

The Tennessee Economy

In this chapter...

- 2.1. Chapter Overview
- 2.2. Recent Economics Trends
 - 2.2.a. From SIC to NAICS
 - 2.2.b. Recent Economic Conditions
 - 2.2.c. State Labor Markets
 - 2.2.d. Income and Sales
 - 2.2.e. Substate Economic Conditions
- 2.3. Short-Term Outlook
 - 2.3.a. State Labor Markets
 - 2.3.b. Income and Sales
 - 2.3.c. Short-Term Forecast Summary
- 2.4. Situation and Outlook for Tennessee Agriculture
 - 2.4.a. Overview of Agriculture
 - 2.4.b. Crops Outlook
 - 2.4.c. Livestock Outlook
 - 2.4.d. Trends and Concerns
 - 2.4.e. Tennessee Agriculture Summary
- 2.5. A Long-Term Perspective on Demographics and the Economy of Tennessee
 - 2.5.a. Population and Demographic Change
 - 2.5.b. Long-Term Economic Overview
 - 2.5.c. Historical Economic Trends
- 2.6. Long-Term Outlook
 - 2.6.a. State Labor Markets
 - 2.6.b. Income and Sales
 - 2.6.c. Long-Term Forecast Summary

2.1. Introduction

At the beginning of the new year, it looks as if the economy may have finally turned the corner and is poised to enjoy more broad-based growth than has taken place in the last several years. Particularly noteworthy is the expectation of stronger nonagricultural job growth and a slower pace of job contraction in the state's manufacturing sector. If expectations are realized, 2004 will show the strongest rate of job growth since 2000.

Before moving to the economic outlook for the state, here is a roadmap of what is to come in the remainder of the chapter. The chapter begins with a discussion of the new NAICS accounting system for economic data that is supplanting the familiar SIC system. The Tennessee Annual and

Quarterly Econometric Models have been re-constructed using NAICS as opposed to SIC data, and this *Report* includes the inaugural estimates under the new accounting system. Recent trends and issues for the state economy are then addressed, followed by the short-term outlook for the state economy extending through 2006Q1. Next is a detailed overview of conditions and the short-term outlook for Tennessee's agricultural sector, drawing on the unique expertise of UT's Agricultural Policy Analysis Center. The final major section of this chapter provides the long-term economic outlook for the state through 2013. Included in this final section is a summary of recently completed population projections for the state out to 2025.

2.2. Recent Economic Trends

2.2.a. *From SIC to NAICS*

Say hello to NAICS and say goodbye to SIC. Have you worked with economic data based on industry classifications like retail trade, financial services and manufacturing? If so you are probably already aware of the changes that are underway. In short, a major transformation is taking place in the way government and private sector data are being collected and reported. These changes have important implications for monitoring and forecasting a wide array of business and economic data series and will affect many in the private sector, public sector and academia. Most readers of this *Report* have some familiarity with data reported under the old Standard Industrial Classification or SIC system. The SIC system, which dates back to the 1930s, had seen only modest changes since its inception, most significantly changes made in 1987 that

recognized the rapid growth that had taken place in the service sector of the economy. The realities of today — in particular a more service- and information-oriented economy and an increasingly integrated global economy — are why the old system has been eliminated.

Taking the place of the old SIC accounting system is the new North American Industrial Classification System, or NAICS. The Department of Labor (and its Bureau of Labor Statistics) and the Department of Commerce (and its Bureau of Economic Analysis) are now generally collecting and reporting economic data series under the new accounting regime. The NAICS accounting framework includes 1,170 industries and 565 service sectors; the SIC system included 1,004 industrial sectors and 416 service

2.2. Recent Economic Trends, *continued*

sectors. Of the more than 350 new sectors under NAICS, 250 are categorized as services. Noteworthy is the new six-digit classification system that allows for comparability across North America at the five-digit level. The finer level of detail afforded by the sixth digit of the system allows for unique country-specific classifications that go beyond the internationally comparable five digits. Comparability within North America — in large part because of NAFTA, which more closely links the economies of the US, Mexico and Canada — also translates into greater conformity with the international SIC system maintained by the UN.

