Minnesota AGRICULTURAL ECONOMIST

Economic Growth in Minnesota

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Agricultural Economics

This issue concerns economic growth in Minnesota. The major article compares personal income growth in Minnesota to the Upper Midwest and nation, reviews income and employment expansion by industry, and characterizes the earnings growth of regions within Minnesota. The second article outlines major trends in state economic development in the 70's.

Economic growth is a real increase in the production of goods and services. Expressed on a per capita basis, growth occurs when real product per person or real **income per person** increases. Generally, increased real income per person is the measure used to indicate that a rise in the standard of living has occurred.

However, income per person has some serious drawbacks as a measure of increases in production or level of living.

Gross national product (GNP) is the most commonly used measure related to national income. But GNP does not measure **nonmarket** production (owner repairs on home, housewife services, voluntary work for charities and churches, etc.) and does not measure improved product quality. In this context, national income per person **understates** economic growth per person.

GNP is expressed in dollar values — prices times quantities. The dollar value of any included item can increase if the number of units produced increases (real growth), or the price per unit increases (inflation), or both. Unless prices are considered, economic growth can be confused with inflation.

Income **per** person implies equality in income distribution. But economic growth may be very unequally distributed among individuals. Consequently, economic growth can take on variable meanings in terms of how it helps the individual.

Further, economic growth is but one indicator of the health of an economy and the welfare of its people. Other ways of assessing economic well-being should include the level of unemployment, the degree of price stability (inflation), the amount of economic freedom, and a measure of economic security. The quality of a person's life cannot be measured by income alone. But a review of all appropriate indicators is beyond the scope of this discussion.

THE GROWTH RECORD

Minnesota's economic growth record has been good. Total personal income has increased at a slower rate than the national average over the past 40 years. Personal income per capita is and has been less than the national average. It also is true that Minnesota's population has grown at a slower rate than the nation's during that period. But these facts **do not** indicate that Minnesota's economic growth record is bad.

Personal income in the state increased 658 percent between the 3-year period 1927-29 and the 3-year period 1966-68. The rate of increase for the United States as a whole was practically the same (see table 1). Personal income growth has been good, considering that Minnesota has more than its share of farmers (whose incomes are lower than those of nonfarmers) and it experienced net outmigration during the period, which added personal income in other states while subtracting it from Minnesota.

Per capita personal income in Minnesota increased 432 percent between the two 3-year periods, while it increased 368 percent in the United States as a whole. Per capita income in Minnesota increased from $598 in 1929 to $3,341 in 1968, while per capita income for the United States as a whole increased from $703 to $3,421. The state's per capita income gained both absolutely and relatively. Thus, when expressed as an increase in income (or product) per person, economic growth is **greater** in Minnesota than in the nation.

This record has been made possible, in part, by a net outmigration from Minnesota. This outmigration is characteristic of states with shares of farmers in excess of the national average. In general, the more important farming is in a state, the greater outmigration has been. All the other Plains States experienced a greater rate of outmigration than Minnesota and all had smaller rates of increase in personal income (table 1). Particularly notable was the low personal income and the lower rate of growth of personal income for North and South Dakota.

Largely because of the Twin Cities metropolitan area, Minnesota is the trade capital of the Upper Midwest. Metropolitan Minnesota draws upon peripheral states and peripheral rural areas within the state for its economic strength and growth. Such a relationship is advantageous to Minnesota in terms of greater per person income.

Nonfarm income is a better measure for estimating trends than personal income because it abstracts from the volatility and waning relative importance of farm income.

Nonfarm income in Minnesota increased 810 percent between 1929 and 1968, while U.S. nonfarm income increased 750 percent. Minnesota's rate of increase was higher than for the United States or for any neighboring state. The declining relative significance of farming and other basic resource industries in Minnesota and the rapid growth in skill and service industries suggest that Minnesota's prospects for growth at a greater than average rate are good.

Table 1. Total personal income and per capita personal income for the United States, Minnesota, and neighboring states, 1927-29 and 1966-68

Area	Total personal income			Per capita personal income		
	1927-29 average	1966-68 average	Percent change 1927-29 to 1966-68	1927-29 average	1966-68 average	Percent change 1927-29 to 1966-68
	- - million dollars - -		percent	- - dollars - -		percent
United States	81,827	631,058	671.2	682	3,188	367.6
Plains States*	7,376	48,631	559.3	560	3,037	442.7
Minnesota	1,485	11,252	657.9	584	3,108	431.8
North Dakota	294	1,625	452.8	436	2,566	488.1
South Dakota	286	1,766	518.2	418	2,646	533.0

* Plains States: Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.
Source: Data for 1927-29 from *Personal Income by States, Supplement to Survey of Current Business*, Dept. of Commerce, 1956. Data for 1966-68 from *Survey of Current Business*, Dept. of Commerce, August 1969.

