIVE CHANGES IN EMPLOYMENT, NEW JERSEY/USA, WHOLESALE AND RETAIL TRADE, TRANSPORTATION AND PUBLIC UTILITIES

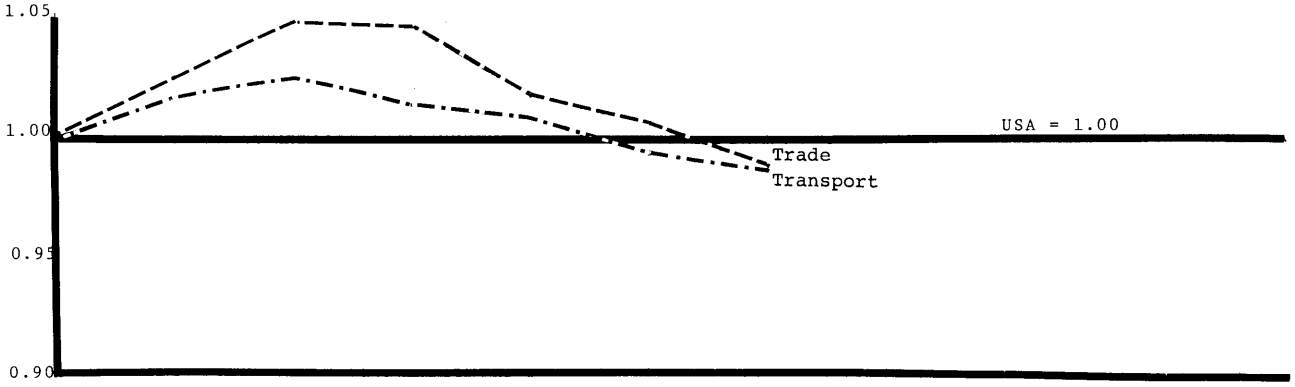
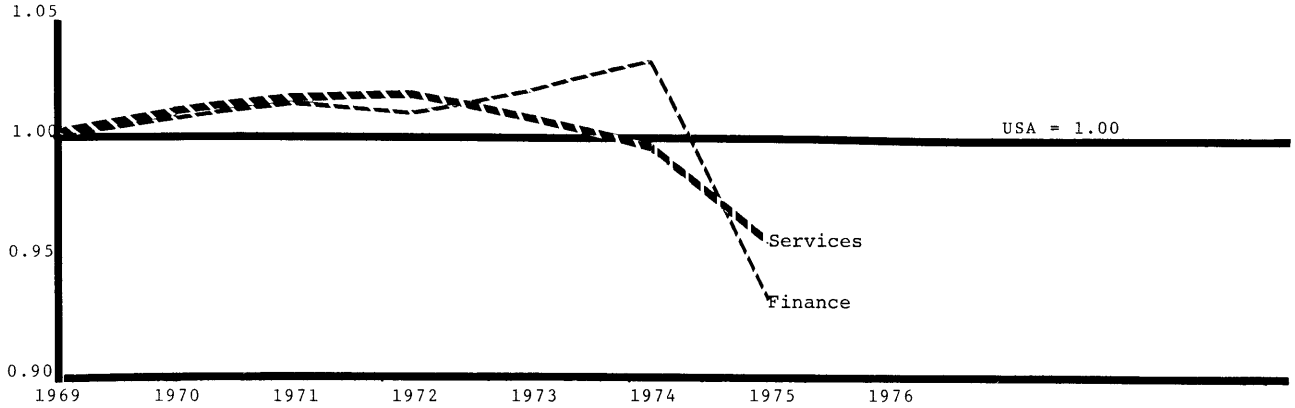
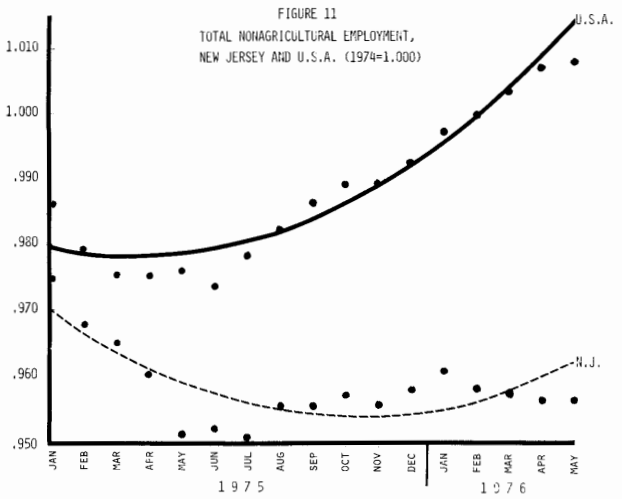
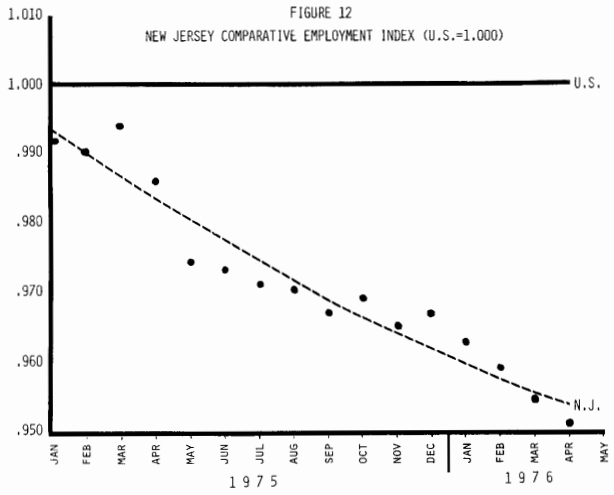


FIGURE 10

RELATIVE CHANGES IN EMPLOYMENT, NEW JERSEY/USA, SERVICE, FINANCE, INSURANCE AND REAL ESTATE







in New Jersey started to rise somewhat in the following months. This turnaround, among others, does indicate an upturn in the economy. But the New Jersey recovery is lagging seriously in strength behind the entire economy. When employment was declining in the national economy, the decline in New Jersey was steeper. When employment started rising in the U.S., it was followed by a much slower growth in New Jersey. Hence, the relative employment gap has widened. This point is illustrated in Figure 11.

The graph shows a statistical trend curve fitted to the actual monthly indices (1974 = 1.00).* The diagrams show that the trough for U.S. employment was in April 1975 and since then, the index has risen steadily. For New Jersey, the picture is not that clear. The rising trend after July 1975 seems to indicate an upturn which continued until January 1976. Leaving the aberrations in the following months of 1976 unexplained, we can now look at the comparative N.J./U.S. employment indices. Figure 12 shows a continued downward trend. This is another way of expressing the increasing gap which is clearly visible in Figure 11.

Despite variations in particular states, the entire region encompassing the Middle Atlantic and New England States is lagging behind the nation in recovering to prerecession levels of employment. Is this a reflection of a deeper recession in the old industrial states from which they may recover, perhaps with some delay, or is it a secular downward trend only strengthened by the recession? If the developments in the old industrial states are only caused by a deeper trough, we would expect the CEI to follow a "U" shape curve.

Theoretically, a steeper and more prolonged decline of economic activity in old industrial states can be explained by assuming that output from older and less efficient plants is reduced earlier and by a greater percentage, and that the expansion is later in the business cycle. Northeastern states can be assumed to have a larger proportion of old and less efficient facilities than states of more contemporary economic development. In such a case, during an economic recession the Comparative Economic Index would fall below 1.0 and, after some time, would return to the unity level. It can then be said that the recession was more severe and prolonged in a particular state or region, but an overall upturn of economic activities will eventually cause the inefficient plants to return to production and the regional economy can then grow at a pace similar to the national economy. If the CEI does not return to the unity level, or such upturn is

* The U.S. index is fitted to a second degree polynomial in the form of: $Y = A + Bt + Ct^2$.
Where: Y—The estimated index
t—Time expressed in monthly intervals
A,B,C—The estimated coefficients.

FIGURE 13
NEW ENGLAND COMPARATIVE ECONOMIC INDEX (U.S.=1.000)

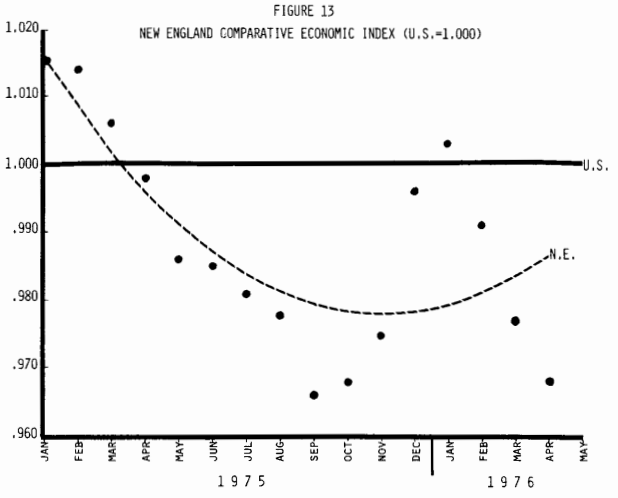


FIGURE 14
PENNSYLVANIA COMPARATIVE ECONOMIC INDEX (U.S.=1.000)

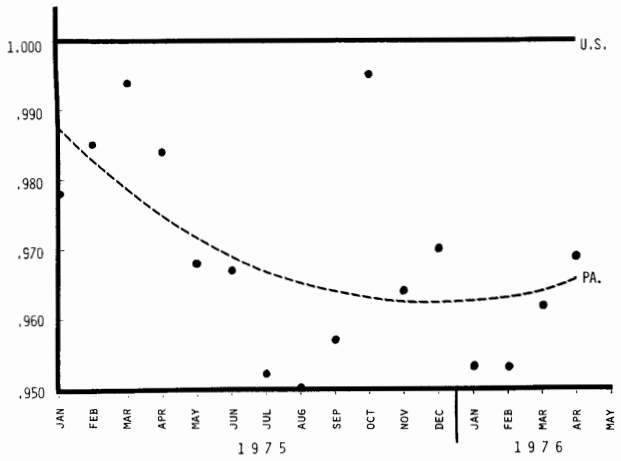


FIGURE 15
NEW YORK COMPARATIVE ECONOMIC INDEX (U.S.=1.000)

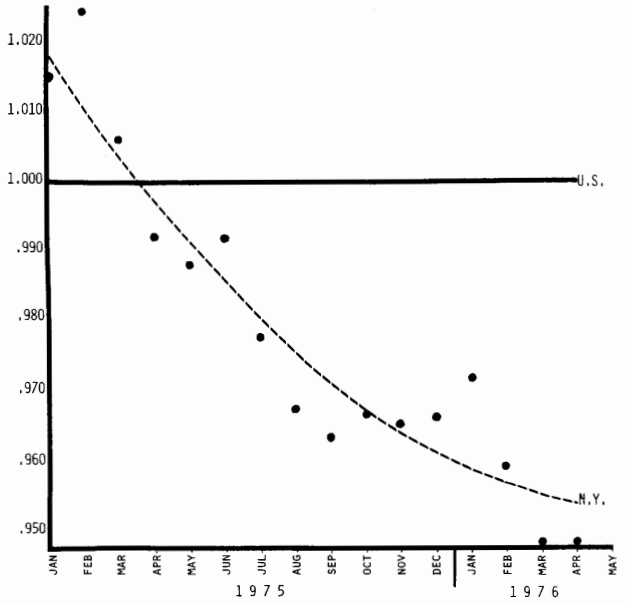
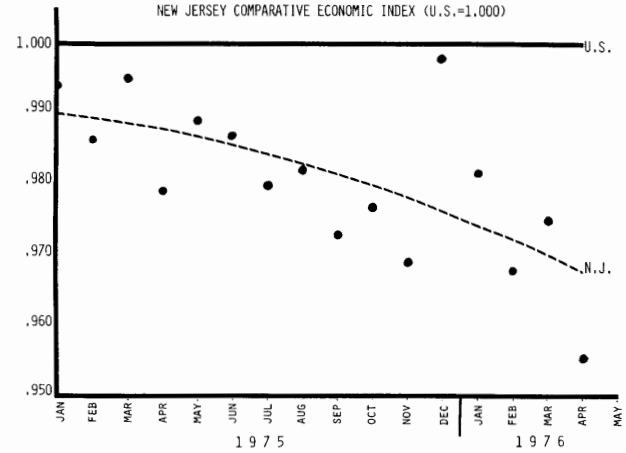


FIGURE 16
NEW JERSEY COMPARATIVE ECONOMIC INDEX (U.S.=1.000)



very weak, the underlying economic problems are more serious than cyclical deviations. Obviously, different or much stronger remedial measures, including longer term Federal assistance, appear necessary if the diagnosis points to a secular decline.

What actually happened in the Middle Atlantic and New England States during 1975 and 1976 (up to April, inclusive) is shown in Figures 13-16. The CEI's, in these cases, have 1974 as base year, allowing us to eliminate variations in their growth prior to that year, thus making more comparable their experience during the recession and recovery.

The diagrams of the CEI's* are arranged in descending order; that is, those states which exhibit an earlier trough (the function has a minimum) are placed first. These are the states where there is a greater chance that the recent problems will prove to be mainly of a cyclical

* These are the Comparative Economic Indices which include the four components: Personal Income; Total Nonagricultural Employment; Retail Sales; and Sales of Electric Power to Industrial and Commercial Customers.

nature. New England and possibly Pennsylvania seem to be in this category. The State of New York has not yet reached the lowest point, but according to the equation its trough should be in June-July of 1976. However, the CEI level is so low (.955 in April 1976) that it will take a long time to return to the unity level, if at all. The worst situation is apparent in New Jersey. The New Jersey Comparative Economic Index is continuing on a downward trend. This is, perhaps, the clearest evidence that the economic problems in New Jersey are of a structural nature. New England, New York and Pennsylvania have experienced industrial decline for a long time. Presumably, they are far more advanced in the structural adjustment process stemming from the secular shift of manufacturing toward the Southwest.* New Jersey has started this process much later, presumably only in the 1970's. Therefore, New England's problem can be seen as more of a cyclical aberration. New Jersey is confronted with both a cyclical and a long-run downturn.

Summary and Conclusions

Nationwide economic recovery is expected to last at least another year. The inflation rate, which should remain around 6% for the remainder of 1976, should increase slightly but stay in the 6% range in 1977. Real GNP (the final value of all output of goods and services, corrected for inflation) should rise about 5% during 1977. Interest rates are expected to remain approximately steady; the outlook for profits is good. Some improvement in unemployment should occur, but unfortunately, the rate is estimated at a still much too high 6.6%.

New Jersey economy is also enjoying recovery, but it has been disappointing. Unemployment, which rose to a high of 13.6% during 1975, is not expected to improve much from the current rate of over 10%. Recovery is expected to be moderate, lagging behind national trends. Construction and service sectors are expected to improve somewhat but their performance to date has been particularly troublesome. On the bright side, however, are several factors which portend well for the State's longer term economic future: Higher transportation costs nationwide should prove advantageous to New Jersey vs. states located further from major markets; The trend toward uniformity in Federal social programs will be of value to the State's economy; Several new State industrial incentive programs should do much to improve the business climate.

A new economic indicator clearly illustrates the weakness of the State's recovery. The New England States, Pennsylvania and New York were also hit particularly hard by the recession, but their economies are rebounding faster than New Jersey's. Moreover, with the possible exception of New York, their rate of recovery appears to be faster than the nation's. This should be expected for these states as well as for New Jersey, since the recovery must be from a deeper trough. However, despite some recovery in *absolute* terms, New Jersey's position continues to slip *relative* to the U.S.

* Some proof of this can be found in Chapter VI of the 8th ANNUAL REPORT, Economic Policy Council, 1975.

acter or spatial location of the State's future economic activities.

(5) Determine the ways in which New Jersey's system of State and local taxation affects key sectors of the State's private economy.

(6) Measure the ways in which varying levels of Federal, State, or local public services, publicly supported activities and public employment might affect the State's overall economic welfare and development.

(7) Clarify development goals and objectives according to:

(a) short, medium or long terms
(b) consistency over various time horizons
(c) possible trade-offs among them

(8) Evaluate the utility of the concept of sub-State economic development districts, among other administrative programs that appear most crucial to achievement of the State's economic development goals.

(9) Identify and describe the impact of these public instrumentalities and programs that appear most crucial to achievement of State economic development goals.

(10) Relate development planning, research, and analysis to Executive and Legislative decision-making on an ongoing basis.

Based on this proposal, New Jersey was awarded a $200,000 Federal grant for a one-year period to commence work on the development of a comprehensive planning process. Governor Byrne appointed a Director of Economic Planning in February 1976, and organization of a professional staff began immediately thereafter.

A recent survey of State planning agencies conducted by the American Institute of Planners has revealed that while there are certain management principles involved in economic planning as related to other governmental activities, there is no one way that states can be expected to carry out their planning mission. The general approach selected for use in New Jersey is commonly referred to as the classical approach to planning and is not dissimilar to the management procedure adhered to by many private sector businesses. Basically, it consists of (1) knowing goals and objectives, (2) determining current performance, (3) evaluating various alternatives to attain established goals, (4) a corrective program of action, (5) implementing it and, (6) most importantly, measuring its effect on the performance. Some refer to this approach as diagnostic in nature; i.e., the ills of the patient must be specifically identified before medicine can be prescribed. This methodology is often frustrated by the need for governors and other decision makers to set goals in the "political arena" or on the spot or to keep options open and not be pinned down. But in the long run, it is felt that this classical approach to planning is the most sensible style and has the greatest chance for meaningful results.

In addition, the need to develop and enhance close working relationships with other agencies in State and local governments as well as key elements of the private sector in the development of the planning process is considered as an equally important role for the planning organization.

These two essential requirements were kept in mind during the recruiting and hiring of personnel for New Jersey's planning operation; namely, that staff members must have strong economic research and analytical capabilities and possess the ability to perform a coordinative and management role in interdepartmental and other group relationships.

As of this writing, staffing of the Planning office with professional economists and land use planners has been completed and considerable work in both the research and coordinative areas has been completed. An in-depth study, "Measures of the Absolute and Relative Performance of the Economies of the Northeast States, 1969 to the Present, with Emphasis on New Jersey" has been completed. One of its key findings reveals that the problem of a declining manufacturing sector was not unique to New Jersey but common to the entire Northeastern area.

However, it is also true that when examining other economic indicators (personal income, nonagricultural employment, retail sales), New Jersey has tended to outperform the other states in this region up to the recent recession. In addition, the study showed that employment in the construction and manufacturing industries fell both relatively and absolutely at a faster rate than the remainder of the nation.

Another investigation compared the relationship of capital spending for pollution abatement equipment to total capital expenditure in New Jersey, New York, Pennsylvania, Connecticut, the New England region and the Northeast region as a whole. The study, which was based on 1973 data, supports the impression that New Jersey industry incurs greater costs for pollution abatement equipment than other states in the region. Additionally, no decline in employment can be noted in those industries who spend the greatest amounts on pollution control equipment.

Other studies currently in progress will identify the postwar trends of key economic indicators in the agriculture sector, determine probable energy supplies for the next decade and evaluate the impact of current transportation plans on economic development, environment and land use.

Planned projects include an in-depth look at present State and local tax structures, the levels of Federal, State and local public services and employment in New Jersey and an assessment of the role that each of the policy tools currently available to the State can play in economic development planning. These policy instruments include the use of State purchasing power, regulation and licensing power, financial incentives, such as low interest loans and tax incentives, and bonding power and capital programming.

Steps to promote interdepartmental coordination in all planning efforts affecting New Jersey's economic well-being have also been initiated. Commissioners have been briefed concerning the planning project and its goals and the support of their organizations solicited. An interdepartmental liaison committee has been formed to serve as a clearing house of information concerning economic activities and a source from which those elements necessary to implement a coordinated approach to planning can be drawn. Local governmental planners will be visited on a regular basis by staff members to receive their input concerning local objectives as well as to be informed of State planning activities.

While the current grant supports the planning effort through February 1977, it is hoped that a renewal will be obtained for a second year's period. It is apparent, however, even at this early date, that the process of State planning should be a continuing one and be sustained from one administration to another. Today's chief executive is faced with the obligation not only to make immediate decisions but to shape longer range responses to the problems facing his State. Governor Byrne recognized this need in his First Annual Message delivered in January 1975, when he called for the formulation of a State Economic Plan. In the roles of policy developer and interdepartmental coordinator, the State planning office can provide the mechanism by which the governor can best be assured that State services are being provided in the most complete and efficient manner possible.

IV

OVERVIEW AND POLICY IMPLICATIONS OF THE FINDINGS OF STUDIES INCLUDED IN THE 9th ANNUAL REPORT*

This chapter summarizes the discussion and policy implications of the Study Reports and the Sectoral Review of the following six chapters of this Report. Over the history of the Council, these studies have served as important adjuncts to the other functions of the Council. This year's group of studies continues this tradition.

A basic theme apparent in all the studies is concern over the limited set of policy tools available to a state government within a Federal system. In one direction, a state has only weak control over the level of economic activity, since macroeconomic conditions in the form of interest rates and employment levels are set basically on the Federal level. In another direction, even when the state can control the relevant factor, very often the effect is a beggar-thy-neighbor policy that leaves a neighboring state worse off on the same account. It is noteworthy that this same problem appears in Western Europe where each of the individual countries is analogous to our states. It is likely that the experience of Western Europe can be applied to our own problems, and it is gratifying to see that several of the studies make a start in this direction.

Chapter V. "Zero Growth—An Overview at the State Level." Chapter V introduces a variety of important issues and topics relating to a zero growth policy for New Jersey. It is stressed that zero growth must be accurately defined in terms of (1) *What* factors of growth are relevant; (2) *Why* we are concerned about the specific factors; and (3) *How* can we influence them.

In terms of the specific factors of growth, State policy is likely to be concerned with the composition of output and its geographical location rather than economic and demographic aggregates. In terms of the policy objective, environmental concerns appear to be the primary focus. In terms of how these objectives can be attained, legal restrictions and constraints, tax policy, and the level of public services provided are potential tools.

Two results of implementing zero growth policies must be recognized and dealt with: First, many zero growth policies are likely to have regressive ramifications on the distribution of income. This arises for a variety of reasons, not the least of which is the difficulty of poor people

* Prepared by Dr. Dwight M. Jaffee, Professor of Economics, Princeton University and Member, Economic Policy Council.

in dealing with changing regulations and structures. The second item is that zero growth policies are likely to lead to a halt in the increase in tax revenues. This is a particular problem, since many of the environmental concerns require a restoration of an already damaged environment and, therefore, increasing—not declining—tax resources are required.

The upshot is that the costs and benefits of any zero growth policy must be carefully examined. There are no simple rules to be followed. The chapter, therefore, concludes with a useful list of projects and studies that should be carried out to improve our policymaking in this area.

Chapter VI. "The Need for Business Tax Reform." For a State with limited revenue-raising power, business taxation has proven to be a flexible tool for raising revenue and influencing economic activity. A survey of the current mass of New Jersey business taxes suggests, however, that reform would be highly useful. It is hoped that a reformed system could achieve either higher revenues with a fixed impact on the economy or the same revenues with an expansionary impact on the economy.

The chapter focuses in particular on the possibility of adopting a value-added tax (VAT) in New Jersey. Value-added is the amount of economic value created by a firm over and above the value of inputs that it purchases from other firms. In brief, value-added is the increment to value provided by the capital and labor inputs of the firm. A VAT uses the amount of value-added of each firm as the tax base. Versions of the VAT can differ, however, in their treatment of depreciation and net investment. Systems of value-added taxation have been used for a number of years in Western Europe, and the State of Michigan has recently changed its business taxation to a value-added form.

The key advantage of a VAT is its neutrality with respect to a number of factors for which orthodox business taxes show considerable biases. For example, a VAT is particularly well suited for a state or country which exports a considerable amount of its production beyond its borders. Similarly, a VAT applies equally well to firms independent of corporate structure, profitability, financial status, and capital-labor input mix.

Chapter VII. "New Jersey's Comparative Advantage for Technical Progress." Economic analyses and studies have demonstrated that a major part of economic progress comes not from growth of labor and capital inputs but rather from improved productivity of these factors due to technological advances. Measuring the state of technological knowledge and technological growth in an area is difficult, but variables such as the number of patents issued and the number of engineers and scientists per capita provide at least a basis of comparison. New Jersey appears in the forefront of technological advance based on such measures.

It is thus surprising that New Jersey does not share in the product development and production of the goods that result from new technology. A variety of reasons are suggested as to why New Jersey develops the new ideas but not the new goods. High production costs and the unavailability of venture capital are among the possibilities. In any case, it is clear that good ideas in New Jersey go wanting or go elsewhere for their development.

The chapter proposes a State Office for Promoting Technological Innovation as a starting point for dealing with this problem. The Office would provide educational opportunities, a centralized information service, and financial and legal advice. It would serve all parties to the innovation and production processes, including the inventor, the venture capitalist and the entrepreneur, but it would not deal with the carrying out of actual production.

Chapter VIII. "The Connecticut Product Development Corporation." Proceeding from Chapter VII, Chapter VIII provides an operational example of a state helping in the product development of new technological ideas. The Connecticut Product Development Corporation

(CPDC) planned for a ten million dollar authorization—to be financed by a State bond issue—with the objective of helping product development so as to create more jobs in Connecticut. Its early going was hampered by legal difficulties, and although these have passed, the state has allocated in fact only $450,000. About another $200,000 has been provided from Federal funds.

The CPDC functions within a public-private partnership in which the state puts up 60% and private sources 40% of the funding for any project. The funds are used primarily to expedite the development stage for the product—that is, the period between the technological idea and the actual production of the final good. The CPDC receives a return on its investment in the form of royalties on sales. It is estimated that a "success rate" of 33% would allow the fund to be self-financing ultimately. It is too soon to evaluate whether the CPDC will be successful in attaining its objectives. However, the general area of product development appears particularly promising for New Jersey, and the policy proposals developed in Chapter VII are all the more promising in this light.

Chapter IX. "Interstate Migration and the New Jersey Economy." Demographic and population trends are important for State policy in a number of areas, including industrial development and residential construction. The flow of net migration, in turn, is the source of the major and hard-to-predict variations in population trends. That is, while population levels can be predicted with reasonable accuracy, net migration can vary significantly even from year to year.

These major factors stand out as characteristic of New Jersey net in-migration:

1. Population growth due to net in-migration amounts to 50% of total population growth. In recent years, however, both net in-migration and total population growth have been significantly reduced.
2. Over 50% of net migrants to New Jersey are between the ages of 22 and 35.
3. The level of educational attainment of the New Jersey population is declining as a result of migration.
4. The income levels of the new migrants tend to make the overall income distribution of the State more even.
5. The net in-flow of migrants in racial balance is weighted toward blacks.
6. Within the State there has been a significant migration of both homes and jobs from cities to suburban and rural areas.

The policy implications of these trends are many and varied. The age distribution of the migrants raises concern for the hasty settlement of suburban areas and the provisions of local government services for the new families and children. The slowing down of total population growth poses a burden for retail trade and service industries that have been geared to high growth rates. The lower educational attainment levels of the new migrants has an impact on a labor force that is already having significant problems with obtaining employment in industries using advanced technology. Finally, the shift of population from cities to suburban and rural areas raises a host of problems that are only too clear and explicit.

Chapter X. "New Jersey Agriculture: An Assessment." Agriculture continues to be an important part of the New Jersey economy, and an area of a variety of policy concerns. Overall, agriculture and related industries have total sales approaching two billion dollars in New Jersey. Over thirty thousand people are employed in these industries. However, the amount of land dedicated to agriculture has been steadily declining over the years.