The NAICS approach has a focus on *how* goods and services are produced, whereas the SIC system focused on *what* was produced. This lies at the roots of the new framework and translates into significant changes for specific data series. To illustrate what this means in practice, consider a couple of examples. Formerly, a manufacturing production facility and an affiliated corporate office would be categorized under the SIC system as a *manufacturing* enterprise. Under NAICS, the production facility would remain defined as *manufacturing*, while the corporate office would be classified as *management of companies and enterprises*. Similarly, warehousing and payroll activities of the manufacturing firm would have been deemed *manufacturing* under SIC, whereas under NAICS, warehousing would be classified *transportation and warehousing* and payroll would fall under *professional and technical services*. People who have made use of SIC data will have to learn about and adapt to these and other changes embedded in the new NAICS framework. In the private sector, accounting systems — particularly

those tied to purchasing and supply-chain management — will need to be updated. Similarly, sales, earnings and profit forecasts may have been tied to SIC data, and these forecasting models will need to be updated. Other applications also will be affected by the new accounting system.

The new accounting framework as summarized by the Bureau of Labor Statistics is shown in Table 2.1. The broad headings of goods-producing and service-providing sectors highlight the new focus on service and information sectors and hence a greater balance vis-à-vis manufacturing. The two-digit subheadings shown in the figure can mask rather significant changes in the respective data series. In fact, from the titles alone many sectors look unaltered, including *manufacturing* (NAICS 31-3), *wholesale trade* (42) and *retail trade* (44-45). The reality is that virtually every sector *has* been affected by the new system, although the changes are most prominent in manufacturing.

Table 2.2 shows the sectors of the economy that have been influenced the most by the shift in accounting systems using data for the national economy. In SIC 57, furniture and home furnishing stores, only 44 percent of the jobs now lay in NAICS 442000, which has the exact same industry heading. Significant changes are not confined to manufacturing. For example, just under one-half of the jobs formerly classified as transportation services (SIC 47) are in the new category of support activities for transportation (NAICS 488000). These changes serve as a caution in interpreting NAICS data and making comparisons to the old SIC system.

2.2. Recent Economic Trends, *continued*

Table 2.1. BLS Standard for Sector Aggregation Titles for NAICS

Goods-Producing

- Natural resources and mining
 - Sector 11 (Agriculture, forestry, fishing and hunting)
 - Sector 21 (Mining)
- Construction
 - Sector 23 (Construction)
- Manufacturing
 - Sector 31-33 (Manufacturing)

Service-Providing

- Trade, transportation, and utilities
 - Sector 42 (Wholesale trade)
 - Sector 44-45 (Retail trade)
 - Sector 48-49 (Transportation and warehousing)
 - Sector 22 (Utilities)
- Information
 - Sector 51 (Information)
- Financial activities
 - Sector 52 (Finance and insurance)
 - Sector 53 (Real estate and rental and leasing)
- Professional and business services
 - Sector 54 (Professional, scientific, and technical services)
 - Sector 55 (Management of companies and enterprises)
 - Sector 56 (Administrative and support and waste management and remediation services)
- Education and health services
 - Sector 61 (Education services)
 - Sector 62 (Health care and social assistance)
- Leisure and hospitality
 - Sector 71 (Arts, entertainment, and recreation)
 - Sector 72 (Accommodation and food services)
- Other services
 - Sector 81 (Other services, except public administration)
- Public administration
 - Sector 92 (Public administration)
- Unclassified
 - Sector 99 (Unclassified)

Source: U.S. Department of Labor, Bureau of Labor Statistics, <www.bls.gov>.

2.2. Recent Economic Trends, *continued*

**Table 2.2. Series Most Adversely Affected by NAICS Conversion
(mapping based on employment shares of two-digit 1987 SICs)**