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INDUSTRIAL COMPOSITION

Minnesota's economy has depended heavily upon its natural resources: agriculture, forestry, mining, and recreation. Yet the state's industrial mix has changed considerably over the past 40 years. Industrial sources of civilian income received by persons participating in current production in 1968 provide a measure of the importance of different industrial activities to growth and welfare in the state. **In 1929, farming dominated Minnesota as the main form of industrial activity,** yielding 21 percent of civilian income. In 1968, the figure was 6 percent. **In 1968, manufacturing was a dominant source of civilian income in Minnesota,** accounting for 26 percent of all civilian income for participation in current production. The relative importance of construction, services, and government increased over this 40-year period as well. On the other hand, the significance of mining, wholesale and retail trade, and transportation diminished.

While farming activity as a source of civilian income has diminished considerably for Minnesota over time, it still is twice as important as for the United States as a whole. In 1968, farming as an industry provided 6 percent of the income received for participating in current production. In the United States, only 3 percent of this civilian income was derived from farming. Compared to the national average, Minnesota's contract construction and wholesale and retail trade provided a larger proportion of income in 1968. Minnesota lagged behind the national average in manufacturing and government as sources of civilian income, but was approximately equal in mining, finance, insurance, real estate, transportation, communications, and public utilities, services, and other industrial activities. It is particularly interesting to note that mining activity as a source of civilian income is not greater for Minnesota than for the nation, despite substantial attention given to this industry by the news media.

Another measure of industrial composition can be obtained by looking at employment distribution by industry. From 1950 to 1968, a substantial decline in farm employment occurred. In 1950, 31 percent of Minnesota's total employment was in farming, compared to 13 percent in 1968. Relative increases in employment were recorded for government services, wholesale and retail trade, and manufacturing. Employment remained proportionately the same or declined in mining, contract construction, transportation, and public utilities during the period.

The 13 percent farm employment in Minnesota in 1968 compares to 5 percent at the national level. Mining employment, contract construction, transportation, and public utilities had proportionately the same employment as at the national level. Employment was greater than the national average in wholesale and retail trade, but less than the national average in manufacturing, finance, insurance and real estate, services, and government work.

Using income derived and employment as measures of industrial composition, Minnesota's economy can be characterized as more heavily agricultural and more trade-oriented than the nation's. It also is less manufacturing, service, and government oriented. Otherwise, it is similar.

Minnesota's industrial composition is approaching a mirror image of the national industrial composition. In terms of industrial mix, Minnesota is becoming less dependent upon its natural resources and more dependent upon its skilled human resources.

A more careful analysis of Minnesota's total employment by different types of manufacturing activity is provided by the 5-year Census of Manufacturing statistics. Measured by employment, food manufacturing is by far the most important manufacturing activity in the state, being in excess of two times the importance of food manufacturing to the nation in 1963. Twenty-four percent of the manufacturing employees in Minnesota are engaged in food and kindred products manufacturing, compared to 10 percent nationally. Minnesota's manufacturing activities also exceed national averages in the production of paper, printing materials, stone and clay works, machinery and instruments, and miscellaneous items. The greater relative dominance of paper manufacturing in Minnesota is, of course, connected with the forest industry, and printing manufacturing is closely associated with this paper source.

Machinery industry dominance indicates a greater than national average manufacturing of farm machinery and electronic instruments, machines, and equipment. Over time, the importance of manufacturing industries has changed. Manufacturing activity in Minnesota is less reliant on food than previously and more reliant on machinery, instruments, and miscellaneous manufacturing activities.

Because food manufacturing is so important to Minnesota, it is instructive to look more closely at the industries within this grouping. In 1963, 38 percent of all food manufacturing workers in Minnesota were employed in meat production, compared with 18 percent nationally. Production of dairy products was slightly greater than nationally. Otherwise, Minnesota's food manufacturing was less than the national average for canned and frozen foods, bakery products, candy, beverages, and miscellaneous foods.

Minnesota was only equal to the national average in terms of relative employment in grain mill products in 1963. This situation may be surprising. Apparently, the wholesaling of grain mill products is important, while the manufacture of them is not. Further, the location of major canning companies in Minnesota does not supply sufficient employment to exceed the national average. Cattle production and meat manufacturing are very important in Minnesota, which heightens the significance of the loss of a major meat packer.

Study of the wholesale trade sector of the economy compared to the nation reveals that Minnesota has wholesale activities employing relatively more people in farm products, hardware, and machinery equipment than nationally. Variations in retail trade from the national averages exemplify the importance of farm equipment and local retail farm equipment dealers in Minnesota.

