

NJ Economy

ECONOMIC POLICY PAPERS

PRODUCTIVITY, CAPITAL FORMATION
AND BUSINESS TAXES IN NEW JERSEY

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Public debate on the wide range of issues which confront New Jersey is intensifying. The health of the State's economy profoundly influences the daily lives of all New Jerseyans, making economic policy a priority issue for extensive examination.

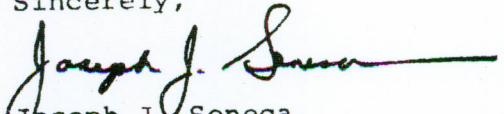
One of the most meaningful contributions that the Economic Policy Council can make is to serve as a source for objective assessments of the economic condition of our State. We can also suggest ways to improve New Jersey's economic performance which follow logically from these assessments. It is hoped that our suggestions will provide the basis for solutions to some of our most serious economic problems.

The Economic Policy Council and its staff have prepared a series of papers examining several of the State's most important economic concerns. These papers, which reflect the views of the Council, are based on recently completed work. The titles of these papers are listed below.

1. Productivity, Capital Formation and Business Taxes in New Jersey
2. The High Technology Economy and Higher Education
3. New Jersey's Urban Dilemma: Decline Within Growth
4. Southern New Jersey: An Economic Perspective

Questions and comments are welcomed, and additional copies are available from the Council.

Sincerely,


Joseph J. Seneca

PRODUCTIVITY, CAPITAL FORMATION AND BUSINESS TAXES IN NEW JERSEY

JONG K. YOU^{*}

Introduction

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

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

Aggregate Trends in Capital Formation in New Jersey

The extent of underinvestment in New Jersey can be seen from Table 1. Throughout the entire period of 1958-1977, New Jersey's manufacturing sector as a whole spent smaller percentages of its value added for capital investment than the national averages (see column 7). This implies that the manufacturing capital stock in New Jersey was not growing as fast as the national stock. Consequently, slower expansion of manufacturing employment in New Jersey than in the U.S. has been observed during the period of 1958-77 (2.2 percent versus 26.7 percent according to census data).

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TABLE 1
CAPITAL EXPENDITURE-VALUE ADDED RATIOS
New Jersey versus United States Manufacturing Sectors

Year	NEW JERSEY			UNITED STATES			NJ Ratio US Ratio
	C.E. * 1	V.A. ** 2	Ratio (1:2) Percent 3	C.E. 4	V.A. 5	Ratio (4:5) Percent 6	
1977	1502	23,165	.065	47,687	581,641	.082	.791
76	1216	20,288	.060	40,770	511,471	.080	.752
75	1200	17,741	.068	37,262	442,486	.084	.803
74	1207	18,394	.065	35,696	452,468	.079	.829
73	955	17,754	.054	26,979	405,624	.067	.809
72	940	16,409	.057	24,073	353,974	.068	.842
71	798	14,394	.055	20,941	314,138	.067	.832
70	902	14,414	.063	22,164	300,227	.074	.848
69	933	14,362	.065	22,291	304,441	.073	.887
68	765	13,503	.057	20,613	285,059	.072	.783
67	824	12,738	.065	21,503	261,984	.082	.788
66	776	12,246	.063	20,235	250,880	.081	.786
65	617	11,269	.055	16,615	226,940	.073	.748
64	502	10,217	.049	13,294	206,194	.064	.762
63	525	9,957	.053	11,370	192,083	.059	.891
62	533	9,495	.056	10,436	179,071	.058	.963
61	468	8,758	.053	9,780	164,281	.060	.898
60	473	8,632	.055	10,098	163,999	.062	.890
59	436	8,354	.052	9,140	161,535	.057	.922
58	450	7,500	.060	9,544	141,541	.067	.890

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

* C.E. = Capital Expenditures in millions of dollars.
** V.A. = Value Added in millions of dollars.