Old SIC Code	SIC Industry	New NAICS		Share of NAICS sector in old SIC
		Code	NAICS Industry	
07	Agricultural services	561000	Administrative and support services	58.2
16	Heavy construction, except building	237000	Heavy and civil engineering construction	86.6
33	Primary metal industries	331000	Primary metal manufacturing	87.6
34	Fabricated metal products	332000	Fabricated metal product manufacturing	88.4
35	Industrial machinery and equipment	333000	Machinery manufacturing	63.4
36	Electronic and other electrical equipment	334000	Computer and electronic product mfg.	59.3
37	Transportation equipment	336000	Transportation equipment manufacturing	92.8
38	Instruments and related products	334000	Computer and electronic product mfg.	56.1
20	Food and kindred products	311000	Food manufacturing	86.0
22	Textile mill products	313000	Textile mills	67.5
23	Apparel and other textile products	315000	Apparel manufacturing	65.0
26	Paper and allied products	322000	Paper manufacturing	90.6
27	Printing and publishing	511000	Publishing industries, except Internet	48.3
28	Chemicals and allied products	325000	Chemical manufacturing	87.8
32-3000	Rubber and miscellaneous plastics products	326000	Plastics and rubber products mfg.	88.9
40	Railroad transportation	488000	Support activities for transportation	80.8
41	Local and interurban passenger transit	485000	Transit and ground passenger transportation	78.0
42	Trucking and warehousing	484000	Truck transportation	74.6
44	Water transportation	488000	Support activities for transportation	47.5
45	Transportation by air	481000	Air transportation	48.6
47	Transportation services	488000	Support activities for transportation	49.7
48	Communications	517000	Telecommunications	76.5
49	Electric, gas, and sanitary services	221000	Utilities	70.1
50	Wholesale trade, durable goods	423000	Merchant wholesalers, durable goods	77.6
51	Wholesale trade, nondurable goods	424000	Merchant wholesalers, nondurable goods	73.6
54	Food stores	445000	Food and beverage stores	77.9
55	Automotive dealers and service stations	441000	Motor vehicle and parts dealers	72.2
57	Furniture and home furnishings stores	442000	Furniture and home furnishings stores	44.0
60	Depository institutions	522000	Credit intermediation & related activities	90.1
67	Holding and other investment offices	551000	Management of companies & enterprises	43.6
63	Insurance carriers	524000	Insurance carriers and related activities	91.0
65	Real estate	531000	Real estate	85.2
72	Personal services	812000	Personal and laundry services	76.9
73	Business services	561000	Administrative and support services	64.4
75	Auto repair, services, and parking	811000	Repair and maintenance	71.4
76	Miscellaneous repair services	811000	Repair and maintenance	77.9
80	Health services	621000	Ambulatory health care services	41.8
83	Social services	624000	Social assistance	62.8
87	Engineering and management services	541000	Professional and technical services	87.3
89	Services, nec	541000	Professional and technical services	53.2

Source: Global Insight, Inc.

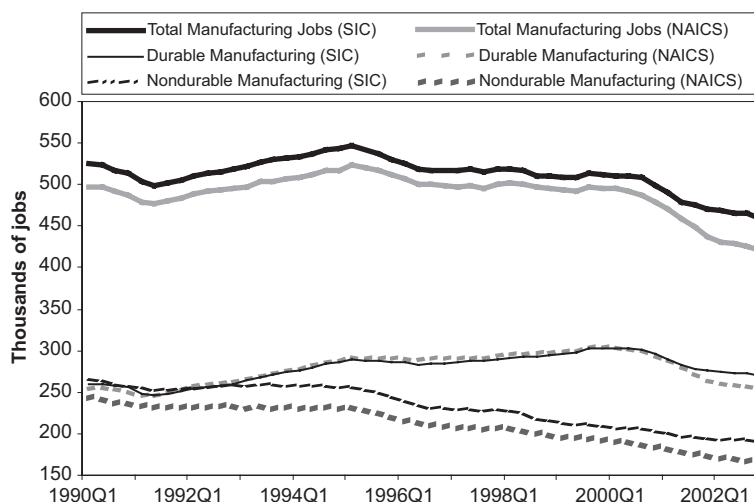
2.2. Recent Economic Trends, *continued*

Some of the implications of the new accounting system for Tennessee are shown in Figure 2.1 which focuses on affects for the state's manufacturing sector between 1990 and 2002. The total number of jobs in manufacturing under NAICS is well below the total under the SIC system. In 1990Q1 the difference amounted to 28,010 jobs; the spread increased to 38,160 jobs by the final quarter of 2002. Most of the change in the total is due to reclassifications affecting nondurable goods employment. Durable goods employment under NAICS more closely tracks employment under the SIC framework. At the same time, the SIC definition of durable goods manufacturing does produce a larger count of jobs than under NAICS in periods of weak economic growth (1990-91 and 2000-01). This pattern is likely a direct result of re-categorizing the sector based on *how* goods are produced. Under the SIC system, jobs directly related to production in corporate offices and warehousing were aligned with production jobs themselves (or more specifically, with *what was* produced). When the economy slowed and production workers lost jobs, the durable goods sector was buoyed by the

presence of jobs in the related corporate offices and warehousing that did not slip to the extent that production jobs did. Now, under NAICS, it is easier to see the direct effect of slower economic conditions on production employment itself.