A key policy issue is that farm activity and the existence of farm land provide a number of direct and indirect benefits to the people of the State. An important direct benefit—in addition to the employment provided—is the superior quality and guaranteed availability of locally produced foodstuffs. An important indirect

benefit is that the existence of farm land is valuable as providing pleasant aesthetic features and a limit to industrial spoil. The policy dilemma is how to maintain farm areas when developers of industrial and residential investment are prepared to pay more for the available land.

New Jersey has relied, in an important part, on special taxation and assessment treatment of farming land. It is argued, however, that there is a continuing risk to the farmer that these features will not be maintained; so a guarantee of the dedication of the State to maintaining farm land is perhaps as important as the actual level of subsidy provided. The Blueprint Commission Report strongly acknowledged this viewpoint, but it has not been forcibly carried out. Accordingly, the Farm Land Administration Project provides the most attractive plan for achieving these goals.

V

ZERO GROWTH - AN OVERVIEW AT THE STATE LEVEL*

The desirability of economic growth, historically an unquestioned national objective and long regarded as synonymous with U.S. economic strength, has recently been called into question. A considerable national (and international) debate encompassing government leaders, physical and biological scientists, planners and social scientists has argued the pro growth—no growth issue. Beyond this general discussion, several states, some large cities, and numerous municipalities in this country have actually taken specific actions aimed directly at curbing growth. Oregon and Vermont are the states most associated with systematic no growth (or limited growth) policies, although California, Delaware, Florida and Maryland have also made more modest efforts to control development within their boundaries.

The purpose of this paper is to outline briefly the issues of a no growth policy and to note some of the fundamental differences between its application at a state (or local) level vis-à-vis the nation.** Thus, for example, a zero growth national policy will not imply a limit on growth uniformly imposed across all states and localities. Conversely, individual (and geographically scattered) State decisions to constrain growth are unlikely to achieve true "no growth," but will have serious equity effects involving the distribution of people, jobs, income and economic activity. Given the mature economic development of New Jersey and the heterogeneity of its economic and demographic composition, these major distributional implications of zero growth deserve careful analysis.

Section I of this paper discusses the various dimensions of zero growth and notes that no single, easily pursued zero growth target presents itself at the State level. Section II provides the basis of why limits on growth are even to be considered. Section III outlines the available policy options to implement a zero growth program. Finally Section IV discusses some general implications of zero growth at the State level and suggests the data which must be available to evaluate such a policy for New Jersey.

I. Zero Growth—Of What?

At the national level, the no growth issue has targeted the rate of change in *real GNP*; i.e., the annual flow of newly produced goods and services, as the relevant variable to control. Translated to a State level, the income equivalent would be Gross State Product, or GSP, the sum of all annual new economic production,

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

** For a comprehensive treatment of this issue from which we draw, see William Alonso, "Urban Zero Population Growth," in Mancur Olson and Hans H. Landsberg, THE NO-GROWTH SOCIETY, New York, W.W. Norton Co., 1973.

both public and private within the State. But growth has many other dimensions than these aggregate income measures, implying both different policies and outcomes.

The *level* of *employment* and *population* could be alternative targets for "no growth." Constraints on their increase would not necessarily imply a stationary condition for real income. Also, State policy could focus not only on the *level* of population or employment but, for example, on its *geographic distribution* or its *density*, two targets which may be more consistent with the as yet undefined objectives of zero growth.

Another alternative zero growth option would be even more narrow; namely, the particular *composition of economic output*. This approach would argue that it is not growth *per se* that must be controlled but some of the *forms* that growth takes. For example, controls on the development of the manufacturing sector or of certain heavy industries could be imposed for environmental reasons, while the commercial, service and public sectors could continue (overtly) unconstrained.

Finally, growth limits could be set in terms of a *geographic* dimension and particular regions within the State with unique or desirable geomorphic characteristics (e.g., floodplains, wetlands, coastal areas) could be foreclosed to all or some forms of economic development.

This list could be extended further. However, the obvious point is that the implications of "zero growth" depend upon which specific dimensions of growth are chosen to be limited.

In practice, the policies that have been implemented by several states have centered on banning development in certain regions, fiscal and regulatory constraints on heavy industries, and some local attempts to limit population growth through various zoning restrictions and failure to expand public services (education, sewage treatment, etc.).

II. No Growth—Why?

At the national (and international) level, the opponents of growth (both economic and population) have argued that an ecological armageddon awaits society (and in the not too distant future!) if growth continues. Even if the time horizon is shortened, much of the basis of the no growth position remains centered on environmental arguments. Zero growth advocates attribute all the worst aspects of modern life to the blind pursuit of economic and population growth. They argue that significant negative impacts on society accompany the growth process and lower the quality of life. Hence, controls on population and aggregate economic activity will reduce pollutant emissions, improve air and water quality, preserve fragile natural environments, ameliorate noise and congestion, and allow the pursuit of a more civilized life as society's future productivity gains can be realized in the form of increased leisure rather than more output of goods and services.

At the State (and local) level the justification of no growth remains based on these environmental and quality of life reasons. Additional objectives (although perhaps unstated), concern the restriction of the inflow of low income individuals who would represent a fiscal drain on public resources and desires to preserve a homogeneous social structure.

III. Zero Growth—How?

Until recently, the norm has been for states and cities to encourage and actively seek growth through a variety of policies providing preferential treatment for economic activity and residential development. Zero growth implies that these policies be reversed. There are serious questions concerning whether, in the face of prevailing national economic and social forces, zero growth can actually be effected at the State level.* Nevertheless, the range of policy instruments available to State government for any attempt to limit growth is very wide.

* Witness, for example, the reverse situation of how, despite massive Federal monies and State policies, the desire to *raise* regional economic growth in certain areas has met with very limited success (Appalachia, particular U.S. cities, etc.).

Restrictions on land use coupled with stringent environmental regulations are the major weapons used by states and localities to discourage the location of people and new industries. Appropriately designed tax incentives and disincentives can also influence both personal and business location decisions. Outright fiat commands (as in London and Paris) over the location of jobs and people are a further, though extreme, possibility. More feasible is the strict control at a *regional* or *state* level over building permits and variances.

At the municipality level, high public service standards are often used to exclude those who cannot afford the supporting tax structure. Alternatively, explicitly contrived poor public services, especially education, would discourage potential middle class residents. Similarly, provision of inadequate public utilities and a deteriorating social infrastructure (highways, etc.) could be overtly pursued to discourage industry. At the unconscionable extreme, a depressed state economy with poor job opportunities would severely constrain the in-migration of individuals and businesses and encourage out-migration, particularly of the young (parts of West Virginia are examples of consistent net out—migration).

The above list could be extended. However, regardless of the choice of these and other instruments designed to limit the growth of people and economic activity, the (successful) pursuit of these policies is certain to be regressive. Given the significant variance in the distribution of income in New Jersey, the regressivity of zero growth policies must be carefully weighed in any consideration of a growth limiting program.

IV. Zero Growth—General Implications and Suggested Assessment for New Jersey

The first and most important general implication of a zero growth policy is the above mentioned result that it is regressive. State (or local) limits on growth simply mean that people and economic development locate elsewhere. They do not vanish. Thus, what might appear to be successful "no growth" for New Jersey or some of its municipalities, is in actuality only a *redistribution* of growth to other areas in the region and nation. Erecting assorted policy barriers to the entry of individuals and industries will mean a regressive redistribution of jobs and income.

The alternative to the barrier approach of restrictions is to operate a depressed State economy, thus encouraging out-migration. This is also highly regressive and socially intolerable.

Furthermore, the fragmentation of numerous states attempting to "beggar-my-neighbor" by invoking restrictive *general* policies on growth can only lead to national economic inefficiencies as well as local distributional inequities.

The fiscal impact of zero growth (if successfully implemented) is a relatively declining revenue base for the State. Short term benefits (fewer children to educate, a lower demand for local uniformed services, reduced water supply needs, etc.) may have considerable appeal, particularly for individual localities. However, for the State as a whole, constraints on economic activity will ultimately yield a decline in the tax base for public revenues, as potential aggregate income is reduced.

Paradoxically, in terms of the very goal of no growth itself, it is not clear that zero growth is desirable. A central objective of constraining growth is environmental preservation and hence the argument that limits on growth will reduce environmentally destructive activities. But restoration of an already considerably damaged environment, as in New Jersey's case, will require significant public sector activity and expenditure.* These revenues will only be potentially available from a growing New Jersey economy.

Moreover, if the quality of life argument is extended beyond physical environmental concerns to include improvements in the human environment of New Jersey; e.g., reducing poverty, providing better education and health care,

* It will also require considerable *private* sector expense.

and eliminating the worst aspects of urban ghettos, then certainly the necessary revenues for these public goals (despite any forthcoming Federal funds) will be much more difficult to obtain in an economy exhibiting little, if any, growth than in one which is healthy and growing.

A further point is that even if constraints achieve a stable population level, such stability is largely an illusion. Changes in population are *net* changes; i.e., the balance of natural increases (births minus deaths) *and* net migration. But net migration data hide the enormous mobility of the U.S. population. It is estimated that under "normal" local economic conditions each *single* change in net migration represents the balance of *ten* moves in and out of the region. Accordingly, even "stability" in population implies substantial changes in its *identity* and *composition*, concealing important economic and distributional issues. Clearly, local economic conditions will directly influence population flow. Therefore, any attempts to halt growth at the State level must confront this mobility characteristic and the resulting demographic implications of altering location incentives.*

All of this does *not* imply that the negative impacts of population and economic growth should be disregarded. What it does suggest is that overall policies aimed at discouraging general economic growth, if effective, raise a number of serious concerns that are inescapable for a socially sensitive State government.

What is necessary, however, is the careful identification of *specific* problems and the State response with *specific* solutions. There is no question that growth has objectionable and socially costly side effects, but these can best be met with specifically designed policies rather than attempts to "stop growth" altogether.

For example, it is often observed that New Jersey has a high ratio of automobiles to population. Given the relatively small size of the State, there are serious social cost implications of heavy automobile use in terms of air quality, noise, congestion, health, agricultural damages, human safety and land use.

One general policy might be to attempt to control the denominator (people) of this ratio. This could take the familiar form of state level zero growth zoning and other land use restrictions on people and industry attempting to enter the State. But this is obviously a blunt instrument. Almost as general would be broad policies attempting to control the number of autos (e.g., provide poor roads). The use of either or both types of these general policies will raise all the serious distributional issues previously mentioned as well as proving grossly inefficient.

The point is that, if the social problem can be explicitly identified, here in this case it is the *use* of autos (more than their existence *per se*), then specific rather than general growth limiting policies can be designed. For example, the innovative New Jersey state inspection emission standards (perhaps in more stringent form),** combined with Federal taxes based on horsepower or mileage performance along with higher State highway tolls, would automatically create incentives to buy higher mileage, smaller vehicles, use them less and turn to (if available) mass transit alternatives. At the same time, State support for strict Federal regulations on auto emission performance would reinforce the above policies. Thus, growth in people or even in vehicles is not the key issue, but rather the emission performance of the vehicles and the extent, timing and location of their use. These problems can be met by specific policies rather than general embargoes on "growth."

In conclusion, the proper objective for New Jersey should be to identify explicitly the type and extent of social costs that accompany the various dimensions of the growth process. A partial list is given below of the data and topics

* The point really is, who are the residents of the State—all its current members, or all the individuals who would (or will) locate here in the future? Chapter IX provides data on the recent migration patterns of New Jersey and illustrates the significant role migration plays in determining changes in population levels and characteristics.

** The standards can be more restrictive than the Federal requirements. Such standards could require the motor vehicle industry to build a "New Jersey" car just as they have long built a "California" car.

which would form the basis of both an evaluation of specific policies aimed at restricting certain forms of growth, and the development of alternative policies to rechannel economic activity in less socially damaging forms.

1. What has been the growth record of New Jersey in terms of:
   (a) aggregate economic activity?
   (b) population, by level and by demographic characteristics?
   (c) the individual components of the manufacturing sector?
   (d) the public sector?
2. What is the historical migration pattern of the State? Important considerations would be:
   (a) the gross movement of individuals
      (1) by income classification
      (2) by job classification
      (3) from where; to where
   (b) differences in rate and composition as local economic conditions changed
3. What is the income distribution of the State? What is the income distribution by region, county, and municipality within the State?
4. Compile an inventory of economic characteristics by each municipality, considering such items as:
   (a) land use; e.g., undeveloped acreage, industrial acreage, etc.
   (b) industrial activity—components, type of employment
   (c) housing characteristics
   (d) public services provided
5. What are the State's major environmental problems?
   (a) land use issues
   (b) effluent damages
   (c) geographic distribution of effluents
   (d) economic importance of the parties responsible
   (e) control costs
   (f) benefit measures
   (g) current regulatory activities
6. What are the open space needs of the State?
   (a) recreational—by type of use
   (b) potential land acreage available
   (c) alternative uses
   (d) existing jeopardy to the ecological integrity of specific natural environments
   (e) restoration costs of deteriorated areas.

This list could be extended. The issue is to consider a particular growth-no growth problem and then these and other data can be used to evaluate policy options. Much of the above data is currently being gathered and analyzed by State government. The Council looks forward to evaluating growth restrictive policies with other State agencies in order to insure a rational State approach to this potentially critical issue.

VI

THE NEED FOR BUSINESS TAX REFORM*

The current economic recovery is roughly one year old and, although the earlier optimism of economic analysts and businessmen alike has been dulled by a sense of apprehension following frequent changes in Federal monetary policy, there is no doubt that the current expansion is broad and solid. One reason for optimism is the growth in corporate profits. The rise in profits means there will be funds available for capital expansion.

The national outlook does not imply that each state or region will share equally in economic prosperity. For many reasons, some states will grow faster than others. More Federal dollars will be spent in certain regions. Industry will expand or relocate in areas where the potential to reap the greatest profit lies. If present trends prevail, much of the projected spending by U.S. corporations will be concentrated in areas of rapid population and market growth. As new markets develop, the region attracts a broader array of industries from manufacturing to financial, wholesaling, and other related services. This growth in economic activity ensures a broadening tax base and adequate revenues to finance more and better public services.

Meanwhile, in the slower growing states and regions, a declining tax base leads to higher tax rates simply to maintain preexisting governmental services. Higher taxes intensify the incentive for businesses to locate elsewhere.

Unfortunately, the State of New Jersey, like the entire Northeastern region, falls into the slow growing category. Adding to this problem is that capital from the Northeast region is being used to finance industrial expansion elsewhere. "In effect, the Northeast may be running a balance-of-payments deficit against the rest of the country."** When the nation faces this problem, there are a number of actions it can pursue, including devaluing its currency or restricting imports. However, the policy tools available to State government are limited both in number and in scope. One option is to grant tax incentives in order to stimulate investment.

The purpose of this chapter is to review the history of business investment and employment in New Jersey and current taxes on business activity, and then to recommend measures that could be taken to ensure the State a share in the nation's economic recovery.

During the early postwar years, the State's growing population and labor force were rapidly absorbed by its expanding economy. In fact, the existence of abundant employment opportunities attracted a steady flow of in-migrants, many of which added to the State's pool of skilled craftsmen, scientists, and technicians. At mid-century, New Jersey passed an important milestone, somewhat earlier than the American economy: The share of labor employed in the goods producing industries (manufacturing, con-

* Prepared by George R. Nagle of the Office of Economic Policy.

** For an overview of inter-regional development, see "The Second War Between the States," BUSINESS WEEK, May 17, 1976.

FIGURE 6.1

MAJOR STATE BUSINESS TAX COLLECTIONS, FISCAL YEAR 1975

Tax	Collections ($)	Percent of Major State Collections	Base + Rate	Disposition
1. Corporation Business Tax	$313,757,103	14.8	The net worth and net income of multi-state corporations are allocated by way of a three factor formula (payroll, sales, property) which reflects the extent of corporate economic activity within the State. Net income is taxed at 7.5%; net worth at 2 mills.	State General Fund—Municipalities receive 1.25% of allocated corporate net income as part of the tax replacement program.
(a) Net Income Tax	(217,000,000*)			
(b) Net Worth Tax	(58,000,000*)			
2. Business Personal Property	$70,522,348	3.3	Applies to businesses which own tangible personal property. The tax base equals 50% of original cost. The tax was adopted in 1966 to exempt business personalty from local taxation.	This tax is collected by the State; all revenues are distributed to local governments.
3. Sales & Use Tax (Applicable to Business Equipment & Machinery)	$33,000,000*	1.6	Applies to receipts from, among others, retail sales of producing, processing, installing, maintaining, repairing, storing, and servicing of tangible personal property. The rate is 5% on taxable sales.	State General Fund—(Up to $25 million is distributed to local governments.)
4. Business Tax, Unincorporated	$20,451,964	1.0	Imposes an annual tax on the gross receipts of unincorporated businesses (includes the receipts of any unincorporated trade, business, profession, or occupation). The rate is .25% of gross receipts.	All proceeds are distributed to local governments.
5. Retail Gross Receipts Tax	$7,226,972	0.3	Applies to gross receipts of all persons operating a retail store. The rate is .05% of gross receipts.	All proceeds are distributed to local governments.
TOTAL	$444,958,000	21.0%		

* Estimated.

SOURCE: Annual Report of the Division of Taxation, New Jersey Department of the Treasury, 1975.

struction, agriculture, mining) fell below the 50% level. That is to say, the broadly defined service sector began to replace manufacturing as the major source of new employment opportunities. This trend has continued into the 1970's as New Jersey continues to lose its relative share of manufacturing jobs.

Although the reasons for the shift toward services employment are complex and varied, there is a distinct possibility that the State's approach to business taxation has created a bias against business investment and has aggravated the decline in the goods producing sector.

The lagging performance of the New Jersey economy has prompted a review of the structure of business taxes and the effect these taxes may be having on State economic development. After the problem areas have been identified, specific recommendations for reform are offered. Finally, a look at an entirely "different" form of business taxation is introduced as a possible long-run solution.

New Jersey's Taxes on Business

For the most part, New Jersey's taxes on business are of recent vintage. Most of the business taxes are less than ten years old with the earliest, a tax on allocated net worth, dating back to 1945. Since then business taxes have been increased periodically. In 1958 a corporate income tax of 1.75% on allocated net income was established. The rate was increased to 3.25% in 1966, to 4.25% in 1968, to 5.50% in 1972 and finally to 7.50% in 1975. In addition to the tax due, corporations must make a prepayment for next year's tax which is based on 60% of this year's tax liability. A credit for the current year's tax liability for earlier prepayments is allowed.

In 1966 a 3% sales and use tax was instituted. This tax placed an additional burden on the purchase of productive manufacturing equipment and machinery. The tax rate was raised to 5% in 1970.

Along with a corporate income tax hike in 1968, a package of business taxes known as the Business Personal Property Tax Replacement Program was adopted. The basis of the package was a State levied business personal property tax. The rate of the tax is 1.3%, or $1.30 per $100 of taxable value, where taxable value is 50% of original cost. Other taxes in the "package" included a retail gross receipts tax (0.5% of gross receipts) and an unincorporated business tax (.25% of allocated gross receipts). Included in the Program is a portion of the corporate net income tax (1.25% of the net income tax base). All proceeds from the replacement program are returned to local governments.

Through the end of fiscal year 1975 the total sum of direct business taxes is estimated at $445 million, or 21% of all major state tax collections (see Figure 6.1).

The business community often argues that it is shouldering a disproportionate share of State taxes. It is clear, however, that the business tax burden has grown relative to other State levied taxes. In 1954, business taxes amounted to only 11% of all major State tax collections. Over time, this share has steadily increased to 15.2% in 1958, 17% in 1972, and finally to 21% in 1975.

It should be mentioned that these figures do not imply any conspiracy against New Jersey business to pay for larger and larger shares of public services. Rather, they are based on the nature of cyclical economic activity and the response of the public sector. When the economy approaches a recession, business activity (and profits) are among the first indicators to be affected. Consequently, business tax revenues fall more quickly than other taxes. In order to maintain a balanced fiscal program, government often relies on discretionary rate increases to restore business tax parity with other taxes. In other words, it is no coincidence that business taxes are increased during or shortly after a recessionary period. Until the relative inelasticity of the State's tax structure is remedied, we may expect recurring revenue gaps and continued pressure for business tax increases.

Business Taxes and Industry Performance

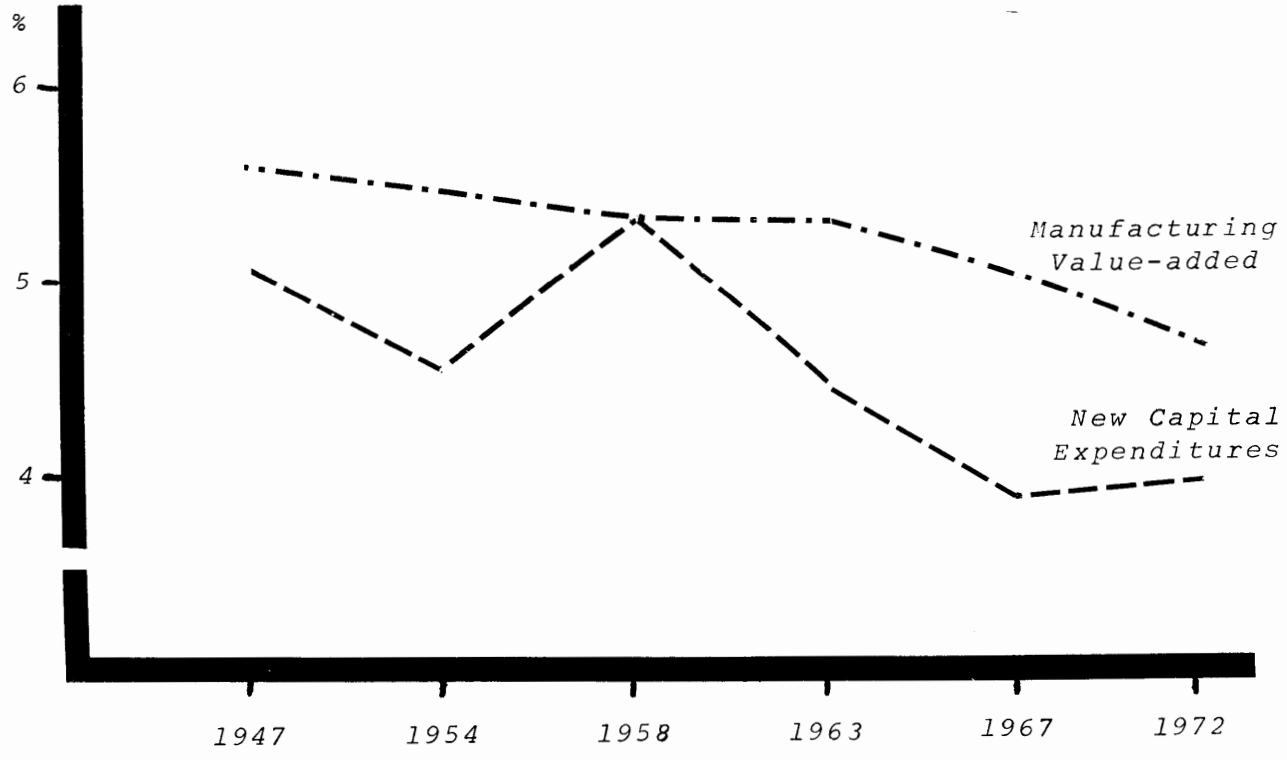
An airtight case for business tax reform would be to show how overall business performance has declined as business taxes have increased. In actuality, the analysis is more complicated. One must consider the whole gamut of cost factors facing business. As the cost advantage of all these factors declines, a threshold is reached where a decision is made to either close down the operation or move to a lower cost environment. A tax increase at the wrong time could provide the marginal cost factor to take such action.

Despite the strength of New Jersey's manufacturing sector, manufacturing investment has been declining relative to the nation for a number of years. New capital expenditures were still growing until 1958 when 5.4% of the nation's manufacturing investment was spent in New Jersey (see Figure 6.2). The year 1958 was also a recession year, and as mentioned earlier, tax revenues failed to grow and the result was the adoption of a 1.75% corporate net income tax. Since 1958, New Jersey's share of total U.S. new capital investment fell to 4% in 1972, and 3.8% in 1973. Additional taxes on capital in 1966 and 1970 further contributed to an erosion of New Jersey's share of capital investment.*

The relative decline in new capital spending becomes evident when compared to the productive output of New Jersey's manufacturing establishments. The time lag of economic activity is such that investments must precede output—sometimes by several years. Therefore, a con-

FIGURE 6.2

NEW JERSEY'S SHARE OF U.S. MANUFACTURING VALUE-ADDED AND NEW CAPITAL EXPENDITURES, SELECTED YEARS



SOURCE: CENSUS OF MANUFACTURES, Selected Years, U.S. Department of Commerce.

* In 1966, this includes the business personal property tax and the sales tax on production equipment and machinery. A minimum net worth tax for domestic corporations was added in 1970.

tinuing decline in the share of investment will lead to a decline in output shares. New Jersey's share of the nation's manufacturing output was declining slightly until 1958 when there was a large increase in New Jersey capital expenditures. Five years later New Jersey's value-added peaked at 5.5% of total U.S. manufacturing output. The subsequent decline in investment is reflected in a steady decline of New Jersey's share of manufacturing output to only 4.7% in 1972.

In the late 1960's and early 1970's, New Jersey was among the pioneers in establishing environmental legislation. In effect, New Jersey's manufacturing sector was compelled to spend relatively large sums of money on non-productive anti-pollution equipment.

"In 1973, New Jersey manufacturing industries were found to have spent a greater proportion of their capital expenditures on pollution abatement equipment than industries in Pennsylvania, Connecticut, the New England region and the Northeast region as a whole. This finding supports (at least for 1973) the conclusion of the Governor's Economic Recovery Commission that New Jersey's industries incur greater costs for pollution abatement than other states."* After making statistical adjustments for individual state industry mixes and rates of capital spending, New Jersey was found to spend from 12% to 20% more than the Northeast region and 28% to 57% more than the New England states for pollution abatement equipment. If one were able to separate new investment into productive and non-productive expenditures, the share of productive capital investment in New Jersey would have been even less favorable than what the data implies.

Since 1947, the manufacturing sector has reinvested a smaller share of its output into the New Jersey economy, averaging only about 83% of the U.S. investment-output ratio. Thus, capital formation has been a long-run problem—something more than a cyclical swing. In effect, New Jersey is confronted with a long-run problem of underinvestment, a long-term deterioration of capacity to compete, and a secular decline in incentives for New Jersey businessmen to take risks, innovate, and create new jobs.

New Jersey As A Manufacturing Location: Why They Came – Why They Left

New Jersey's past industrial growth was dependent upon its ability to attract new manufacturing establishments. In some form, the State offered, at least to some industries, a competitive advantage to locate new establishments or to expand existing facilities. Since it is often difficult to assess the locational advantages of a region, planners and policy makers have often resorted to questionnaires and interviews to obtain this information. Although often objective in design, many location survey results are vague and contradictory. In many instances the questions and/or answers are stated in subjective terms; they are not easy to quantify and interpret.

Overall, it is difficult, despite the volume of available information, to assess the value of a particular characteristic to the choice of a location. What can be said is that over time, the principal location factors have not changed. A firm will search for a location close to its market, where the cost of operation will be at a minimum and where it will earn the most profit.

With these qualifications in mind, an interesting comparison can be made between a location survey covering the 1954-56 period** and a recent State government location survey spanning the years 1971-75.† Although differences in the surveys prevent direct comparisons, some general trends and similarities were noted. In both surveys firms were asked to identify what factors were important to their location decision.

