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**GENERAL ECONOMIC CHARACTERISTICS
IN TENNESSEE**
*Examining Changes in Labor Market Conditions
and Income Levels, 1990-2000*



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INTRODUCTION

The U.S. Census Bureau recently released data from the Census 2000 Supplementary Survey regarding economic characteristics of Tennessee.¹ The data focus on both the state's labor market and its residents' income levels. Analysis of the data provides business leaders and policymakers with key information regarding the state's current economy and its progress since 1990. In addition, careful evaluation will provide important insights into potential strengths and weaknesses of the state in terms of future economic development and growth. Providing such an analysis is the purpose of the current research brief. The first part of the report focuses on labor market conditions while the second part is primarily concerned with evaluating income levels of Tennesseans.

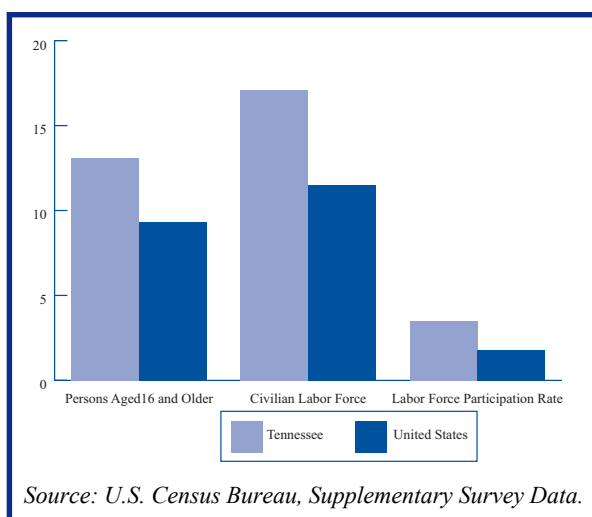
TENNESSEE'S CHANGING LABOR MARKET

At the core of understanding a region's labor market are three primary elements: 1) availability of workers, 2) skill level of the labor pool, and 3) the composition of the current employment by industry and occupation. Combined, these elements determine both the supply and the demand for workers. Of course, many factors exist which influence both the availability and the quality of workers and this, in turn, influences future job openings. In other words, the supply of and demand for labor are interrelated and changes in one side of the market will have implications for the other. The current report is an examination of the supply side of the labor market in terms of labor force participation, followed by the demand side, or the pattern of employment, by occupation and industry.

TENNESSEE'S LABOR FORCE, 1990 TO 2000

The term *labor force* refers to all those individuals over the age of 16 who are either employed, actively seeking work, or expecting a recall from a layoff. In Tennessee, there were an estimated 2,817,318 labor force participants in 2000.² This represents a 17.1 percent increase (or 412,241 participants) in the state's labor force since 1990. In comparison, the total population of individuals aged 16 and older in Tennessee increased by only 13.2 percent from 1990 to 2000. As a result, the labor force participation rate, defined as the labor force divided by the total population over age 16, increased from 63.3 percent in 1990 to 65.5 percent in 2000. Comparison of changes in the state's labor force participation and the U.S. as a whole are depicted in Figure 1.

Figure 1: Labor Force Growth Rates, 1990 to 2000



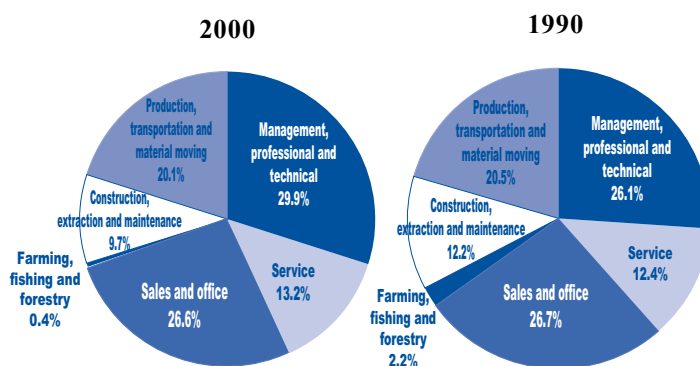
As can be seen, increases in both Tennessee’s working age population and its labor force outpaced that of the nation. For example, Tennessee’s labor force experienced a 17.1 percent increase compared to only 11.5 percent nationwide. This could bode well for the state in terms of future economic development. For the last few years, the state’s unemployment rate has remained below the national average, possibly signaling tight labor market conditions to prospective businesses, thus potentially impeding economic development. A faster labor force growth rate for the state relative to the nation as a whole is a result of the faster population growth experienced by Tennessee during the nineties. Expansion of the state’s labor force is crucial in mitigating the potential negative effects of persistently low unemployment rates.