A difficult challenge in dealing with the transition in accounting systems is the break in data series and the brevity of some historical series under NAICS. For example, the last piece of historical data on gross state product (GSP) is 2001. But these estimates, reported on a SIC basis, were actually developed from NAICS data supplied by firms. NAICS-based GSP data will not be released by the Bureau of Economic Analysis until December 2004. (For this reason, the current *Economic Report to the Governor* will not present GSP data.) Historical data on jobs by NAICS sector are now available back to 1990, providing one of the longer historical data series. On the other hand, average wage data by sector are available only back to 2001Q1. Such a short history complicates efforts to provide an accurate short-run and long-run forecast of the same data series.

Figure 2.1. Number of Manufacturing Jobs, NAICS vs. SIC, Tennessee, 1990 to 2002



2.2. Recent Economic Trends, *continued*

2.2.b. *Recent Economic Conditions*

The so-called jobless recovery seems to be turning into a more sincere expansion as the state and nation were finally able to muster up some positive job growth in 2003. Tennessee did better than the US with the last three quarters of the year showing job gains. While there remain concerns about the sustainability and magnitude of job growth in 2004, at least there is some positive growth to build upon. The growth experienced through 2003 would be nothing to brag about were it not for job contraction in the previous two years. Despite conditions in the labor market, other indicators point to an expanding state economy. Personal income has been in the black in most recent quarters and is expected to have recorded 1.7 percent inflation-adjusted growth in 2003. Taxable sales should show 2.9 percent growth for the year, significant improvement over the weak 0.4 percent gain in 2002.

2.2.c. *State Labor Markets*

Figure 2.2 puts the current economic cycle in perspective, showing nonfarm employment for the state and national economies dating back to 1999Q1. The decline in jobs in late 2000 and early 2001 is illustrative of the consequences of the recession for state and national labor markets. The job situation has proven to be particularly acute in Tennessee as is evident in the figure, with jobs falling earlier and more precipitously than was the case for the nation. The state did turn the corner earlier than the US and has seen jobs drift upward — with some setbacks along the way — since early 2002. On a quarterly seasonally adjusted annual basis, 2002Q4 was the first period in recent history to witness positive job growth (0.2 percent) for the state economy.

A serious drag on job growth has been the manufacturing sector. While the recession and the weak subsequent expansion have aggravated the woes in manufacturing, the fact is that jobs have been in decline for quite some time, as discussed more fully below in the section on long-term trends. State job losses in manufacturing mounted in 2001 with a decline of 6.9 percent, followed by contraction of 6.1 percent in 2002. Reversing a well-established pattern from the 1990s, the durable goods sector performed more poorly than the nondurable goods sector in 2001 and 2002; durable goods manufacturing did better in 2003 than nondurable goods manufacturing, although both sectors saw jobs decline.

Not all sectors of the state economy have fared as poorly as manufacturing. In particular, most service sectors in the state showed growth in both 2002 and 2003. Job growth trends for broad NAICS sectors for 2002 and 2003 are illustrated in Figure 2.3. While jobs were down on net 0.8 percent in 2002, growth rebounded with a gain of 0.2 percent in 2003. Generally, sectors that showed contraction in 2002 performed a bit better in 2003, while the reverse was true of expanding sectors in moving from 2002 to 2003. Five sectors showed job losses in 2003, while six sectors showed expansion. All of the sectors experiencing positive job growth in 2003 were engaged in service production. Generally, professional and business services and education and health services have enjoyed the strongest rates of growth.