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* Arnold Landy, RATE OF SPENDING ON POLLUTION ABATEMENT EQUIPMENT IN 1973 BY INDUSTRIES IN NEW JERSEY IN COMPARISON WITH OTHER AREAS, Research Paper, Office of State Economic Planning, Governor's Office, State of New Jersey, June 1976.

** See "Manufacturing Industries" in THE ECONOMY OF NEW JERSEY, Rutgers University Press, 1958.

† See FACTORS INFLUENCING INDUSTRIAL MIGRATION, A report for the Department of Labor and Industry, Dun and Bradstreet, Inc., 1975.

During the three year period, 1954-56, about 1,800 manufacturing firms established operations within the State. One-third of these new establishments were garment trade firms. Next in order of importance were producers of fabricated metals, electrical machinery, and producers of textile mill products.

Almost nine out of ten, or 87%, of New Jersey's new manufacturing plants established during this three year period classified themselves not as new branches of existing establishments or transfers from other states, but as entirely new establishments. The remaining establishments (13%) represented either transfers from other states or new branch operations of out-of-state firms. Three out of four of these firms were from New York, and Pennsylvania was the principal source of the remainder.

Although the later survey included all business establishments, not just manufacturing, the source of in-migrants was remarkably similar: 82% from New York and 14% from Pennsylvania.

Despite the span of twenty years between surveys the primary reasons for industrial location have shown little change. Figure 6.3 summarizes these major business location factors.

Space considerations were and still are particularly important. The older survey states: "Most enterprises purchased larger quarters in New Jersey in order to expand and found them to be more in line with their needs than their older locations had been." The importance of this factor suggests that the State's future ability to attract new establishments will, in part, depend on ability to offer attractive manufacturing sites at prices which prospective entrants will find reasonable. The earlier survey also revealed that space and its cost was a particularly important consideration for those firms which planned to produce items new to their manufacturing line.

The later survey also ranks space considerations and consolidation as primary location factors. For those firms moving away from metropolitan areas in New York and New Jersey, available space is an obvious factor; but more information is needed to assess why firms could not resolve their space requirements elsewhere in the State.

Market proximity was consistently mentioned as a prime location factor. During the mid-fifties new establishments in New Jersey were almost equally divided between those serving local customers and those catering to regional and national markets. Apparently, the establishment of new enterprises in the fifties was in response to a growing New York metropolitan market. During the following twenty years, population growth in other areas made it attractive for many New Jersey firms to establish branches

FIGURE 6.3
INDUSTRIAL LOCATION FACTORS

Firms Moving to New Jersey 1954-56	Firms Moving to New Jersey 1970-75	Firms Leaving New Jersey 1970-75
Available Space for Growth	Space Considerations	Consolidation
Adequate Transportation Facilities	Cost Considerations	New Market
Reasonable Business Taxes	Market Proximity	Space to Expand
Market Proximity	Consolidation	Economy of Operation
Reasonable Transportation Costs		Available Labor at Lower Cost
Reasonable Labor Costs		
Adequate Utilities		
Good Business Climate		

SOURCES: Op. cit., p. 10.

in these emerging markets. As the 1970's began, the combination of various economic conditions made it worthwhile for firms to consolidate at *their* "newer," more efficient location. The end result for New Jersey in the 1970's has been less and less business expansion and even less business relocation into the State.

Because the price of labor is a major operating cost, it is a prime consideration in location decisions. In the 1954-56 survey, respondents neither praised nor condemned the quality of New Jersey labor. Labor productivity was found to be on par with comparable manufacturing states while wage rates ranked high among negative business location factors in New Jersey. Ironically, the 1970-75 survey cited the "availability of quality labor at low cost" as a prime reason for leaving New Jersey.

Labor costs are not confined to wage rates but are affected by factors such as the structure of the unemployment insurance fund, workmen's compensation, and disability benefits, all of which are greatly influenced by actions of State authorities.

A recent independent study, comparing the tax burden and other administrative costs borne by four hypothetical manufacturing corporations, clearly illustrates the magnitude of this problem (Figure 6.4). By using precise accounting procedures, average statewide employer rates for unemployment and workmen's compensation were calculated and compared across a sample of industrial states and one Sunbelt state. Although the stated assumptions make such a comparison inappropriate for use by any specific corporation in determining the relative cost of labor in one of the survey states, it is clear that, on the average, New Jersey consistently imposes greater costs for unemployment and workmen's compensation. Within the Mid-Atlantic region the cost of unemployment insurance and workmens' compensation is roughly 35% less in New York and 49% less in Pennsylvania. In South Carolina the program costs are approximately 58% less than New Jersey's.

FIGURE 6.4

SIMULATED EXPENDITURES FOR UNEMPLOYMENT AND WORKMEN'S COMPENSATION, BY SIZE OF FIRM,* 1974

	Corporation A		Corporation B		Corporation C		Corporation D	
	$	Rank	$	Rank	$	Rank	$	Rank
Connecticut	14,200	(4)	92,600	(4)	154,700	(4)	703,300	(4)
Delaware	11,700	(6)	76,800	(7)	128,200	(7)	564,000	(7)
Maryland	11,900	(5)	77,800	(6)	129,900	(5)	594,900	(5)
Massachusetts	17,500	(2)	114,500	(2)	191,500	(2)	876,100	(2)
New Jersey	22,200	(1)	150,500	(1)	250,000	(1)	1,112,900	(1)
New York	14,600	(3)	95,500	(3)	159,500	(3)	725,100	(3)
Ohio	11,400	(8)	77,900	(5)	129,100	(6)	577,000	(6)
Pennsylvania	11,600	(7)	75,800	(8)	126,600	(8)	556,800	(8)
South Carolina	9,500	(9)	62,100	(9)	103,600	(9)	472,200	(9)

* The study assumed the existence of four model corporations, each being a profitable manufacturing firm. The model firms range in size from Corporation A, which is a small, intrastate manufacturer to Corporation D, which is a large, interstate manufacturer. Corporation D derives a portion of its income from out-of-state. The economic size of the model corporations are as follows:

	Total Assets	Employees
Corporation A	$4,250,000	50
B	14,900,000	300
C	26,000,000	500
D	$123,000,000	2,000

SOURCE: THE BURDEN ON MANUFACTURING OF STATE AND LOCAL TAXES AND GOVERNMENTALLY IMPOSED COSTS: A COMPARISON OF NEW JERSEY AND EIGHT OTHER STATES, a report prepared for New Jersey Manufacturers Association, June 1974.

As mentioned earlier, a sizable component in New Jersey's early industrial development was the creation of new manufacturing entities. This source of economic development has all but disappeared during the 1970's. In order to stimulate new product development and implementation, a tax incentive plan should be instituted for newly created technologically advanced business firms.* This might take the form of a net operating loss carryover. Often, the first years of operation will mark the difference between a viable firm and a bankrupt one. An operating loss carryover could provide the marginal cost factor to keep a plant in existence. Also, in a national environment of stop-go economic cycles, a state offering a "loss carryover" could provide a positive location inducement for old as well as new businesses.

It is hard to predict the revenue consequences from loss carryover. In prosperous years, a limited number of small businesses might qualify. Such a provision will allow these firms to develop and grow.

For any incentive scheme to be effective, it must be weighed against the economic forces in the private economy. As shown earlier, one such trend is a declining share of capital spending in New Jersey. If, during the 1951-72 period, New Jersey's manufacturing firms had spent at the national rate, $2.6 billion more would have been invested. Since the entire Mid-Atlantic region is facing a similar situation, a detailed study is needed to understand why the State and region have such a low rate of reinvestment. However, even without this information a case can be made for investment tax credits.

In a national context, maintaining balance between aggregate demand and potential output is a major objective of macroeconomic policy. Success hinges, in part, on smoothing the fluctuations in business fixed investment, which tends to be a relatively unstable component of aggregate demand. An investment tax credit is one suggestion to accomplish this goal.

Although at the sub-national level the concept of an investment credit is not a stabilization device, it does achieve the same effect of lowering the cost of capital to private industry. Some important questions that need to be answered include: What effect will the tax credit have on business decisions? If the tax credit can only be financed by raising taxes, are its benefits significant enough to offset the negative effects of higher taxation? Also, what are the "opportunity costs" to State government; that is, could the State use tax revenues destined for investment credits for other programs? Since current estimates imply an investment of anywhere from $25-40 thousand for an additional manufacturing job, the "cost" of job creating tax credits quickly approaches budgetary constraints.**

If a tax credit is to influence the business investment decision, the firm should know with certainty the kind of financial support it could expect over the life of the project. Since empirical studies of investment behavior suggest rather long lags between changes in the cost of capital and changes in capital expenditures, this should be known at the time a project is planned. Quite often studies find little relation between tax incentives and industry investment and location;† businessmen are influenced by other more important factors, such as labor costs, in making such decisions. Therefore, for an investment credit to be successful in inducing new investment, it must outweigh these other factors.

Perhaps the key question to be answered is whether or not an investment would be forthcoming in the absence of the tax credit. In line with this reasoning a more careful tax incentive

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* Please refer to Chapters VII and VIII for a complete review on this point.

** Capital/Labor ratios are calculated from an estimate of fixed capital in New Jersey (in 1972 prices). See "New Jersey's Manufacturing Industries: A Long-Run Overview", 8th ANNUAL REPORT, Office of Economic Policy and Economic Policy Council, 1975.

† A brief listing of typical studies include: "The Influence of Taxation Upon Industrial Development," STATE GOVERNMENT, Volume 30, 1957; AN INVESTIGATION OF LOCATION FACTORS INFLUENCING THE ECONOMY OF THE PHILADELPHIA REGION, Regional Science Research Institute, 1967; INDUSTRIAL LOCATION DETERMINANTS 1971-1975, U.S. Department of Commerce, 1973; BUSINESS CLIMATE IN NEW YORK STATE: PERCEPTIONS OF LABOR AND MANAGEMENT OFFICIALS, School of Industrial and Labor Relations, Cornell University, 1976.

scheme would not provide assistance for any investment, but only for investment over and above a certain threshold. This coincides with the concept of variable tax credits that adjust to changes above or below a "normal" rate of investment growth. An effective threshold for existing firms could be established at the long-run rate of manufacturing investment in New Jersey which is approximately 7% of output. For instance, if a firm were to invest $.10 per dollar of its output, $.03 or the excess above the average rate of investment, would qualify for a tax credit. This would prevent firms from absorbing the tax credit as a "windfall" for capital spending that would have been made anyway.

The preceding has combined both tax reform to preserve our deteriorating industrial base and financial incentives designed to attract and develop new industries. Taken as a whole, these reforms could lead to a tax structure that is based, to a large degree, on ability to pay, a pattern which closely follows recent legislation enacting a State personal income tax. Overall, an improvement in tax equity will make a large stride toward an improved business climate. However, the trend toward dedicating a larger and larger share of the State's general fund to specific programs leaves little fiscal slack for financing even the most obvious business tax reforms. In light of this situation, there are other forms of business taxation that deserve attention.

A New Approach to Taxing Corporate Income

Any state seeking to tax the net income of a corporate business must recognize that many businesses derive their net income from more than one political jurisdiction. Since the accounting practices of a multi-state corporation cannot allocate the source of its taxable income to a specific geographical location, nearly all states use a formula in determining what income of a corporate business is to be attributable to that state for tax purposes. That formula is based upon various types of corporate activity.

In New Jersey the net income of multi-state corporations is subject to apportionment by way of a three factor formula consisting of a sales factor, a payroll factor, and a property factor, with each factor being weighted equally, the justification being that these three factors are necessary components to the earning of income. Thus:

$$\text{Corporate Tax Yield} = \text{Rate} \times \begin{matrix}\text{U.S.}\\ \text{Corporate}\\ \text{Profits}\end{matrix} \times \begin{matrix}\text{N.J.}\\ \text{Apportionment}\\ \text{Factor}\end{matrix}$$

Where: N.J. Apportionment Factor

$$= \frac{\%\text{Sales} + \%\text{Property} + \%\text{Payroll}}{3}$$

$$\%\text{Sales} = \frac{\text{Corporate (\$) Sales in N.J.}}{\text{(\$) Sales Everywhere}}$$

$$\%\text{Property} = \frac{\text{(\$) Property in N.J.}}{\text{(\$) Property Everywhere}}$$

$$\%\text{Payroll} = \frac{\text{(\$) Payroll in N.J.}}{\text{(\$) Payroll Everywhere}}$$

Since a basic goal is to provide incentives to invest in New Jersey and create a more favorable climate for economic development and growth, an adjustment in the allocation formula is a possibility. In short, the three factor formula can be weighted differently to favor employment and investment. One suggestion is to place twice as much emphasis on the sales factor and less burden on the property and payroll factors;* i.e.:

N.J. Apportionment Factor

$$= \frac{\%\text{Sales} + \%\text{Sales} + \%\text{Property} + \%\text{Payroll}}{4}$$

The actual benefit this will have depends on the size and location of a corporate enterprise. The apportionment change will offer a tax *reduction* to New Jersey's export oriented firms

* This particular formula has been enacted by Wisconsin and more recently by the State of New York. For details see: 1973-1975 STATE BUDGET TAX RELIEF AND POLICY REFORM, Department of Administration, State of Wisconsin, Madison, August 1973, and Chapter 895, Laws of 1975, State of New York.

tential benefits of value-added taxation, few states have conducted feasibility studies, while only one state has actually adopted the tax.

The Michigan economy, heavily dependent on the automobile industry, was particularly hard-hit by the energy-related recession of 1974-75. The effect was a general stagnation in its industrial sector. As a result, Michigan like New Jersey placed job creation as a top priority for governmental policy. One step in this direction was the replacement of over $800 million in fragmented business taxes by a single (value-added) tax.

Economic Stabilization, Investment, and the Single Business Tax

The Michigan tax is a type of value-added tax which is designed to *remove* part of the burden of taxation on capital and therefore will create an incentive for additional investment and jobs. Mandating the single business tax is a first step to freeing businesses from making economic decisions in order to minimize their *tax liability*. The tax is a 2.35% levy on the sum of:

+ Profit (or Loss)
+ Payrolls (plus fringe benefits)
+ Net Interest Paid
+ Depreciation
— Capital Expenditures
= Tax Base

This sum is equal to the amount of income paid by each business to make its products or services. The tax base is the sum of payments to owners (profit, interest, depreciation) and employees (wage, fringe benefits). Thus, the tax base is proportional to the firm's economic size. Furthermore, a VAT is neutral because it is levied equally on the sales of all businesses: corporations, unincorporated firms, partnerships, profitable and unprofitable firms, and companies relying on debt financing as well as those using mainly equity financing. Since the tax is imposed evenly throughout the State, the tax should not distort business decisions; that is, it should not cause a firm to change its investment policies simply for tax reasons.

State administrators in Michigan expect the following results from the enactment of a single business tax; more employment, since most of the taxes repealed were taxes on capital. Because the single business tax treats capital and labor identically, the heavy burden on capital is lessened, which should encourage job creating investment. This, of course, assumes that the relationship between capital and labor remains fixed, that businesses will not be able to substitute the relatively cheaper factor of production (capital) for the more expensive factor (labor).

Additional employment in capital intensive, export oriented industries will provide the basis for employment expansion in the services sector as well. This job creation aspect of the tax will alleviate demands on the State to provide public sector employment, transfer payments, and increases in unemployment insurance taxes. Another aspect of VAT as a replacement for the corporate profits tax is VAT's greater revenue stability. The sensitivity of corporate profits to fluctuations in economic activity and the rates at which they are taxed makes this tax base a major contributor to cyclical fiscal instability. Because the VAT base includes payroll as well as profits, the VAT exhibits more stability during recessions than during expansions and thus does not promote erratic State expenditure patterns. For this reason, the VAT will be somewhat less elastic than the corporate income tax. Also, due to its large base, the VAT, in comparison with other taxes, will yield high revenues at a low tax rate.

The value-added tax will create a significant redistribution of tax burden among industries since all businesses will be taxed on the same basis. In general, somewhat lower taxes will be paid by most manufacturing, utility, finance, retail, and wholesale firms, while all service industries will face higher tax liabilities.

Services operating with relatively little capital will not have a very large exemption from the

Michigan tax base. The Legislature faced this problem with an amendment to allow labor intensive industries to deduct a portion of their payroll from the tax base. In effect, the increased tax burden will be moderate since most small businesses in the services industry do not have out-of-state competitors. Consequently, they will be able to forward-shift some of the tax onto consumers in the form of higher prices. In addition, because a substantial share of services employment is dependent upon the general level of well-being of the State's economy, gross receipts in services will increase as the economy of the state, as a whole, improves.

Other major additions to the Michigan business tax base includes any carry-back or carry-forward of a net operating loss and any capital loss incurred after the effective date of the Act. Also included is a provision for exempting up to $34,000 from the tax base for small businesses. Unincorporated businesses can also exclude that portion of profits equivalent to retained earnings from the personal income tax liability of the owners.

A Proposal for New Jersey

The Michigan single business tax represents an innovative and unique approach to state business taxation in the country. New Jersey should carefully evaluate whether such a tax might offer substantial benefits to employment and industrial growth. With these goals in mind, State policy makers should examine the experience of the single business tax in Michigan. Key questions to be answered include: Are there significant changes in the investment ratio of industries; if so, which industries? Has employment risen above the rate that the current economic recovery would imply? Have new industries located in Michigan which could be attributable to the tax? Has there been substitution of capital for labor, and has labor experienced a drop in disposable wages?

Also, State tax administrators are well advised to monitor the revenue expectations of the single business tax, its elasticity, as well as the distribution of tax liabilities by type of business activity.

FIGURE 6.5

FINANCING BUSINESS TAX REFORM IN NEW JERSEY

	Cost to State and Local Governments
Repeals:	
Sales Tax (Equipment and Machinery)	$33-35 million (may be funded as part of the State personal income tax)
Business Personal Property Tax	$5 to $8 million per year
Net Worth	$5 million per year
Incentives:	
Local Property Tax Abatement	At Local Discretion
Operating Loss Carryover	Depends on Scope of Program
Investment Tax Credits	Depends on Scope of Program
Reforms:	
Modify Corporate Allocation Formula	Possible minimal loss in the short-run replaced by growth in tax base in the long-run.
Value-added Tax	$-0- (Program can be designed to yield same level of revenues, only the distribution of tax burden will be shifted.)

With answers to these basic questions, the application of a value-added tax in New Jersey could be effectively evaluated.

Financing Business Tax Reform

Historically, New Jersey did not need to promote development or offer business tax incentives. It is now clear that direct measures will be needed to both stabilize the State's declining tax base, and to create an attractive atmosphere for future development. The cost of creating an improved business climate, however, is not overbearing and is well within fiscal reach (see Figure 6.5).

The gradual phase-out of taxes on capital will cost roughly $10 to $13 million per year as new capital is exempted and as old capital is retired from the tax base. This should not, however, be viewed as a net loss in revenues since the economic effects of these repeals will expand other tax bases, such as personal income tax receipts through increased employment.

The cost for tax incentives is more difficult to determine. A properly designed property tax abatement program should have little fiscal impact on local governments. The cost of loss carryover and investment tax credits will depend on how ambitious a program is enacted.

Modifying the corporate income apportionment formula will entail a minimal loss in the short-run only if the majority of large corporate taxpayers are heavily export oriented. The earlier loss will be offset by a long-run growth in the corporate tax base.

More study is needed to analyze the fiscal impact of the value-added tax. However, the program can be designed (as in Michigan) to yield the same level of revenues and still provide economic incentives for growth in employment and investment.

Conclusion

The benefits of economic activity and business growth accrue to everyone through increased employment and income. The theme of this paper was to review our system of business taxes and their probable effect on employment. The conclusion is straightforward. Every effort must be made to ensure employment opportunities to all New Jersey workers through the maintenance of a favorable business environment. This includes policies designed to encourage existing industries to expand within the State, mitigate factors encouraging businesses to move from the State, and encourage "new" business formation.

The survival of small businesses which typically locate near large plants cannot be ignored. The small establishment with relatively limited resources and no diversity in products or production centers is potentially more vulnerable to unfavorable business conditions than large manufacturers. Small units need particular attention because they do not have the resources needed to expand, improve, or relocate whenever a given location becomes uneconomical because of tax or other cost factors.

Manufacturing employment in New Jersey during the period since 1960 has *declined* 9%, while on the national level it has *increased* roughly 9.2%. Had New Jersey maintained its growth at the national rate it would have meant a 75,000 increase in manufacturing jobs over our present level, and due to the multiple effect (creation of additional jobs in construction, finance, retail, services and government), a possible overall increase of 300,000 jobs.

The State has a large work force trained and qualified for manufacturing and construction jobs—a blue collar work force that, to a large extent, has borne the brunt of increased unemployment. In addition, we must consider the future needs of this work force as new entrants move into the job market.

For a myriad of reasons, New Jersey is frequently not competitive with other states, resulting in many location decisions being adverse to a New Jersey location. Although New Jersey policy makers cannot overcome the lower prices of operating a business in areas such as the so-

called Sunbelt, they can assume a more aggressive role in formulating tax policies to reestablish the comparative advantages once held by New Jersey during the 1950's.

Significant taxation occurs in New Jersey at the time of investment which acts as a negative factor in developing new enterprises or in attracting established firms to the State. Taxing investment instead of profitability discourages expansion and modernization. To this end, full support is given to recent efforts to repeal the sales tax on equipment and machinery. For ten years this tax has represented an additional fixed investment cost that must be borne by business before profitable operations begin.

The greatest area of concern is the business personal property tax. Beside constituting a major obstacle and potential deterrent to capital spending, it is opposed on equity grounds; equitable and uniform assessments are unobtainable and again the tax bears no relationship to the profitability of business. Similar arguments can be lodged against the mandatory corporate net worth tax. These taxes on investment do not lend themselves to easy economic rationalization. The New Jersey business climate can benefit greatly from their outright repeal. This position is forwarded by the Economic Policy Council and supported in the final report of the Economic Recovery Commission.

Businesses should be permitted to carry-forward operating and capital losses to be offset against future profits. The adoption of this recommendation should encourage New Jersey location decisions since new establishments often initially operate at a loss and are understandably discouraged by the prospect of paying taxes on profits without recognition of losses.

Local property tax abatement can be used as a discretionary tool to foster new construction or continue the viability of an existing structure, especially if limited to undesirable center city locations.

The potential stream of future benefits flowing from an aggressive investment tax program are obvious. However, for the program to induce "new" investment it must pack the finance clout to outweigh other cost factors, such as high labor costs which disfavor New Jersey as a business location.

Tax reforms in New York and Wisconsin deserve immediate attention. Revising the corporate income apportionment formula to favor local investment and employment represents an opportunity for New Jersey and the Northeast region as well, to encourage domestic production and export activity at very low cost.

A switch to value-added taxation was introduced as a possible long-run solution to New Jersey's economic problems. Except for some deductive reasoning, we know very little about the initial, intermediate, and final effects these programs would have on all the interrelated segments of our economy. Any endorsement or criticism as such must be postponed until the subject can be thoroughly researched.

VII

NEW JERSEY'S COMPARATIVE ADVANTAGE FOR TECHNICAL PROGRESS (A PROPOSAL FOR ACTION)*

Introduction

New Jersey is entering a new phase of economic development. Its main feature is an absolute decline of the manufacturing sector similar to the recent experience in some other Northeastern states.

Such a decline is only one expression of a deteriorating economy which is accompanied by high structural unemployment, urban decay, increasing taxes, and out-migration of the highly skilled population.

New Jersey has the potential to reverse these trends, or at least to minimize their intensity. The key to such a reversal is New Jersey's potential leading position in technical innovation.

A well-designed strategy to restructure New Jersey's economy will have to be based on a comprehensive program to exploit the State's comparative advantage for technical progress. The State is well equipped to meet this challenge. It has extremely well developed research centers and an innovative and well qualified labor force.

There are, however, ample indications that this potential is not being sufficiently utilized in the State's economic development.

This paper elaborates on this issue and suggests some initial steps aimed at enhancing the exploitation of the State's comparative advantages.

An introductory section deals with the long-run structural problems of New Jersey's economy followed by a review of the State's comparative advantages in the field of technical progress. Some measures indicate that the State's potential for technical innovation does not find expression in its economic performance. The next section is devoted to a brief examination of the economics of technical innovation. This identifies areas where State assistance might be most effective. Finally, a program of action in New Jersey is drafted with emphasis on establishing a State Office for Promoting Technical Innovation.

New Jersey's Economy

The economy of New Jersey is at a crossroad. Its past, relatively better performance vis-à-vis other Northeastern states is coming to an end. The pace of growth of the State's economy has slowed. This is a reflection of a regional rather than a national trend. For several decades Northeastern states have been losing in economic

* Prepared by Dr. Adam Broner, Director of the Office of Economic Policy.

competition with the more dynamic Southwestern states. The share of the population residing in the Northeast has been falling. Even more profound have been losses in the share of manufacturing investment, employment, and output. New Jersey has faired comparatively better than other old industrial states. Its population has been increasing faster due to net in-migration. Employment in the manufacturing sector of New Jersey continued to grow until the late 1960's. The rate of this growth was much slower than in the rest of the nation but contrasted favorably with most Northeastern states.

However, recessions have been felt more severely in old industrial states and New Jersey was no exception. With only a very slow recovery from the last recession, it is possible that manufacturing employment will not again return to its 1969 peak. Thus, New Jersey may join other old industrial states in a pattern of absolute decline of manufacturing employment.

In the past, employment in other sectors of the State's economy has picked up the slack of manufacturing employment. There are indications that the pace of employment growth in the construction industry, services and public sectors has slowed down and will presumably not return to previous high rates.

For many years, the New Jersey manufacturing sector has achieved relatively higher labor productivity. However, this comparative advantage has also shown signs of diminution in the 1960's.

The pace of economic growth in general, and of labor productivity in particular, is intimately linked to the rate of technological progress. Studies have indicated that a significant, often overwhelming, part of economic growth is due to technological innovations.

In the context of an integrated national economy, patterns of growth of its various geographical parts (regions, states) are much more intricate. Continuous competition is taking place for the best spatial locations of industries. Those regions and states which can offer genuine comparative advantages are attracting new industries. When older industrial states lose their previous advantageous position, they experience an increasing obsolescence of their productive capacities and a slower rate of new investment. Naturally, various industries have specific locational requirements which are not evenly dispersed over states.

The picture is even more complex when, on top of geographic variations in comparative advantages, economic distortions are introduced by Federal regulation, which exacerbate unequal costs of doing business among states. Examples of this kind are welfare expenditures and unemployment insurance taxes which increase taxation of businesses in highly urbanized states. Economic recessions cause higher rates of unemployment in old industrial states and disproportionately increase expenditures for unemployment and welfare.

In order to minimize the impact of these disadvantages, states are enacting various subsidy and incentive programs aimed at offsetting the pattern of decline. It is often claimed that these incentives do not exert the expected impact and at best are taking away some jobs from states which are in a similar situation. Another criticism is that often the incentives do not create additional jobs but provide windfall gains for corporations.

Industrial states with a relatively large share of old and technically inferior capital stock and with a disproportionate burden of social costs stemming from a higher degree of urbanization are at a distinct locational disadvantage. Alternatively, old industrial states enjoy several economic advantages as well. First, the entire Northeast still constitutes a large market because of its population and industrial concentration. Second, its favorable outlet to foreign markets is also a positive asset. Most importantly, the region's accumulation of know-how, human capital, and scientific and financial resources are attributes of utmost importance if properly exploited.

