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REGIONAL DISPARITIES IN SHARING THE GROSS NATIONAL PRODUCT

by

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REGIONAL DISPARITIES IN SHARING THE GROSS NATIONAL PRODUCT¹

Wilbur R. Maki

The amelioration of regional disparities in population growth, employment opportunities, and income per person is a common purpose of regional economic policy. However, a new world economic order is enforcing a forgotten discipline of competition on much of the American economy. Accelerated industry relocation and community and job dislocation have been its consequences. One side of the controversy even contends that the widening regional disparities in the 1980's may prove a small price to pay for the promise of regional revitalization in the 1990's. Another side quickly challenges this belief by asserting a group or community interest in forestalling individual business relocations or plant closures. Both sides join in focusing on the regional distribution of the Gross National Product.

Problem focus

The purpose of this paper is to account for the widening disparities in the principal measures of regional economic growth and well-being, starting with the Gross National Product and its regional distribution. Its focus is the measurement of recent state-level shifts in industry and population and the assessment of their implications for public intervention in private sector decision making.

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Tax credits and related investment incentives, job retraining, and relocation subsidies are examples of public intervention in the market economy. Plant closure legislation and import quotas for selected products also affect the regional incidence of worldwide industry competition.

Regional differences in market access and resource endowments account for the massive redistribution of industry and population in the United States since 1970, particularly since the advent of the world oil crisis in 1973. The geographical re-alignment of markets and resources is re-enforced by (1) business preferences for low-cost sites in traditional industries and high-service sites in technology-intensive industries and (2) household preferences for both low-cost and high-amenity sites.

Regional disparities in the sharing of the Gross National Product are cited in this study as measures of regional change and adjustment to market and resource opportunities and restrictions. The regional counterpart of the Gross National Product is, of course, the gross state product. In this study, the gross state product was estimated for each of 50 states for the 10-year period from 1970 to 1980.

Plan of approach

An analytical framework is presented, first, as a guide in the

selection and use of available data on regional disparities in (1) sharing the Gross National Product and (2) participating in the restructuring of the American economy. Statistical findings on the redistribution of gross state product and population are presented next. Regional disparities in these findings also are examined. Finally, selected policy considerations are offered as a point of departure for further investigation of this topic.

Analytical Framework

The analytical framework cited earlier depends heavily on the simple shift-share model for the identification and delineation of significant economic variables accounting for, or demonstrating effects of, a regional redistribution of industry and population. Each state gross product series is based on (1) the corresponding industry earnings series and (2) the corresponding U. S. gross national product series. The latter is expanded in its industry coverage from approximately 20 industries to 55 industries. Once the U. S. data are derived, the corresponding industry-specific total earnings series is used as a ratio estimator with the U. S. earnings series to obtain the individual state share of the GNP originating from each industry. Employment and earnings data, on the other hand, are obtained directly from the U. S. Department of Commerce Regional Information System.

Shift-share analysis is implemented in two stages: an overall year-by-year analysis is completed first of the components of re-

gional growth and change. Finally, the regional-share effect is derived to show differential regional change in in each industry.

The regional-share effect for gross state product is compared with state population levels. Population is correlated with gross state product to establish a statistical association between the two variables.

Statistical Results

Preliminary statistical results show large shifts in both gross state product and state population, largely from northern to southern and western states. These shifts are associated with corresponding shifts in industry structure, that is, the mix of industries in (a) the nation and (b) the individual states.

The gross state product of the 50 states in 1970 was nearly \$1.5 trillion in 1977 dollars. It reached \$2 trillion in 1980--an increase of \$535 billion, or 36.2 percent.

The gross state product of 20 of the 50 states increased less rapidly than the overall total, as shown in Table 1. The lagging growth resulted in an aggregate difference, in 1980, of \$162 billion between actual GSP (in 1977 dollars) and the level that would have occurred if each state's gross product had increased at the overall

Table 1. Differential Change in Gross State Product (in 1977 dollars) and Total Population for Specified State, 1970-1980 and 1980-83.¹