The labor force is increased both by in-migration of workers and by increases in labor force participation. Tennessee experienced an increase in labor force participation but continues to lag the nation. In 2000, the state’s participation rate was 65.5 percent compared to a national average of 65.7 percent. The difference (0.2 percent) is significantly smaller than in 1990 when the state’s rate was 63.3 percent compared to a national rate of 64.4 percent (a difference of 1.1 percent).

EMPLOYMENT BY OCCUPATION

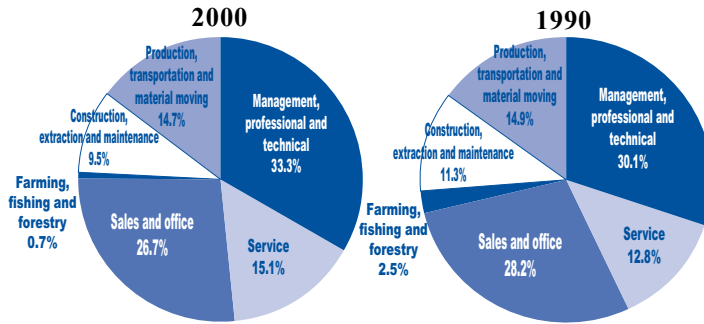
Analyzing the breakdown of employment in a region by occupational class provides a measure of the demand for labor by skills. Changes in the composition of employment by occupational class over time reflect shifts in the underlying economy and the needs of businesses and employers. Figure 2 depicts Tennessee’s employment by occupational class in 1990 and 2000. The most notable change is in managerial, professional and technical jobs, which comprised 29.9 percent of the total jobs in the state in 2000, up from 26.1 percent in 1990. Despite the gains made, Tennessee continues to lag the nation as a whole in this category, as the percentage of comparable U.S. employment increased from 30.1 percent in 1990 to 33.3 percent in 2000 (see Figure 3). However, the general patterns of employment change in the nation and the state were similar, as the sales and office; farming, fishing and forestry; construction, extraction and maintenance; and, production, transportation and material moving categories all comprised a smaller share of total employment in 2000 relative to 1990 for both the state and the nation. Also, service occupations in Tennessee expanded, but less than in the nation.

Figure 2: Tennessee Employment by Occupational Class, 1990 and 2000



Source: U.S. Census Bureau, 2000 Census Supplemental Survey Data and 1990 Census, Summary Tape File 3.