Over a long period of time these advantages of the Northeastern states, coupled with the

absence of a sufficiently developed infrastructure in the Southwest, kept the industrial potential of the Northeast intact without serious internal competition. This situation could not be preserved forever. With the advent of a well developed transportation system and other infrastructure amenities subsidized by the Federal government, and the discovery and development of oil and gas resources, the Southwest became a serious economic competitor. While less urbanized (except California), these states were generally offering lower business costs. Available energy resources was another favorable factor. Finally, large population migration to the South and West shifted the market to those regions.

The old industrial states could counteract these changes by retaining and strengthening their leading position in the area of technological innovation. In fact, the industries which initially moved from the Northeast and located in the South were those which were technologically "backward" (the first being the textile and apparel industries). However, with the passage of time, even this comparative advantage has eroded. The old industrial states are now confronted with a new situation, in which their leading position in technical innovation is increasingly being challenged by the newly industrialized states. In many instances technical innovations (new products) brought to the point of mass production can easily be imitated in any state. The time span between a successful innovation and its broad diffusion has also narrowed considerably.

The commercial life of an innovation is short and any economic advantage is likely to be temporary.

> "Once a new product or a variant of a new product is seen to be successful, rivals will begin to encroach. They will copy, modify and improve, so that they may share in the earning power of the new product. In these circumstances, companies are only likely to retain a lead by continual change."*

Price advantages for new products due to their novelty are offsetting somewhat higher costs incurred by operating production facilities in the Northeast. Hence, in order for companies to retain their leading position and continue to grow, they must pay constant attention to technical innovation.

This is the only way they can retain their leading position and continue to grow. It is sometimes said that "due to our disadvantages, we are forced to run faster in order to stand still."**

This paper contends that when old industrial states fail to innovate vigorously, they begin to lose in economic competition with other states. This is at the heart of the recent difficulties of Northeastern states and of New Jersey in particular. We adopt this as our working hypothesis and proceed to examine the potential for technical innovation in New Jersey and the historical record of its commercial application.

New Jersey's Innovative Potential

The best available measures of New Jersey's innovative potential are statistics of patents awarded to New Jersey residents. The shortcomings of these statistics are at least twofold. First, not all inventions are patented. In some industries where there is minimal fear of disclosure, they are kept secret. Second, not all patents are equally valuable. Some deal with minor improvements in existing products or processes while others lead to significant new developments. Mindful of these shortcomings, a relative measure of patents awarded to residents of various states is nevertheless indicative of the output of inventions and potential technological advances.

In terms of the number of patents per capita, New Jersey is second in the nation, preceded by Delaware and followed by Connecticut and Mas-

* J.E.S. Parker, THE ECONOMICS OF INNOVATION: THE NATIONAL AND MULTINATIONAL ENTERPRISE IN TECHNOLOGICAL CHANGE (London: Longman, 1974).

** Martin T. Katzman and Belden H. Daniels. DEVELOPMENT INCENTIVES TO INDUCE EFFICIENCIES IN CAPITAL MARKETS, A report prepared for the New England Regional Commission, September 1, 1975, p. 71.

sachusetts.* New Jersey's share in total patents awarded to U.S. residents oscillated between eight and nine percent during the 1960's and 1970's, while the share of the State's population is only 3.5%.

The largest contributions of New Jersey patent holders are in the chemical and drug industry, in electrical transmission and interconnection systems, in optics, and in oscillators and amplifiers.

New Jersey is a recognized national center for research and development activities. Approximately 10% of research and development expenditures by American industry and government is spent in New Jersey. Consequently, New Jersey has the highest number of scientists and engineers per capita.

It is not expected that all the ideas incorporated in these patents can be developed into successful new products or technologies. It is also obvious that inventors working in New Jersey research laboratories are serving large multi-national corporations. One cannot, therefore, expect that even those inventions which are selected for commercial development will necessarily be applied in New Jersey. However, the State should share fairly in the exploitation of this potential. In order to tackle the problem, we should ask: Does New Jersey manufacturing take advantage of the opportunities presented by its large output of inventions?

We do not have direct measures to indicate how many patents are used to develop new products or new enterprises in New Jersey. We surmise, however, that if they were applied to a significant extent, this would show up in the rate of growth of output, investment, productivity and exports of New Jersey manufacturing industries. The rates of growth of these indicators in New Jersey should surpass the national rates if the large inventive potential is well exploited. The assumption underlying this expectation is that the above average potential of New Jersey's technological inventive capacity should, *ceteris paribus*, influence above average industrial performance.**

Comparisons provided in Figure 7.1 show that industries which depend heavily on technological advancement did not grow faster in New Jersey than in the rest of the nation. Moreover, in some of them the discrepancies were extremely large; for example, in electric and electronic equipment, transportation equipment and even in the fast growing instruments industry, New Jersey fared considerably worse than the nation.

FIGURE 7.1

GROWTH OF MANUFACTURING INDUSTRIES

Industries	Growth of Value Added 1947-1972 N.J.	U.S.
TECHNOLOGICALLY INTENSIVE INDUSTRIES		
Chemical and Allied Products	5.29	6.04
Electric and Electronic Equipment	4.06	7.78
Instrument and Related Products	6.31	9.68
Machinery, except Electrical	3.75	4.80
Rubber and Miscellaneous Plastic Products	7.80	9.23
Primary Metal Products	2.64	4.02
Transportation Equipment	2.78	6.84
Fabricated Metal Product	5.46	5.47

SOURCE: U.S. Census of Manufactures

* For further details see: 8th ANNUAL REPORT of the Economic Policy Council and Office of Economic Policy, September, 1975, (Chapter VIII).

** A study analyzing New Jersey's patent contributions in various classes and the performance of the corresponding industries will be undertaken by the Office of Economic Policy.

Although comparisons on this level of aggregation are very crude, it is expected that an essentially similar picture would be obtained from more disaggregated comparisons. Thus, the inference is drawn that no discernible impact of the potential of technological inventions is found in the performance of New Jersey's manufacturing sector. This is not to say that technical progress has played no role in New Jersey's manufacturing growth. All it indicates is that technological innovations were not strong enough to counteract the tendency of declining manufacturing in New Jersey.

Elsewhere we have suggested that a continuation over a long period of time of a relatively declining trend of manufacturing output necessarily leads to a lower investment-output ratio.*

By itself a shrinking investment fund makes it more difficult to introduce new products and processes. However, even with a decline in investment funds, some production capacities might be scrapped while those newly erected might embody significant technical changes. If this is the case, then we should observe positive effects on labor productivity. In Figure 7.2 we compare the trend of investment/output ratios and labor productivity in New Jersey and the U.S. The same Figure also presents the share of New Jersey's manufacturing exports for selected years.

On the average labor productivity was higher in New Jersey over the entire period. However, during the 1960's this comparative advantage has diminished. This reflects a lower rate of labor productivity growth in New Jersey in the last decade.

The ratio of investment to output has also declined during the 1960's. Finally, data for 1960 and subsequent years show a diminishing share of New Jersey's exports participation—from 5.4% of total U.S. manufacturing exports in 1960 to 3.7% in 1972. Exports of the United States are to a large extent concentrated on the technically advanced commodities. Participation in U.S. exports can therefore indirectly measure the State's contribution to technical innovations. The data suggests that New Jersey's contribution has diminished during the 1960's.

There is an urgent need to acquire more direct knowledge about the application of new inventions in New Jersey industries. In lieu of this, we have to rely on the indirect indicators presented earlier. The evidence does not suggest that there is above average application of the fruits of technical progress in New Jersey; an opposite inference seems more warranted. Thus, we tentatively conclude that a significant gap exists between innovative capacity in New Jersey and the actual degree of technical progress.

Several tentative explanations can be given for this discrepancy:

1. Many inventions, presumably a vast majority, are patented for multi-national corporations. Even if the headquarters and research and development departments are located in New Jersey, they have production facilities in different states and nations. After a new product or process is developed, output production is located in plants in various states. A reasonable question is why they do not prefer New Jersey as a location. Such a preference could be justified by proximity to the corporations' top management and scientific technological base. The answer may be that management takes into account the possibility that the corporation will be the only producer of the new product for only a short period of time. Once this period is over, production at lowest cost becomes crucial. It is therefore a much safer strategy to locate new facilities in areas guaranteeing comparative advantages. Presumably, New Jersey is not such an area.

2. There may be no direct relationship between the supply of inventions and their application in a particular region. Factors conducive to inventions are different than those favoring the process of translating an invention into a marketable product. These factors do not necessarily appear in equal strength in each area. There are no reasons to assume that strength in

* 8th ANNUAL REPORT of the Economic Policy Council and Office of Economic Policy, September, 1975 (Chapter VI).

FIGURE 7.2

INVESTMENT, PRODUCTIVITY AND EXPORTS OF NEW JERSEY AND U.S. MANUFACTURING INDUSTRIES

Years	Capital Expenditures Over Value Added N.J./U.S.	Labor Productivity N.J./U.S.	Percent of U.S. Manufacturing Exports
1947	0.90	1.09	
1949	N.A.	1.10	
1950	N.A.	1.09	
1951	0.90	1.05	
1952	0.74	1.07	
1953	0.78	1.06	
1954	0.85	1.08	
1955	0.88	1.04	
1956	0.83	1.07	
1957	0.83	1.06	
1958	0.90	1.07	
1959	0.96	1.02	
1960	0.90	1.04	5.4
1961	0.91	1.06	
1962	0.96	1.06	
1963	0.89	1.01	5.1
1964	0.77	0.99	
1965	0.75	1.01	
1966	0.78	1.01	4.6
1967	0.79	1.02	
1968	0.78	1.01	
1969	0.89	1.02	3.8
1970	0.85	1.02	
1971	0.83	1.00	3.8
1972	0.88	1.04	3.7

SOURCE: Office of Economic Policy.

the process of inventions automatically leads to advantages in their application. Effective links between these two basically different activities involve several factors. We will return to examine the requisites in a following section.

3. It has been reported that in some states the lending policies of banks have much to do with the inability to finance new ventures.* Banks usually look at historical data. If for some time a state has experienced lower net returns than elsewhere, banks might be inclined to "redline" that state. It is not clear how far this is a problem in New Jersey but it might certainly be the case for some urban centers. There is a clear need for an in-depth study of the venture capital industry in New Jersey.

Policy Requirements

Two results have been established so far. First, there is a clear discrepancy between the State's potential for technical progress and its actual utilization. Second, New Jersey's economic condition requires a more aggressive approach to exploit the State's comparative advantages. Technological advancement might be one of the most promising avenues to follow.

The basic question is whether concentration on technical innovations is not a losing battle. Despite the uncertainties, it seems worthwhile to pursue this unique opportunity for the following reasons:

1. Equalization of contributions to technological progress will be a prolonged process. One

* Bennett Harrison, THE ECONOMIC DEVELOPMENT OF MASSACHUSETTS, A Report to the Joint Committee on Commerce and Labor of the Massachusetts State Legislature (November, 1974) p. 61.

can imagine some 30-50 years until relative equality between regions may be established.

2. In the meantime, without an active policy by the Northeastern states promoting economic growth by all available means and in all directions, including a prominent role for technical progress, the pace of absolute decline will be hastened. The repercussion of such a decline, already felt in many areas, will be disastrous. Property in cities will continue to deteriorate. The infrastructure will be partially destroyed and, most significant, human suffering (permanent high levels of unemployment) will accompany this decline.

3. Private companies do not consider the avoidance of these losses a positive factor in their location decisions. Quite the opposite: They enter the existence of such conditions as a negative factor either via the physical deterioration of the infrastructure (transportation, energy, crime, etc.) or through higher costs and local taxes.

4. It might be possible to counteract these losses. Ultimately, the factors for equalization will start to eliminate the advantages of the Southwest. First, further industrialization will necessarily result in urban development and concentration, which will increase the costs of doing business in the Southwest as it has in the Northeastern metropoles. Second, subsequent wage equalization will eliminate part of the Southwestern advantage in this area. Third, the cost of technical progress in the Southwest will increase as that region absorbs research and development expenditures to an ever growing degree. Instead of following a policy of technical imitation, the institutions of the Southwest will have to increasingly assume the high cost of inventive and innovative activities. Finally, there are good reasons to believe that over several decades the East will develop its own energy resources through offshore oil development and other sources of energy. All of these trends will take time, of course, and simply waiting for them to occur is not a viable course of action for the Northeastern states.

Why Many Inventions Fail

There are many reasons why most inventions are not converted into marketable products or processes. An attempt is made to outline some typical situations and thereby facilitate an understanding of the underlying difficulties and how they might be overcome.

1. The process of converting an invention into an innovation is full of uncertainties. After the idea of an invention has been crystalized, it often takes years of experimenting, prototype building, testing and improving before a new product or technology can be put on the market. The result of each phase is uncertain and risky. Even when the product is ready, one can still not be sure of consumer acceptance. All these activities require strong commitments and above all sizable expenditures with high risk of failure.

Thus, the development of an invention involves a commitment of large expenditures to a very uncertain outcome. The cost of the research and development phase absorbs only 5-10% of the total cost of a successful innovation.* The number of individuals or organizations willing to undertake such commitments are much fewer than the number of inventions. "If top management reacts to these distressing uncertainties by insisting on more and more assurance of commercial success from research and marketing, fewer and fewer new product suggestions will be made as time goes on."**

Even if a commitment is made, there is no guarantee for success. It has been reported that in the U.S. some 10,000 new products are developed each year, of which 80% die in infancy. It is quite possible that part of this mortality is due to the same cause; namely, withdrawal of commitment. But it certainly is a result of

* TECHNOLOGICAL INNOVATION: ITS ENVIRONMENT AND MANAGEMENT, U.S. Department of Commerce, January 1967, p. 7.

** Howard O. McMahon, "Management of Innovation" in R. Hainer et al. (editors) UNCERTAINTY IN RESEARCH, MANAGEMENT AND NEW PRODUCT DEVELOPMENT (New York, Reinhold Publishing Corporation, 1967), pp. 6-7.

genuine failure for technical or market reasons, or for reasons of personnel difficulties within the company. Management of innovations has become a new function for which many companies are not well prepared.

"In a stable situation, a company can succeed if it has a good production department, a good sales department, and a good research department. Given time enough, these departments can work out their interrelations, at least to a tolerable extent. But there are few stable situations today. To change its direction, a corporation must call upon all of these skills to work together in ways so new that they cannot adjust to each other through the simple passage of time. In particular, any significant change in the product line requires intimate cooperation of specialists with quite different backgrounds and viewpoints."* Failure to achieve such harmonious cooperation inevitably endangers the success of an innovation.

2. Fears of disturbing established lines of production and costly reorganizations may prevent management from backing innovations. Without such "leadership" it is hard to imagine successful completion of the intricate process of technological innovation.

"Management, understandably, is uncomfortable with the idea that a discovery from its laboratories could force a costly reorganization and reorientation of its manufacturing and marketing structure. But it likes even less the idea that a competitor's discovery could do this. Hence, the paradox of companies is that they pursue research but construct all kinds of financial and organizational barriers to preclude excessive research successes."**

3. An important factor stimulating innovation is fear of outside competition and the entry of new firms with radical new products or processes. It has been reported that there are many examples of entrants introducing innovations that established companies failed to develop or actually suppressed.

> "Without competition and the potential threat that a competitor will innovate first, firms and other institutions may well prefer to avoid the risk and the discomfort of innovating."†

Despite the fact that over 80% of research and development dollars in the U.S. are spent in two hundred large companies, many studies concluded that more than two-thirds of the basic discoveries which resulted in important innovations came from independent inventors or small firms.‡ Time and again, small, research-based companies have made big corporations sit up and take notice.¶

Thus, the greater the degree of monopolization, and the greater the amount of capital required to open a new productive business, the less new entries will be made. Under such conditions fewer inventions will be transformed into successful innovations.

4. Inventors outside the well established corporations are confronted with a host of difficulties. Foremost is their inability to find sufficient financing. A recent article by Cy A. Adler stated that the amount invested in new science companies dropped from $349 million in 1969 to a mere $5.5 million raised from the public in 1972.§ Raising money through private or public stockholders was, even in better times, a time-consuming activity for which the inventor is usually not well equipped. Besides, it does not guarantee success.

In this regard the story of the float glass inventor is very revealing. "The innovator of the

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* Howard O. McMahon, "Managemnt of Innovation", *op. cit.* p. 4.

** Antonie T. Knoppers, "A Management View of Innovation" in M. Goldsmith (editors) TECHNOLOGICAL INNOVATION AND THE ECONOMY (New York, Wiley-Interscience, 1970) p. 169 (The author is Senior Vice President, Merck and Co., Inc., Rahway, New Jersey.).

† Keith Pavitt and Salomon Wald, "The Conditions for Success in Technological Innovation," (Paris, OECD, 1971) p. 132.

‡ Robert R. Charpie, "Technological Innovation and the International Economy" in M. Goldsmith (editor), TECHNOLOGICAL INNOVATION AND THE ECONOMY (London, Wiley-Interscience, 1970), p. 6.

¶ Antonie T. Knoppers, "A Management View of Innovation," *op. cit.* pp. 169-170.

§ Cy A. Adler, "Why My Technology Company Failed to Survive," NEW YORK TIMES, October 26, 1975.

float glass process, Pilkington, allocated altogether £7 million to the pursuit of an idea which, many times in the course of its development, would have appeared indefensible at any meeting of shareholders. Pilkington, however, had no outside shareholders. . . . Spokesmen for the industry and for management sciences as well, are inclined to believe that this played a considerable part in the eventual success of the float venture which, in view of the large sums involved, could well have been discouraged within a company accountable to the public."*

Second, inventors are also unable to deal with other entrepreneurial and managerial functions.

> "Research and Development professional people are trained as specialists and are generally unsophisticated in the kinds of unanticipated but relevant issues that crop up outside their specialties, such as entrepreneuring a new product into the market."**

Third, the lone inventor, even if he overcomes initial hurdles, is confronted with a tax disadvantage compared with established corporations. The latter can recoup the inevitable initial losses from developing a new product from profits in old lines of production. Under existing legislation the Federal government is participating in such losses by foregoing taxable corporate income. A newly established company when confronted with such losses must bear them fully. True, such companies are allowed to carry losses over a five-year period. But this might contribute little in the initial period of survival.

Finally, even if the initial financial and other difficulties could be overcome, the new enterprise is confronted with a high debt-equity ratio that makes it extremely hard to reinvest any surplus necessary for the expansion of the enterprise.

A Program of Action in New Jersey

It is worth noting that several states in the Northeast are developing programs to enhance technical progress and promote new enterprise. The next chapter in this report describes in some detail the Connecticut Product Development Corporation. Other New England states are considering the expansion of this experiment. They are also involved in other programs aimed at assisting entrepreneurs and innovators. M.I.T. set up a Development Foundation. In Ohio an Entrepreneurship Institute has been established. On the Federal level, a new institution known as the Experimental Technology Incentives Program started operations two years ago. Most importantly, the recently enacted "National Science and Technology Policy, Organization, and Priorities Act of 1976" (P. L. 94-282) was designed to spur technical progress in close cooperation with the states and the private sector. It states in particular that:

> —"The nation's capabilities for technology assessment and for technological planning and policy formulation must be strengthened at both Federal and State levels."
>
> —It is an "appropriate Federal function to support scientific and technological efforts which are expected to provide results beneficial to the public but which the private sector may be unwilling or unable to support."
>
> —"Scientific and technological activities which may be properly supported exclusively by the Federal government should be distinguished from those in which interests are shared with State and local governments and the private sector. Among these entities, cooperative relationships should be established which encourage the appropriate sharing of science and technology decision making, funding support, and program planning and execution."

A comprehensive program dealing with technical progress in the State of New Jersey will require considerable effort. The proposal presented here is intended to initiate a statewide

* L. Nabseth and G. F. Ray (editors), THE DIFFUSION OF NEW INDUSTRIAL PROCESSES, (Cambridge University Press, 1974) p. 202.

** R.M. Hainer, UNCERTAINTY . . . *op. cit.*, p. V-VI.

discussion on this vital issue and to outline the idea of creating a State Office for Promoting Technical Innovation.

A comprehensive technical innovation program in New Jersey may include:

1. The establishment of a Science Council which, inter alia, will bring to the attention of the Governor and Legislature the problems of accelerating technical progress, and ways and means to develop research centers and science-based enterprises.

2. The development of training programs in New Jersey universities designed to meet the multifaceted qualifications required in the process of technical progress—from inventions through entrepreneurship and management of new enterprises.

3. Expansion of the State educational system. Without such a broadened base the environment for innovative activities will soon become inadequate.*

4. The development of a program of studies to broaden understanding of the process of technical innovation in New Jersey and to improve the management of this process.

5. A program to support financially enterprises which are set up to develop new products and processes.

6. At a later stage, after reviewing the experience of the Connecticut Product Development Corporation, consideration should be given to setting up a similar corporation in New Jersey.

The Office for Promoting Technical Innovation

The chief task of the Office should be the establishment of lines of communication between all parties interested in promoting new products and processes—inventors, venture capitalists, entrepreneurs, production and marketing managers, legal and financial experts. The Office should assist these parties in promoting technical innovations without directly involving the State in carrying out particular projects. The Office should help to overcome all possible obstacles to technical progress—financial, technical, legal, managerial, etc. It should be the focal point for starting new product enterprises. The Office should also function as a liaison between private entrepreneurs and Federal, State and local agencies.

The Office for Promoting Technical Innovation should:

1. Organize teams of inventors and professional experts who will cooperate in the development of selected inventions into commercial products. These teams will cooperate in all phases of an innovation, in particular:
   a. Screen patents and inventions for their market potential.
   b. Assist in feasibility studies and designing new products.
   c. Cooperate in the process of prototype fabrication.
   d. Present opportunities for profitable product development to venture capitalists.
   e. Assist in market studies, new enterprise organization and management.

2. Assist the parties in overcoming various financial, legal and entrepreneurial difficulties which arise in the developing process. In particular, it should advocate the interests of these enterprises before State and local agencies and introduce the new company to the Economic Development Authority.

3. Inform inventors about available research and development grants from Federal sources and assist in the preparation of applications.

* Some industrial organizations have deliberately and admittedly established their laboratories near Princeton or near Rutgers to take advantage of the university climate.", J.R. Pierce, A.G. Tressler, THE RESEARCH STATE: A HISTORY OF SCIENCE IN NEW JERSEY (Princeton: D. VanNostrand Co., 1964) p. 134.

4. Propose legislation aimed at promoting technical progress.
5. Publish information and promote its activities to the public at large.
6. Develop a code of behavior and other regulations necessary to preserve the confidentiality of the invention and the integrity of the Officers and participants in the product development.
7. Seek Federal financing assistance for its operation.

It is assumed that the participating parties will volunteer their cooperation in these mutual ventures because of potential gains. The *inventor-innovator* will be given a good chance for his ideas to be realized. The risk that the invention will fall into undesirable hands will be minimized. The inventor will have a chance to co-own the future enterprise.

The *venture-capitalist* will be given the advantage of participating in a new venture which was preselected by a team of competent experts, thus significantly reducing the risk. The cost of developing new products under this arrangement should also be reduced because of some volunteer work of other specialists in the new venture.

The *entrepreneur* will have the opportunity to cooperate with a team of experts without any cost except his own talent and time. The reward is the possible co-ownership of a successful new business.

The *engineers, managers, and other specialists* would be offered the opportunity to develop and co-own a new enterprise in exchange for services rendered at below prevailing salaries in the initial phases of development of the new venture.

The Office for Promoting Technical Innovation will thus rely on individual initiative of the interested parties, induce new entries and stir competition. The Office will not develop the new products or processes by itself, nor will it assume ownership of the newly established enterprises. The latter will be entirely private, although initially assisted in various forms by the State and Federal governments.

Financial Assistance to New Product Developers

1. The main source for financial assistance for projects which were carefully selected through the procedures established by the Office should be:
   a. Conventional financing through commercial banks, savings banks, savings and loan institutions, insurance companies, finance companies and mortgage companies.
   b. Federal government financing, including guarantee participating and direct loans through the Economic Development Administration, the Farmers Home Administration and the Small Business Administration.
   c. Direct grants from the Federal government.
2. In cases of worthwhile and feasible projects for which no outside sources of financing could be secured the State should be the financier of last resort.
   a. The Office for Promoting Technical Innovation should be authorized to establish a revolving fund for the purpose of granting low interest loans to inventors and product developers. Such loans should be granted to those projects whose benefit to the State and its citizens can be clearly demonstrated, but whose certainty for producing immediate profits is limited.
   b. The Economic Development Authority or a special authority should be empowered to establish a separate risk venture fund by means of its bond issuing capacity in order to aid the financing, either by direct loans or in concert with other financial institutions, of new product developments deemed promising by the Investment Council of OPTI.

The State should be interested in such development for its potential to induce growth, broaden the future tax base and reduce expenditures for unemployment. The social cost-benefit balance sheet is definitely favorable.

The emphasis of the Office should be on assisting the technologically intensive small enterprise. This is not only in agreement with the role of small businesses in developing new technology in the past but also in accordance with its presumed future role. This is well expressed in the following statement.

"The goals of small enterprise in the years ahead ought to be strongly aimed at breaking the fetters of the status quo in pedestrian business by moving boldly into the wonderland of new technology, developing new products, new processes, new methods of distribution, new sources of energy and raw materials. These are high risk areas, but they also offer the greatest potential opportunities. Such firms must be given proper incentives, adequate financing, and freedom from unfair and crippling restraints, because they unquestionably offer the quickest and surest way to increase the nation's productivity."*

The success of the Office's activity should be measured not only by the number of new product enterprises established with its assistance but by its power to induce the established corporations to act more decisively on the forefront of innovation.

* GOVERNMENT EXECUTIVE. October 1975. This statement is attributed to Thomas S. Kleppe, Secretary of Interior (formerly head of the Small Business Administration).

VIII

THE CONNECTICUT PRODUCT DEVELOPMENT CORPORATION*

"The major task of government in the area of technology is not to supplant private enterprise but to complement it through research and experimental development programs which reduce uncertainty; it should only undertake those tasks which market and other imperfections inhibit industry from doing."

ROBERT GILPIN
"Technology, Economic Growth
and International Competitiveness"

States, which are simply regions defined by politically created boundaries, function in many ways like small countries. Their concerns, particularly about the health of their economies, parallel those of the nation as a whole. The differences, as frequently pointed out, are that states have fewer economic options. They cannot print money, are not supposed to spend more than they take in, and because of the federated nature of our country, have no direct control over interest rates or levels of the major (Federal income) tax imposed on their residents.

Most economic problems lie beyond the reach of their policy powers; but that is not true of employment or, more correctly, unemployment. Next to the provision of services, states have no greater responsibility than striving toward a full employment economy. Despite that responsibility, states have developed few effective weapons to battle a sluggish economy and the unemployment it creates.

Their methods are conventional and conservative. The most common is an appeal to the Federal government for action or assistance. After that has been done, they exercise their own options. In the short term, state governments may increase the number of publicly financed projects—stepping up the construction of highways or the building of schools or other public structures—to spur employment in the construction industries; or they may institute broader manpower training programs or pass more liberal tax incentives for business.

In the long run, states step up on-going campaigns to attract new industry. The typical approach is to let it be known that the state is definitely "pro-business" and anxious to help a company make its home in the state. As incentives, states in cooperation with local governments have done much to ease a firm's financial burden, from providing low interest financing for industrial development (made possible by

* Prepared by David T. Mayberry, an economic news reporter for the Evening Gazette in Worcester, Massachusetts. He wrote this report in May, 1976, while an Alfred P. Sloan Fellow in Economic Journalism at the Woodrow Wilson School, Princeton University, Princeton, N.J.

issuing non-taxable municipal bonds) to granting exemptions on local property taxes. Although they are widely used, such traditional methods of economic development are not universally successful. The net gains, particularly for older states with declining economies, are minimal.