Region & State	Gross State	Population	
	Product (bil. \$)	1970-80 (thou.)	1980-83 (thou.)
New England, Total	-13.0	-931	-269
Connecticut	-2.1	-280	-74
Maine	-0.6	16	-16
Massachusetts	-9.0	-605	-160
New Hampshire	0.7	58	7
Rhode Island	-1.6	-81	-23
Vermont	-0.4	-39	-3
Mideast, Total	-91.4	-5205	-1069
Delaware	-0.6	-17	-8
District of Columbia	-3.3	-205	-35
Maryland	-1.2	-135	-58
New Jersey	-8.8	-676	-139
New York	-59.1	-2841	-473
Pennsylvania	-18.4	-1331	-356
Great Lakes, Total	-48.9	-2359	-1529
Illinois	-15.5	-1025	-319
Indiana	-4.1	-322	-192
Michigan	-13.1	-665	-500
Ohio	-15.0	-109	-410
Wisconsin	-1.2	-238	-108
Plains, Total	-3.5	-996	-274
Iowa	-1.6	-249	-105
Kansas	2.4	-137	-16
Minnesota	0.3	-179	-17
Missouri	-5.0	-250	-103
Nebraska	0.0	-90	-25
North Dakota	0.9	-36	6
South Dakota	-0.5	-55	-14
Southeast, Total	40.0	3827	540
Alabama	2.8	51	-66
Arkansas	2.0	134	-34
Florida	13.9	2186	599
Georgia	1.2	364	86
Kentucky	3.2	76	-65
Louisiana	9.8	144	92
Mississippi	1.4	42	-17
North Carolina	0.6	233	0
South Carolina	1.3	249	37
Tennessee	1.6	144	-59
Virginia	3.2	214	16
West Virginia	-3.2	-10	-49
Southwest, Total	60.2	2683	1404
Arizona	5.4	739	154
New Mexico	1.8	17	51
Oklahoma	7.6	174	171
Texas	45.4	1753	1028
Rocky Mt., Total	16.4	964	286
Colorado	8.7	434	154
Idaho	1.1	146	13
Montana	0.4	12	4
Utah	2.6	274	109
Wyoming	3.6	98	6
Far West, Total	37.5	2585	825
California	24.9	1507	702
Nevada	2.6	255	62
Oregon	5.6	294	59
Washington	4.9	344	24
Alaska	2.1	77	65
Hawaii	0.1	108	31

¹ Sums of positive and negative population differentials are not equal to zero because of rounding error.

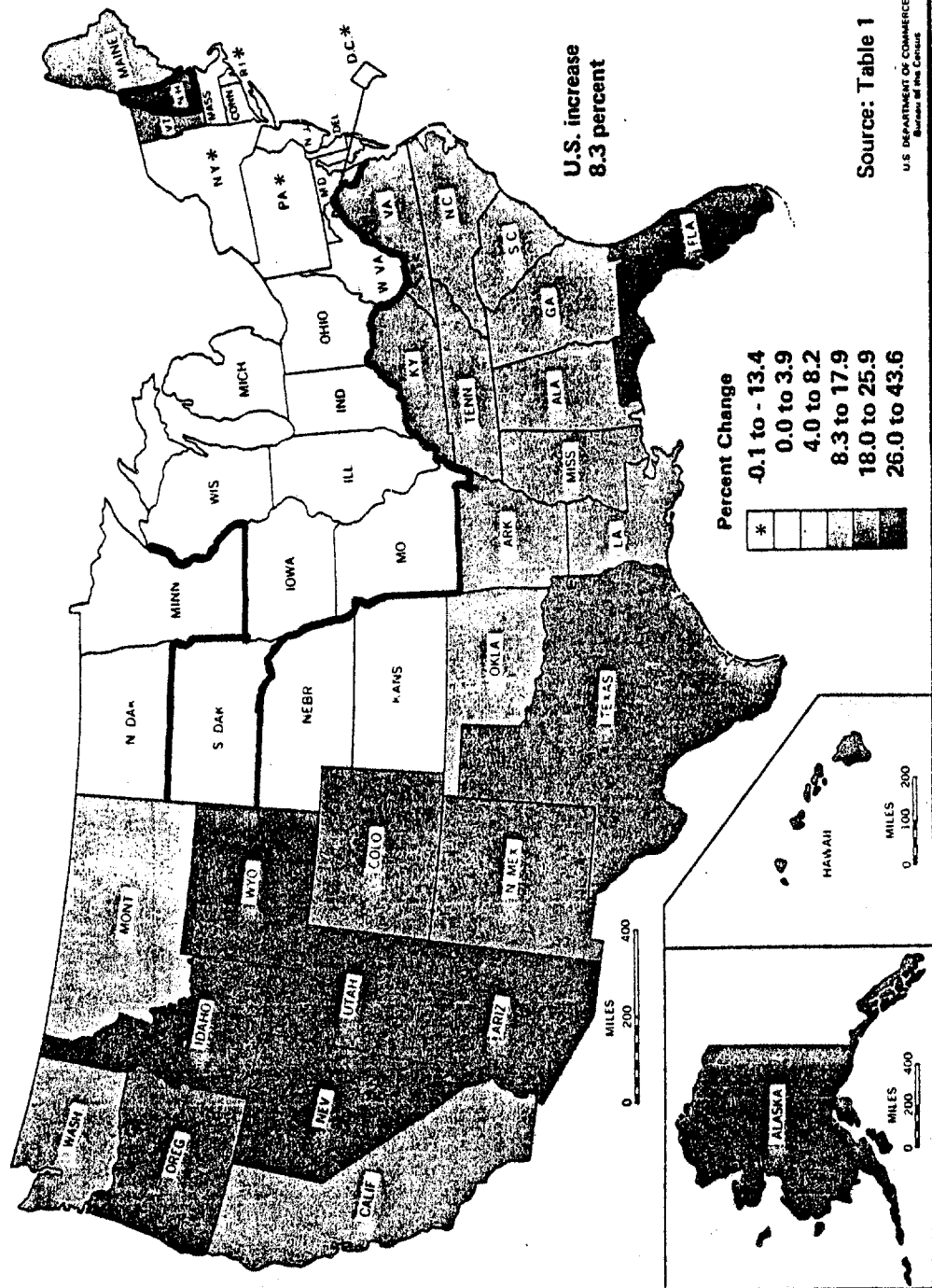
national rate. If a constant rate of increase in these differentials were assumed, then roughly \$800 billion of gross state product would have transferred from the 20 lagging states to the 30 leading states.