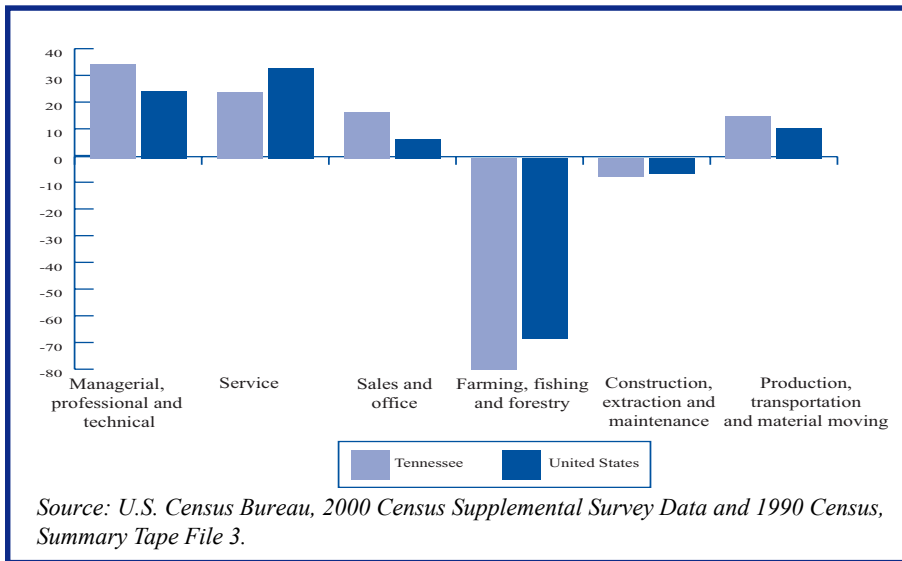
Figure 3: United States Employment by Occupational Class, 1990 and 2000



Source: U.S. Census Bureau, 2000 Census Supplemental Survey Data and 1990 Census, Summary Tape File 3.

Figures 2 and 3 alone do not convey the complete picture of changes in the composition of employment by occupational class. Growth rates in the number of jobs by occupational classification for Tennessee and the U.S. for 1990 and 2000 are depicted in Figure 4. In Tennessee, employment in managerial, professional and technical occupations enjoyed the highest level of growth with a 34.7 percent increase from 1990 to 2000, compared to 24.7 percent growth at the national level. Employment in service jobs represented the second fastest growing occupational class in Tennessee, increasing by 24.5 percent from 1990 to 2000. In comparison, service jobs were the fastest growing segment in the nation as a whole with a 33.2 percent expansion during the nineties. Two occupational classes — farming, fishing and forestry and construction, extraction and maintenance — sustained contractions at both the state and national level.

Figure 4: Growth Rates in the Number of Jobs by Occupational Class, 1990 to 2000



The growth in managerial, professional and technical occupations suggests that the state’s labor force is becoming more skillful. It also suggests that Tennessee must have a better educated, higher skilled, and technologically more advanced workforce if this trend is to continue. Meeting this increasing demand hinges on more investment in public schools and higher education. Failure to meet this challenge could lead to a competitive disadvantage for Tennessee in terms of business recruitment and retention. In other words, economic development hinges on the state’s ability to provide a supply of workers with the skills and education necessary for today’s higher tech, service-oriented businesses.

EMPLOYMENT BY INDUSTRY

Examination of employment by industry supports the conclusion that Tennessee continues to shift from a low-skill manufacturing-based economy to a higher tech, service-oriented economy. As can be seen in Table 1, business services, with a 106.7 percent increase, experienced the fastest employment growth. However, it should be noted that business services include temporary employment agencies, which often supply lower skilled labor. The second fastest growing sector, transportation, experienced a robust 63.5 percent growth. Notable growth was also recorded in more conventional sectors such as construction, retail trade, and wholesale trade. Finance, insurance and real estate as well as communication and utilities sectors continued to record significant rises, establishing these industries as prominent sectors in the new industrial structure of the state's economy. Further evidencing the changes in the underlying economy was a notable decline in employment in the non-durable manufacturing sector combined with an increase in durable manufacturing employment. This comes as no surprise as Tennessee witnessed the closing of many non-durable manufacturing plants, most notably apparel firms, throughout the nineties. During the same time period, many manufacturers of durable goods such as suppliers of automotive and marine parts have located or expanded within the state.