Connecticut is pioneering a different approach. In May, 1972, the Legislature created a quasi-public agency called the Connecticut Product Development Corporation (CPDC) to help rejuvenate the state's economy by investing in the private enterprise development of new products. We bring the Connecticut experience to the attention of State government leaders in order to illustrate the possible role of State policies in the area of economic stimulation and the creation of private sector employment.

The undertaking is, by any standards, speculative. But the possible payoff—a projected 30,000 to 100,000 new jobs in the state in 10 years—made the authorized investment of $10 million seem worthwhile, particularly at the time it was approved. For then, as now, Connecticut's unemployment rate was substantially above the national average.

Not surprisingly, Connecticut's unique approach to economic stimulation—gambling with public money on private ingenuity—has attracted attention.

The Experimental Technology Incentive Program, a project of the National Bureau of Standards, has shown its interest by giving CPDC $300,000 to invest in new product development projects. In return, ETIP hopes "to determine whether similar or other R & D (research and development) incentives should be incorporated in Federal policy." ETIP considers the Connecticut experiment of such "paramount interest" that "it is likely that ETIP would seek to initiate an entity such as CPDC if the latter did not exist."*

At least six states are closely watching CPDC, including Massachusetts where legislation proposing creation of a similar program has already been written. In New Jersey, the State Office of Economic Policy has prepared a preliminary report recommending state assistance for technological development.

The New England Governors' Conference and the New England Regional Commission are also eyeing capital investment in private business as a way to combat regional unemployment.

Is this interest in CPDC warranted? Before starting the evaluation, it will be helpful to review the history of the corporation and explain how it works.

The Background: Smooth Start, Long Delays and Slow Progress

The idea to form a corporation like CPDC came out of a bipartisan task force for full employment assembled in 1971 by Governor Thomas J. Meskill to deal with the state's soaring unemployment. It was not original. It was inspired by Great Britain's National Research Development Corporation, a government organization that invests in and exploits inventive ideas and development activities aimed at technological innovation with commercial possibilities.

The idea was translated into the Connecticut Product Development Act, introduced to the Legislature and passed with little dissent. An article from *Business Week* picks up the story there.

> "When the state Legislature voted last year (1972) to form the corporation—and to finance it with a $10 million state bond issue—the lawmakers had one objective in mind: create skilled jobs for Connecticut's work force, which had been hard hit by the recession and the sharp cutback in spending for defense and aerospace programs.
>
> CPDC is the only state agency in the nation designed to bet public seed money

* This comes from an unpublished "Executive Summary" of the Connecticut Product Development Corporation prepared by the staff at the Experimental Technology Incentive Program.

> on technologically innovative ideas that are at an embryonic stage and nurse them to a full-scale working prototype of a product. Selection of the first ideas to be supported will begin next month (March, 1973)."*

The corporation did, in fact, approve two projects by that March. But then CPDC ran into legal and political complications that prevented it from making its first project investment until January, 1975, thirty-two months after it was created.

The main cause of the delay was a court suit to establish CPDC's constitutionality and its right to use money raised by the state bond issue to speculate on risky business ventures. The suit became necessary when the state's bond counsel, Hawkins, Delafield and Wood of New York City, refused to endorse a state bond issue because CPDC was to receive a share of the proceeds. The bond counsel felt the state's courts should affirm the legality of the program before any bonds were marketed. Such affirmation would eliminate investor uncertainty as well as establish a needed precedent for this new use of public funds.

Under Public Act 248, which created CPDC, the corporation depends on state bond sales for both its operating and investment funds. So the constitutionality suit severely curtailed CPDC's activities.

While the court deliberated, however, CPDC attracted Federal grants from two agencies. In addition to the $300,000 from ETIP mentioned earlier, the Connecticut program also received $290,000 from the Federal Economic Development Administration to cover its operational costs through Fiscal Year 1977. In exchange for its investment, ETIP obtained access to CPDC's records for five years and hired Charleswater Associates Inc. of Boston, Massachusetts, to monitor and report on the corporation's progress. Much of the information on the constitutionality case presented here comes from the March, 1976 semi-annual report on CPDC prepared by Charleswater Associates.**

Because of the origin and nature of the suit, the purpose was clear from the beginning. Establish or reject the validity of the legislative act creating CPDC. There was nothing personal involved. In fact, CPDC had to locate two citizens to file the suit and serve as plaintiffs.

In arguing for a declaratory judgment against CPDC, attorneys for the plaintiffs focused on:

—the speculative and unsecured nature of investments CPDC would make to private individuals and businesses.

—the assumption, which they said could be false, that "successful" projects would achieve the objectives of increasing jobs and tax revenues in the state.

—the absence of adequate safeguards over awarding project support.

The state attorney general defending CPDC's constitutionality claimed the state has a responsibility to foster industrial and commercial development. He contended the use of public money for the development of private products would boost employment and public revenues. By reviewing CPDC's mandate, the defense also showed that care had been taken to assure responsible execution of legislative intention. Standards existed to cover CPDC matters ranging from the composition of the board of directors (four of the six have to be experts in technological innovation development) to the conditions of the financial markets (not a penny of public money is to be invested if money from private sources is available).

In addition, the defense stressed a more fundamental point: Public policy made by the Legislature should be overturned only when found to be clearly invalid. To do otherwise undermines public trust in the representative system and in elected officials.

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* "Connecticut Gives Seed Money to New Ideas," BUSINESS WEEK (February 24, 1973), p. 74.

** Charleswater Associates, Inc., ETIP EXPERIMENTAL NO. 78: DATA COLLECTION SUMMARIZATION AND INTERPRETATION FOR ETIP PROJECT CONNECTICUT PRODUCT DEVELOPMENT CORPORATION, Semi-annual report, March, 1976, p. 14.

Finally, on August 14, 1974—a year and four months after the issue was raised—the constitutionality suit was resolved. The Connecticut Supreme Court ruled in favor of CPDC: the legislation creating the corporation was constitutional.

In its unanimous decision, the court said it was satisfied that the Legislature had established adequate directions for CPDC's operation. The required review of projects, contracts with companies or individuals receiving support and authority of the State Bond Commission to control CPDC funding serve as safeguards for proper expenditure of public money, the court concluded.

The importance of the Connecticut court case should not be overlooked. According to Charleswater Associates:

> "The whole question of the proper expenditure of public funds in the realm of economic development is important to all geopolitical entities. It is likely that legislation similar to CPDC would be challenged in most states."*

The court case was not CPDC's only problem. As a quasi-public agency, the corporation is also sensitive to political developments and 1974 was a gubernatorial election year in Connecticut. It was a time of political turmoil. Meskill had decided against seeking reelection and as a lame duck governor was unwilling to approve funds for CPDC with the election so close.

CPDC's funding is controlled by the Governor even though the Legislature authorized a $10 million bond issue. By state law, the chief executive must okay the bonds before the State Bond Commission will sell them. So again CPDC had to wait.

After Ella Grasso was elected, Kenneth Willis, Acting CPDC President and its chief administrative officer, said she had to be convinced of the corporation's value.** Apparently she has been. To date, the state has provided CPDC with $450,000.

The slow start-up for CPDC comes as no surprise. As the first-in-the-nation program of its kind, there were few precedents to guide those involved. What is surprising according to Richard Penn, the CPDC expert at ETIP, is how slowly the corporation has moved since. Penn considers it disappointing.

> "I know they have to walk before they can run," Penn said. "But what the people there need is to get off their duffs and get some projects funded. They have approved only six so far and they have been in operation over a year."

Willis, who heads CPDC's four member staff, reports that 12 projects have been approved and $600,000 committed to them. About $200,000 of that amount has already been spent. The project commitments range from $12,000 to $192,000. For every $60 CPDC invests in a product's development, the private developer must put up $40. It is believed that this 60-40 matching fund arrangement protects the state against investing in inefficient and financially unsound ventures. The private enterprise must have enough confidence in the product being developed to invest some of its own money, otherwise the state won't participate.

There are advantages to having the CPDC as a development partner. The corporation charges no interest on its money. Instead, it negotiates a contract with the private developer requiring reimbursements or royalties only after the product has been successfully developed, manufactured and sold. The royalty rate is usually 5 percent of sales up to a maximum of five times the corporation's investment, according to David King, the principle CPDC researcher with Charleswater Associates. Then the royalty rate drops down to a lower percentage.

If the product fails, the investment is written off as a loss. CPDC's largest commitment is to

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* Charleswater Associates, Inc., *op. cit.*

** This and other statements attributed to Willis, Richard Penn, and David King were obtained during telephone interviews.

TIE Communications for the development of a phone system for in-house communication. The proposed system uses fewer wires than conventional systems and would therefore be easier to install. It is estimated that this product, if successful and brought to the stage of production and sale, will create 200 new jobs. Not all of those will necessarily be in Connecticut. CPDC realizes that market conditions may make it more profitable for a firm to produce a product in another state or even another country. In that case, Willis explained, CPDC would assess a higher royalty rate to justify its investment.

CPDC prefers to deal with "established small and medium sized companies," Willis said. This preference for existing businesses employing between two and one hundred people is based on practicality. It is much easier if CPDC's development partner has business experience and knows the market it is aiming at. But it is not essential. The act creating the corporation imposes no limitations. New product proposals can come from individuals or schools as well as companies. In fact, one of the approved product development projects—for a new kind of medical instrumentation—was proposed by a nurse with no prior business experience.

Between 200 and 300 product development proposals have been submitted. Many of the earlier ones were of the "crackpot variety"—suggestions for a perpetual motion machine or a crystal that can be dropped in a gas tank to double mileage. But since a promotional mailing to 600 companies last year, Willis reports "a higher rate of sensible applications." The ratio of applications worth serious consideration now runs between 1-in-10 and 1-in-20.

Proposals are evaluated in two stages. The initial screening is done by the corporation's technical staff. The most promising are then examined by the corporation's six-member board of directors. These directors are seen as both a strength and a weakness in the corporation's organization. Because they are private citizens and serve gratis, they can rebuff political pressure and hopefully, in this way, enable CPDC to make investment decisions on merit alone.

On the other hand, their volunteer status limits the amount of time they are willing to devote to CPDC meetings. ETIP considers this a key factor for the corporation's slow progress in making investments.

The Assumptions: Ideas, Market Failure and State Exploitation

Government involvement in technological innovation is nothing new at the Federal level; it is new, however, at the state level. And for that reason it is important not to confuse the role of CPDC with the broader entrepreneurial function the Federal government has played in such grand undertakings as, say, the space program. Nor should CPDC be confused with private venture capitalists who traditionally receive a share of the stock for financing new companies with products that have technological promise.

CPDC invests only in "new product development in the critical phase of translating an idea into a producible commodity." It funds "only development, not basic research, nor capital equipment and facilities."*

CPDC's target is admittedly high risk. If successful, it will reduce the scientific and technological uncertainty associated with a new product and, in this way, make it a more attractive investment opportunity. Once the product has reached the stage of producible prototype, CPDC's financial backing ends. The private developer must then find money elsewhere to put the thing into production and sell it.

The Connecticut plan is based on three assumptions.

1. There are individuals, schools and companies in the state with ideas for new products worth developing.

2. Many of those ideas are going undeveloped because capital markets are failing to provide necessary financing at affordable rates.

* "Proposal for the Connecticut Product Devlopment Corporation," a publication prepared to promote the creation of CPDC.

3. It is in the best economic interest of the state to correct that market failure and invest in development of the best new product proposals it can find.

Let us look at each assumption.

The first seems indisputable. Connecticut, along with the rest of New England, has a long and established tradition for innovation. In fact, innovation is widely recognized as the region's major comparative advantage. Martin T. Katzman and Belden H. Daniels put it this way in their report to The New England Regional Commission:

> "New England's success in the past has been due to its ability to generate new technologies and new businesses in the face of decline in existing enterprises. . . . This region has a comparative advantage in incubating new enterprises that may ultimately and perhaps inevitably "filtrate" to regions with superior raw materials and market accessibility.
>
> If this region did not have such a dynamic basis for innovation—namely its financial, commercial, cultural and educational institutions—capital outflows from New England would be greater than they are. In other words, these institutions have enabled the region to do as well as it has despite inferior raw materials, market inaccessibility and harsh climate."*

It is difficult to quantify this view without belaboring the region's historical accomplishments. There is, it seems, no precise economic measure of a state's or region's aggregate propensity to innovate. But Connecticut does rank third in the nation in terms of the number of patents awarded per capita. Despite the shortcomings of this measure, economist Adam Broner feels that it is "indicative of the output of invention and potential technological advances."**

If nothing else, the patents per capita figure attests to the state's rich supply of human capital and supports, in part, the conclusion reached by the consulting firm of Arthur D. Little: that the region's greatest attraction to business is its large community of professionals and its well-trained, highly-skilled labor force which is accustomed to working on "threshold technological developments."†

The second assumption—that worthwhile new product proposals are unable to attract financing for development—is also accepted as fact and has been for some time.

In 1954, a report on "Financial Resources of New England" found that:

> "It is in the long-term credit and equity-capital financing that the major problems arise for the new and small firms . . . While it (the average small firm) may have short-term credit arrangements with a local bank and established credit arrangements with suppliers, its ability to obtain long-term credit and capital is often severely restricted."‡

Conditions have changed little. Last fall, Katzman and Daniels wrote that, "Although New England is a highly-touted center of venture capitalism, particularly in the Boston and Hartford areas, there is little external private financing available for product development."¶

The main reason for this now, as it was then, is the high risk associated with such investments.

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* Martin T. Katzman and Belden H. Daniels, DEVELOPMENT INCENTIVES TO INDUCE EFFICIENCIES IN CAPITAL MARKETS, a report prepared for the New England Regional Commission and the International Center of New England, Inc., September, 1975, p. 22.

** Adam Broner, "New Jersey's Comparative Advantage for Technical Progress (A Proposal for Action)," see Chapter VII.

† Arthur D. Little Co., NEW ENGLAND: AN ECONOMIC ANALYSIS, a report prepared for the New England Regional Commission, November, 1968, p. 14.

‡ Edward K. Smith under the direction of Arthur A. Bright, Jr. "The Financial Resources of New England and Their Use," in THE ECONOMIC STATE OF NEW ENGLAND, the report of the Committee of New England of the National Planning Association, New Haven, 1954, p. 407-408.

¶ Katzman and Daniels, *op. cit.*, p. 23.

But the situation has been aggravated by the greatly increased demand for the country's capital supply. Princeton University economist Robert Gilpin explains:

> "All innovation requires an increasingly greater capital investment at each succeeding stage in the innovative process from R and D to the commercial launching of a new product or process. The acquisition of such venture or risk capital has always been a serious problem for the individual or corporate entrepreneur. By definition, innovation is risky. The more innovative the process or product, the more risky and more difficult to find funding. For this reason, most venture capital comes out of the firm's retained earnings or from government contracts.
>
> The increasing demands for capital to finance energy development, to overcome the materials shortage and a host of other major social and economic needs has produced what is commonly called a "capital gap." These pressing needs and the general decline of corporate retained earnings, it can be argued, have accentuated the problem of sufficient venture or risk capital to finance innovation in American society."*

If large corporations are finding it difficult to finance innovation, individuals and small companies with ideas for new products must be finding it impossible. And those located in New England probably find it more impossible than most.

After studying the capital situation in Massachusetts, the bias against New England companies was reported by Bennett Harrison, an economist at MIT. He found that commercial banks there practice a form of regional "redlining." The rationale for the practice is that over the past two decades investments made inside the Bay State have resulted in lower rates of return than those made outside. Because these historical rates of return are used in estimating expected rates of return on future investments, many banks and other institutional investors export their capital.**

What Harrison found in Massachusetts applies to the rest of New England as Warren A. Johnson, a Rhode Island banker, observed in 1972. "The rates of return that our industries (in New England) enjoy are below average and may be less than needed to attract funds in the open market."†

What about the third assumption? Is it really in the best economic interest of the state to correct his capital market failure and invest in the development of new products by private enterprises? The answer to that question depends on the contributions CPDC can make to the state's economy. Because of its speculative nature, those contributions fall into two categories—1) what will be accomplished regardless of the fate of the projects the corporation supports, and 2) what will be accomplished if the investments pay off.

The Sure Returns

CPDC serves as an economic catalyst. Through its investments, it stimulates economic activity in the state.

In fact, money channeled through CPDC has a greater impact on the state's economy than direct state spending. There are two reasons for that. First, money invested by the corporation must go to individuals, schools or companies located in the state. And second, those individuals, schools or companies must match the CPDC investment 60-40. That means every $60 investment made by the state through CPDC results in $100 of actual spending.

If the Governor allocated all $10 million authorized for CPDC by the Legislature and

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* Robert Gilpin, TECHNOLOGY, ECONOMIC GROWTH, AND INTERNATIONAL COMPETITIVENESS, a report for the use of the Subcommittee on Economic Growth of the Joint Economic Committee of the U.S. Congress, July 9, 1975, p. 46.

** Bennett Harrison, THE ECONOMIC DEVELOPMENT OF MASSACHUSETTS, a report to the Massachusetts Legislature's Joint Committee on Commerce and Labor, November, 1974, p. 61.

† Warren A. Johnson, "Generating New England Growth," ENGLANDER (April, 1972), p. 25.

the corporation invested it exclusively in product development (ignoring, for the time being, administrative costs and Federal grants), the program would generate $16.7 million worth of business even without a single success.

Using the CPDC guideline of one job for every $20,000 spent in the development stage, an investment of that magnitude would, in theory at least, support 835 jobs for a year.

The results are impressive. They become more so when it is realized, that, if the first two assumptions underlying CPDC are true, none of this spending would occur without CPDC.

But the cost of this economic activity must not be overlooked. If CPDC fails to back commercially successful products, the state and, ultimately, the taxpayer will have to foot the bill. In that event, the issue becomes complicated. Was the temporary stimulation worth the price? Did the higher level of spending and resulting increase in tax receipts justify the expenditure? What effect did government support of private enterprise have on businesses in general? Did more companies decide to stay in Connecticut or move there because of the state's improved "pro-business" attitude?

Unfortunately, those questions are impossible to answer. Some require value judgments. Others could only be answered by actually analyzing employment, tax and company census data before and after the fact. The outcome is much simpler if, as predicted, some of the products CPDC helps develop prove commercially successful.

The Possible Returns

A big gamble should promise a big payoff for winning. And CPDC does. According to its own projections, the corporation should:

—Become self-supporting within 10 years. Royalties from successful products will enable CPDC to pay back its share of the state bond issues (principle and interest) and provide a surplus for investment in other new product ventures.

—Contribute, through its investments, to the creation of 30,000 to 100,000 new jobs. This projection, made by CPDC Acting President Willis, seems, at first glance, incredibly high. But calculations using CPDC employment guidelines (including two service sector jobs for every three new industrial jobs) show it is possible, although not likely, to realize job gains near the lower end of that range.

—Increase, as a result of its investments, state revenues, particularly through the sales and corporate profits taxes.

—Strengthen the state's technological and industrial base.

These returns, of course, are predicated on success. The question is, what constitutes success?

CPDC expects to score on 1-out-of-3 investments for a respectable average of 33 percent. According to the *Business Week* article, that forecast is based on the success ratio of Great Britain's National Research Development Corp. (126 successes out of 364 projects for a quarter century average of 35 percent) and on the personal new product experience of Joseph F. Engleberger, then chairman of CPDC's board and president of two private innovative companies.*

Work done by economist Edwin Mansfield suggests a lower ratio of success is more likely. Gilpin summarizes:

> "While the probability of failure decreases as one proceeds along the spectrum from basic research to commercial development, the rate is still high at the product stage. According to a study by Edwin Mansfield, for every 100 projects that were begun, 57 were completed technically, 31 of this number were commercialized, and only 12 of the 31 were marketing successes."**

* BUSINESS WEEK, *op. cit.*, p. 74.
** Gilpin, *op. cit.*, pp. 39-40.

Mansfield's findings indicate success averages ranging from 12 to 39 percent depending on where in the development process investments are made. Even if CPDC were blessed and able to avoid investing in any product developments that could not be completed technically, the success ratio, using Mansfield's figures, would be 12 out of 57, or 21 percent.

Unfortunately, it is too soon to check these predictions against the empirical evidence. CPDC simply has not been in business long enough to establish a record worth analyzing. That will take three to five more years. In the meantime, what conclusions can be drawn from this study?

Conclusions:

CPDC indicates Connecticut has recognized at the state (regional) level what has been known for some time at the national and international level; namely, that a high cost economy—such as that of the industrialized Northeast—must innovate and adopt new technologies to remain competitive in a country and world where established technologies gravitate to lower cost locations.

The state's new product development program tries to encourage just such action in its private sector. It will not be overwhelmingly successful. The undertaking is just too risky for that. And yet, as we have seen, there are economic payoffs from merely trying. Some may object to the cost of those payoffs and charge that the program amounts to nothing more than another excuse to transfer public funds to businessmen and high income engineers. But in a state like Connecticut where "the number of administrative, engineering and technical workers more than doubled from 82,800 in 1947 to 176,000 in 1974,"* and the unemployment among them is disproportionately high, CPDC investments in development seem justifiable.

It is also encouraging to note that the few new product projects approved by CPDC are in industries in which Connecticut is an exporter. This was determined by figuring locational quotients for the admittedly broad categories of machinery, instruments and clocks, and electric equipment manufacturing as reported by the *Connecticut Council of Economic Advisors Annual Report for 1975.*

In short, it seems the new product development program is well suited to help meet Connecticut's economic needs by exploiting its comparative advantage.

That may not be true for every state. Other factors will influence a given state's decision on a program like CPDC. Will its existence, for instance, drain investment opportunities away from private markets? Can the development be directed to depressed areas of the state which would benefit most from its economic impact? Is the long-term payoff of such a program acceptable to politicians pressured by elections to come up with "immediate" economic action?

In my opinion, it would be a grave mistake for a state to put enormous emphasis on a program like CPDC. The results are, as yet, too uncertain. But as one investment (and a small one relative to total state spending over a decade) in a portfolio of programs aimed at economic stimulation, CPDC and others like it make good sense.

* CONNECTICUT COUNCIL OF ECONOMIC ADVISORS, ANNUAL REPORT—1975, p. 11.

IX

INTERSTATE MIGRATION AND THE NEW JERSEY ECONOMY*

In a previous study by the Office of Economic Policy, the Middle Atlantic states (New York, New Jersey and Pennsylvania) were found to have a negative migration balance (in-migration minus out-migation) during the 1965-1970 period.** At the same time, the entire Middle Atlantic region was characterized by a positive migration balance of persons between 0 and 8 years of school attainment and an excessive out-migration of persons holding college degrees. The migration trend in the Middle Atlantic region differed considerably from the Pacific region, for example, where a net in-migration of persons with college degrees prevailed. Such a "brain drain" trend reflects deteriorating socio-economic conditions and is of serious concern to policy makers.

It was not clear whether New Jersey followed the general trend of the Middle Atlantic region. Most demographic characteristics would indicate that New Jersey follows a unique pattern. In terms of total population growth, the Garden State was similar to the Southwestern rather than the Northeastern states. The question then arose whether, despite the positive migration balance, New Jersey exchanges persons with higher education for persons with elementary schooling. No ready answer to this query is given in the published results of the 1970 Population Census. The Office undertook a detailed analysis of the 15% sample of Census questionnaires which contained the required information for New Jersey residents. The findings of this study are presented here. The paper provides a characterization of the interstate migration process during the 1965-70 period and its implications for the New Jersey economy.

The Role of Migration in New Jersey's Population Growth

In the quarter century from 1949 to 1973, the State's populaton increased by almost 55%. During the same period, total U.S. population increased by 40.5%. The phenomenon of rapid population growth in New Jersey followed a long interval of very low rates of population growth.† Moreover, it was not a uniform increase. The greatest change in population took place between 1951 and 1963, inclusive. In the past decade, the growth of population has slowed, although it has yet to dwindle to the rates prevailing in the 1930's and 1940's. Figure 9.1 summarizes recent population trends.

* Prepared by Curt Meltzer and Alan Malz—graduate students from Rutgers University and Princeton University, respectively.

** "The Quality of the New Jersey Labor Force," 8th ANNUAL REPORT, Economic Policy Council, 1975.

† John E. Brush, "New Jersey's Population" in Solomon J. Flink, et al., THE ECONOMY OF NEW JERSEY (New Brunswick, New Jersey: Rutgers University Press, 1958) pp. 15-28.

FIGURE 9.1

MIGRATION AND THE GROWTH OF NEW JERSEY POPULATION

Year	Total Population	Annual Increase	Net Migration
1973	7,396,330	66,290	40,871
1972	7,330,040	68,600	38,415
1971	7,261,440	68,635	24,939
1970	7,192,805	89,495	37,303
1969	7,103,310	90,560	41,098
1968	7,012,750	95,300	49,773
1967	6,917,450	96,400	45,903
1966	6,821,050	100,750	46,290
1965	6,720,300	105,740	45,578
1964	6,614,560	111,370	43,740
1963	6,503,190	132,540	63,731
1962	6,370,650	148,490	78,854
1961	6,222,160	151,380	76,874
1960	6,070,780	96,780	23,516
1959	5,974,000	123,000	50,379
1958	5,851,000	123,000	50,822
1957	5,728,000	123,000	50,914
1956	5,605,000	123,000	52,838
1955	5,482,000	123,000	56,086
1954	5,359,000	123,000	55,951
1953	5,236,000	124,000	64,272
1952	5,112,000	123,000	64,215
1951	4,989,000	157,000	101,880
1950	4,832,000	46,000	—2,897
1949	4,786,000	.....	.....

SOURCE: NEW JERSEY HEALTH STATISTICS SURVEY 1973.

Net migration* into New Jersey accounts for a large number of its new residents. From 1951—the first post-World War II year with a positive migration balance—to 1973, interstate migration was responsible for 50% of the State's population increase of 2.4 million persons. In more recent years, the birth rate and the volume of net migration, and consequently the rate of growth of population, have fallen considerably. This is apparent from the last two years for which data in Figure 9.1 are provided. Total population growth minus net migration indicates the amount attributed to natural increase in population. Natural increases of 50-70 thousand persons annually in the 1950's were replaced by increments on the order of 30,000 in 1972-1973. Net migration below 40,000 annually in the 1970's was also significantly smaller than in previous years.

Migration has been an important factor in determining the structure and level of economic activity. It has also influenced the type and severity of the social problems the State faces; e.g., urban decay and income inequality. New Jersey, as an older, advanced industrial state, suffers from the problems of industrial blight and congestion.

The effects of migration on the characteristics of the population can be separated conceptually.

* Net migrants are defined by subtracting out-migrant totals from in-migrant totals.
In-migrants are defined as people living in New Jersey in 1970, but who had been living in another state in the beginning of the time period measured (1965).
Out-migrants are defined as people who were found living in another state in 1970, but were New Jersey residents in the beginning of the time period measured (1965).

We can discuss age composition, geographical location, educational level or income distribution, each in isolation from the rest. It is important to remember that, in fact, these categories combine and interact with one another in a variety of ways. The group of high-income family heads is not precisely identical with that of the highly educated. Not all low-income families live in central cities. Nor do the same statistics have the identical meaning in different situations. What would be considered a low rate of growth for a newly industrializing region may be considered quite high for a post-industrial one. The clarity and simplicity of such classifications are purchased at the price of realism.