Texas, California, and Florida received more than half of the total transfer in job-creating wealth while New York and Pennsylvania accounted for nearly half of the total loss. With the exception of Minnesota, Kansas, Nebraska, North Dakota, and New Hampshire, the losers were all so-called frost-belt states, as shown in Figure 1.

State-by-state population gains and losses conform closely to the pattern set by the gross state product transfers. If each state were to have grown in population at the U. S. average rate over the 1970-80 period, then a total population shift of nearly 6.6 million would have occurred, again, with even fewer exceptions than in the income transfer, from frost-belt to sun-belt states. A population shift of nearly 60 thousand was associated with a corresponding shift of \$1 billion of gross state product.

The 1970-80 population trends persisted, but in varying degree, over the 1980-83 period. Several states in the Southeast Region, specifically, Alabama, Arkansas, Kentucky, Mississippi, and Tennessee, experienced a turn-around in population growth in the 1980-83 period, while Oregon in the Far West Region lost population--a first for the West.

Figure 1
Percent change in Population
by State: 1970 to 1979



To account for the sources of income and population shifts, the shift-share analysis of gross state product changes in the 1970-80 period is summarized for the 50 states in Table 2. In this analysis, total change in real gross state product is partitioned into the three change sources--national growth, industry mix, and state share. Relative change is expressed by the last two components. For most lagging states, the state-share effect was dominant. For the industrial Great Lakes Region, however, the industry-mix effect was important, too.

Regional Disparities

Analysis of state-by-state shifts in gross product, income, employment, and population reveals continuing patterns of spatial-economic adjustment to changing market and resource access conditions, not only regionally, but nationally, also. The stern discipline of market pricing for an expanding range of goods and services is one part of the equation for explaining this nation's rapidly changing economic landscape. Another part is the uncertainty of government pricing through import, production, or sales quotas. Both help to account for regional disparities in gross state product, jobs and income, and private capital formation.

Gross state product

The erosion of past rates of increase in the gross state product

Table 2. Total Change in Gross State Product, (in 1977 Dollars) in Specified States, by Source of Change, U.S., 1970-80.¹