Federal and local government employment in Tennessee grew by nearly 16.9 percent from 1990 to 2000. Further analysis of the data reveals that the growth at the state level was entirely attributed to growth in employment related to public education. More specifically, educational employment at the state level grew by 8.7 percent while non-educational state government employment actually declined by 0.2 percent during the last decade. The decline in non-educational state government employment occurred despite the fact that total employment in Tennessee increased by more than 19.5 percent from 1990 to 2000. The reduction in the number of state employees (non-education) can be attributed to several factors, the most obvious of which are efficiency gains from increased computer automation and downsizing of staff due to budgetary limitations. Constraining the size of government can have both positive and negative effects on the state's economy. Reducing the size of government as a result of efficiency gains means that there are more resources available for private production and consumption and is likely to have positive impacts on the state's economy. However, it is plausible that reduction because of revenue shortages will impede economic development, especially if the reductions translate into the contraction of services important to business location decisions such as educational opportunities, quality of life attributes, and public safety.

INCOME LEVELS IN TENNESSEE

The shifting in the economy is leading to increased demand for higher skill workers, which translates into higher paying jobs for Tennesseans. As a result, median family income in the state increased by 49.8 percent from \$29,456 in 1990 to \$44,120 in 2000 compared to a 40.5 percent increase nationally.³ Of course a portion (64.2 percent) of the increase arises due to inflation. In order to gain an understanding of the actual increase in income in terms of increases in buying power, one should examine changes in real or inflation-adjusted income. Using the 2000 Personal Income Deflator calculated by the U.S. Bureau of Labor Statistics, the increase in real income in Tennessee from 1990 to 2000 was 13.5 percent, compared to an increase of 6.8 percent nationally.

Table 1: Employment in Tennessee by Industry, 1990 and 2000

Industry	2000		1990		% Change
	Number	Percent	Number	Percent	
Business services	191,400	6.99	92,600	4.22	106.70
Transportation	144,400	5.27	88,300	4.03	63.53
Construction	127,100	4.64	92,400	4.21	37.55
Health services	199,400	7.28	154,600	7.05	28.98
Retail trade	493,800	18.04	387,900	17.69	27.30
Finance, insurance, real estate and leasing	103,600	3.78	82,500	3.76	25.58
Communication and utilities	33,400	1.22	28,100	1.28	18.86
Federal and local government	305,700	11.17	261,600	11.93	16.86
Wholesale trade	151,000	5.52	129,300	5.90	16.78
Personal services	26,500	0.97	23,900	1.09	10.88
All other industries	269,638	9.85	128,296	5.85	10.17
State government (education)	48,900	1.79	45,000	2.05	8.67
Hotels, motels, lodging	33,700	1.23	31,800	1.45	5.97
Manufacturing, durable	353,400	12.91	333,900	15.22	5.84
State government (non education)	44,700	1.63	44,800	2.04	-0.22
Manufacturing, nondurable	206,600	7.55	261,900	11.94	-21.11
Mining	4,200	0.15	6,200	0.28	-32.26
TOTAL	2,737,438	100.00	2,193,096	100.00	24.82

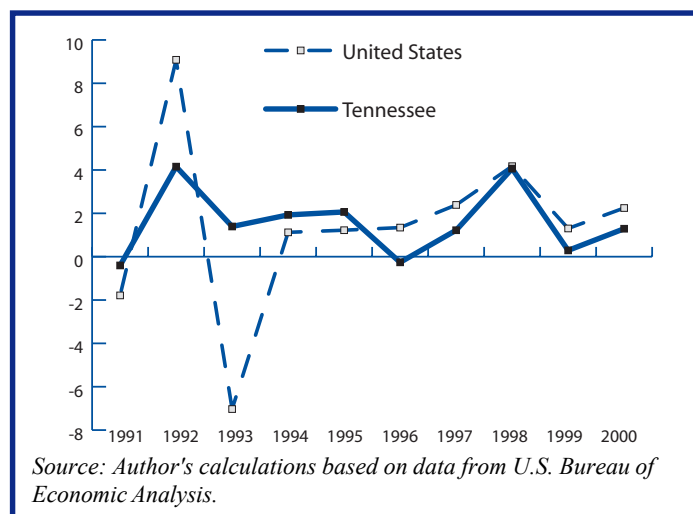
Source: Tennessee Department of Labor and Workforce Development.

