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ECONOMICS
INFORMATION
REPORT

ECONOMIC GROWTH
IN NORTH CAROLINA'S
FUTURE

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PAUL S. STONE



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ECONOMIC GROWTH IN NORTH CAROLINA'S FUTURE

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ABSTRACT

This report provides information to help state and community leaders in North Carolina better understand changes in the state's economy, important growth issues and strategies for future economic growth. Information is provided on changes in employment, income and wages from 1960 to 1980 and expected changes in major industrial groups from 1980 to 2000. This is followed by a discussion of factors affecting economic growth, priority growth issues and strategies for future economic growth.

The report focuses on two important issues expected to affect the rate, type and location of future economic growth in the state and implications for state and local public policies and programs. The first issue pertains to improving the levels of education, technical skills and scientific training for individuals and the level of scientific knowledge. The second issue relates to improving community institutional capacity for long-term planning, financing and implementing economic and community development programs. Other issues briefly discussed include transportation deregulation, land-use planning, water management and conservation, waste management and balanced growth.

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ECONOMIC GROWTH IN NORTH CAROLINA'S FUTURE

INTRODUCTION

State and community leaders throughout North Carolina are interested in stimulating economic growth to improve employment opportunities, increase per capita income and expand the tax base to support public services. This report provides information to help them better understand economic growth in the state, including changes in employment, income and wages, factors affecting economic growth, emerging growth issues and alternative strategies for future economic growth.

The report focuses on two important issues expected to affect the rate, type and location of future economic growth in North Carolina:

- (1) Improving the levels of education, technical skills and scientific training of individuals, and
- (2) Improving community institutional capacity for long-term planning, financing and implementing economic and community development programs.

Alternative strategies relating primarily to the above issues are discussed. Other issues expected to affect future economic growth in the state are briefly discussed, including land-use planning, transportation deregulation, water management and conservation, waste management and balanced growth. The report is divided into four major sections:

- (1) Changes in Income, Employment and Wages, 1960-1980
- (2) Structural changes in the N.C. Economy, 1980-2000
- (3) Priority Growth Issues
- (4) Strategies for Future Economic Growth

CHANGES IN INCOME, EMPLOYMENT AND WAGES, 1960-1980

North Carolina incomes are increasing more rapidly than for the nation but are still below the U.S. average. The rate of change in real per capita income (per capita income adjusted for inflation) provides a measure of economic growth. In constant 1960 dollars, real per capita income in the state increased by \$1233 or 78 percent from 1960 to 1980 compared to an increase of \$1221 or 55 percent for the nation (Table 1). The average annual rate of increase in real per capita income in the state during the sixties was 4.5 percent compared to an annual increase of only 1.3 percent during the seventies. The N.C./U.S. ratio of per capita income increased from .72 in 1960 to .82 in 1970 but remained at .82 in 1980. Per capita income in North Carolina in 1980 current dollars was \$7819 or \$1702 less than the national average of \$9521.

Table 1. Change in per capita income in North Carolina and the United States, 1960 to 1980^a

	1980		Measured in current dollars			Measured in 1960 dollars		
	Current dollars	1960 dollars	1960-70	1970-80	1960-80	1960-70	1970-80	1960-80
(percent increase)								
U.S.	9521	3422	79	141	333	37	14	55
N.C.	7819	2810	104	143	396	56	14	78

^aSource: U.S. Bureau of the Census (1981).

Changes in Employment by Industry

The North Carolina economy is growing more rapidly than the national economy and continues to move toward the national industrial structure. From 1960 to 1980, total employment in the state increased

70 percent as compared to the national increase of 45 percent (Table 2). Economic growth has been accompanied by rapid changes in the industrial mix in North Carolina. National and state employment is increasing most rapidly in the service industries. State employment increased 84 percent or more in private and public services, wholesale and retail trade, and finance, insurance and real estate from 1960 to 1980. Manufacturing employment increased 61 percent while agricultural employment declined 58 percent.

Table 2. Changes in employment by industry, North Carolina and the United States, 1960 and 1980^a

Industry	Employment						
	N.C. 1980 (000)	Percent of total ^b				Percent change 1960 - 80	
		N.C.		U.S.		N.C.	U.S.
	1960	1980	1960	1980			
Total	2731.1	100.0	100.0	100.0	100.0	70	45
Agriculture	86.1	13.2	3.5	6.9	3.3	-58	-29
Construction	118.7	6.3	4.8	6.2	4.9	21	17
Manufacturing	820.0	32.9	33.3	28.6	22.3	61	16
Trans., com. & other util.	116.5	4.8	4.7	7.3	5.6	56	16
Wholesale & re- tail trade	472.9	16.6	19.2	19.2	22.5	84	74
Finance, ins., & real estate	95.5	2.8	3.9	4.4	5.7	124	92
Private and public serv.	751.2	23.4	30.5	27.3	35.7	107	95
Other indus. ^c	270.2	-	-	-	-	-	-

^aSources: U.S. Bureau of the Census (1962 and 1963), U.S. Dept. of Labor (January, 1981) and unpublished data, N.C. Employment Security Commission.