It is somewhat surprising that the unemployment rate has not risen more sharply than it has in the face of weak labor market

2.2. Recent Economic Trends, *continued*

Figure 2.2. Total Seasonally Adjusted Nonfarm Employment, Tennessee and US (thousands)

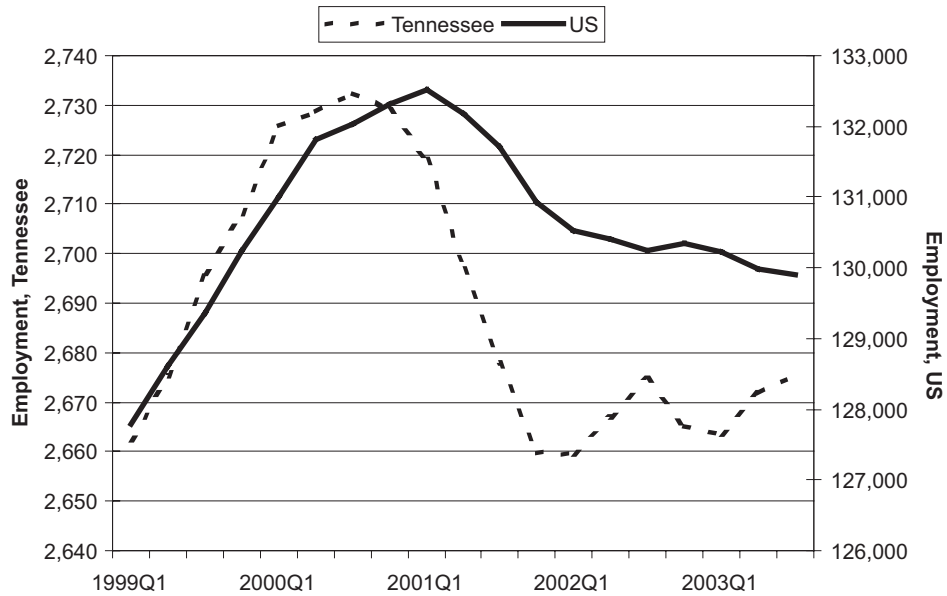
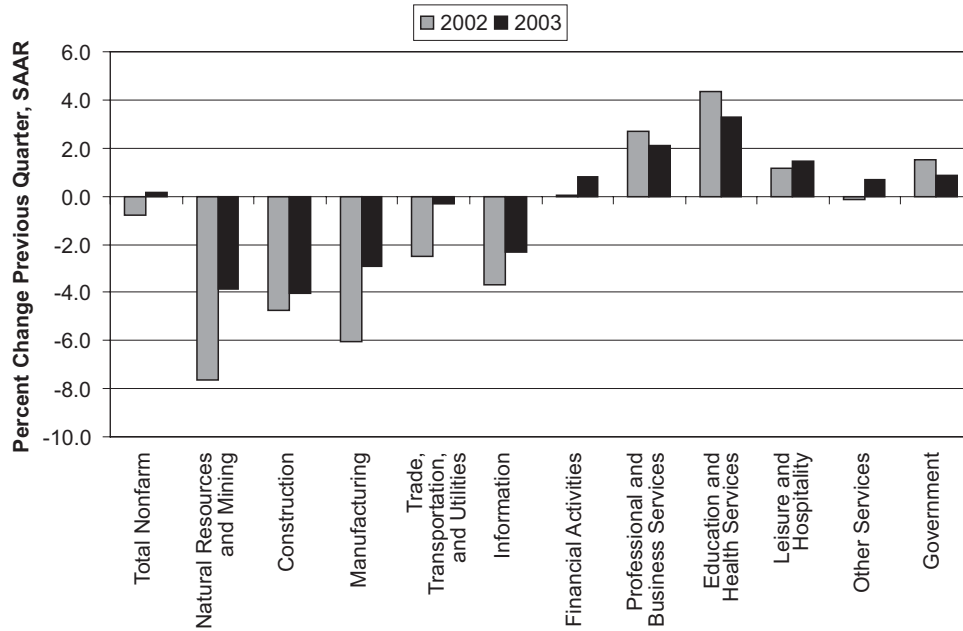


Figure 2.3. Tennessee Nonfarm Employment by Sector, Seasonally Adjusted, 2002 and 2003