Although median family income is often used as an indicator of income levels in a region, it is subject to many criticisms. The primary argument against its use is the fact that families differ so vastly within a region and the typical or average family is harder to define today than it was a couple of decades ago. For example, the most commonly used measure is median income for a family of four comprised of two adults and two children. According to the 2000 Census, only 22.4 percent of the households in Tennessee are comprised of a two-parent family with *any* number of children under the age of eighteen⁴; therefore, even a smaller percentage of Tennessee households would be represented by two parents and *two* children. An alternative to using median family income is to use per capita income, which is the mean income computed for every man, woman and child in the state. Because the mean is influenced strongly by extreme values, caution should be exercised in using and interpreting mean income values for small subgroups of the population. However, as the population gets larger (e.g., at the state level), the influence of extreme values diminishes. Also limiting the effects of extreme upper income values is the fact that the definition of personal income used in the calculation of per capita income by the U.S. Census and the U.S. Bureau of Economic Analysis does not include capital gains income.

Nominal per capita income in Tennessee increased from \$16,281 in 1990 to \$25,878 in 2000, representing a 53.8 percent expansion. Nationally, nominal per capita income grew by 50.4 percent from \$19,584 in 1990 to \$29,451 in 2000.⁵ Real or inflation-adjusted per

capita income growth was 16.8 percent in Tennessee and 14.1 percent nationally from 1990 to 2000. Figure 5 depicts year-over-year growth in real per capita income for the state and the nation from 1990 to 2000. Generally, Tennessee was leading the country in per capita income growth for the first half of the nineties and then started to lag the nation for the remainder of the decade. One reason for the lagging income growth in the latter part of the decade is the state's lack of success in attracting high tech industrial and service firms that characterize the new economy. Instead, these firms are locating in regions of the U.S. with a more highly trained and technologically advanced labor force. As a result, firms that require a labor force with less training and skill are relocating to the Southeast and Tennessee in search of lower wages. While many of these firms represent improvements in terms of wages paid over the traditional non-durable manufacturers, they are not the premier employers of the new economy. Thus, despite gains made in personal income growth, Tennessee remains below the national average.

Figure 5: Year-over-Year Growth Rates in Real Per Capita Income



Changes in a state's employment mix are expected to bring about changes in the distribution of income. An examination of how the distribution of family income has changed for both Tennessee and the U.S. from 1990 to 2000 is provided in Table 2 and Figure 6. Tennessee continues to have a larger share of families at the lower end of the income spectrum relative to the U.S. average. Tennessee also continues to have a smaller share of families in the four highest ranges of income. The evidence presented in Figure 6 suggests that while the state continues to lag the nation in income levels, gains are being made in the attempt to close the income gap. For example, the state experienced a larger decrease in the growth rate of the percentage of families in the lowest three brackets, relative to the nation as a whole. However, one must consider the fact that a substantial portion of the upward movement in income brackets is attributed to inflation. In other words, it is possible that many families, especially in the lower end of the income spectrum, have moved up from one income bracket to another without experiencing any gains in purchasing power.

The increase in real income experienced in Tennessee during the last decade is the result of a prolonged economic expansion that brought many changes to the industrial and employment mix of the state. The fact that median family income increased faster in Tennessee relative to the nation can be primarily attributed to the significant gap in the level of income in the state compared to the nation at the beginning of the decade. The below national average