^bExcludes employment in "other industries."

^cIncludes mining and unpaid family, domestic and self-employed workers.

The proportion of total state employment in trade and the service industries increased from 43 percent in 1960 to 54 percent in 1980. Yet, the state proportion of total employment in service industries in 1980 lagged behind the national proportion of 64 percent. Manufactur-

ing in the state maintained its share of total employment from 1960 to 1980 at about one-third while agricultural employment, as a share of the total, declined from 13.2 to 3.5 percent.

Changes in Manufacturing Employment and Wage Levels

Manufacturing employment in North Carolina increased by 61 percent from 1960 to 1980 (Table 3). This was almost four times the national rate of increase. State employment in the highest wage U.S. manufacturing sectors (sectors with U.S. wages in 1980 more than 10 percent above the national average of \$7.27) more than tripled from 1960 to 1980, increasing the state's share of total manufacturing employment in these sectors from 6.8 to 13.7 percent. The state's employment in the moderate wage U.S. manufacturing sectors increased 47 percent and state employment in the lowest wage U.S. manufacturing sectors (sectors with U.S. wages less than 90 percent of the national average of \$7.27) increased 39 percent from 1960 to 1980. Thus, the highest wage manufacturing sectors in the state became relatively more important and the lowest wage manufacturing sectors slightly less important.

State employment in nonelectrical machinery and fabricated metals more than tripled from 1960 to 1980. During the same period, state employment in chemicals, transportation equipment, apparel, primary metals and electrical machinery more than doubled. Employment in tobacco, lumber and wood products and textiles in the state declined or increased less than 15 percent. Even with these rather dramatic changes in some of the rapidly growing, high-technology manufacturing sectors, 55 percent of the state's total manufacturing employment remains in the four sectors with the lowest wages: apparel, lumber and wood products, furniture and textiles. The comparable share of manufacturing employment in these sectors for the nation is only 16.3 percent.

The level of manufacturing wages often is used for comparing earnings and economic well-being among the states. The average manufacturing wage rate in North Carolina increased from \$1.54 in 1960 to \$5.37 in 1980 (Table 3). North Carolina wages remained the same or increased relative to U.S. wages in 13 of the 16 manufacturing sectors. Average

10 Table 3. Changes in manufacturing employment and wages, North Carolina and United States, 1960 and 1980^a

Manufacturing sectors	Employment								Manufacturing wage rates				
	1980 N.C.	Percent of total				Percent change		N.C./U.S. ratio					
		N.C.		U.S.		1960 - 80		N.C.		U.S.			
		1960	1980	1960	1980	N.C.	U.S.	1960	1980	1960	1980		
	(000)									(dollars)			
Total manufacturing	820	100.0	100.0	100.0	100.0	61	16	1.54	5.37	.68	.74		
<u>Highest US wages^b</u>	112	6.8	13.7	31.3	32.5	221	21	1.85	6.28	.70	.72		
Primary metals	8	.6	1.0	7.0	5.5	161	- 8	2.06	6.35	.73	.65		
Transport.equip.	15	1.0	1.8	10.4	9.3	181	4	2.09	6.02	.76	.64		
Chemicals	39	2.7	4.8	4.9	5.5	192	29	1.92	6.74	.77	.81		
Nonelect.mach.	50	2.5	6.1	9.0	12.2	284	59	1.63	5.99	.64	.74		
<u>Moderate US wages</u>	244	32.7	29.8	43.9	43.4	47	15	1.65	6.16	.73	.86		
Paper	21	2.7	2.6	3.3	3.4	58	20	2.25	7.91	1.00	1.01		
Tobacco	24	5.4	2.9	.5	.3	- 12	- 20	1.82	8.15	1.07	1.06		
Print. & pub.	20	2.6	2.4	6.5	6.3	56	11	2.22	5.87	.83	.78		
Stone, clay & glass	18	1.9	2.2	3.4	3.3	90	11	1.44	5.98	.63	.80		
Fabricated metals	26	1.4	3.2	7.4	8.0	271	26	1.76	6.25	.72	.84		
Electrical mach.	55	5.0	6.7	8.5	10.4	119	43	1.92	6.30	.84	.91		
Food	44	6.5	5.4	10.4	8.3	33	- 7	1.30	5.26	.62	.77		
Lumber & wood	36	7.2	4.4	3.9	3.4	- 4	- 1	1.27	4.67	.67	.71		
<u>Lowest US wages^c</u>	416	58.6	50.7	14.2	12.9	39	6	1.46	4.75	.90	.91		
Furniture	82	8.6	10.0	2.2	2.3	86	26	1.43	4.89	.76	.89		
Textiles	246	43.5	30.0	5.4	4.2	11	- 9	1.51	4.95	.94	.98		
Apparel	88	6.5	10.7	6.6	6.4	167	12	1.20	4.10	.75	.90		
Other	48	1.9	5.8	10.6	11.2	385	23	.86	5.23	.47	.80		