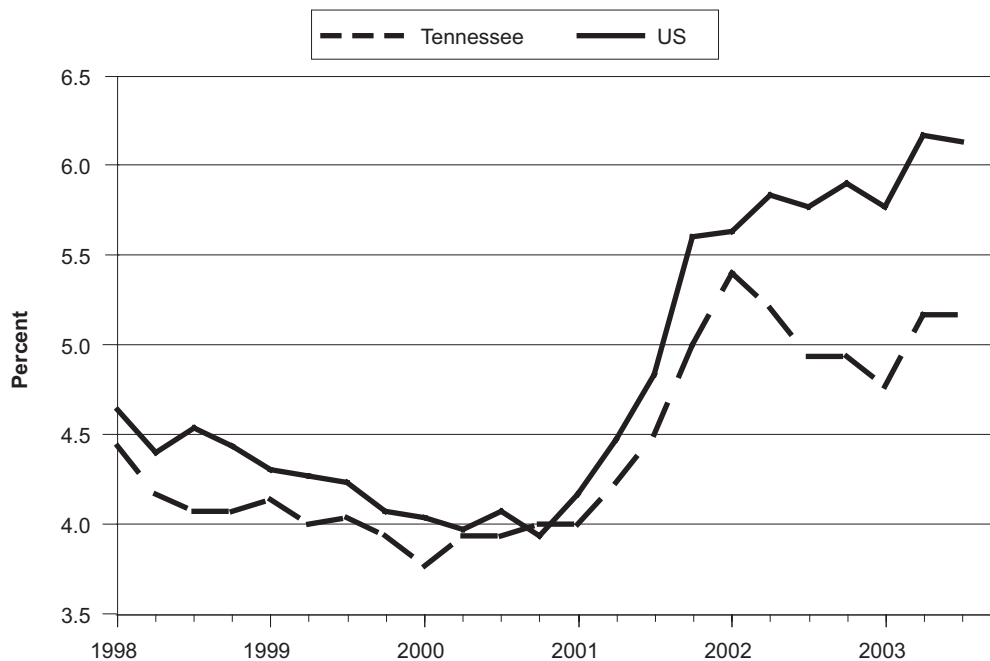


2.2. Recent Economic Trends, *continued*

conditions. Standing at a recent low of 4.0 percent in 2001Q1, the state unemployment rate drifted upward quarter-by-quarter to 5.4 percent in 2002Q1, as shown in Figure 2.4. The unemployment rate then moved down to 4.7

percent in 2003Q1 before beginning another ascent. The state unemployment rate has generally done better than its national counterpart, averaging 5.1 percent in 2002 and 2003 versus 5.8 and 6.0 for the US.

Figure 2.4. Quarterly Unemployment Rates, Tennessee and US



2.2.d *Income and Sales*

Inflation-adjusted personal income certainly took a hit from the recession and its aftermath, growing only 1.6 percent in 2002 and 1.7 percent in 2003; nominal personal income was up 3.0 percent and 3.6 percent in the same years. It should come as no surprise that wage and salary income has been a drag on overall personal income, given the job situation. Following 0.7 percent growth in 2002, wage and salary income growth accelerated to 1.0 percent in 2003 benefiting from a return to positive job growth.

Proprietors' income was able to sustain positive growth in 2002 and 2003. Unfortunately, the same is not true of rent, interest and dividend income, which slipped 1.2 percent and 2.4 percent in the last two years. Transfer payments have risen sharply as a result of sluggish economic conditions, jumping 7.9 percent and 5.3 percent in 2002 and 2003.

The sluggish expansion has not been kind to taxable sales either. On the heels of only 0.4

2.2. Recent Economic Trends, *continued*

percent growth in 2002, sales did rebound some and showed (expected) 2.9 percent growth in 2003. The third quarter of 2003 reveals a sharp spike in sales (14.8 percent, SAAR) with a bit of a payback projected for 2003Q4 (a 6.9 percent decline, SAAR). Encouragement for the manufacturing sector is offered by improved sales in the purchases from manufacturers, miscellaneous durable goods, and miscellaneous nondurable goods sectors in 2003 over 2002.

2.2.e. *Substate Economic Conditions*

There is wide variability in economic conditions across the state. Generally, metropolitan counties have performed better than their rural counterparts. With service jobs concentrated in metropolitan areas, these same places have benefited from service sector growth in recent recession and post-recession quarters. On the other hand, with manufacturing jobs concentrated outside metropolitan areas, rural areas have suffered disproportionately from recent (and long-term) declines in manufacturing employment.

The defined metropolitan statistical areas (MSAs) for the state have recently been updated. The former and current designations, as defined by the Office of Management and Budget are shown in Table 2.3. In 1996, there were seven MSAs in the state comprised of 27 Tennessee counties and 9 counties in adjacent states. The 2003 designations define 10 MSAs composed from 38 in-state and 11 out-of-state counties. The relative performance and standing of metropolitan versus nonmetropolitan counties is summarized in Table 2.4, based on these most recent definitions.