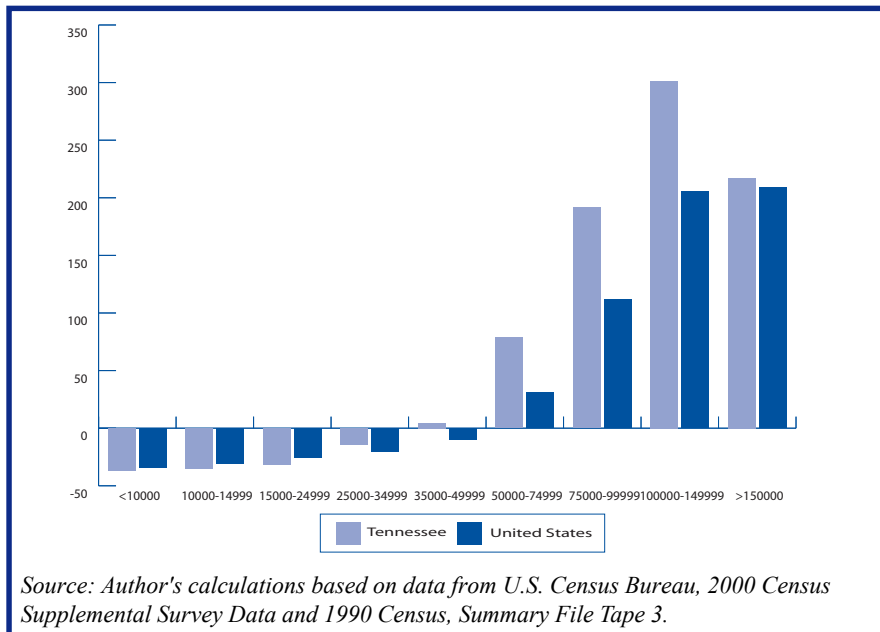
wage levels in Tennessee have been a major factor influencing the expansion of employment in durable goods manufacturing, replacing many of the jobs in the shrinking non-durable manufacturing sector. As a result, real income levels in the state have risen. The downside to rising wages is that as the income levels in Tennessee approach the national average, the state's competitive advantage in attracting new firms that are seeking low wages erodes.

Table 2: Family Income in Tennessee and the U.S., 1990 and 2000

Income Level	Tennessee		United States	
	2000 % of Total	1990 % of Total	2000 % of Total	1990 % of Total
< \$10,000	7.2	12.7	5.8	9.6
\$10,000 - \$14,999	5.4	9.3	4.6	7.2
\$15,000 - \$24,999	11.9	19.5	11.2	16.4
\$25,000 - \$34,999	13.8	17.9	12.1	16.5
\$35,000 - \$49,999	18.2	19.4	16.8	20.4
\$50,000 - \$74,999	22.8	14.2	22.0	18.2
\$75,000 - \$99,999	10.0	3.8	12.3	6.3
\$100,000 - \$149,999	6.9	1.9	9.7	3.5
> \$150,000	3.7	1.3	5.5	1.9

Source: U.S. Census Bureau, Census 2000 Supplementary Survey Data and 1990 Census, Summary File Tape 3.

Figure 6: Growth Rates of the Number of Families by Income Class in Tennessee and the U.S., 1990 to 2000



Source: Author's calculations based on data from U.S. Census Bureau, 2000 Census Supplemental Survey Data and 1990 Census, Summary File Tape 3.

As income in the state increases, spending patterns and preferences of residents can be expected to change. For example, as income increases, residents are likely to spend a larger portion of their income on services relative to goods. While sales of both services and goods will increase in response to higher income levels, sales of services are likely to increase at a faster rate. From the state’s perspective, the change in consumption patterns leads to slower sales tax revenue growth as the state experiences larger increases in the sale of nontaxable services relative to taxable goods.

Another well-documented outcome of increasing income levels is the corresponding increase in the demand for public services. Residents with more income generally demand more and better goods and services of every type including public services. For example, higher income states normally face pressure to provide better educational institutions and opportunities or better infrastructure. As a result of increased demand for public services, there will be upward pressure on state and local government expenditures. The continuing trend of income growth suggests that the demand for public services will continue to increase while growth in sales tax revenue declines. Consequently, the budgetary problems experienced by the state in recent years are not likely to ease given Tennessee’s current fiscal structure.