Careful review of the services sector of Minnesota's economy for 1963 shows that hotel employment in Minnesota was greater than the national average. Personal services and amusements and recreation employment was at less than the national average level of employment in 1963. All other service activities including miscellaneous business, auto repair garage, miscellaneous repair, and motion pictures served as employment sources in the same proportions as the national averages.

There has been a general shift from low income earning to higher income earning activities in Minnesota's industrial groupings. This shift implies a decreasing "drag" on the growth of the economy due to decreasing domination of low income industries.

Particular industry groupings may be of special importance in certain regions within Minnesota and not as important for the state as a whole. For example, mining, forestry, and recreation serve as a basic industrial grouping for northeastern Minnesota. But collectively these industries are not major sources of employment or income for Minnesota as a whole.

BALANCED REGIONAL DEVELOPMENT

Balanced regional development means fair and equitable distribution of the benefits of economic growth. Declining rural communities with a disproportionate share of the aged, the disabled, and the unskilled incur a disproportionate share of the costs of economic progress.

Two fundamental factors account for the degree of imbalance in regional economic development: industry mix and resource productivity. Rural or urban areas dominated by a declining industry and without exceptional access to resources and markets typically are declining areas too. Consider the 14 counties of west central Minnesota in comparison with the 7-county Twin Cities metropolitan area.* Clearly the difference between

* Counties in west central Minnesota are: Big Stone, Stevens, Pope, Traverse, Grant, Douglas, Todd, Wilkin, Otter Tail, Wadena, Clay, Becker, Hubbard, and Mahnomen. Counties in the Twin Cities metropolitan area are: Hennepin, Ramsey, Scott, Carver, Dakota, Anoka, and Washington.

rates of population growth, −3 percent versus nearly 2 percent, is fundamentally a question of industry mix (table 2). Most of Minnesota's rapidly growing industries are concentrated in the Twin Cities metropolitan area.

Besides industry mix, per worker productivity in each industry is important in achieving rural-urban balance. High productivity depends on technical skills and capital investments. However, high productivity may or may not support high earnings per worker and above-average family income.

In west central Minnesota, the dominant industry is the family farm. In the seven eastern counties of the area, net family income is far below that in the mining industry. Other wage levels generally correlate with agricultural earnings. All earnings in west central Minnesota are lower than in northeast Minnesota, as well as in the Twin Cities metropolitan area. This fact illustrates that high productivity in an area's basic industries is not enough. It must be coupled with high earnings per worker to support the variety of trade and service activities which, in most areas, provide most local jobs. Higher earnings are not a manifestation of a restricted labor supply. High unemployment and high earnings can exist side by side, as they do in northeast Minnesota.

Regional development certainly is not approaching a reasonable balance for the aged, the disabled, the unskilled, the unemployed or underemployed, and the poor. In west central Minnesota, for example, a disproportionate share of the population is 65 years and older, and is either unemployed or underemployed (table 2). Particularly in the seven eastern counties of west central Minnesota, household incomes are badly skewed, with a substantial majority of families reporting less than $5,000 of disposable income (table 3). Low disposable income correlates with low per capita retail trade and personal and professional services.

Household consumption expenditures in west central Minnesota are substantially below those in metropolitan areas, not only because disposable incomes are low, but also because of a narrow range of consumption choice. Rural-urban balance implies more equality than we now have for employment, educational, cultural, and consumption opportunities.

Finally, regional economic balance implies a quality environment, both natural and social. Economic growth often leads to environmental deterioration. For example, population and industrial concentrations lead to high levels of waste. One approach to reducing the air and water pollutants associated with rapid economic growth is to develop many urban centers. However, recent trends indicate that industry expands in the commuting areas of metropolitan centers and in areas with exceptional outdoor amenities.

Table 2. Population, labor force, and employment patterns in selected areas, Minnesota, 1967

Item	West Central Minnesota		Twin Cities metropolitan area
	Western part	Eastern part	
	percent		
Population			
Under 14	29.7	27.1	31.2
14 to 64			
In labor force	40.0	38.1	47.9
Not in labor force	18.0	20.1	11.0
65 and over	12.3	14.7	9.9
Total	100.0	100.0	100.0
Labor force			
Employed	96.1	94.7	97.7
Unemployed	3.9	5.3	2.3
Total	100.0	100.0	100.0
Population per employed worker	2.6	2.8	2.1

Table 3. Personal income and expenditure patterns in selected areas, Minnesota, 1967

Item	West Central Minnesota		Twin Cities metropolitan area
	Western part	Eastern part	
	percent		
Households, by income class			
Under $3,000	22.0	36.5	13.0
$3,000-$4,999	13.1	21.9	9.8
$5,000-$7,999	29.8	25.2	24.6
$8,000-$9,999	19.9	8.2	19.1
$10,000 and over	14.2	9.2	33.5
Total	100.0	100.0	100.0
	dollars		
Disposable income per person	2,060	1,690	3,160
Retail sales per person			
Food	310	260	380
Other	1,170	1,080	1,500
Total	1,480	1,340	1,880

CONCLUSIONS

Several overriding characteristics of Minnesota's economic growth stand out:

1. Minnesota's economic growth during the past 40 years has been good relative to the nation. Measured in terms of gross product per person or personal income per person, Minnesota is gradually catching up to the U.S. average. This development implies a greater than average growth rate for Minnesota compared to the nation over time.