Generally, metropolitan statistical areas enjoy more favorable economic conditions than their nonmetropolitan counterparts. In 2001, per capita personal income averaged \$29,618 in metropolitan areas versus only \$20,862 for nonmetropolitan counties, reflecting a premium of nearly 42 percent for metropolitan Tennessee. Williamson County's per capita personal income of \$41,524 comes in first place, while Lake County finds itself at the bottom of the state ranking with per capita income of only \$13,306. Along with relatively high incomes in the metropolitan counties come low unemployment rates. Nonmetropolitan counties experienced an average unemployment rate of 6.7 percent in 2002, while metropolitan statistical areas had an average unemployment rate of 4.4 percent.

Metropolitan areas of Tennessee have also shown stronger growth over time in employment. Between 1995 and 2002, the metropolitan areas saw jobs grow by 11.2 percent. Nonmetropolitan areas have not been so fortunate. During the same time period, job growth totaled only 2.3 percent. Middle Tennessee has witnessed some of the strongest rates of job creation in the state. Notable are the 22.2 percent, 29.4 percent and 32.1 percent job gains in Montgomery, Rutherford and Williamson Counties. Tipton County in west Tennessee has experienced 25.8 percent growth and Union County in east Tennessee has experienced 24.6 percent growth. Thirty counties in the state have seen their job base erode since 1995. Job losses amounted to 33.6 percent in Clay County and 19.7 percent in Carroll County.

2.2. Recent Economic Trends, *continued*

Table 2.3. Metropolitan Statistical Areas, 1996 and 2003 Designations

MSA	1996 ¹		MSA	2003 ²	
	Counties in Tennessee	Counties in Other States		Counties in Tennessee	Counties in Other States
Chattanooga	Hamilton Marion	Catoosa, GA Dade, GA Walker, GA	Chattanooga	Hamilton Marion Sequatchie	Catoosa, GA Dade, GA Walker, GA
Clarksville-Hopkinsville	Montgomery	Christian, KY	Clarksville	Montgomery Stewart	Christian, KY Trigg, KY
Jackson	Chester Madison		Jackson	Chester Madison	
Johnson City- Kingsport-Bristol	Carter Hawkins Sullivan Unicoi Washington	Scott, VA Washington, VA Bristol City, VA³	Johnson City	Carter Unicoi Washington	
Knoxville	Anderson Blount Knox Loudon Sevier Union		Knoxville	Anderson Blount Knox Loudon Union	
Memphis	Fayette Shelby Tipton	Crittenden, AR DeSoto, MS	Memphis	Fayette Shelby Tipton	Crittenden, AR Desoto, MS Marshall, MS Tate, MS Tunica, MS
			Morristown	Grainger Hamblen Jefferson	

2.2. Recent Economic Trends, *continued*

Table 2.3. Metropolitan Statistical Areas, 1996 and 2003 Designations, continued

MSA	1996 ¹		MSA	2003 ²	
	Counties in Tennessee	Counties in Other States		Counties in Tennessee	Counties in Other States
Nashville-Davidson	Cheatham Davidson Dickson Robertson Rutherford Sumner Williamson Wilson		Nashville-Davidson- Murfreesboro	Cannon Cheatham Davidson Dickson Hickman Macon Robertson Rutherford Smith Sumner Trousdale Williamson Wilson	

***Bold** indicates a change from the 1996 to the 2003 designations.

1. Metropolitan Statistical Areas as defined by the Office of Management and Budget, June 30, 1996.
2. Metropolitan Statistical Areas as defined by the Office of Management and Budget, June 6, 2003.
3. In Virginia, the cities are independent of counties.

In 2003, a new designation, *Micropolitan* Statistical Area, was added. Twenty-one Tennessee counties and one Kentucky county form 17 Micropolitan Statistical Areas, including Athens (McMinn), Brownsville (Haywood), Columbia (Maury), Cookeville (Jackson, Overton, Putnam), Dyersburg (Dyer), Greeneville (Greene), Harriman (Roane), LaFollette (Campbell), Lawrenceburg (Lawrence), McMinnville (Warren), Newport (Cocke), Paris (Henry), Sevierville (Sevier), Shelbyville (Bedford), Tullahoma (Coffee, Franklin, Moore), and Union City (Obion, TN and Fulton, KY).