POVERTY LEVELS

The percentage of the population below the poverty level in Tennessee decreased from 15.7 percent to 14.2 percent from 1990 to 2000, representing a 9.6 percent decline.⁶ In comparison, the percentage of individuals below the poverty level nationwide declined from 13.1 percent in 1990 to 12.5 percent in 2000, representing only a 4.6 percent decline at the national level. As can be seen in Table 3, despite the decrease in the percentage of the population living below poverty, Tennessee continues to have higher rates than the national average for all age categories.

Table 3: Percentage Below Poverty Level in Tennessee and the U.S.

Population Group	Tennessee			United States		
	2000	1990	% Change	2000	1990	% Change
Total population	14.2	15.7	-9.6	12.5	13.1	-4.6
Individuals over age 18	12.1	13.9	-12.9	10.8	11.3	-4.4
Individuals over age 65	13.9	20.9	-33.5	10.6	12.8	-17.2
Related Children						
Under age 18	19.7	20.7	-4.8	17.1	17.9	-4.5
Under age 5	25.6	23.9	7.1	19.7	20.1	-2.0
Age 5 to 17	17.6	19.5	-9.7	16.1	17.0	-5.3

Source: U.S. Census Bureau, Census 2000 Supplementary Survey Data and 1990 Census, Summary File Tape 3.

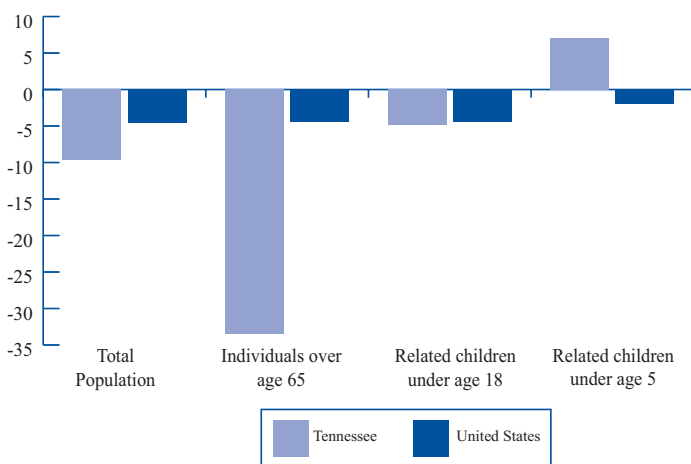
The general decline in the percentage of residents below the poverty level during the nineties was not necessarily the case across all age groups in Tennessee. Figure 7 depicts the growth rates in the percentage of individuals living in poverty from 1990 to 2000. There was a 7.1 percent increase in the percentage of related children under five that fell below the poverty level.⁷ Nationally, this same group experienced a 2.0 percent decline. The remaining groups witnessed declines in their poverty rates in both Tennessee and the U.S.

Also notable is the fact that the population group experiencing the largest decline in the percentage below poverty is for individuals over age 65. This is likely the result of both the social security system and an increased awareness regarding the necessity of retirement savings. The trend is encouraging especially given that Tennessee and the nation are aging. Without proper planning and preparation, a large aging population could lead to the unfortunate social and economic problems associated with having a significant number of the elderly living in poverty in the coming decades.

Tennessee experienced a 5.0 percent increase in the number of people living in poverty, despite the decline in the percentage of the population living in poverty. The state did make some headway in its fight against poverty as the number in poverty grew more slowly than the national average. Tennessee's poverty growth rates were lower than the national average for every population group with the exception of related children under age 18 (see Figure 8). But, the only population group that witnessed a drop in the actual number of people living below poverty was individuals over age 65. In Tennessee, there were 30,730 or 25.0 percent fewer people aged 65 and older living in poverty in 2000 compared to 1990.