^aSources: U.S. Bureau of the Census (1962 and 1963), U.S. Dept. of Labor (March, 1981), and unpublished data, N.C. Employment Security Commission.

^bU.S. wages in 1980 more than 10 percent above national average of \$7.27.

^cU.S. wages in 1980 less than 90 percent of national average of \$7.27.

manufacturing wages in the state increased from 68 percent of the national average in 1960 to 74 percent in 1980. However, average manufacturing wages still remain the lowest of any state in the nation.

Changes in Employment by Occupation

North Carolina employment in occupations requiring relatively high professional and technical skills is increasing more rapidly than in other occupations. State employment in professional, managerial, sales and clerical occupations more than doubled from 1960 to 1980 (Table 4). The rate of growth in state employment in each of these four occupational groups was over one and one-half times greater than the national growth rate.

The rate of increase in state employment for craftsmen (87 percent), a skilled worker category, between 1960 and 1980 was almost twice as great as the national rate. The state's share of employment for operatives, a semi-skilled category, and for low-skill, low-wage nonfarm laborers and service workers declined or remained about the same from 1960 to 1980, while the state's share of farm workers declined from 13.0 to 3.4 percent.

Table 4. Changes in employment by occupation, North Carolina and the United States, 1960 to 1980^a

Occupation	Employment						
	N.C. 1980 (000)	Percentage distribution				Percent change 1960-80	
		N.C.		U.S.		N.C.	U.S.
	1960	1980	1960	1980			
Prof. & tech.	335.7	8.0	12.9	11.4	16.1	175	109
Mgrs. & admin.	226.6	7.4	8.7	10.7	11.2	101	55
Sales	230.3	6.7	8.8	6.4	6.3	125	46
Clerical	371.6	9.7	14.2	14.8	18.6	149	85
Craftsmen	360.1	12.6	13.8	13.0	12.9	87	46
Operatives	558.5	25.2	21.4	18.2	14.2	45	16
Nonfarm laborers	143.4	5.6	5.5	5.4	4.6	69	25
Service	293.7	11.8	11.3	12.2	13.3	62	62
Farm, forestry, & fish.	87.9	13.0	3.4	7.9	2.8	-56	-48

^aSources: U.S. Bureau of the Census (1962, 1963 and 1981) and unpublished Census Data, Office of Budget and Management, N.C. Dept. of Administration.

The greatest differences in the state and national occupational employment distributions are: (1) The national proportion of professional and technical workers is over one-fourth greater than for the state, and (2) The state proportion of operatives (truck drivers, machine operators, etc.) is over 50 percent greater than for the nation. It is expected that professional, managerial and skilled technical workers will constitute an increasing share of future employment in the nation and in North Carolina.

EXPECTED CHANGES IN THE ECONOMY, 1980-2000

The North Carolina and national economies are likely to experience substantial structural changes during the next two or three decades. The structure of the state's economy is expected to continue to become more nearly like the national economy. State employment in primary industries like agriculture, forestry, fishing and mining and in traditional manufacturing is expected to continue to decline in relative importance if not in absolute terms. A major force undergirding these changes will be capital investment in labor-saving technology to increase labor productivity and efficiency of production. The major employment growth likely will be in business and financial services (especially information processing), recreation services, electronics, chemical and medical technology, and local and state public services. In terms of occupational mix, the rapid growth areas likely will be in professional and technical services (such as information processing, medical services, chemical and engineering technology, and repair of data processing equipment, office equipment, autos and household appliances) and for skilled craftsmen. Employment opportunities for nonfarm laborers, domestic and other unskilled service workers, and farm workers are expected to continue to decline.