Region and State	Estimated 1970	National Growth	Change 1970-80		Total	Estimated 1980
			Industry Mix	State Share		
			(billion 1977 dollars)			
New England, Total	86.3	31.2	-1.8	-11.1	18.2	104.5
Connecticut	24.2	-8.7	-0.5	-1.6	6.6	30.8
Maine	5.6	2.0	0.1	-0.7	1.4	7.0
Massachusetts	43.0	15.6	-1.5	-7.5	6.6	49.6
New Hampshire	4.4	1.6	0.3	0.4	2.3	6.7
Rhode Island	6.3	2.3	-0.1	-1.5	0.7	7.0
Vermont	2.8	1.0	-0.1	-0.3	0.6	3.4
Mideast, Total	351.4	127.4	-1.2	-90.2	36.0	387.4
Delaware	4.3	1.6	1.2	-1.8	1.0	5.3
District of Columbia	13.7	5.0	-0.3	-3.0	1.7	15.4
Maryland	26.9	9.7	4.4	-5.6	8.5	35.4
New Jersey	55.3	20.0	-0.8	-8.0	11.2	66.5
New York	166.8	60.5	-4.7	-54.4	1.4	168.2
Pennsylvania	84.4	30.6	-1.0	-17.4	12.2	96.6
Great Lakes, Total	302.4	109.6	-8.8	-40.1	60.7	363.1
Illinois	92.7	33.6	0.2	-15.7	18.1	110.8
Indiana	35.7	12.9	-0.5	-3.6	8.8	44.5
Michigan	66.3	24.0	-5.1	-8.0	10.9	77.2
Ohio	78.7	28.6	-2.7	-12.3	13.6	92.3
Wisconsin	29.0	10.5	-0.7	-0.5	9.3	38.3
Plains, Total	110.0	39.7	2.3	-5.8	36.2	146.2
Iowa	18.3	6.6	1.8	-3.5	5.0	23.3
Kansas	14.1	5.1	1.8	0.6	7.5	21.6
Minnesota	27.4	9.9	-0.1	0.4	10.2	37.6
Missouri	33.5	12.1	-1.5	-3.5	7.1	40.6
Nebraska	9.56	3.5	0.0	0.1	3.5	13.1
North Dakota	3.4	1.2	0.2	0.7	2.1	5.5
South Dakota	3.7	1.3	0.1	-0.6	0.8	4.5
Southeast, Total	261.6	94.9	7.8	32.2	134.9	396.5
Alabama	17.3	6.3	2.0	0.8	9.1	26.4
Arkansas	9.4	3.4	2.0	0.0	5.4	14.8
Florida	46.6	16.9	1.8	12.1	30.8	77.4
Georgia	29.8	10.8	-1.4	3.6	13.0	42.8
Kentucky	18.1	6.6	1.7	2.5	10.8	28.9
Louisiana	20.8	7.5	6.0	3.8	17.3	38.1
Mississippi	9.9	3.6	0.3	1.1	5.0	14.9
North Carolina	31.6	11.5	-3.1	3.7	12.1	43.7
South Carolina	14.1	5.1	-1.4	2.7	6.4	20.5
Tennessee	22.6	8.2	-1.0	2.6	9.8	32.4
Virginia	30.9	11.2	-0.9	4.1	14.4	45.3
West Virginia	10.5	3.8	1.8	-5.0	-0.6	11.1
Southwest, Total	110.7	40.2	22.4	37.8	100.4	211.1
Arizona	12.7	4.6	0.6	4.8	10.0	22.7
New Mexico	5.5	2.0	0.6	1.2	3.8	9.3
Oklahoma	15.6	5.7	4.5	3.1	13.3	28.9
Texas	76.9	27.9	16.7	28.7	73.3	150.2
Rocky Mt., Total	34.1	12.5	5.9	10.5	28.9	63.0
Colorado	16.5	6.0	2.6	6.1	14.7	31.1
Idaho	4.3	1.6	0.3	0.8	2.7	7.0
Montana	4.3	1.6	0.8	-0.4	2.0	6.3
Utah	6.6	2.4	0.8	1.8	5.0	11.6
Wyoming	2.4	0.9	1.4	2.2	4.6	7.0
Far West, Total	218.5	79.2	26.0	11.5	112.1	318.4
California	165.1	59.9	21.9	3.0	84.7	249.8
Nevada	4.4	1.6	2.0	0.6	4.2	8.6
Oregon	13.4	4.9	2.8	2.8	10.4	23.8
Washington	24.7	8.9	0.0	4.9	13.8	38.5
Alaska	3.1	1.1	1.3	0.8	3.2	6.3
Hawaii	7.8	2.8	0.0	0.1	2.9	10.7

¹ Sums of positive and negative differentials are derived from year-to-year changes for 1970-80 period and, hence, they may not equal total change for this period.

of the lagging frost-belt states further reduces state opportunities and potentials for economic turn-around and revitalization. From gross state product, which is the value added of private and public industry, is derived the earnings and income of private households and businesses and of government agencies. Barring counter-balancing institutional constraints, the reduced income expectations eventually lead to resident household and business relocation or new business investment. For some states and regions, the time interval between the two options is much too long to endure without important political repercussions. Gross state product is thus perceived as a critical summary statistic for representing a state's capacity for coping with the consequences of rapid economic growth and decline. Such a statistic complements the parallel use of the periodically reported employment, earnings, and income series published as part of the U. S. Department of Commerce Regional Economic Information System.

The Mideast Region and the Great Lakes Region have been most deeply affected by recent shifts in gross state product. For most states in these two regions, the apparant start of the decline was the imminent oil shortage starting in 1973. This decline was accelerated by weaknesses in the iron and steel and the automobile industries. Total employment in key basic industries thus declined in the 1970's bringing along with this decline subsequent reductions in the rates of growth of residentiary industries, particularly trade and services.