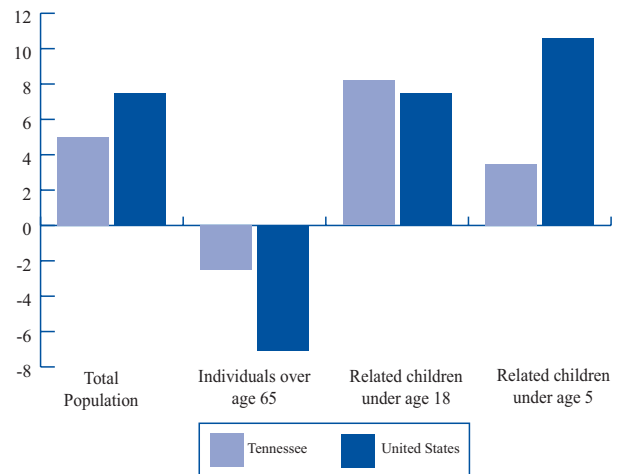
There were 20,289 more related children under age 18 living in poverty in 2000 than in 1990. This raises many concerns including potential effects on the educational attainment and future economic status of the young. In addition, there are concerns regarding the strain that growing populations of poor children will have on TennCare, Families First, and other low-income assistance programs.

Figure 7: Growth Rates in the Percentage of Population Living Below Poverty, 1990 to 2000



Source: U.S. Census Bureau, Supplementary Survey Data, 2000.

Figure 8: Growth Rates in the Number of Persons Living Below Poverty Level, 1990 to 2000



Source: U.S. Census Bureau, Census 2000 Supplementary Survey Data and 1990 Census, Summary File Tape 3.

SUMMARY

The decade of the nineties was one of transition and significant economic gains for the state of Tennessee. Many goals were accomplished including expanding the state's labor force, attracting new firms and industries to the region, and raising Tennessean's standard of living. Evidence of the expansion and diversification of the state's economy during the last decade can be found in the fact that the business services sector was the fastest growing sector in Tennessee in terms of employment. Meanwhile, traditional industries such as agricultural, forestry and fishing and non-durable manufacturing actually declined between 1990 and 2000.

Along with the shift in industrial structure came shifts in income levels. Tennesseans experienced significant gains in their standard of living during the nineties as real median household income increased by 13.5 percent. Similarly, real per capita income in Tennessee increased by 16.8 percent between 1990 and 2000. Unfortunately, not all income data were positive. While the percentage of the total population in Tennessee living below the poverty level declined over the last decade, the actual number of residents living in poverty increased by 5.0 percent. However, the increase was less than the national average.

The last decade provided many changes and challenges as Tennessee witnessed the closing of many long-time manufacturing plants across the state and the arrival of some new high-tech manufacturing firms. The healthcare industry prospered and numerous corporate headquarters relocated to the state. Through all the changes, Tennessee was able to adapt to the demand for a new kind of labor force as a result of labor in-migration and workforce training and development. Continued economic development and expansion in Tennessee will hinge on the state's ability to meet increased educational and skill requirements of the new economy, be on the cutting edge of technological infrastructure, and provide a stable, business friendly environment.

ENDNOTES

¹ Data for the Supplemental Survey is based on twelve monthly samples during 2000 and is released prior to the Census 2000 sample data. This allows for an early release of data that otherwise would not be available for another eight to ten months. However, since these data are based on a sample, it is possible that the data reported in the Supplemental Surveys will differ from the data based on the actual Census survey.

² The data presented throughout this report represent the civilian labor force and does not include individuals enlisted in the armed forces.

³ In compiling statistics on family median income, the U.S. Census sums the income of all family members age 15 and older. Median income divides the income distribution into two equal halves, one comprised of families with income greater than the median and the other comprised of families with income below the median.

⁴ Census 2000, Summary File 1, Profile of General Demographic Characteristics.

⁵ The data, obtained from the U.S. Bureau of Economic Analysis, incorporates the revised population estimates based on the 2000 Census.

⁶ The U.S. Census Bureau defines the threshold poverty level for a family of four as a pre-tax income of \$17,603 for 2000. This figure does not include non-money benefits such as food stamps and housing assistance. The threshold varies by the number and age of persons in the household.

⁷ Related children include the householder's own children and all other minor children in the household who are related to the householder by birth, marriage, or adoption.

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