The next two decades may prove to be what one may term the "Information Era" - the development, processing, distribution and interpretation of information. New electronic technological developments on the horizon and those likely to come will affect the entire economic and social structure of society. It might approximate a second industrial revolution and greatly affect research methods and analytical procedures, communication and information systems, business organization, management and inventory control, financial arrangements between businesses and between consumers and business firms, office equipment and operating procedures, and information storage, processing and retrieval systems to name but a few.

Direction of Change for Major Industrial Groups

A brief synopsis and general comments on anticipated growth patterns in the state's major industrial groups during the next two decades follow.

Agriculture. Agriculture is expected to continue to be an important component of the state's economy both in terms of the value of farm sales and in the volume of agribusiness generated in supplying farm inputs and services, and in processing, marketing and distributing farm products. Among farm enterprises, ornamentals grown primarily in the mountain region may offer potential for the greatest rate of increase in sales. Swine and vegetable production is expected to continue to expand, and production of poultry, soybeans, fruits, beef cattle and dairy production will likely increase but at a slower rate. Corn and peanuts are expected to continue to be important agricultural enterprises in the state but are likely to experience little or no growth in the next two decades. The level of future tobacco production is somewhat uncertain because of uncertain public policies and the relationship between health and use of tobacco products.

Manufacturing. Manufacturing employment in the state is projected to continue to increase during the next two decades and remain as a major source of employment. Two major structural changes in manufacturing may be anticipated. First, the distribution or mix of employment among manufacturing industries is expected to continue to change. The more rapid growth in state manufacturing employment is expected to be in the high-technology, high-skill durable goods industries like fabricated metals, electrical and nonelectrical machinery, tools and scientific instruments. Chemicals, drugs and plastics seem to offer the best potential growth for nondurable goods manufacturing.

Second, capital investments in labor-saving machinery and equipment are expected to continue in the old-line, labor-intensive industries like textiles and furniture. Capital investments could be in the form of robots to perform routine on-the-line operations like welding, boring holes, and inserting and tightening screws. They also might be in the form of complex, electronic computers to control and synchro-

nize machine operations on production lines, and in other forms of labor-saving capital investments.

These potential developments along with increasing foreign competition in textiles and apparel and future uncertainty of demand for tobacco products suggest that state employment in textiles, tobacco and lumber and wood products is likely to decline during the next two decades. These same forces suggest that the share of total employment in furniture, food and apparel is likely to decline although actual employment in these manufacturing sectors is expected to increase.

Tourism. The state's diverse climate, natural resources, and proximity to large numbers of people on the eastern seaboard, coupled with increasing per capita demand for recreation and leisure activities, suggest considerable growth potential for travel and tourism. Water resources and beaches in the Coastal Region; natural beauty, terrain and climatic conditions in the Mountain Region; and climatic conditions and recreational complexes in the Southern Piedmont Region provide the state unique resources to support travel and tourism. In addition, state parks, lakes, wildlife, nature trails, open space and rural pastoral beauty found throughout the state serve to supplement and complement the more unique resources in certain regions to attract a broad array of tourists from within and outside the state.

Service Industries. Growth in service industries seems to offer the best potential for additional employment opportunities in the state in the foreseeable future. It is not unrealistic to expect that state employment in service industries by the year 2000 will constitute two-thirds or more of total employment. This includes business and financial services, recreational services, professional and technical services, personal services, wholesale and retail trade and public services. State and local government employment likely will decline during a brief interim while adjusting to reductions in federal funding but can be expected to continue its upward trend after an adjustment period.

Factors Affecting Future Economic Growth

Important factors affecting future economic growth in the state and in communities within the state include:

- (1) Rate of national economic growth,
- (2) Prices of inputs used in producing and distributing goods and services,
- (3) Availability and quality of inputs and public services,
- (4) Taxes, and
- (5) Community livability, amenities and environmental quality.

The state's economy is closely interrelated with and affected by the rate of national economic growth through its dependency on national markets for goods and services, and for capital, raw materials and other inputs. The relative levels of wages, land prices, and prices of raw materials and other inputs used in production and distribution of goods and services, including transport costs, are important determinants of the comparative advantage of one locality over another. Transport costs vary with the availability, quality and mix of transport facilities (roads, airports, rail lines and ports).