2. Minnesota's dependency on its natural resources always has dominated the character of economic growth in the state. Continued economic growth of the food and kindred product industries and other activities related to agriculture suggests continued dependency on these resources, though the degree of dependency is expected to decline.

3. Minnesota serves as the trade capital of the Upper Midwest, drawing upon peripheral states and rural areas within the state for economic strength and growth. Such a relationship is advantageous to Minnesota in terms of continued economic growth but disadvantageous to outlying areas.

4. Minnesota's fastest growing industries are those that depend upon a highly skilled labor force and upon educational attainments. Apparently, Minnesota's economic future will be more heavily influenced by the character of its human resources than by the character of its natural resources.

5. Minnesota's regional growth has shown serious imbalance. The metropolitan areas have experienced income gains at the expense of rural areas.

Resource industry-dominated rural regions are at a disadvantage. The aged, the ill, and the unskilled reside there in greater proportions and have not participated fully in income per person increases. ■

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IN PERSPECTIVE

Minnesota's Economic Future

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Minnesota's future economic performance will be heavily influenced by an adjustment from dependency on natural resources to increased dependency on human resources. Historically, Minnesota's economy has depended upon basic natural resources (agriculture, forestry, mining, and recreation) for its economic growth and development. Recently, however, employment and income increases have been greatest in those industries that depend upon a skilled labor force. Accordingly, Minnesota's economic future will depend more heavily upon the quality of its education and manpower training programs.

Annual economic growth rates in Minnesota during the seventies will be greater than the nation's. This change will be explained by the continued shift in industrial mix from a higher dependency on low growth natural resource industries to high growth human resource industries. At first, this development will create a near mirror image of the state to the nation in industrial mix. But it will not remain so for long. Minnesota's longrun future will depend upon human resource oriented industry growth. In this context, the industry mix in the state may be more dominated by highly skilled labor industries than will be so nationally.

These tendencies are substantiated by recently completed "shift-share" employment projections for Minnesota (see the table). Projected employment shows decreases or near stability in most basic resource industries. The major increases in employment have been in highly skilled manufacturing activities and noncommodity producing industries.

Economic growth will occur in Minnesota partly at the expense of peripheral states. This tendency may be offset somewhat by the development of strong industrial centers in the Fargo-Moorhead and Sioux Falls areas. In general, however, income growth related to natural resources will flow to the Twin Cities and Duluth and be captured within Minnesota at the expense of surrounding states.

In terms of standard of living, income per person will increase in Minnesota. But the distribution problem could be even more severe in future years. Income distributions will be highly skewed; those people living in urban areas will have a greater income advantage than those in rural areas.

The changing geography of economic growth in Minnesota suggests that much of the economic growth will be concentrated in the four metropolitan areas of Minnesota and contiguous states: Minneapolis-St. Paul, Duluth-Superior, Fargo-Moorhead, and Sioux Falls. This growth will spill over into the commuting zones of these metropolitan centers.

These impending trends will serve as strong forces in molding our state economy. As a populace, we can **adjust** to economic forces and/or attempt to **control** our economic environment. Greater control of our economic environment will require increased intercounty and interstate cooperation. ■

Estimated and projected civilian employment, by industry, Minnesota, 1960-80

Industry	Estimated 1960	Change, 1960-80	Projected 1980
		thousands	
Agriculture, forestry, fisheries	184.0	−73.3	110.7
Mining	16.1	8.6	26.7
Contract construction	70.1	28.9	99.0
Manufacturing			
Food and kindred products	59.7	2.1	61.8
Textiles and apparel	11.2	−2.3	8.9
Lumber, wood products, furniture	11.0	2.5	13.5
Printing, publishing	26.0	11.9	37.9
Chemical and allied products	5.8	0.2	6.0
Machinery	45.6	24.3	69.9
Motor vehicle, transportation equipment	6.8	4.4	11.2
Other manufacturing	81.5	51.7	133.2
Total manufacturing	247.6	94.7	342.3
Total commodity-producing	519.8	58.9	578.7
Total noncommodity-producing*	713.5	393.0	1,106.5
All industries†	1,233.3	451.9	1,685.2

* Transportation; communications; utilities; wholesale and retail trade; finance, insurance, and real estate; business, personal, and professional services; and public administration.

† Totals may not equal sum of parts because of rounding.

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