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

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

Capital Formation Trends at the Industry Level

In order to examine the investment performance of the New Jersey industries at a more disaggregated level, all four-digit industries of New Jersey with investment data available have

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

TABLE 2
CAPITAL EXPENDITURE-VALUE ADDED RATIOS FOR 19 MAJOR MANUFACTURING INDUSTRIES,
1977

Industry	NEW JERSEY			UNITED STATES		
	C.E.	V.A.	Ratio (1:2) Percent	C.E.	V.A.	Ratio (4:5) Percent
Food & Kindred Products	108.5	1196.4	5.43	4191.9	56232.8	7.45
Textile Mill Products	10.8	133.1	8.11	1220.9	15965.2	7.65
Apparel & Other Textile Prod.	15.8	852.9	1.85	442.9	19448.1	2.28
Lumber & Wood Products	5.7	120.8	4.72	1552.5	16168.0	9.60
Furniture & Fixtures	6.4	191.7	3.34	387.2	8797.5	4.40
Paper & Allied Products	83.9	842.2	9.96	3279.6	21699.4	15.11
Printing & Publishing	57.8	1166.0	4.96	1587.2	31543.6	5.03
Chemicals & Allied Prod.	438.0	6189.0	7.08	8488.9	56522.5	15.02
Petroleum & Coal Prod.	62.8	209.5	29.98	2317.5	16223.7	14.28
Rubber & Misc. Plastic Prod.	72.4	991.0	7.30	1631.7	19834.3	8.23
Leather & Leather Prod.	3.7	120.0	3.08	92.5	3650.5	2.53
Stone, Clay & Glass Prod.	65.8	921.9	7.14	1774.4	18800.1	9.44
Primary Metal	37.2	708.7	5.25	4526.3	37298.2	12.14
Fabricated Metal	83.4	1710.0	4.88	2542.1	44943.0	5.66
Machinery Except Electrical	85.1	1750.6	4.86	4447.1	67406.0	6.60
Electric & Electronic Equip.	88.3	1929.6	4.58	2833.2	49708.3	5.70
Transportation Equipment	62.6	1174.9	5.33	4769.0	64166.4	7.43
Instruments	39.4	885.7	4.45	959.5	18692.1	5.13
Miscellaneous Manufacturing	26.4	596.5	4.43	461.5	10197.7	4.53
Total	1373.9	22830.6	6.02	47505.9 (47687.4)*	577297.4 (581640.9)*	8.23 (8.20)*

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

Source: U.S. Department of Commerce, Census of Manufactures, 1977.

been compared with the same industries of the U.S. for the census years of 1958, 1967 and 1977. In 1958, 73 of the 185 New Jersey industries (39.5 percent) in the sample showed higher investment ratios than the national ratios. This is significantly less than 50 percent, which would be the expected proportion if there was no systematic difference between the New Jersey and national ratios. In 1967 the fraction of New Jersey industries showing higher investment ratios than the national averages was down to 28.8 percent (55 out of 191), indicating a deepening erosion of New Jersey's manufacturing sector.²

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

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

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

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

The effect of standardization in 1977, however, reverses the phenomenon observed in 1958 and 1967. The national ratio was 8.3 percent and the non-standardized New Jersey ratio 5.8 percent in 1977, compared to 8.0 percent for the standardized ratio. In other words, New Jersey's manufacturing industries investment appears better if we take account of the industry-mix effect. Of course, the fact that the important industries like chemicals did not invest proportionately as much as the national average is

no cause for joy, but neither is it a cause for despair. The chemical industries in New Jersey are still healthy. However, it is also important that the chemical industries avoid the employment decline of the last ten years experienced by other manufacturing industries of the State. In sum, the investment performance of the New Jersey industries in 1977 was a significant improvement over 1967, although more gains must be made to reach the national level.