1. *Age Composition*—The greatest change in the age composition of the State's population has occurred in the group of very young children and in that of the early middle-aged. Figure 9.2 presents statistical information on the age and sex distribution of net migrants. The data show percentage changes from 1965 to 1970 relative to the non-migrant population in 1965. The largest change occurred in the 22-35 age group. When coupled with the fact that this group also constitutes more than half of all net migrants (not shown in this Figure), it becomes clear that this is the most mobile group of the population. Two other age groups (0-5 and 36-55 years) also show net gains—2.8% and 2.9%, respectively—above the average for all age groups (2.4%).

The different percentage changes of net migrants in comparison to non-migrants suggest the following observation: the average number of children of the migrants at age 22-35 is lower than that of the non-migrant population. This can be inferred from comparisons of the increase of the 22-35 age group by 8.3% and the increment of the 0-5 years age group by only 2.8%.

At the upper end of the age structure, we see that the retirement age group only slightly increased as a result of migration. The same can be observed for the 6-21 age group. Characteristically, in these school and retirement age groups, the State experienced a net out-migration of the male population and only minimal net in-migration of the female population. Consequently, the age and sex composition of migrants suggests that migration in New Jersey adds a disproportionately higher share to the labor force (male and female, 22-35 in age) and a disproportionately lower share to those groups which spend income on college education and retirement services. Put differently, income earned in New Jersey is spent to a large extent outside the State by parents of college students and pensioners. A direct comparison of the

FIGURE 9.2
NET MIGRATION IN NEW JERSEY BY AGE AND SEX, 1965-70
(IN PERCENTAGES)

Age	Male*	Female*	Total*
0- 5 Years Old	....	....	+2.8
6-21 Years Old	—0.7	+1.3	+0.3
22-35 Years Old	+8.3	+8.4	+8.3
36-55 Years Old	+3.6	+2.3	+2.9
56-65 Years Old	—0.7	+0.9	+0.2
66+ Years Old	—0.5	+0.5	+0.1
All Ages—Total	+2.0	+2.7	+2.4

* Percent Change Relative to Non-Migrant Population.

NOTE: All data in this and the following Figures are derived from a 15% sample of households to which a broad questionnaire was sent during the 1970 population census. A one-in-a-hundred sample of individuals was included in the so-called Public Use Sample; i.e., approximately 2 million persons.

SOURCE: 1970 PUBLIC USE SAMPLE—15% Group.

FIGURE 9.3

MIGRANTS BY AGE AND EDUCATION, 1965-70

Age And Years Of Schooling	Non-Migrants*	In-Migrants*	Out-Migrants*	Percent Change of Net Migrants Relative To Non-Migrants
Age 6-21				
0-8	58.6	62.9	45.2	+ 4.2
9-11	21.4	17.3	14.2	+ 2.1
12	12.6	11.6	11.1	+ 2.1
13-15	6.6	7.3	25.7	—35.4
16+	0.8	0.8	3.8	—48.2
Age 22-35				
0-8	8.4	10.3	5.1	+18.7
9-11	18.2	10.3	9.0	+ 4.0
12	47.8	36.4	29.5	+ 6.3
13-15	14.5	21.5	19.4	+ 9.2
16+	11.1	21.5	36.5	—22.5
Age 36-55				
0-8	18.1	19.6	14.2	+ 4.2
9-11	23.5	13.5	10.6	+ 2.0
12	40.8	36.8	32.1	+ 2.5
13-15	10.1	15.8	18.5	+ 0.9
16+	7.5	14.3	24.6	— 6.7
Age 56-65				
0-8	40.6	41.8	35.1	+ 0.9
9-11	22.6	20.2	15.5	+ 1.1
12	23.5	23.4	24.6	— 0.4
13-15	8.2	9.5	11.7	— 1.7
16+	5.1	5.1	13.1	— 9.3
Age 66+				
0-8	61.8	50.3	48.8	+ 0.1
9-11	13.4	15.8	12.2	+ 1.4
12	15.4	20.8	17.7	+ 1.0
13-15	6.2	6.8	7.9	— 1.1
16+	3.2	6.2	13.5	—12.8
All Age Groups				
0-8	40.5	36.3	27.8	+ 3.5
9-11	19.7	13.8	11.6	+ 2.2
12	26.4	25.5	21.5	+ 2.9
13-15	8.6	13.6	20.2	— 6.3
16+	4.8	10.8	18.8	—15.1

* In Percentages.

SOURCE: 1970 PUBLIC USE SAMPLE—15% Group.

number of college students per capita in New Jersey and other states confirms this hypothesis. New Jersey's index of per capita enrollment of students in colleges and universities is one of the lowest in the nation following Arkansas, Georgia and South Carolina. In most states, approximately 4 to 5 persons per one hundred attend institutions of higher education, while the New Jersey average is only 2.9 persons.* Lack of educational opportunities is one reason for the out-migration of the young. No direct statistics on the residence of New Jersey retirees can be cited here, although such a study should be undertaken.

The Educational Level of Migrants

The previously posed question about the educational level of migrants can now be answered. As can be gauged from Figure 9.3, the educational level of the New Jersey population is shifting adversely as an outgrowth of migration. On balance, people with college degrees have been leaving the State. Although this phenomenon appears in all age groups, it is extremely alarming for the youngest age group where its intensity is very high. Almost half of college graduates under 22 years are leaving the State to look for jobs elsewhere. Similarly, in the 22-35 age group, nearly one quarter (22.5%) of the highest educated persons are being lost to New Jersey. In the light of New Jersey's traditional preoccupation with research and development and highly sophisticated industries, this exodus points to a profound deterioration in opportunities for the young.

A similar lack of job opportunities for persons with above high school level education can be deduced from the percentage changes in the group of persons with 13-15 years of schooling. The biggest loss (more than one-third) occurred in the youngest age group (6-21 years) and it was only marginally recompensated by the gains in other age groups.

On the other end of the educational ladder, a reverse trend can be observed. In the 22-35 age group, a significant surplus of in-migrants with 0-8 years of schooling occurred.

In summary, a "brain drain" of significant proportions took place in the late 1960's. There are no signs to indicate that this process reversed itself in the 1970's. There is no doubt that these findings will have to be given particular attention in the design of long-run policies for the New Jersey economy.

Income Distribution

It has already been noted that New Jersey experienced a net out-migration of persons with higher education. It is well known that a positive correlation exists between levels of education and income. By inference, it should be expected that net out-migration of persons with college degrees should reduce the relative share of persons in the higher income brackets. As it turns out, the findings presented in Figure 9.4 do not bear out such claim. Figure 9.4 presents the percentage distribution of income of various population categories and the resulting impact of migration upon that income distribution.

It should be noticed first that in the 0-4 thousand dollar income bracket, the percentage of out-migrants exceeds that of in-migrants. On the other hand, in all the other income brackets the, percentage of in-migrants exceeds that of out-migrants. By itself, this does not indicate whether the number of persons in these income brackets has grown or declined as a result of migration. This is because the number of in-migrants in New Jersey is generally larger than out-migrants. For the first two income groups, where the percentage of out-migrants is larger but the absolute number of out-migrants is considerably smaller than the number of in-migrants, the outcome is uncertain. The answer can be obtained from the last column in which the numbers of net migrants were compared with the non-migrants in each income group.

* "The Quality of the New Jersey Labor Force," op. cit.

FIGURE 9.4

INCOME DISTRIBUTION OF MIGRANTS AND NON-MIGRANTS, 1970

Income (Thousands of Dollars)	Non-Migrants	In-Migrants	Out-Migrants	Net Migrants	Percent Change of Net Migrants Relative To Non-Migrants
0- 2	20.6%	15.4%	23.6%	17.2%	2.5
2- 4	9.4	10.2	11.8	2.6	0.8
4- 6	8.8	8.8	8.0	9.7	3.3
6- 7	3.7	4.3	3.0	8.0	6.3
7- 8	3.8	3.3	3.2	3.2	2.5
8-10	6.2	5.7	4.4	9.0	4.3
10-15	6.7	7.3	5.8	11.1	4.9
15-20	2.1	3.1	2.6	4.6	6.5
20-30	1.1	1.9	1.6	2.6	6.7
30-50	0.5	1.8	0.4	5.0	26.9
50+	0.2	0.2	0.1	0.5	6.2
Not Applicable:					
Under 14 ..	18.7	20.7	17.9	26.2	4.2
No Income .	18.1	18.5	17.7	17.6	2.9

SOURCE: 1970 PUBLIC USE SAMPLE—15% Group.

The percentage changes in the last column of Figure 9.4 suggest that the higher income groups were increased by the migration process. In general, the percentage increases are larger for the higher income brackets.

This result does not necessarily contradict the previous observation that the State has experienced a net outflow of people at the higher educational levels. This can be explained by the fact that most people with college education leaving the State were young and very often did not earn an income in New Jersey.

Geographical Shifts Resulting from Migration

Although geographical shifts of population do not only result from interstate migration, this study is confined to the geographical location of in-migrants to New Jersey from other states. The in-migrants' place of work is compared with that of the non-migrant population in order to detect the underlying geographical shifts. Place of work of the active migrant and non-migrant labor force is classified and compared in five categories: (a) Central Business District; (b) Standard Metropolitan Statistical Areas (SMSA)

FIGURE 9.5

ACTIVE LABOR FORCE BY PLACE OF WORK

Place of Work	Non-Migrants	In-Migrants
Central Business District	9.23%	2.83%
SMSA Central City	13.28	11.53
Ring of SMSA	40.22	39.60
Outside SMSA	31.42	41.23
Not Reported	5.84	4.82

SOURCE: 1970 PUBLIC USE SAMPLE—15% Group.

FIGURE 9.6
ACTIVE LABOR FORCE BY WORK PLACE, 1970
(In Percentages)

Place of Work	Non-Migrants	N.Y. In-Migrants	Pa. In-Migrants	Total In-Migrants
Central Business District	9.23	1.21	6.32	2.83
SMSA Central City	13.28	4.17	20.70	11.53
Ring of SMSA	40.22	20.20	41.18	39.60
Outside SMSA	31.42	61.58	26.14	41.23
Not Reported	5.84	3.84	5.67	4.82
Percent Total	100.00	100.00	100.00	100.00

SOURCE: 1970 PUBLIC USE SAMPLE—15% Group.

Central City; (c) Ring of SMSA; (d) Outside SMSA; (e) a residual group which did not report its place of work.

The main finding from Figure 9.5 is that a much larger percentage of in-migrants were employed outside the SMSA. Viewed from the opposite vantage point, one can see that only 2.83% of the in-migrants work in Central Business Districts, while 9.23% of non-migrants held jobs in these areas. This reflects the well-known phenomenon of shifts in business location from the inner cities toward the open space of the suburbs.

Among the total of in-migrants during the 1965-1970 period, a sizable number came from New York and Pennsylvania (about 200,000 out of 452,000 in-migrants in the labor force age). It is therefore interesting to single out in-migrants from these states for further analysis. Figure 9.6 compares the distribution of work places of non-migrants, total migrants and persons who came to New Jersey from New York and Pennsylvania.

FIGURE 9.7
ACTIVE LABOR FORCE BY WORK PLACE AND RACE, 1970
(In Percentages)

	Non-Migrants	N.Y. In-Migrants	Pa. In-Migrants	Total In-Migrants
WHITE				
Central Business District	9.65	1.05	6.32	2.57
SMSA Central City	12.17	3.96	18.97	10.33
Ring of SMSA	40.62	28.56	42.49	39.64
Outside SMSA	32.35	62.70	26.70	42.67
Not Reported	5.21	3.73	5.62	4.79
Total	100.00	100.00	100.00	100.00
NONWHITE				
Central Business District	4.76	3.77	6.25	5.04
SMSA Central City	25.16	7.55	43.75	21.85
Ring of SMSA	35.91	39.62	25.00	39.22
Outside SMSA	21.55	43.40	18.75	28.85
Not Reported	12.63	5.66	6.25	5.04
Total	100.00	100.00	100.00	100.00

SOURCE: 1970 Public Use Sample—15% Group.

There is a clear distinction between the in-migrants from the two neighboring states. Over 90% of in-migrants from New York found their jobs outside the inner cities and mostly (61.58%) outside an SMSA. Only slightly over 5% were working in the Central Business District and SMSA Central City—a considerably lower share than the non-migratory labor force. A significantly different distribution is characteristic of the in-migrants from Pennsylvania. The combined percentage of Pennsylvania in-migrants (see Figure 9.6) working in the Central Business District and the SMSA Central City is 27%, as compared to 22.5% for the non-migrant labor force. The largest difference appears in the area outside the SMSA where only 26.14% of the in-migrants from Pennsylvania worked compared with 61.58% from New York State.

There are also discernible differences in working places of white and nonwhite persons. This is demonstrated in Figure 9.7.

In Central Business Districts, 9.65% of white non-migrants were employed compared to 4.76% nonwhite. However, 25.16% of nonwhite residents versus 12.17% of white residents were working in the more broadly defined SMSA Central City. Neither the white nor the nonwhite in-migrants from New York have added or significantly changed this pattern, although a somewhat larger percentage of New York nonwhites than whites worked in the Central Business District.

A completely different picture emerges from the distribution of in-migrants from Pennsylvania. An equal percentage of white and nonwhite (6.23% and 6.25%, respectively) in-migrants from Pennsylvania worked in the Central Business District. However, 43.75% of the nonwhite Pennsylvania migrants were employed in the SMSA Central City area. Outside the inner cities, a much higher percentage of in-migrants from New York (both white and nonwhite) were employed. This is not the case for in-migrants from Pennsylvania. Among the latter group of in-migrants, 50% of the nonwhites were working in the inner cities;* only half of that percentage (25.29%) were whites.

One conclusion that follows from the geographical location of the labor force is that the trend toward a larger percentage of nonwhites being employed in the inner cities was strengthened during the 1965-1970 period. This can be seen from Figure 9.8. It should be recalled that among the non-migrant labor force (those living in New Jersey in 1965 and remaining here in 1970), 9.23% were employed in the Central Business District and 13.28% in the SMSA Central City. Among nonwhite non-migrants, these percentages were 4.76% and 25.16% respectively. In these inner city areas, the ratio of percentages of nonwhites to whites for the non-migrant labor force was 1.37:

$$(4.76 + 25.16)/(9.65 + 12.17) = 1.37$$

As far as in-migrants are concerned, the ratio of percentages of nonwhites to whites was 2.84:

$$(5.04 + 21.85)/(2.57 + 10.33) = 2.84.$$

FIGURE 9.8

ACTIVE LABOR FORCE BY PLACE OF WORK AND RACE
(In Percentages)

Place of Work	White Non-Migrants	Nonwhite Non-Migrants	White In-Migrants	Nonwhite In-Migrants
Central Business District .	9.65	4.76	2.57	5.04
SMSA Central City	12.17	25.16	10.33	21.85
Ring of SMSA	40.62	35.91	39.64	39.22
Outside SMSA	32.25	21.55	42.67	28.25
Not Reported	5.21	12.63	4.79	5.04

SOURCE: 1970 PUBLIC USE SAMPLE—15% Group.

* Central Business District and SMSA Central City.

FIGURE 9.9

OCCUPATIONAL DISTRIBUTION AND WORKPLACE IN 1970

	Professional and Managerial Occupations*	All Other Occupations*
Non-Migrants		
Central Business District	0.79	2.15
SMSA Central City	2.82	12.38
Ring of SMSA	10.24	35.71
Outside SMSA	10.08	25.82
Total	23.93	76.06
In-Migrants		
Central Business District	1.18	2.02
SMSA Central City	3.65	9.28
Ring of SMSA	15.02	24.98
Outside SMSA	19.51	24.37
Total	39.36	60.65

* Percentages are calculated only for those in the active labor force indicating a profession.
SOURCE: 1970 PUBLIC USE SAMPLE—15% Group.

FIGURE 9.10

MIGRATION BY OCCUPATION CATEGORIES OF ACTIVE LABOR FORCE (THOUSANDS OF PERSONS)

Occupation	In-Migration	Out-Migration	Net-Migration	Percent of Non-Migration
Professional	78.5	56.2	22.3	6.72
Managerial	36.3	23.6	12.7	6.41
Salesmen	21.9	16.6	5.3	2.95
Clerical	50.4	36.8	13.6	2.87
Craftsmen	29.6	20.0	9.6	3.16
Operatives	46.7	22.5	24.2	5.98
Laborers	8.6	5.9	2.7	3.20
Farmers	0.1	0.2	—0.1	—0.15
Farm Laborers	0.7	0.2	0.5	8.47
Services	16.9	23.4	—6.5	3.06
Household	3.3	0.9	2.4	12.83
Total	293.0	206.3	86.7	3.90

Given the absolute numbers, these two ratios imply that there was a further concentration of nonwhite workers in jobs located in the inner cities.

A cross tabulation of the labor force by work place, migration status, and occupation (Figure 9.9) reveals some further insights:

A shift occurred between professionals and managers and all other occupations. The latter accounted for more than 76% of the non-migratory labor force. Among in-migrants, this group has been reduced to 60.65%. Almost 40% of all in-migrants found jobs in the professional and managerial category.

A comparison of in-migration and out-migration by occupations (Figure 9.10) shows that not only in-migrants in the professional and managerial group increased their share, but also these groups were the fastest growing when net migration is considered.

The professional and managerial group of migrants presumably consists of persons with higher education. A positive migration balance for this group thus counteracts the outflow of young college graduates. It is conceivable that the young college graduates are leaving the State because of lack of opportunities for their unexperienced skills, while the older and more experienced professionals and managers immigrating from New York City and Philadelphia find jobs more easily in New Jersey.

Conclusion

The findings of this study are confined to the period of 1965-1970. At this initial stage, the study of migration was not intended to deal extensively with the underlying causes of migration, whether they are socio-economic, environmental or, perhaps, a combination of many factors. More research is needed to understand these problems. However, some conclusions can be drawn from the preceding discussion.

1. It is clear that the net outcome of migration in New Jersey is unfavorable with respect to the overall educational level of its residents. This is a result of two interrelated phenomena: (a) lack of educational opportunities and (b) lack of jobs requiring college degrees. One can surmise that the overall slowdown of economic development which started in the 1960's is the main contributing factor. Educators and policy makers will have to explain and possibly change the underlying reasons for lack of educational opportunities in New Jersey.

2. Migration is also caused by the living and working conditions in neighboring states. In this regard, the situation in New York City and Philadelphia is decisive for in-migration to New Jersey. Past changes in those conditions have had a significant impact on the intensity and characteristics of the migratory stream to New Jersey. They may contribute in the future to considerable variations in migration stemming from changes in underlying "push factors."

3. One further conclusion from this study is that the nonwhite population is concentrating in the inner cities where job opportunities are diminishing. This adds to the large pockets of poverty and unemployment and ultimately to the blight of urban areas.

4. The design of State policies to alter the migration stream might be extremely difficult, if not impossible. However, some remedial action dealing with specific negative implications of migration can be undertaken. Expansion of job opportunities in the cities and continuous economic growth should be among the most promising to have a positive impact.*

* Chapter V of this report discusses the broader issues of a zero growth policy.

X

NEW JERSEY AGRICULTURE: AN ASSESSMENT*

With this chapter, the Economic Policy Council continues its custom of annually reviewing a sector of the New Jersey economy. As with previous reviews, the primary focus of the chapter is the secular or long-term forces shaping agriculture in the Garden State.

The Economic Importance of Agriculture

What is the magnitude of the agriculture sector in the New Jersey economy?

Any sector can be viewed as standing between those sectors which supply it with productive inputs and those sectors which, in turn, it supplies with its output for further processing or sale to ultimate users. The total economic contribution of New Jersey agriculture consists not only of the income generated by the sector itself, but also that income which it induces in the industries to which it is linked. The total economic significance of agriculture in New Jersey is, therefore, its direct and indirect contribution to the State's economy.

A measure of absolute economic activity used by economists is "gross value-added." Simply put, value-added is the difference between the value of the goods produced in the sector and the cost of materials purchased from others and used in production. The total gross value-added by all sectors of the country's (State's) economy is the Gross National Product (Gross State Product). An index of the relative economic activity of a sector of New Jersey's economy is, therefore, the ratio of the sector's gross value-added to the Gross State Product. In order to measure the gross value-added of New Jersey agriculture, it is necessary to determine both the value of this sector's production and the value of its purchased materials and supplies.

At a highly aggregated level, agricultural production in New Jersey consists of the two broad categories of "crops" and "livestock and their products." Figure 10.1 shows the relative market values of the various agricultural commodities produced in New Jersey in 1973.

In addition to crops and livestock and livestock products for sale to others, New Jersey farmers produce commodities for on-farm consumption. They also "produce" housing services for themselves and these, as well as on-farm consumption of commodities, must be considered in measuring agricultural economic activity in New Jersey. Cash receipts from farm market-

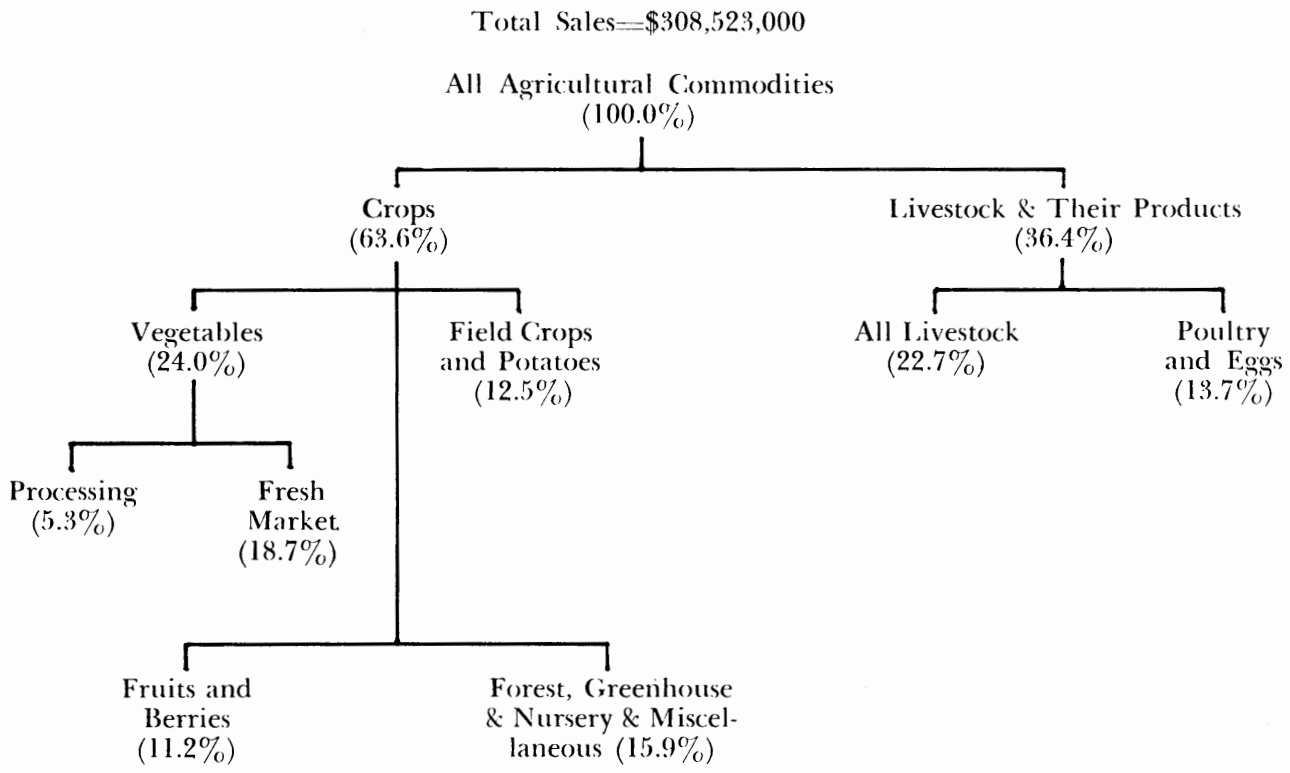
* Prepared by William W. Carmichael, Economist, Office of State Economic Planning.

The Economic Policy Council acknowledges the considerable assistance provided in preparing this chapter by Mr. Eugene Taylor, Chief, Bureau of Agricultural Economics and Statistics in the New Jersey Crop Reporting Service, Department of Agriculture.

We also appreciate the comments of the senior members of the Department staff.

FIGURE 10.1

RELATIVE SALES VALUES OF NEW JERSEY AGRICULTURAL PRODUCTS, 1973



SOURCE: NEW JERSEY AGRICULTURAL STATISTICS, 1975, New Jersey Crop Reporting Service (A Joint NJDA-USDA Activity), 1975.

ings, at $308.5 million, is the largest component of 1973's gross farm income (excluding government payments) of $344.2 million.

In the process of growing and raising their agricultural products, New Jersey farm operators purchase various materials and supplies. For 1973, these items totaled $138 million. Figure 10.2 lists these materials and supplies and Column (1) indicates the dollar amount expended on each.

As noted above for 1973, gross farm income (from other than government payments) equalled $344.2 million, and outlays on material and supplies totaled $138 million. The direct economic impact; i.e., the gross value-added of New Jersey agriculture in 1973 was, therefore, $206.2 million ($344.2 million-$138 million). Gross value-added by New Jersey agriculture in selected post-World War II years appears in Figure 10.3. The 36.5% increase in 1973 in the prices received by U.S. farmers is reflected in the rise in New Jersey agriculture's gross value-added for that year.

In order to measure the value-added generated indirectly by New Jersey agriculture, it is necessary to examine the linkages between farming and the industries that provide it with materials and supplies. These materials and supplies were listed in Figure 10.2. For each of these supplying industries, the appropriate datum is the amount of gross value-added originating in that industry in New Jersey that is attributable to sales to New Jersey agriculture. Such data are not readily available, but must be

FIGURE 10.2

MATERIALS AND SUPPLIES PURCHASED BY NEW JERSEY AGRICULTURE, 1973
(MILLIONS OF DOLLARS)

Current Farm Operating Expenses Net of Hired Labor	(1)	Produced and Purchased in New Jersey: Estimated Percent (2)	Produced and Purchased in New Jersey: Estimated Amount* (3)	Value-Added Created By These Purchases: Estimated Amount** (4)
Feed	$38.5	100	$38.5	$19.2
Livestock	7.0	20	1.4	.7
Seed	10.7	85	9.1	4.6
Fertilizer and Lime	14.6	90	13.1	6.6
Repairs & Operation of Capital Items	24.5	100	24.5	12.2
Miscellaneous	42.7	100	42.7	21.4
Total	$138.0		$129.3	$64.7

SOURCES: Column (1)—NEW JERSEY AGRICULTURAL STATISTICS 1975, New Jersey Crop Reporting Service (A Joint NJDA-USDA Activity), 1975.
Column (2)—THE IMPACT OF AGRICULTURE UPON THE NEW JERSEY ECONOMY, Charles E. Lambert Associates, Princeton, 1968.

NOTE: * Column (3) = Column (1) x Column (2).
** Column (4) = Column (3) x .5. The ratio (value-added) / (value of shipments) for the manufacturing sector is roughly .5. This ratio is used here to approximate the value-added in industries supplying agricultural materials and supplies.

approximated through reliance on reasonable assumptions and related information.