The New England Region and the Plains Region provide exceptions to general patterns of industry and population adjustments to the new economic realities of worldwide competition coupled with a weakened national capacity for managing its budgetary affairs. The New England Region experienced the adverse employment and income effects of industry relocation in the early 1970's. While continuing to lag the nation in population growth, it had recovered its earlier capacity for job creation and income generation by 1980.

The Plains Region was less severely affected by the industrial restructuring of the American economy in the 1970's than other frost-belt regions. It suffered, however, from the debilitating effects of a declining world trade economy for agricultural products.

Jobs and income

Statistical series on jobs and income, which are available elsewhere, show the repercussions of the state-by-state shifts in gross product on resident households and businesses. They show the consequences of a high propensity of some businesses to seek relocation in states with low wages and taxes and minimal industry regulation. They also show the apparant willingness of other businesses to overlook the commonly cited costs of doing business and to emphasize, instead, the physical and social infrastructure of a community. Much of the Southeast Region has gained from its low business costs, while the Boston

area, for example, has gained from its educational and, also, research and development infrastructure.

Of critical economic and political importance to every state and, indeed, the nation is the emergence of highly pronounced bi-modal distributions of earnings of the employed work force. In 1980, for example, one mode typically peaked at less than \$10 thousand per worker, the other at more than \$20 thousand per worker. Few workers actually earned the average recorded for all workers. One important and sobering fact (at least for women): the lower mode, including primarily service and administrative support occupations, is dominated by women, while the upper mode, which includes the most rapidly growing professional, technical, and managerial jobs, is dominated by men. On a household basis, however, the bi-modal income distribution is not evident simply because of the existence of many two-worker households, in which one typically holds a low-paying job.

Private and public investment

Private and public investment requirements increase sharply with massive shifts in population and income. In the lagging regions, obsolete facilities must be replaced. In the growing regions, new facilities must be financed and built, particularly in the public sector. Eventually, in some areas rather quickly, private and public costs of doing business will increase sharply.

Much neglected in the the assessments of regional industry restructuring is investment in community infrastructure, particularly in information-generating and information-using capacities. Such investments occur gradually, but they have important accumulative consequences for the creation and sustenance of new businesses. In total, however, these investments are in large part, with the exception of post-secondary education, of private, rather than public, origin.

Policy Implications

The regional disparities in sharing the Gross National Product cited in this study have numerous policy implications, both private and public. Two obvious implications are highlighted here, namely, those pertaining to state government revenues and state government expenditures.

State revenues

State governments face increasing difficulties in accurately assessing their revenue-generating capacities in each stage of the general business cycle because of the restructuring of the American economy and its fall-out in diminished or accelerated rates of growth in gross state product. For state governments to effectively cope with the emerging difficulties, new capacities for judiciously sound and, also, accurate revenue forecasting must be found. More important

than the revenue forecasting, perhaps, is administratively and socially responsible state fiscal management. Some states, like Minnesota, have made important strides in these directions in the past several years.

State expenditures

Sharply fluctuating state revenues, even when accurately forecast and wisely managed, present numerous difficulties in the budgeting of state and local government expenditures. Much technical assistance is already sought by legislative committees to assist in the examination of the various trade-offs of alternative spending packages. Despite awareness of the information deficiencies in existing budgeting processes, very little in fundamental structural reform has been done to correct these deficiencies. For example, the functional state budget was dropped in most states as soon as its federal funding support ceased.

Lack of a functional state budget limits assessments of the economic consequences of alternative state and local spending packages. If a state budget were to differentiate all development-type spending from maintenance-type spending for each function, then economic trade-offs between current and capital outlays could be measured. Such measurement is not easily accomplished.

High-priority areas of state spending are education, health and welfare, and highways. For each area, much, if not all, of the current outlay is for maintenance purposes and even capital spending is, in part, diverted to maintenance functions. On the other hand, much of the spending for post-secondary education is for developmental purposes. Development spending has occurred, however, without careful, if any, consideration of its long-term, growth-generating nature and its consequences for private and public enterprise and long-run state economic viability.

Increasingly large deficiencies in public infrastructure call for larger and larger increases in state and local spending. Yet, few states are ready to meet the additional spending requirements. From the study of interstate shifts in income and population, the infrastructure deficiencies are likely to occur in both lagging and growing states. In lagging states, the need is to update outmoded and obsolete infrastructure. In growing states, new and expanding populations bring their previous expectations for high service levels with them. Individual state infrastructure requirements will vary in function and magnitude.