Scientific research and levels of education and technical skills of the labor force are especially important in attracting high-technology, high-wage industries. The availability and quality of community services (water, sewer, protective services, health, recreation and other services) along with the price and availability of housing influence location decisions of private businesses and quality of living of the citizenry. Taxes also influence the location of new industries, especially the more capital intensive industries. A somewhat intangible factor affecting economic growth in the state is community livability, amenities and environmental quality. This includes visual quality, land use, congestion, climate, prices of housing and costs of community services.

Major factors likely to affect future economic growth in North Carolina over which public policy-making bodies and other leaders have primary control are: (1) Scientific research, (2) Basic education, technical and professional training opportunities, (3) Price, quality and availability of public facilities and services, (4) Amount and type of state and local taxes, and (5) Environmental quality and community livability. In addition to these factors, relatively low wages and land prices along with easy accessibility to rapidly growing markets,

raw materials, natural resources and other production inputs have been influential in the state's economic growth in the past and can be expected to be important in its future growth.

business organization, management and operational procedures. Research programs are needed: (1) To evaluate economic activities which offer the best potentials for economic growth in the state by major region, (2) To estimate more specific future employment opportunities by industry and occupation, present skills and experiences of the labor force, and the educational training and technical skill development needed to bridge the gap between expected skill requirements and present skill levels, (3) To evaluate the effects of alternative levels, types and location of state public investments in education, health, transport facilities and other public investments on the rate of economic growth in the area in which located, and (4) To estimate the effects of alternative public assistance and incentives for training and labor resource adjustment and for private businesses to stimulate job development in communities with low incomes and/or high rates of unemployment.

New growth, advanced-technological industries are associated with highly skilled and professional staffs, high levels of education and income, sophisticated industrial techniques and cultural amenities. These industries include scientific instruments and control devices, electronics, data processing, machine tools, communication equipment and chemicals and drugs. Science-based industries usually are "foot loose" in the sense that transport costs are minor and, hence, they do not have to locate near raw materials or markets. Rather, technology constitutes a high proportion of production costs and contributions of scientists and technicians represent an important part of the value added by manufacturing. Markets, inputs and technical changes for this type of industry often are uncertain. Thus, availability of skilled technicians, professional staff, technical services and ease of communication are especially important. Three kinds of individuals have been cited as being responsible for making new technical companies possible: (1) Entrepreneurs (founders) who are usually scientists or engineers with business organization and management skills, (2) Technicians and technical leaders who often move to new firms, and (3) Professional employees with various degrees of creativity, including science, engineering and business management (Shimshoni, 1971).

A final point on the education, technical-skill and professional training issue is the need for further developing and using information

on the long-term net benefits (benefit-cost ratios) of alternative training programs in planning the post-secondary curriculum mix. In particular, there is a need to give further consideration to expected changes in future earnings from training received. The tendency seems to be to place primary emphasis on per pupil training costs in which case liberal arts and college-parallel training would usually be lower than costs for high-skill, technical training often requiring capital investments in machinery and equipment. However, if long-term net benefits (benefits including changes in expected future earnings compared to training costs) are given fuller consideration in planning post-secondary training programs, high-skilled and semi-skilled technical training would be expected to compare more favorably with college-parallel training programs.

Improving Small Community Planning and Institutional Capacity

Communities, small towns and rural areas are faced with severe institutional limitations in their capacity for long-term planning, financing, coordinating and implementing economic and community development programs. The major components of this issue include:

- (1) Understanding by local leaders of component parts of a total community development program and how they are inter-related,
- (2) Understanding of factors affecting, and preparation for, economic growth,
- (3) Evaluating community potentialities for economic growth,
- (4) Evaluating the impact or effects of particular levels and types of economic growth on the community, and
- (5) Methods of involving local citizens in community planning.

Understanding Components of Community Development Program. There are numerous components of a total community development program but they may be grouped into five major categories: (1) Economic development (on which this paper focuses), (2) Human development including education, health, cultural and social development, (3) Improving community services (water, waste disposal, protective services, health, recreation, housing, communication and transportation services), (4)

Wise management of natural resources, and (5) Maintaining and improving environmental quality. Effective community planning requires an understanding of the components of a community development program and the interdependencies among components - how each component depends upon and is affected by changes in other components. Hence, economic development programs cannot be effectively planned and implemented except as a part of a total community development program.

Factors Affecting, and Preparation for, Economic Growth. Factors affecting economic growth and those over which communities have control were discussed earlier in this report. Improving the educational and technical skill levels of the labor force is one of the important factors that received major emphasis in the previous section. A second important factor is land-use planning or the spatial distribution of competing land uses so as to minimize costs of public services, to provide designated places for industrial and other types of economic growth for which utilities and other necessary services can be planned, and to minimize the spill-over effects of nonfarm economic growth on agriculture, environmental quality, community amenities and natural resources.