Column (2) of Figure 10.2 contains estimates, for the year 1966, of the percentage of various agricultural materials and supplies produced and purchased in New Jersey.* In the absence of more recent data or firm conviction as to the actual percentages for 1973, these 1966 data have been used to estimate the amounts produced in New Jersey and bought by New Jersey farmers. These estimates appear in Column (3) of Figure 10.2. The value-added created by these purchases, rather than the purchases themselves, is of interest in determining the economic impact of New Jersey agriculture. This value-added can, in turn, be estimated by applying the 1973 (value-added)/(value of shipments) ratio for the manufacturing sector to the industries providing agricultural materials and supplies. When this is done, the value-added estimates in Column (4) of Figure 10.2 result. The assumptions above

FIGURE 10.3

GROSS VALUE-ADDED BY NEW JERSEY AGRICULTURE, SELECTED YEARS
(MILLIONS OF DOLLARS)

	1955	1960	1965	1970	1971	1972	1973
Total Gross Farm Income Net of Government Payments	342.7	331.8	299.6	273.0	270.4	270.8	344.2
—Current Farm Operating Expenses Net of Hired Labor	164.7	144.4	119.3	110.0	115.9	114.3	138.0
=Gross Value-Added	178.0	187.4	180.3	163.0	154.5	156.5	206.2

SOURCE: NEW JERSEY AGRICULTURAL STATISTICS 1963, 1967, and 1975, New Jersey Crop Reporting Service (A Joint NJDA-USDA Activity), 1963, 1967, and 1975.

* These estimates are taken from THE IMPACT OF AGRICULTURE UPON THE NEW JERSEY ECONOMY, Charles E. Lambert Associates, Princeton, 1968.

suggest that in-New Jersey purchases of materials and supplies created $64.7 million in value-added in 1973.

New Jersey agriculture's forward linkages to industries within the State arise out of its sales of farm commodities. Agricultural commodities are sold both for direct consumption and for further processing. Food stores and eating establishments are two major groups that purchase New Jersey farm products which have been processed as well as those which are fresh. In providing for the sale and consumption of these foods, eating establishments and food stores generate value-added. While it might appear appropriate to attribute this value-added to New Jersey agriculture, it seems reasonable to suggest that the absence of New Jersey agricultural products would have little or no effect on the size or activity of these two groups of industries. Processed and nonprocessed agricultural commodities would be "imported" from other states and substituted for New Jersey products. While these "imported" goods might well be more costly, the low price and income elasticities of demand for food (i.e., the low sensitivity of quantity demanded to price changes and income changes) suggest that consumption of food would not decline appreciably in the State.

A major industry group frequently and more realistically mentioned as related to New Jersey agriculture is Food and Kindred Products. Industries which manufacture or process foods, beverages and other related products, are classified within this group. The industry subgroups within Food and Kindred Products are delineated in Figure 10.4.

The relationship between New Jersey agriculture and this major manufacturing group is particularly strong in the area of Canned and Preserved Fruits and Vegetables, Group 203. In 1973, Garden State farm operators supplied vegetables valued at $16.3 million (5.3% of all agricultural commodities and 22% of the total vegetable crop) for further processing. The strongest single influence on the location of the canning and preserving industry is the proximity of the perishable vegetables and fruits it processes. It is, therefore, reasonable to presume that a large portion of this $16.3 million in vegetables was supplied to the canned and preserved fruits and vegetables industry in New Jersey. In this case, other things equal, should production of vegetables and fruits in the State decline below the level required by this processing industry, the necessity to "import" out-of-state raw materials would raise the industry's costs. These rising costs might create pressure for this industry to relocate to a more profitable site outside New Jersey.

The nature of the relationship of New Jersey agriculture to the remaining industries in the Food and Kindred Products group is more problematic. Economic analysis suggests that the manufacture of bakery products, sugar and confectionery products and beverages is related to the presence of the population centers where consumers reside rather than to the presence of agriculture. Within the Meat Products group (201) only Poultry Dressing Plants and Poultry and Egg Processing Plants can be linked to New Jersey agriculture. In 1972, New Jersey farm operators sold cattle and calves, hogs and pigs, and sheep and lambs valued at approximately $19 million. Also during 1972, meat packing plants and firms producing sausages and other prepared meat products expended approximately $372 million on materials, largely unprocessed meat. Were it the case that all livestock sales by New Jersey farmers went to New Jersey firms in these two meat products industries, these industries could still not be characterized as being dependent on Garden State agriculture.

Within the Dairy Products group, Fluid Milk Processing, an industry which generated $49.3 million in value-added in 1972, has historically relied on New Jersey dairy farmers for a significant portion of its unprocessed milk needs.

FIGURE 10.4

OUTPUT AND EMPLOYMENT
IN NEW JERSEY'S FOOD AND KINDRED PRODUCTS INDUSTRY IN 1972

Standard Industrial Code	Industry	Value Added (Millions of Dollars)	Employment (Thousands)
201	Meat Products	111.9	5.2
2011	Meatpacking Plants	55.7	1.3
2013	Sausages and Other Prepared Meats	45.4	3.0
*2016	Poultry Dressing Plants	10.8 (est.)	.9 (est.)
*2017	Poultry and Egg Processing		
202	Dairy Products@	70.5	3.0
2022	Cheese, Natural and Processed	N.A.	N.A.
2024	Ice Cream and Frozen Desserts	14.0	.6
*2026	Fluid Milk	49.3	2.0
*203	Preserved Fruits and Vegetables	190.9	10.0
204	Grain Mill Products@	16.5	1.0
2047	Dog, Cat, and Other Pet Food	6.5	.2
2048	Other Prepared Feeds	7.4	.7
205	Bakery Products	280.2	11.8
206	Sugar, Confectionery Products	95.7	3.8
207	Fats and Oils	73.4	2.2
208	Beverages	313.0	9.2
209	Miscellaneous Foods, Kindred Products	360.9	7.6
2091	Canned and Cured Seafoods	33.1 (est.)	2.0 (est.)
2092	Fresh or Frozen Packaged Fish		
2098	Macaroni and Spaghetti		
2095	Roasted Coffee	268.9	3.6
2099	Other Prepared Foods	58.9	2.0
Total Food and Kindred Products		1,513.0	53.7

N.A. = Not Available due to disclosure restrictions.
@ = Group total includes industries not shown.
* = Industries considered dependent on New Jersey agriculture.
SOURCE: U. S. Department of Commerce, Bureau of the Census, CENSUS OF MANUFACTURES, 1972.

The Grain Mill Products group is represented in New Jersey by the pet food industry and firms manufacturing various prepared animal feeds. This latter category of firms is dependent on Garden State agriculture; however, it has been accounted for in the expenditure of farmers examined above.

The industries in the Miscellaneous Foods and Kindred Products group cannot be attributed to the existence of agriculture in New Jersey.

The available information, therefore, suggests a forward linkage of $251 million.

What, then, is the total value-added assignable to New Jersey agriculture? In 1973 the direct economic contribution to the New Jersey economy was $206.2 million. The value-added attributable to New Jersey agriculture through its backward linkages for 1973 was $64.7 million. The impact assignable to the agriculture sector as a result of its forward linkages for 1972 was determined to be $251 million. While data limitations prevent the 1973 forward contribution of agriculture from being determined directly, available information suggests that the 1972 figure of $251 million is representative of what the 1973 impact would be found to be. The total economic contribution of New Jersey agriculture to the New Jersey economy in 1973 was, therefore, approximately $521.9 million. This $521.9 million is 1% of the 1973 Gross State Product of $52 billion.

FIGURE 10.5

NEW JERSEY: NUMBER OF WORKERS ON FARMS, SELECTED YEARS (THOUSANDS, ANNUAL AVERAGE)

	1965	1970	1971	1972	1973	1974
Family Workers	16	9	9	9	9	9
Hired Workers	17	11	10	11	10	9
Total Workers	33	20	19	20	19	18

SOURCE: NEW JERSEY AGRICULTURAL STATISTICS, 1967 and 1975. New Jersey Crop Reporting Service (A Joint NJDA-USDA Activity), 1967 and 1975.

Absolute and relative economic activity can also be measured in terms of total expenditures. Such estimates are available from data prepared for the New Jersey Department of Agriculture by Charles E. Lambert Associates. Applying relationships determined in a study of New Jersey agriculture in 1966*, Lambert estimated the magnitude of the economic contribution of the industry in 1973.

According to these estimates, approximately $1 billion in expenditures within the State can be attributed to New Jersey agriculture and industries dependent upon it. This $1 billion is approximately 1% of an analogous measure of total expenditures for the State's economy. Lambert also estimated that agriculture and industries related to it, but not necessarily dependent upon it, accounted for expenditures of approximately $1.8 billion in 1973. In comparison to total expenditures in the New Jersey economy, agriculture and these related industries are the source of 1.7% of the total.

Employment is another indicator of the economic significance of an industry. As Figure 10.5 indicates, average annual agricultural employment in New Jersey was 19,000 in 1973.** From Figure 10.4 it can be determined that 12,900 jobs in the Food and Kindred Products major group can be attributed to New Jersey agriculture.

Trends in Post-War New Jersey Agriculture

What are the major trends in post-World War II New Jersey agriculture?

The post-World War II period has witnessed rapid suburban growth in New Jersey, a phenomenon which, like agriculture, relies on extensive use of land. Perhaps not surprisingly, the period from 1950 to 1975 has seen the

FIGURE 10.6

NEW JERSEY: NUMBER OF FARMS, LAND IN FARMS AND AVERAGE SIZE OF FARMS, SELECTED YEARS

Year	Farms (Number)	Land In Farms (Acres)	Average Size of Farm (Acres)	Year	Farms (Number)	Land In Farms (Acres)	Average Size of Farm (Acres)
1950	26,900	1,770,000	66	1971	8,500	1,050,000	124
1955	21,600	1,650,000	76	1972	8,300	1,045,000	126
1960	15,800	1,460,000	92	1973	8,100	1,035,000	128
1965	11,000	1,220,000	111	1974	8,000	1,030,000	129
1970	8,600	1,060,000	123	1975	7,900	1,025,000	130

SOURCES: NEW JERSEY AGRICULTURAL STATISTICS, 1967 and 1975. New Jersey Crop Reporting Service (A Joint NJDA-USDA Activity), 1967, 1975.
New Jersey Crop Reporting Service internal document.

* Charles E. Lambert Associates, op. cit.

** In the peak month of July, agricultural employment totaled 29,000.

amount of land devoted to agriculture in this State contract from 1,770,000 to 1,025,000 acres (see Figure 10.6).

This decline of 745,000 acres reduced the percentage of the State's total land base committed to farming from 37% to the current 21%. Over this same period, the number of farms fell from 26,900 to 7,900 and as a result the average farm grew in size from 66 acres to 130 acres. These data suggest that smaller farming operations have either left the industry or have been absorbed into other units.

The 1969 U.S. Census of Agriculture, the most recent for which complete data are available, indicates that these developments in New Jersey agriculture parallel those in the other Middle Atlantic states and in the nation as a whole. Between 1964 and 1969, farms declined in number in New Jersey, the Middle Atlantic States (New York, New Jersey and Pennsylvania), and in the entire United States by 20.2%, 23.1% and 13.5%, respectively. For these same areas, land in farms declined 10.4%, 17.1% and 4.2%.

What accounts for this decline in the agriculture industry in the Garden State? Nationwide, the number of farmers has steadily declined since early in the 1930's. While there are many subsidiary aspects of the "farm problem" in the United States, there are certain fundamental economic factors which can be identified.

On the supply side of agriculture, technological advance has greatly increased productivity in this industry. Figure 10.7 presents some indices of New Jersey farm production. Total agricultural production in physical terms has both fallen and risen over the last two decades. Output per acre [see Column (4)] has advanced at approximately 1.7% per year over the same period. This increase is partly explained by the growth in the average size of a farm [see Column (3)] and increased reliance on machines and equipment and use of improved seeds and fertilizers.

On the demand side, food consumption in the United States and in New Jersey, while growing apace with population, has not increased as rapidly as income. In addition, the limited responsiveness of demand for agricultural products to price; i.e., its relative price inelasticity, has contributed to the problem of increasing production unmatched by equal growth in consumption.

FIGURE 10.7

INDICES OF NEW JERSEY AGRICULTURAL PRODUCTION SELECTED YEARS (1957-59=100)

Year	Total Agricultural Output* (1)	Output Per Farm (2)	Average-Acres Per Farm (3)	Output Per Acre** (4)
1955	93	77	89	87
1960	106	120	108	111
1965	98	160	131	122
1970	83	173	145	119
1971	77	163	146	116
1972	70	152	148	103
1973	76	168	151	113
1974	82	183	152	120

SOURCES: Columns (1) and (2): NEW JERSEY AGRICULTURAL STATISTICS, 1975, Crop Reporting Service (A Joint NJDA-USDA Activity), 1975.
Column (3): Calculated from data in NEW JERSEY AGRICULTURAL STATISTICS, 1975, New Jersey Crop Reporting Service (A Joint NJDA-USDA Activity), 1975.

NOTE: * Calculated in real terms.
** Column (4) =[Column (2) ÷ Column (3)] x 100.

Farmers face high fixed costs and the vagaries of such forces as the weather, factors that create conditions in which farm prices and incomes can be relatively unstable. In response to the social dislocation caused by these conditions, government has intervened to smooth the extreme variations in farm income and prices and to provide assistance to the farmer in adjusting to long-term changes in the markets for agricultural products. While government policies have reduced instability, they have not eliminated low incomes, and substantial numbers of farmers have left agriculture to join the nonagricultural labor force.

New Jersey, in the post-World War II period, has seen the emergence of a major nonfarm use for farmland. Stimulated by provisions of the Federal income tax code that encourage home ownership, and Federal highway construction programs, population and income growth in the Garden State manifested themselves in rapid suburban expansion. As this nonfarm demand for agricultural lands grew in intensity, the value per acre of farmland for development applications overtook the value per acre in farming. Many farmers faced a choice between the uncertainties of farming and the certainty of realizing a large capital gain by selling their land for development. New Jersey developed a dual market for agricultural land.

The decline of farming in favor of development uses for agricultural land might, with accuracy, be said to reflect fundamental economic forces. There are, however, institutional factors, related to the manner in which government revenues are raised in New Jersey, which have also influenced the amount of farming in the State. The heavy reliance by local government in New Jersey on the property tax as a means of raising revenues, and that constitutional requirement prior to 1964 that all land be assessed at market value, caused taxes per acre to rise rapidly. This clearly put downward pressure on the profitability of farming and provided an incentive to leave the industry.

Since the passage of the Farmland Assessment Act of 1964 in New Jersey, the residential, industrial, and commercial development of farmland has slowed. This Act permits farmland which meets certain minimal conditions to qualify for assessment based on its (lower) value in agricultural use. Opinions differ, however, on the extent to which this slowing can be attributed to the Act.

Critics of the Act describe the conditions for qualifying for preferential assessment as not stringent enough to prevent nonfarmers from benefiting from lower taxation. In addition, critics minimize the deterrent effect of the penalty for converting preferentially taxed farmland to higher density uses (three years of back-taxes based on full market value). In many cases, the penalty is dwarfed by the capital gain to be realized by selling the farmland for nonagricultural uses. These critics explain the slowing of farmland development since 1964 by citing economic factors, environmental considerations and a slowing in the rate of New Jersey's population increase.

Preservation of Agriculture and the Allocation of Resources

A brief summary of the previous section of this paper might consist of one sentence: Market forces have been allocating land in New Jersey away from farming and toward residential, industrial, and commercial uses.

There are those who argue that agriculture should be allowed to disappear so that farmland may be applied to alternative social uses, such as housing. There are, however, other voices calling for steps to halt the downward trend. Both of these positions raise interesting and important economic questions.

It is generally conceded that the market mechanism will allocate resources—land, labor, and capital—with reasonable efficiency. There are three general cases relevant to this discussion, however, in which government interference in the allocation of resources is appropriate.

The first case is that of "collective goods (or services)." These goods have two related characteristics which make it impossible for the market system to supply them. It is the nature of collective goods that they are supplied to a large group and not on an individual basis. In addition, those who will not pay for these goods cannot be excluded from benefiting from them. Consideration of the classic example of a collective good, national defense, clarifies the implication of these two characteristics.

A second case in which government intervention can be justified is that in which "externalities" are present. Externalities exist when social costs exceed private costs or social benefits exceed private benefits. When this occurs, prices, the signals that the market sends to suppliers and demanders, do not include all the relevant information. A water polluter, for example, imposes a cost on society by reducing the usefulness to others of the river, yet the polluter does not bear that cost. The allocation of resources is improved if the government forces the polluter to pay the cost of fouling the water, and in most cases, this causes the pollution-creating activity to become less profitable and to cease or be reduced.

Externalities are also present when private planning horizons are shorter than that of society as a whole. In this case, for example, the preservation, rather than the current exploitation, of a forest may seem rational only if benefits accruing to future generations are considered important in the present. It is frequently said that private individuals and firms have shorter planning horizons than does government.

A third case which invites government intervention arises from a very different philosophical approach. In this instance, government alteration of market outcomes is justified as a substitution of governmental or societal preferences for private preferences as expressed in the market. Government policies aimed at reducing the use of tobacco are an example of this type of intervention. Income transfer programs, such as aid to dependent children, are also in this general class referred to as "merit wants."

In the case of agriculture in New Jersey, those who perceive a need for government to intercede believe that it should do so in order to achieve two related but separate ends. They argue that government must intervene (a) to prevent farmland from being used for purposes of residential, industrial, or commercial development and further, (b) to ensure that land currently devoted to farming continues to be so used. Clearly, the continuation of agriculture precludes the residential, industrial, or commercial development of farmland. In contrast, the barring of these higher intensity uses does not make certain the perpetuation of farming in the Garden State.

What types of reasons are put forward for preserving open space and agriculture in New Jersey? Three categories can be identified.

A first category of reasons consists of the functions played by open space in general, and agriculture ("productive open space"), in particular. For example, by virtue of its permeability, open space assists in the replenishment of the State's water supply. This process of aquifer recharge benefits not only the State of New Jersey, but the wider region as well. Also in this category is the potential of agricultural land to provide a use for fertilizer made from the wastes from urban areas.

A second category consists of the aesthetic benefits of open areas. Just as variety is valued in other contexts, so it is thought that environmental variety provides benefits to all who can observe and experience it.

A third category of preservation reasons stresses the option value of open space. In light of the fact that the future needs and preferences of society are, at best, uncertain at present, preservation of open space permits New Jersey to hold options open at a relatively low social cost. Once committed to roads, factories or houses,

land can be returned to open space or altered as to function only at great social cost.

Preservation of Farming and Open Space

There are those who believe that a case can be made for the proposition that the electorate of New Jersey has expressed a preference for government intervention to "save" open space and agriculture in New Jersey. The Blueprint Commission on the Future of New Jersey agriculture has written that "there are yardsticks to show that [many people in the Garden State] do care [about open space and agriculture]. The Water Bond Act of 1958 (Spruce Run and Round Valley), the Green Acres Bond Issue of 1961, the Farmland Assessment Act of 1964, the Water Conservation Bond Fund of 1969, and the Green Acres Bond Issue of 1971 are five good examples."* The passage of the Green Acres Bond Act of 1974 would seem to be another such indicator.

Assuming that the people of New Jersey have expressed a desire to preserve open space and agriculture, let us examine some mechanisms that might be utilized to fulfill this preference.

At one extreme, land which society wished to prevent development on and wished to see continue in agriculture, might simply be zoned exclusively for farming. This approach could clearly prevent development. Inasmuch, however, as expectations that certain areas will "develop" are widely held, these expectations have come to be capitalized into the price of these lands. Those purchasing land subsequent to the development of these expectations have "paid," in varying degrees, for the right to sell that land for development. Zoning this land exclusively agricultural in perpetuity would cause these landowners to bear the cost of society's preference for open space.

While zoning can prevent development, it cannot command that land available to agriculture be used for agriculture. It could encourage agriculture, however, by forestalling the difficulties that arise when farming and nonagricultural life are in close proximity.

Zoning confronts both political and constitutional difficulties. These problems are thought to be sufficiently great that some observers are of the opinion that farmland cannot be successfully zoned agricultural in perpetuity.

At the opposite extreme to zoning, the State would purchase the land which it desired to have remain in open space or agriculture. This approach is reflected in the New Jersey Green Acres program. In using this mechanism, society is forced to acknowledge and bear the cost of its preference for these particular types of land use.

By taking ownership, society can readily prevent development and insure that the land is available as open space. In addition, it can easily convert the publicly-held land to uses such as parks and campgrounds should these facilities be desired in the future. As with the zoning mechanism, however, the prevention of development does not necessarily ensure the presence of agriculture. There exists, however, wider latitude for ensuring the existence of farming than with the zoning approach. For example, public lands could be leased to private farm operators, with favorable leases utilized as a vehicle for subsidizing farming so as to make it a profitable occupation for the private operator.

Public purchase of the existing farmland in the State, over 1 million acres, is simply beyond the realm of financial practicality. In short, while the Green Acres program may preserve open space and expand the public recreational facilities in the State, the high values per acre and vast acreage involved prevent direct purchase from playing a major role in ensuring the future existence of farming in New Jersey.

In the middle ground between zoning and public ownership, other approaches have appeared. When government exercises its police powers to impose restrictive zoning, it confiscates

* THE REPORT OF THE BLUEPRINT COMMISSION ON THE FUTURE OF NEW JERSEY AGRICULTURE, Trenton, 1973.

one right associated with the ownership of property—the right to make higher intensity use of that land. Some have suggested that rather than confiscate this right, government should purchase it, and this has given rise to the concept of public purchase of development easements.

Conceptually, the public purchase of development easements is relatively straightforward. In the case of farmland, the State would purchase the development rights to the property at a price equal to the difference between its market (i.e., development) value and its agricultural value. The property, now shorn of its development potential, would fall in market value to its agricultural use value, but would remain in private hands. The owner could apply the land to agriculture or related open space uses as profitability or personal preference might dictate.

As with zoning and public purchase of farmland and open space, public purchase of development rights can effectively prevent residential, commercial or industrial use of particular parcels of lands. The ability of public purchase of development rights to ensure the continuance of agriculture on affected property is less certain.

It is not unreasonable to assume that farmland of interest to a development easement program would previously have qualified for prefential (agricultural use value) taxation in accordance with the provisions of the New Jersey Farmland Assessment Act of 1964. In this case, revenues and costs; i.e., farm profitability, are not directly influenced by sale of the development rights to the farmland. Costs may, however, be indirectly influenced by the prevention of higher intensity nonagricultural land uses in proximity to farming. Normal agricultural sounds and activities are sometimes unpleasant to nonfarmers and lead to restrictions that raise the costs and lower the personal satisfaction of farmers. In order to realize this ability to prevent these difficulties, easement purchases must encompass entire farming areas. It must be clearly understood, however, that the purchase of development easements does not inherently ensure the continued existence of agriculture.

There are, of course, many questions surrounding the practical application of a program of development easement purchases. The method of determining, with accuracy, the development and agricultural values of particular pieces of farmland comes most readily to mind. Market values may rise significantly if the State is perceived as having a relatively price-inelastic demand (i.e., lower sensitivity to price) for development rights. Answers to these and other questions may be found as the recently authorized demonstration program in Burlington County proceeds.

Newly enacted legislation has provided for $5 million to be allocated from Green Acres funds to purchase development easements in this farming county. Farm owners will be offered an amount equal to the difference between the market value of their farmland and its agricultural use value. If the offer is accepted, the deed to the land is altered so as to permit the land's sale for farming purposes only.

As has been noted above, approximately one million acres, or 21% of New Jersey's land base, is in farmland. Purchase of the development rights to any large portion of this farmland would surely entail the expenditure of a great amount of public funds. In recognition of this and other difficulties of a public (i.e., State) easement purchase program (such as determination of the appropriate value of the easement) proposals for the involvement of the private sector in the purchase of development rights have been put forward.

In substance, the private transfer of development rights rests on the use of zoning by governments. In order to create demand in the private sector for the development rights to farmland, for example, within well-defined areas, government confiscates through zoning, the development rights to developable property. For development to proceed on nonfarm property, for example, the development rights to farm or other restricted land must be purchased and "transferred." In general, within a municipality

or county, the right to develop an acre in a developable district is acquired by purchasing the development rights to an acre in a non-developable district.

While this approach clearly reduces the cost to the public in general; i.e., the State, it raises the danger that a significant portion of that cost may be shifted to the owners of developable land. The net burden borne by those owners cannot be determined with precision, but it must be noted that the removal of farmland from the supply of developable land raises the value of property still available. The confiscation of the development right to the land, however, reduces its value. This raises the question of the equity of this approach, and alternative versions of the transferable development rights concept have been devised which alter the relative burdens borne by owners of developable and nondevelopable land.

The primary virtue of the private purchase and transfer of development rights is its returning to the market the determination of the value of development rights. The disputes that might arise as a result of the inclusion (or exclusion) of particular parcels of land in a developable district could raise the public and private costs of the program.

A variant of the private-transfer-of-development-rights/zoning approach outlined above is one which involves the State in buying and reselling development rights. Within a defined area, developable and agricultural districts would be established as with the proposal above. In this instance, the State would purchase the development rights to the agricultural land. The rate of development could then be further controlled by varying the price and availability of development rights. In addition, this variant allows the State to recover some, or all, of its development rights purchase outlays.

Conclusion

In general, what is to be said of these programs to prevent development of certain areas and to ensure the continuation of agriculture? The most compelling observation would have to be that they alone cannot save agriculture in New Jersey. While nonagricultural uses of farmland, particularly residential, commercial and industrial application, can be prevented, farming itself will survive only if the relationship between farm costs and farm revenues renders it a profitable occupation. If the citizens of New Jersey wish agriculture to remain in the State, they may have to provide economic incentives to farmers.

XI

RESEARCH PROGRAMS AND CRITICAL ISSUES FOR FUTURE WORK

Unemployment in New Jersey remains at a distressingly high rate.* The Economic Policy Council and the Office of Economic Policy consider this problem to be of paramount importance. Each area of research outlined below is in some respect devoted to an understanding and, to the degree possible, subsequent alleviation of the problem. But, aside from its unemployment-related aspects, each item has its own urgency and is worthy of serious study in its own right.

Recession and Recovery

A particularly vexing problem has been the inability of the State's economy to recover from the last two recessions at the same pace as the nation. Indeed, evidence presented in Chapter II of this report indicates that the State's situation, relative to the U.S., is continuing to worsen. Investigation of this phenomenon will receive high priority. Detailed comparisons will be made of the last two recession/recovery periods in New Jersey, the Northeastern states, and the U.S. It is expected that this study will shed new light on the causes of New Jersey's failure to keep pace with the nation.

Regional Economic Problems

New Jersey is now entering a period of structural economic adjustments which some Northeastern states have started much earlier. Because many of the area's economic ills have a common cause, they can best be dealt with in a joint cooperative effort among Northeastern states. The Council intends to play an active role in formulating an agenda of economic problems which will be investigated jointly either through formal arrangements between Councils of Economic Advisors operating in these states or through Regional Commissions and alliances; for example, the Council of Northeast Governors (CONEG).** It is the expectation of the Council that the problem areas agreed upon will be divided among staffs of the states for documentation, study and outlining of alternative solutions.

Cost Advantages and Disadvantages

There is great need to understand more about New Jersey's comparative cost advantages (or disadvantages) for various industries. Any knowledge gained on comparative labor, capital and other costs (including taxes) is useful information for State officials who make and implement business tax reforms and industrial inducement policies. For example, prospects for inducements could be selected on the basis of the interregional cost differentials that must be overcome. Offering financial incentives to industry where New Jersey is at a great disadvantage, because of higher costs, can be very costly and undesirable; providing incentives where New Jersey holds the comparative advantage is

* 10.8% in June, seasonally adjusted (see New Jersey Economic Indicators, July 30, 1976, p. 1.).