Implications of the Trends

The above analysis lead to the conclusion that, despite some improvement in 1977, New Jersey's capital formation has been substantially slower than that of the national economy during the past two decades. Paradoxically, however, productivity of the State's manufacturing industries has remained higher than the national productivity level.⁴ One tentative explanation of this paradoxical result is that the State's manufacturing industries maintained their relative productivity levels by shutting down submarginal plants, thus raising the average. It is clear that while this process enables the State's industries to hold their ground against the national productivity levels, it does so at the cost of shrinking the State's share of manufacturing activities. The process cannot be continued indefinitely.

⁴ See, Adam Broner, "Labor Productivity in New Jersey Manufacturing," Chapter VIII, 13th Annual Report, Economic Policy Council and Office of Economic Policy, Trenton, 1980.

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

Business Taxes and Investment

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

Among the variables subject to government actions, perhaps the most important ones are the business tax structure and regulations. In order to estimate the effects of business taxes on capital investment, we conducted a study examining why new capital expenditures have differed over the 48 states. That study concluded that marginal corporate tax rates and corporate taxes as a share of total state taxes had a statistically significant negative effect on relative investment performance. This result was apparent even after adjusting for differences in manufacturing employment share and population density.⁵

The statistical results strongly suggest that reductions in the corporate net income tax rate and in the share of business taxes in total State taxes will encourage capital formation.

⁵ The technical details of this study are available from the Office of Economic Policy and will be published in the 14th Annual Report later this year.

However, lowering the tax rate cannot be recommended without a careful analysis of its impact on the State's tax revenues.

A complementary study of the 48 states also revealed that tax rate reductions lead to additional state economic growth as measured by changes in real personal income. The relation indicates that a decline in corporate income tax rate of 1 percentage point (e.g., a reduction from 9 percent to 8 percent) would result in a .2 percentage point increase in the rate of real personal income growth.

These research results and previous work of the Office of Economic Policy,⁶ indicate that a corporate tax rate which is high relative to other states is detrimental to economic growth. New Jersey's rate of 9 percent on net income plus 2 mills per dollar of net worth is equivalent to about 10.5 percent tax on net income. Lowering business taxes will improve the competitiveness of New Jersey industries, attract more investment and, thus, create more jobs and income in the State.

Policy Implications

1. Net-Worth Tax

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

The net-worth tax rate of 2 mills per dollar for the first \$100 million is equivalent to an additional 2 percentage point in the net income tax rate at the 10 percent rate of return on investment, and to 1.33 percentage points at the

⁶ See, J.K. You, "Business Taxes and Regional Economic Growth," Chapter IX, 13th Annual Report, Economic Policy Council and Office of Economic Policy, Trenton, 1980.

15 percent rate of return. For net worth exceeding \$100 million the net-worth tax rate decreases as the size of net worth increases. On the average, therefore, the net-worth tax in New Jersey is equivalent to about 1.3 to 1.5 percent of net income. An examination of the actual tax data shows that the net-worth tax has been about 1.4 percent of the allocated net income.

A straightforward applications of this figure to the previously discussed effect of corporate income tax on economic growth leads to the conclusion that the phase out of the net-worth tax would generate about 0.3 percent per annum additional real personal income growth. Since the current system of taxing net worth discourages new investment, a phase out of this tax will be more stimulative than an equivalent reduction in the corporate income tax.

According to our estimates, additional state revenues resulting from a percentage point increase in the State's real personal income would be about \$45 million in FY 1982. Thus, additional revenues from economic growth resulting from the phase out of the net-worth tax would be about \$15 million or more in FY 1982.

Turning to the revenue losses resulting from the net-worth tax phase out, the New Jersey tax data indicate that the net-worth tax revenue expected from the increases in net worth for FY 1982 is about \$10 million. Phasing out the tax means a loss of that amount plus the tax on the portion of existing capital stock which will be discarded over the years. Assuming that about 1/15 to 1/20 of the existing capital stock is discarded each year, the estimated losses in the net-worth tax revenue

due to the phase out total \$14.5 million to \$16 million, about the same as the extra revenues that would result from faster growth.