A third important determinant of the community specific location of private businesses is the price, availability and quality of public services. A fourth important factor over which state and local leaders have control is the types and levels of state and local taxes. There are several important public-finance issues to consider in planning and financing community services. These include: (1) Pricing public services when it is economically efficient through user fees based on the costs of providing the service, (2) Capturing economies of scale which leads to consideration of the economic feasibility of consolidating certain public services like fire protection, law enforcement, water and sewer facilities, recreation and planning functions into county, joint county-city or multiple city units, (3) Evaluating alternative means of financing a public service, including user fees or use of general revenues, and (4) Analyzing the relative benefits and costs of different public services being delivered or being considered, including the distribution of benefits and costs, as a basis of establishing priorities.

Assessing Potentials for Economic Growth. This is one of the most difficult tasks for communities to perform. Short of a complete comparative cost analysis of particular types of economic activities in competing and potentially competing areas, which few if any communities could afford, the following relatively simple concepts and procedure might be helpful. A starting point is to determine the number, type and magnitude of economic activities which have located or expanded in the area in the past 10 or 15 years. This will provide a perspective for the type of economic activities in which the area may have a comparative advantage and which may offer potential for future growth. A second guideline would be to inventory the quantity and prices of the resources in the area. These were discussed earlier and include labor, raw materials, water and other natural resources, community services, availability of capital at competitive interest rates, and transport facilities or accessibility to raw materials and markets. In making the inventory of resources, particular attention might be given to: (1) Any unique resources that would be especially important to certain types of private businesses and (2) Quantities and prices of resources which might constitute a major production cost. In regard to location or accessibility to markets and raw materials, deregulation of transport facilities will be important and likely will have the greatest impact on businesses and communities located on low-volume, unprofitable rail lines and truck pick-up and delivery points which may be discontinued. One alternative being considered to cope with this problem is to organize Area Nonprofit Shippers' Associations to assemble and deliver low volumes of freight to and from central terminals.

Impact of Economic Growth. Different levels and types of economic growth will affect communities in different ways. One important consideration in evaluating the effect of a particular economic activity on the community is the stability of the economic sector, or conversely, its vulnerability to business cycles. Generally, durable goods manufacturing industries are more sensitive to business cycles than non-durable goods, and agriculture and service industries tend to be least sensitive.

A second consideration is the impact a given level of economic growth in a particular sector has on the local economy, household in-

comes and employment, and local government fiscal affairs. The effect of a given level of economic growth (as measured by the change in demand for output) on a community's total output varies directly with the proportion of the economic sector's output that is used to purchase local raw materials and inputs. The effect on total local household income depends on the proportion of an economic sector's and interrelated sector's output that is used to make income payments to local households (wages, dividends and interest, rental and proprietary income). The effect of a given level of economic growth on employment opportunities for local residents depends on the number of new jobs generated and the proportion of the new jobs filled by local residents. The number of new jobs generated by a given level of economic growth depends on the labor intensity or employment per dollar of output of the particular economic sector and interrelated sectors. Local business property value (value of real property, machinery and equipment and inventory of goods) per dollar of sales for the particular economic sector would be a primary determinant of the effect of a given level of economic growth on local government revenue from business property taxes. Local sales tax generated from a given level of economic growth for a particular economic sector depends on the amount of local income generated and the proportion of that income used to purchase local consumer goods on which sales taxes are assessed.

The effect of a given level of economic growth in a particular sector on the change in demand for and costs of providing local public services will be closely related to how near the local economy is to full employment. If there is unemployment and most of the additional employment opportunities are filled by local residents or commuting workers, there would be little effect on the demand for and costs of providing community public services. Conversely, if there is full employment in the local economy, most new jobs would be filled by immigrants and the impact on the costs of additional public services would be greater.

A third major effect of economic growth on a community might be changes in environmental quality, community amenities and natural resources. This type of impact is more difficult to quantify, but varies with the level and type of economic activity and the extent to which

community land-use plans have been developed, including designation of specific areas for industrial, commercial and business uses.

Citizen Involvement in Community Planning. Citizen involvement is one of the key ingredients in planning and implementing effective community development programs. Local leaders and citizens might be involved in establishing community goals, identifying and discussing problems and issues, and suggesting alternative solutions to the problems and issues identified. There are numerous ways of involving local citizens in public policies and community affairs, including public hearings, establishing task forces or advisory groups, working through established civic groups, and organizing or working through established voluntary community development groups. If citizens are encouraged and given an opportunity to participate in community planning and discussion of public issues, they will be more likely to support community development programs and assist in implementing them.