** Includes Governors of New Jersey, Connecticut, New York, Rhode Island, Massachusetts, Pennsylvania and Vermont.

unnecessary. Applying well designed financial-inducement programs where modest cost differentials exist can likely accomplish the inducement goal—and at minimal cost.

Industrial Incentives—Programs and Effectiveness

Partly in response to the well-developed and long-standing programs of neighboring states, New Jersey recently embarked upon a program of incentives for industry. The Council and Office can serve the State by providing information on the necessity, applicability, and feasibility of various inducement approaches. Specifically, there is need to examine the effectiveness of inducements in light of locational disadvantages that must be overcome, recognizing the competition and special problems of other states and giving cognizance to regional as well as State goals.

Business Tax Reform

Chapter VI presents several suggestions for business tax reform; much remains to be accomplished. The Council and Office will continue to pursue this topic in an effort to determine how the tax structure may best be altered to meet the goal of removing deterrents in commerce and industry without destroying necessary revenue sources.

Impact of Offshore Drilling

The recent, surprisingly high bids on Baltimore Canyon tracts provide evidence of large reserves of commercially producible oil and/or gas off New Jersey's shoreline. What the onset of production will mean to New Jersey is largely unknown. One question to address is: How will this affect relative costs of fuel? Will it reduce any advantage that business in the South and Southwest has over New Jersey and the Northeast Region?

Baltimore Canyon production will lie outside New Jersey's offshore limits; hence, the State will not gain benefits being enjoyed by other states having offshore production, yet it will incur costs. Louisiana and other states receive large bonuses, rents, royalties and severance taxes for operations within their legal offshore limits. New Jersey will almost certainly have pipelines entering its legal limits as well as terminal storage and other transportation facilities onshore. This prompts the following question: Should New Jersey look to the Baltimore Canyon activities as potentially valuable revenue sources? States that now produce minerals or hydrocarbons, onshore and offshore, are able to export taxes so they are borne by all users of the production—in-state as well as out-of-state. A program for study during the next year will consider various possibilities of capturing reasonable benefits from the offshore New Jersey production.

Potential for Service Employment

In recent years New Jersey has experienced a decline in the percentages of the total labor force employed in manufacturing and agriculture. Employment in the so-called service industries* has been increasing and, to a large extent, filling the gap. Still, in view of the State's high unemployment rate it is pertinent to ask whether the services sector can continue to expand to replace the deficit caused by the State's declining share of total industrial and agricultural employment in the face of a growing labor force. A study addressing the question of potential growth of service sector jobs is now underway.

State Econometric Model

A number of states now have econometric models which provide useful information on economic interrelationships and which assist them in making economic foreçasts. Their models are developed to varying degrees of sophistication, using data banks of varying size. The Council and Office of Economic Policy will work, in cooperation with other State agencies, toward developing a State model which will be initially very modest in scope but which can be expanded gradually as needed.

* Encompassing wholesale and retail trade; finance, insurance and real estate; government; and "other services" including lodging and personal, business and repair, entertainment and recreation, private household and professional.

XII

APPENDIX

STATISTICAL TABLES

TABLE 1

POPULATION AND EMPLOYMENT, NEW JERSEY, 1956-1975

Year	Resident Population	Work/Labor Force*	Total Employment	Unemployment		Insured Unemployment Rate (Percent)
	In Thousands			Number (000)	Rate (Percent)	
1956	5,516,100	2,406.6	2,263.2	138.6	5.8	4.6
1957	5,631,700	2,448.1	2,290.0	156.8	6.4	5.3
1958	5,739,800	2,472.6	2,248.1	222.5	9.0	7.6
1959	5,960,000	2,483.1	2,303.2	175.5	7.1	5.5
1960	6,070,780	2,507.4	2,337.2	168.5	6.7	5.7
1961	6,222,160	2,543.5	2,355.9	185.5	7.3	6.0
1962	6,370,650	2,575.1	2,415.0	159.0	6.2	5.2
1963	6,503,190	2,618.4	2,447.9	168.8	6.4	5.4
1964	6,614,560	2,655.5	2,489.6	162.1	6.1	4.8
1965	6,720,300	2,724.5	2,582.2	140.0	5.1	3.9
1966	6,821,050	2,790.3	2,665.3	122.6	4.4	3.2
1967	6,917,450	2,854.5	2,721.1	128.3	4.5	3.4
1968	7,012,750	2,920.9	2,783.3	132.1	4.5	3.3
1969	7,103,310	3,019.5	2,882.8	133.5	4.4	3.3
1970	7,192,805	3,114.2	2,940.4	173.8	5.6	4.4
1971	7,261,440	3,155.2(R)	2,939.1	216.2(R)	6.9(R)	5.4
1972	7,322,685	3,209.1(R)	2,996.9	212.2(R)	6.6(R)	5.1
1973	7,371,835	3,297.2(R)	3,080.9	216.3(R)	6.6(R)	4.7
1974	7,408,955(R)	3,363.4(R)	3,095.0(R)	268.4(R)	8.0(R)	5.7
1975	7,433,920(P)	3,393.7(R)	2,979.3(R)	414.4(R)	12.2(R)	7.8

* 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 1975 benchmarks.

Annual average work/labor force and employment data from 1963 on are based on monthly data.

Annual averages for 1962 and prior years are based on bi-monthly data.

All population data as of July 1; estimates for July 1, 1975 are provisional.

Labor force estimates are developed from the State preferred estimating procedure rather than from the Federal (BLS) estimating procdure which is currently the subject of litigation. Workforce series prior to 1970 are on a place of work basis; labor force data after 1969 are compiled by place of residence. At the Statewide level these differences are insignificant. Prior to 1970, employment data are establishment-based; after 1969, employment data are residence based.

Annual averages may not add due to rounding.

(R) —Revised.

(P)—Provisional.

Source: N.J. Department of Labor and Industry, Division of Planning and Research.

TABLE 2

WAGE AND SALARY WORKERS IN NONAGRICULTURAL ESTABLISHMENTS, MAJOR INDUSTRY DIVISIONS, NEW JERSEY, 1947-1975

(In thousands)

Year	Total Non-Agricultural Payroll Employment	Manufacturing	Mining	Contract Construction	Transportation and Public Utilities	Wholesale and Retail Trade	Finance, Insurance and Real Estate	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	96.2	154.3	349.1	85.4	222.7	221.2
1958	1,911.3	775.4	3.7	88.6	148.2	351.2	86.7	230.5	227.0
1959	1,970.5	801.3	3.6	95.7	147.0	360.5	87.3	241.6	233.5
1960	2,017.1	808.6	3.5	98.1	149.5	374.6	88.6	252.0	242.2
1961	2,033.7	791.1	3.4	99.4	150.1	380.7	91.2	264.2	253.6
1962	2,096.1	812.8	3.4	100.7	150.8	393.3	93.4	278.9	262.8
1963	2,129.3	809.1	3.5	100.2	151.9	405.5	95.5	291.5	272.1
1964	2,168.5	806.2	3.6	105.7	153.4	420.2	97.8	301.6	280.0
1965	2,256.4	836.7	3.5	109.3	157.0	439.0	99.9	315.6	295.4
1966	2,358.4	878.2	3.0	109.8	162.2	460.0	102.4	330.8	312.0
1967	2,420.9	881.9	2.8	111.0	166.3	472.1	106.0	351.6	329.2
1968	2,485.4	886.2	3.1	114.3	166.3	489.7	109.7	372.6	344.4
1969	2,570.9	893.6	3.3	116.8	176.2	515.1	112.6	393.2	360.1
1970	2,608.6	863.0	3.2	119.2	182.2	538.2	117.7	410.4	374.8
1971	2,611.8	822.2	3.0	116.3	181.1	558.4	121.7	421.2	388.0
1972	2,673.7	821.7	3.2	120.6	181.2	577.2	125.4	439.0	405.3
1973	2,760.7	840.8	3.3	125.6	186.3	596.3	131.8	459.6	417.1
1974	2,784.3	824.1	3.1	117.2(R)	185.7(R)	602.4(R)	137.1	474.8(R)	439.9(R)
1975	2,667.9	735.9	2.8	90.9	176.3	589.1	135.1	469.0	468.8

Series have been adjusted to March 1975 benchmarks. (R)—Revised.

SOURCE: N.J. Department of Labor and Industry, Division of Planning and Research.

TABLE 3

WAGE AND SALARY WORKERS IN MANUFACTURING, DURABLE GOODS, NEW JERSEY, 1947-1975

(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	Transportation Equipment	Instruments and Related Products	Miscellaneous Manufacturing 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	411.9	5.6	8.7	31.9	40.9	50.9	57.0	115.0	48.7	27.4	25.8
1959	430.5	5.9	9.2	33.1	41.7	53.7	57.8	121.4	50.5	30.2	27.0
1960	436.5	5.7	9.8	33.7	42.6	54.2	61.0	122.3	48.5	31.7	26.8
1961	421.3	5.6	9.0	34.4	40.7	53.6	57.3	119.5	41.7	31.9	27.6
1962	436.1	5.8	9.7	34.6	40.1	55.6	60.3	125.2	42.5	32.4	29.9
1963	425.7	5.7	8.9	34.9	38.6	55.2	60.1	121.7	39.0	32.9	28.7
1964	418.6	5.6	9.0	35.6	37.9	56.7	61.4	115.1	35.6	31.0	30.7
1965	438.1	5.6	9.4	36.9	39.8	60.2	65.4	118.4	36.8	32.7	32.9
1966	462.5	5.2	10.5	39.3	40.4	63.8	70.8	129.9	36.4	34.3	31.9
1967	463.9	5.0	11.0	39.1	38.6	65.4	75.0	131.2	32.0	36.5	30.0
1968	460.8	5.3	10.2	38.8	38.5	67.0	75.8	128.1	31.7	35.8	29.7
1969	463.8	5.2	11.0	40.9	39.4	69.2	76.2	125.6	31.4	34.7	30.2
1970	435.4	4.9	10.5	39.6	37.2	66.4	72.8	116.9	26.3	33.2	27.5
1971	406.7	4.5	10.6	39.0	33.4	62.4	66.3	106.9	25.3	32.4	25.8
1972	405.2	4.4	11.3	40.0	32.2	62.9	65.6	105.5	25.7	32.0	25.6
1973	419.5	4.5	11.1	41.0	32.4	65.5	71.8	110.9	25.3	30.8	26.3
1974	412.4	4.1	10.8	40.6	31.7	63.5	75.8	108.2	21.3	30.7	25.8
1975	359.5	3.4	9.8	35.7	26 8	56.6	67.1	90.9	19.7	27.9	21.6

Series have been adjusted to March 1975 benchmarks. (R)—Revised.

SOURCE: N.J. Department of Labor and Industry, Division of Planning and Research.

TABLE 4

WAGE AND SALARY WORKERS IN MANUFACTURING, NONDURABLE GOODS, NEW JERSEY, 1947-1975

(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	363.5	62.9	1.9	33.0	76.7	28.0	30.3	80.8	12.3	26.6	11.1
1959	370.8	62.3	1.8	33.2	79.2	28.3	31.5	82.4	11.7	29.3	11.1
1960	372.1	62.9	1.7	31.4	77.7	28.0	32.3	86.4	11.5	29.2	11.0
1961	369.8	63.9	1.6	29.1	76.4	28.1	32.6	87.0	11.1	29.2	10.8
1962	376.7	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	9.6	34.2	11.2
1965	398.6	66.4	1.4	28.5	77.3	31.3	37.5	98.9	9.8	36.0	11.5
1966	415.7	67.2	.8	29.6	80.3	33.0	39.6	105.5	10.3	37.2	12.2
1967	418.1	65.3	.6	29.1	78.5	33.7	41.5	110.9	9.5	37.7	11.3
1968	424.6	64.5	.3	30.5	78.7	34.3	42.2	113.3	9.6	39.9	11.5
1969	429.9	63.2	.3	30.8	77.2	35.0	43.3	118.2	9.8	41.4	10.6
1970	427.6	63.5	.3	29.6	72.3	35.3	44.8	122.3	10.6	40.0	9.6
1971	415.5	61.7	.3	29.4	68.9	35.9	43.7	119.5	10.1	36.8	9.4
1972	416.5	59.9	.3	30.4	68.9	35.9	45.5	121.2	10.4	35.2	8.9
1973	421.3	59.1	.2	31.1	68.7	36.7	46.2	125.6	10.7	34.2	9.0
1974	411.7	57.3	.2	28.6	62.8	35.1	46.9	128.1	11.7	32.7	8.4
1975	376.5	51.4	.2	24.4	55.8	31.4	44.7	121.0	12.0	27.8	7.7

Series have been adjusted to March 1975 benchmarks. (R)—Revised.

SOURCE: N.J. Department of Labor and Industry, Division of Planning and Research.

TABLE 5

EMPLOYMENT, HOURS, AND EARNINGS OF PRODUCTION WORKERS ON MANUFACTURING PAYROLLS, NEW JERSEY, 1947-1975

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	567.6	40.9	163.19	3.99
1973	582.3	41.3	174.70	4.23
1974	560.7	40.9	186.50	4.57
1975	491.2	40.5	199.99	4.93

FOOTNOTE
n.a.—not available.
(R)—Revised.

Series have been adjusted to March 1975 benchmarks.
SOURCE: N.J. Department of Labor and Industry, 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(R)	151.6
1975	161.2	166.6	164.2

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.

Prepared by N.J. Department of Labor and Industry, Division of Planning and Research.

TABLE 7

PERSONAL INCOME, NEW JERSEY AND UNITED STATES, 1948-1975

Year	Total Personal Income		Per Capita Personal Income			
	New Jersey	United States	New Jersey	United States	New Jersey[a]	United States[b]
	(millions of current dollars)		(current dollars)		(1967 dollars)	
1948	8,063	208,878	1,689	1,430	2,359	1,983
1949	8,131	205,791	1,663	1,384	2,349	1,938
1950	8,934	226,214	1,834	1,496	2,576	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	330,481	2,443	1,975	3,035	2,410
1957	14,550	348,460	2,536	2,045	3,052	2,426
1958	14,885	358.252	2,527	2,067	2,966	2,387
1959	15,946	381,890	2,651	2,166	3,075	2,481
1960	16,651	399,947	2,728	2,222	3,107	2,505
1961	17,746	415,984	2,789	2,274	3,141	2,538
1962	18,622	442,078	2,921	2,381	3,253	2,628
1963	19,602	465,234	3,001	2,469	3,276	2,692
1964	20,830	497,268	3,128	2,603	3,363	2,802
1965	22,492	538,690	3,324	2,785	3,517	2,947
1966	24,280	586,736	3,544	3,001	3,639	3,087
1967	26,206	629,204	3,783	3,188	3,783	3,188
1968	28,612	688,978	4,085	3,457	3,905	3,318
1969	31,194	751,425	4,397	3,733	3,976	3,400
1970	33,853	808,223	4,705	3,966	3,974	3,410
1971	36,392	864,989	4,982	4,195	3,995	3,458
1972	39,529	947,066	5,379	4,549	4,163	3,630
1973 (R) .	41,927	1,054,081	5,687	5,023	4,133	3,774
1974 (R) .	45,829	1,151,721	6,186	5,449	4,038	3,689
1975 (P) .	48,496	1,243,313	6,524	5,834	3,944	3,619

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.

(P)—Preliminary estimates.

(R)—Revised.

SOURCES: U.S. Department of Commerce; U.S. Department of Labor, Bureau of Labor Statistics.

Prepared by N.J. Department of Labor and Industry, Division of Planning and Research.

TABLE 8
PRODUCTION AND TRADE, NEW JERSEY, 1948-1975

Year	Electric Power Sales			Gasoline Consumption	Value of New Dwelling Units Authorized	Construction Contracts Awarded‡	Retail Store Sales*	Registration of New Vehicles	
	Total	Large Industrial and Commercial Users	Small Industrial and Commercial Users					Passenger Cars	Commercial Vehicles
	(kilowatt hours in thousands)			(000 gal.)	($000)	($000)	($000,000)	(number)	(number)
1948	6,887,131	3,736,931	1,359,854	1,108,434	n.a.	406,476	n.a.	116,847	25,504
1949	7,026,664	3,578,396	1,483,196	1,199,979	n.a.	408,007	n.a.	165,179	23,544
1950	8,023,122	4,161,454	1,630,075	1,322,234	n.a.	747,771	n.a.	210,436	27,229
1951	8,944,201	4,648,835	1,806,808	1,396,712	n.a.	676,458	n.a.	178,862	25,002
1952	9,578,722	4,837,880	1,969,215	1,487,026	n.a.	690,770	n.a.	149,168	19,335
1953	10,435,872	5,191,330	2,180,598	1,587,990	n.a.	793,889	n.a.	208,313	23,048
1954	10,931,039	5,214,694	2,348,391	1,677,573	n.a.	886,947	n.a.	207,242	20,601
1955	12,184,077	5,874,199	2,584,701	1,806,242	n.a.	1,010,459	n.a.	258,079	22,262
1956	13,224,653	6,323,544	2,807,035	1,846,099	n.a.	1,106,452	n.a.	219,297	21,903
1957	14,196,487	6,642,234	3,097,755	1,850,252	n.a.	1,048,449	n.a.	219,865	20,320
1958	14,949,906	6,829,115	3,322,774	1,907,497	n.a.	1,143,484	n.a.	183,770	17,616
1959	16,632,611	7,683,942	3,719,151	2,007,697	n.a.	1,303,736	n.a.	219,305	20,374
1960	17,569,054	8,125,141	3,967,306	2,050,208	497,534(R)	1,256,532	n.a.	266,299	22,532
1961	19,248,349	8,730,727	4,471,379	2,050,731	553,029(R)	1,307,832	n.a.	250,432	24,606
1962	20,630,556	9,506,486	4,848,024	2,045,680	549,825(R)	1,392,618	n.a.	285,955	24,713
1963	22,077,818	10,108,217	5,309,982	2,148,500	608,660(R)	1,534,448	8,992	318,127	26,804
1964	23,848,214	10,773,759	5,872,988	2,222,915	704,809(R)	1,622,048	9,768	325,293	28,417
1965	25,964,004	11,712,402	6,433,961	2,322,560	727,586(R)	1,555,689	10,396	378,768	30,980
1966	28,512,856	12,814,406	7,043,455	2,391,674	588,874(R)	1,651,494	10,711	352,573	31,072
1967	30,146,448	13,147,596	7,620,829	2,447,834	572,646(R)	1,906,577	10,947	302,680	27,471
1968	32,616,153	13,863,329	8,394,581	2,596,238	597,980(R)	2,380,846	12,030	356,762	30,724
1969	35,637,643	15,042,515	9,214,088	2,676,055	562,616(R)	2,205,705	12,582(R)	356,583	34,616
1970	38,156,144	15,394,352	10,185,005	2,818,317	599,034(R)	2,740,746	14,274	348,304	36,027
1971	39,919,508	15,564,483	11,056,580	2,918,695	876,144	2,409,797	15,359	370,004	35,255†
1972	42,318,122	16,192,817	12,143,135	3,170,170	1,062,430	2,948,735(R)	16,399	443,628	50,545
1973	45,540,943	17,018,962	13,233,603	3,245,117	1,030,506(R)	2,513,229(R)	17,874	453,334	53,735
1974	43,995,014	16,390,080	12,904,974	3,027,551	588,291(R)	2,353,822(R)	18,024	351,103	51,663
1975	43,477,908	14,927,694	13,509,510	3,193,403	494,447(P)	1,944,490(P)	19,636	298,926	31,493

FOOTNOTES

* Figures starting with 1968 are based on a new sample design and improved processing techniques developed as a result of the 1967 Census of Business by the U.S. Department of Commerce. The new series began September 1967 and subsequent figures are not comparable with earlier data.

† Years 1948-70 compiled by N.J. Auto List. Years 1972-74 are from the N.J. Division of Motor Vehicles.

‡ Beginning with January 1967, construction contracts awarded were adjusted to reflect more complete coverage of one family house construction.

(P) —Preliminary estimates. (R) —Revised. n.a.—not available.

SOURCES: Electric Power Sales: Edison Electric Institute. Gasoline Consumption: Federal Highway Administration. 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 and Industry, Division of Planning and Research.

TABLE 9
BUSINESS ACTIVITY, NEW JERSEY, 1948-1975

Year	Business Telephones Net Gains	Business Failures (number)	Liabilities of Business Failures ($000)	New Incorporations (number)	Apparent Consumption of Distilled Spirits (000 gal.)	New Jersey Turnpike	
						Toll Revenue ($000)	Number of Vehicles (000)
1948	19,106	219	15,286	5,510	6,852	n.a.	n.a.
1949	10,014	366	16,246	5,411	6,688	n.a.	n.a.
1950	20,134	346	10,926	6,009	8,243	n.a.	n.a.
1951	29,806	307	11,961	5,581	8,216	n.a.	n.a.
1952	29,044	319	18,627	6,146	7,824	16,241	17,948
1953	26,613	360	25,856	6,651	8,443	19,193	22,005
1954	24,664	385	20,086	7,276	8,536	20,756	24,555
1955	31,659	456	29,753	8,386	9,045	21,123	25,888
1956	37,452	582	33,919	8,839	10,253	24,124	31,588
1957	29,856	565	39,604	8,097	9,331	29,025	39,270
1958	21,892	778	43,475	8,757	9,961	30,162	41,615
1959	35,051	639	27,619	10,436	10,702	33,321	46,199
1960	38,543	714	49,071	10,172	11,391	35,588	49,083
1961	28,825	717	53,282	9,650	11,743	37,197	51,738
1962	39,383	591	58,468	9,984	12,378	39,246	54,901
1963	29,716	509	256,075	9,716	12,810	40,781	56,677
1964	36,771	442	49,261	10,023	13,483	44,153	60,708
1965	47,251	512	96,334	10,439	14,383	46,128	64,958
1966	54,650	442	61,191	9,656	14,687	48,617	69,850
1967	48,620	414	64,215	10,220	15,064	51,239	73,529
1968	53,293	423	42,692	12,038	15,971	55,350	78,205
1969	73,211	343	53,141	13,168	16,572	57,646	80,618
1970	58,787	463	142,196	13,958	16,289	63,946	89,655
1971	45,401	428	102,738	15,563	16,440	70,136	98,553
1972	66,989	453	173,428	16,462	17,060	75,948	107,933
1973	87,064	491	201,463	16,312	16,690	79,000	110,422
1974	55,327	643	110,411	15,410	16,527	75,241	106,628
1975	31,164	768	243,209	16,022	16,155	84,402	105,633

FOOTNOTES

n.a.—not available.
(R) —Revised.

SOURCES: Business Telephone Net Gains: N.J. Bell Telephone Company. Number and Liabilities 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 and Industry, Division of Planning and Research.

TABLE 10

FINANCE, NEW JERSEY, 1948-1975

Year	Total Deposits	Total Assets	Bank Debits[b] Five SMSA Areas[a]	Savings in All Insured Savings and Loan Associations	Savings in All Mutual Savings Banks	Ordinary Life Insurance Sales
	(millions of dollars)			(thousands of dollars)		
1948	....	....	.....	355,258	516,590	589,851
1949	5,164	5,603	.....	422,501	535,518	604,291
1950	....	....	.....	506,037	588,388	725,712
1951	....	....	.....	604,436	650,368	805,489
1952	....	....	.....	724,481	739,695	890,944
1953	....	....	.....	862,041	824,835	1,058,691
1954	6,218	6,767	.....	1,083,298	924,330	1,108,900
1955	....	....	.....	1,290,953	995,780	1,360,300
1956	....	....	.....	1,460,342	1,103,782	1,599,600
1957	....	....	.....	1,651,719	1,162,688	2,201,044
1958	....	....	.....	1,889,145	1,256,831	2,189,707
1959	8,115	8,890	.....	2,147,322	1,292,154	2,235,092
1960	....	....	.....	2,414,376	1,327,447	2,171,994
1961	....	....	.....	2,729,116	1,384,518	2,180,095
1962	....	....	.....	3,052,389	1,547,302	2,163,371
1963	....	....	.....	3,418,173	1,692,707	2,381,986
1964	11,470	12,758	79,920	3,801,004	1,833,533	2,748,766
1965	....	....	90,719	4,171,487	1,992,759	3,122,622
1966	....	....	104,426	4,261,895	2,122,482	3,258,043
1967	....	....	110,364	4,634,388	2,317,453	3,582,281
1968	....	....	127,373	5,059,085	2,480,412	3,977,629
1969	16,314	18,516	146,857	5,361,151	2,585,228	4,418,209
1970	18,109	20,469	184,356	5,936,761	2,967,846	4,948,757
1971	20,690	23,325	171,916	7,648,154	3,545,904	5,407,376
1972	21,432	24,280	195,584	8,908,940	4,146,721	5,825,622
1973	24,944	28,278	283,522	9,971,596	4,462,416	6,309,246
1974	25,722	29,499	349,222	10,875,906	4,818,111	7,127,150
1975	27,431	31,263	322,396	12,548,102	5,531,417	7,162,260

FOOTNOTES

[a] Standard Metropolitan Statistical Areas: Newark; Paterson-Clifton-Passaic; Atlantic City; Trenton and Jersey City.

[b] Annual monthly average.

(P)—Provisional estimates.
(R)—Revised estimates.

SOURCES: Bank Debits: Federal Reserve System. Savings in all Insured Savings and Loan Associations: Savings in all Mutual Savings Banks; Savings Banks' Association of New Jersey. Ordinary Life Insurance Sales: Life Insurance Agency Management Association, New Jersey Banker.

Prepared by N.J. Department of Labor and Industry, Division of Planning and Research.

TABLE 11

AGRICULTURE, NEW JERSEY, 1950-1975

Year	Number of Workers on Farms (thousands)	Cash Receipts from Farm Marketings (thousands of dollars)		
		Total	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	339,887	113,234	226,653
1975 (P)	21	318,733	101,834	216,899

FOOTNOTE

(P)—Preliminary estimates.

SOURCES: U.S. Department of Agriculture; N.J. Department of Agriculture.

Prepared by N.J. Department of Agriculture.

TABLE 12

COUNTY POPULATION ESTIMATES†

County	1971	1972	1973	1974	1975‡
Atlantic	176,885	178,225	179,530	180,500	179,705
Bergen	904,315	907,565	909,070	910,530	911,795
Burlington	330,060	328,195	324,235	323,910	326,770
Camden	464,115	470,625	475,400	480,080	487,310
Cape May	60,075	61,140	62,350	63,390	64,295
Cumberland	124,050	126,145	127,450	128,400	129,070
Essex	935,245	935,735	935,905	933,450	931,525
Gloucester	175,760	178,040	180,205	182,405	183,810
Hudson	611,005	612,345	611,745	611,435	611,105
Hunterdon	71,145	72,230	73,140	73,910	74,475
Mercer	308,735	312,660	316,205	320,020	320,900
Middlesex	592,240	598,320	603,345	607,355	610,255
Monmouth	469,680	472,850	476,265	479,800	480,600
Morris	391,385	396,100	400,200	403,360	405,345
Ocean	218,110	234,520	250,820	257,110	259,120
Passaic	465,260	467,635	469,675	471,305	472,760
Salem	61,110	62,165	62,805	63,550	63,730
Somerset	201,070	202,910	204,165	205,635	206,495
Sussex	79,595	81,535	83,360	85,155	86,425
Union	546,960	548,565	549,765	550,620	551,120
Warren	74,640	75,180	76,200	77,035	77,310
Total	7,261,440	7,322,685	7,371,835	7,408,955	7,433,920

FOOTNOTES

† Estimated populations as of July 1 of each year.

‡ Provisional estimates.

SOURCE: N.J. Department of Labor and Industry, Division of Planning and Research.