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

2. Corporate Income Tax

Unlike the phase out of the net-worth tax, a reduction in the corporate net income tax rate would involve a net revenue loss to the State. For example, a reduction of the corporate income tax rate by one point will result in a loss in business tax revenues of about \$90 million compared to a \$10 million gain from faster economic growth.

However, a commitment to a phased reduction of the rate by 0.4 points each year for five years would on the one hand minimize annual revenue losses while maximizing the economic stimulation. The estimated losses in revenues would be no more than \$30 million in FY 1982. In the long run, revenues would grow faster than with the current tax rate, because the lower tax rate will generate a more rapid economic growth.

3. Loss Carry-over for New Business Firms

Loss carry-over has been frequently recommended by the business community and the Economic Policy Council. Its effect would be to help business ride out national recessions. However, most established business firms ought to be able to cope with

business cycles. On the other hand, new establishments often suffer initial losses, and the adverse effect of the business cycle may force closing of some firms that would be profitable in the long run if they could only survive the first few years.

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

4. Property Tax Reform

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

Table 3 presents county and State averages of municipal property tax rates and their coefficients of variation⁷ for

⁷ The coefficient of variation is defined as the ratio of the standard deviation to the average and measures the degree of spread of the distribution of the municipal tax rates relative to the average tax rate. If, for example, all tax rates are proportionately reduced, then the coefficient of variation would remain unchanged, although the converse is not necessarily true. More than proportionate reductions of the above average rates and less than proportionate reductions of the below average rates would reduce the coefficient of variation. The extreme case is when all rates are equal and the coefficient of variation equals zero.

TABLE 3
EFFECTIVE PROPERTY TAX RATES BY COUNTY: 1976 VS. 1980

COUNTY	# OF MUNICI- PALITIES	AVERAGE TAX RATES		COEFFICIENT OF VARIATION	
		1976	1980	1976	1980
ATLANTIC	23	3.829	2.360*	0.319	0.193
BERGEN	70	2.825	2.409*	0.299	0.282
BURLINGTON	40	3.065	2.525*	0.169	0.166
CAMDEN	37	3.905	3.251*	0.320	0.141
CAPE MAY	16	2.180	1.709*	0.393	0.386
CUMBERLAND	14	3.517	2.940*	0.103	0.114
ESSEX	22	5.041	4.151*	0.259	0.255
GLOUCESTER	24	2.837	2.454*	0.193	0.140
HUDSON	12	4.464	4.385	0.285	0.277
HUNTERDON	26	2.693	2.171*	0.247	0.228
MERCER	13	3.503	3.042*	0.235	0.279
MIDDLESEX	25	2.873	2.368*	0.219	0.208
MONMOUTH	53	3.420	2.725*	0.205	0.255
MORRIS	39	2.999	2.168*	0.166	0.207
OCEAN	33	2.335	2.169*	0.282	0.283
PASSAIC	16	3.054	2.633*	0.191	0.197
SALEM	15	3.129	2.337*	0.305	0.286
SOMERSET	21	2.813	2.437*	0.197	0.209
SUSSEX	24	3.305	2.746*	0.162	0.194
UNION	21	3.039	2.547*	0.534	0.614
WARREN	23	2.733	2.237*	0.267	0.232
NEW JERSEY	567	3.260	2.680*	0.305	0.306

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

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

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

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

It is well known that high property tax rates in the urban areas coupled with other disamenities drive out businesses from those areas which, in turn, forces tax increases, creating an

TABLE 4
TEN HIGHEST AND TEN LOWEST MUNICIPALITY PROPERTY TAX RATES IN 1980

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

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

undesirable chain reaction. The empirical evidence of the negative effect on economic growth of the higher property tax rates have been already documented in an earlier report (13th Annual Report).⁸ A program designed to alleviate the property tax burdens, particularly in the urban areas, is desirable. A recent proposal by the Governor for a statewide property tax system could meet that need and deserves a careful and serious consideration.

5. Unemployment Compensation Law

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

⁸ J.K. You, op. cit.