Other Economic Growth Issues

Several issues that will affect future economic growth in North Carolina have been identified and briefly discussed in the preceding sections on improving educational and technical training and on improving community planning and institutional structure. These included: (1) Transportation deregulation policy which is expected to have the greatest impact on businesses and communities located on low-volume, unprofitable rail lines and truck pick-up and delivery points which may be discontinued, (2) Potentiality of consolidating certain local public services into county, joint county-city or multiple city units which may improve efficiencies and reduce costs through economies of scale, and (3) Land-use planning as a means of encouraging more orderly community growth, reducing the costs of providing certain public services and reducing rural-urban interfacing land-use problems.

Other important issues affecting economic growth in the state in the next one to three decades include the following:

Water. The wise management and quality control of ground and surface water resources rank among the foremost issues affecting the livelihood of the state's citizenry and future growth in all economic sectors.

Waste Management. The collection, treatment and disposal of solid wastes, waste water from individual families, private businesses and public bodies, and hazardous wastes constitute one of the critical issues affecting the state. Greater attention will likely have to be given to evaluating the economic feasibility of separating solid wastes into those that are recyclable and those that are not. Similarly, new methods and techniques for treating and disposing of liquid wastes and collecting, storing, treating and disposing of hazardous wastes will be needed.

Balanced Growth. Most areas in North Carolina have experienced an increase in population and participated in the state's economic growth. For example, population in 97 of the 100 counties increased from 1970 to 1980.

The balanced growth issue has been discussed and considerable information has been collected by the State Balanced Growth Policy Board. Three component issues that affect the level and type of economic growth in particular communities are: (1) The amount and location of state public investments in educational and health facilities, roads, parks and other state facilities, (2) Providing state financial assistance for training and job placement services for unemployed workers released by depressed or declining economic sectors, and (3) Providing public assistance and encouragement to private businesses to stimulate job development in communities with low incomes and/or high unemployment rates.

STRATEGIES FOR FUTURE ECONOMIC GROWTH

Structural changes in the North Carolina economy have important implications for state and local government policies and programs designed to enhance and guide future economic growth in the state. The major growth in employment during the decades of the eighties and nineties is expected to be in high-technology manufacturing industries (fabricated metals, electrical and nonelectrical machinery, scientific instruments and control devices, chemicals, drugs and plastics), and in service industries, especially professional and technical services, information development, processing, interpretation and distribution, and business and recreational services. These anticipated employment changes suggest the need for broad, in-depth educational and technical training programs ranging from on-the-job apprentice training to life-long learning experiences to help present and future members of the labor force better prepare for and adjust to expected changes in the demand for labor. Another important consideration for future economic growth in the state is the need for improving the institutional capacity of communities for long-term planning, financing, coordinating and implementing community and economic development programs, especially for small towns, counties and rural areas.

Improving Per Capita Income

Two major goals of state economic development programs are to improve employment opportunities and increase per capita income. The usual strategy is to place primary emphasis at a given point in time on one or the other of these goals. The rapid rate of increase in entrants to the labor force during the past two decades arising from increases in birth rates during and after World War II, from rising female labor force participation, and from workers leaving industries with declining employment opportunities like agriculture, lumbering and fishing provided a strong incentive to place primary emphasis on increasing employment

opportunities. This is not to say that increasing per capita incomes was not of concern but that the pressure of generating employment opportunities for the large numbers entering the labor force commanded primary emphasis.

Because of lower birth rates and major labor adjustments out of the primary industries in recent years, the state now has a better opportunity to focus on improving its relatively low level of per capita income in the next two or three decades. The level of income for any individual depends on the quantity of resources owned or controlled and the rate of return obtained from the resources. Labor is the resource from which most North Carolinians derive the largest share of their incomes. The primary means of increasing labor productivity and per capita labor earnings is to increase capital investment per worker. Capital investments can be made in the form of physical investments in land, buildings, machinery, tools and equipment or as investments in individuals through education and training. Increasing public investments in present and future members of the labor force over a long period of time through better educational and technical training for employment opportunities expected to be available seems to provide the best opportunity for increasing the state's share of the higher-paying industries and the best potential for increasing per capita income in the state.

Education and Training

Improvement in the level of education and technical skills and the number of professional scientists trained will be a major determinant of the rate and type of future economic growth and the level of per capita income in the state. The major implication of future economic growth for public-school educational programs is to place greater emphasis on higher academic achievement in mathematics and sciences to parallel the emphasis on improving reading and language skills. Consideration should be given to the benefits and costs of consolidating more small, public-school administrative units and small high schools within administrative units. Some of the expected results would be to: (1) Reduce administrative costs, (2) Broaden and strengthen

the curricula through more course offerings to meet individual student interests and career goals, (3) Provide more accelerated programs for the talented students and remedial programs for the less advanced students, and (4) Improve teaching through selection and assignment of teachers to the academic area in which they are trained. State and local supplements for teachers in subject matter areas short in supply would provide a positive incentive for more persons to enter that profession.

The major implication of projected economic growth for technical institutes and community colleges is to place greater emphasis on skilled and semi-skilled technical training for occupations in which employment opportunities are expected to increase most rapidly during the next one to three decades and to pay higher wages. One important consideration in deciding on alternative training programs is to compare the expected benefits and costs per pupil trained. Public investments and training costs per pupil for technical training would be expected to exceed those for training in liberal arts and college-parallel programs. However, a greater increase in earnings would usually be expected from technical-skill training, making the benefit-cost ratio or net benefits of technical training relatively more favorable than would appear from the per pupil cost comparison alone.

The major implication of anticipated economic growth for public higher education is twofold. First, place greater emphasis on professional, scientific and technical training in chemistry, engineering, computer science, plant and animal science, mathematics, business management, accounting, metallurgy, statistics and related scientific and business areas. Second, allocate relatively more resources to scientific research to develop new technical knowledge and business organizational and management procedures for improving labor productivity, managerial capability, and efficiencies in production, marketing and distributing goods and services. The research and technical capability of private businesses, public agencies and institutions of higher education concentrated in and near the Research Triangle and other research complexes provides an excellent base for improving and expanding research and professional scientific training in the state.

Improving Community Institutional Capacity

Improving long-term planning, financing, coordination and implementation of community and economic development programs is a critically important issue affecting the rate, type and location of future economic growth in the state. The problem is most severe in small towns, counties and rural areas. Two major components of this issue are: (1) Improving community planning and the provision of public services with the present level of local resources and (2) Acquiring additional resources.

Reducing state legislated programs requiring local governing bodies to provide a prescribed share of the funding for such programs may provide a means for improving community institutional capacity by providing local governing bodies more flexibility in allocating available resources to high priority community programs. Increasing the relative share of resources for planning at the local level provides a means of improving community planning. Combining county and city planning units and developing multi-county units for planning economic development programs provide additional potentialities for improving community planning efficiency with current resources. Providing additional state technical assistance through appropriate state government agencies and greater resources to expand Extension educational information and training programs for community leaders and professional staff would permit the state to increase educational and technical assistance to communities. Multi-county regional organizations with present or additional resources offer another means of assisting communities in improving their capability for effectively planning, financing, coordinating and implementing community and economic development programs.

Potential methods which may reduce costs or improve efficiencies in providing different community services with the present level of resources include: (1) Consolidation of certain services like fire protection, law enforcement, emergency medical services, schools, water and sewer facilities, recreation and similar services into larger units, and (2) Develop contractual arrangements with private businesses when the service can be provided at lower cost.

One of the foremost problems facing local governments is how to acquire sufficient resources to respond to the increasing demands from local residents for public services and to support and enhance community economic growth. One major possibility is to establish user fees for services like water, sewer, fire protection and recreation in accordance with the costs of providing each service. A second alternative is to consider different sources of tax revenues (property taxes, sales taxes, beverage taxes and intangible taxes now in effect as well as new taxes such as a local income tax) in terms of their distributional effects on citizens and different types of businesses.

In relation to economic growth, an important consideration is to determine how the level of revenue from alternative taxes changes as economic growth occurs over time. A second important consideration is to evaluate the differential effects of economic growth in alternative sectors on local income and employment, and on local government revenues and costs of providing public services.

CONCLUSIONS

This report provides information to help state and community leaders better understand economic growth in North Carolina and alternative public policies and programs to help achieve the goals of economic development: improving employment opportunities, increasing the level of per capita income, and expanding the tax base to support public services. The report focuses on structural changes in the state's economy, critical growth issues likely to affect the rate, type, and location of future economic growth, and strategies for future economic growth. Particular emphasis is placed on the importance of improving the levels of education, technical skills, scientific training and knowledge development, along with improving community institutional capacity for long-term planning, financing and implementing community and economic development programs. Other issues briefly discussed include transportation deregulation, land-use planning, water management and conservation, waste management and balanced growth.

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