There are now five Combined Metropolitan Statistical Areas in Tennessee. CMSAs are combinations of Metropolitan and Micropolitan Statistical Areas, including Chattanooga-Cleveland-Athens, TN-GA; Johnson City-Kingsport-Bristol, TN-VA; Knoxville-Sevierville-LaFollette, TN; Morristown-Newport, TN; Nashville-Davidson-Murfreesboro-Columbia, TN.

2.2. Recent Economic Trends, *continued*

Table 2.4. Economic Status of Metropolitan and Nonmetropolitan Areas

Area	Per capita personal income		Employment 1995-02 percent change	Unemploy- ment rate 2002 percent
	2001 dollars	1995-01 percent change		
TENNESSEE	24,446	10.0	8.4	5.1
Metropolitan area	29,618	27.0	11.2	4.4
Nonmetropolitan area	20,862	19.3	2.3	6.7
Chattanooga MSA*	27,213	25.7	7.3	4.0
Clarksville-Hopkinsville MSA*	23,017	25.2	22.2	4.7
Jackson MSA	24,674	23.7	13.6	5.6
Johnson City-Kingsport-Bristol MSA*	23,473	25.5	3.2	5.4
Knoxville MSA	27,330	25.9	12.0	3.5
Memphis MSA*	30,559	29.3	8.4	5.4
Nashville MSA	32,338	27.2	15.0	4.0

*Metropolitan per capita personal income amounts include income from counties outside Tennessee.

Source: Bureau of Labor Statistics and Bureau of Economic Analysis.

2.3. Short-Term Outlook

The short-term outlook calls for steadily improving economic conditions through 2004 and into 2005. Critical to sustaining expansion in Tennessee will be growth in the national economy and improved employment conditions. There are always risk factors associated with an economic expansion and the current cycle is no exception. But after four years of weak economic growth, the state and national economies appear to be well positioned for a move back towards full employment.

A summary of projected short-term trends for the state and national economies is provided in Table 2.5, while more detailed information is provided in the appendix to this *Report*. Income growth in Tennessee will surpass income growth for the US in 2004; the state will also enjoy a lower rate of unemployment. However, the US is expected to have stronger job growth (1.6 percent) than the state (1.2 percent) in 2004, as well as 2005. Income growth for the nation will also surpass growth for Tennessee in 2005, although by a slim margin.

2.3.a. State Labor Markets

Job growth in Tennessee is projected to trend upward through 2005Q4 as the expansion solidifies itself. Job growth for the US is expected to show sharper acceleration than Tennessee until the beginning of 2005 when the rate of growth will slow, as shown in Figure 2.5.

More detailed information on Tennessee's job outlook is offered in Figure 2.6 which shows projected growth by NAICS sector for 2004 and 2005. Overall job growth for the state is projected at 1.2 percent in 2004 and 2.0 percent in 2005. This reflects appreciable improvement over the 0.8

percent decline in 2002 and the anemic 0.2 rate of job creation in 2003. Generally, the service sectors will show expansion in both 2004 and 2005. Business and professional services and other services will enjoy the strongest rates of growth. The construction sector is expected to turn the corner and engineer positive job growth in the current year and next year. The last time the construction sector saw jobs expand was in 2000.

Prospects for the state's manufacturing sector should improve through the short-term forecast horizon. With only one exception (2005Q4) year-over-year job growth is expected to improve in each quarter of the short-term outlook. In the durable goods sector, both year-over-year and quarterly growth rates will return to the black in 2004Q3. Overall growth of 0.2 percent and 1.7 percent is anticipated in 2004 and 2005 for jobs in durable goods. Fortunes are not so positive in the nondurable goods sector, although the rate of job decline will slow somewhat in the quarters to come. Job losses totaling 2.8 percent are projected for the current year, improving to a 1.4 percent pace of job decay in 2005.

An improved job outlook will help put downward pressure on the state unemployment rate through 2005. The unemployment rate was expected to average 5.6 percent in 2003Q4, yielding an average for 2003 of 5.2 percent. While the same annual average is expected in 2004, the rate should generally fall as the year unfolds, reaching a low of 4.9 percent in 2004Q4. Expect the unemployment rate to fall further, yielding an average of 4.7 percent in 2005. The state will do well compared to its national counterpart. The US unemployment is projected to be 5.7 in 2004 and 5.4 in 2005.

2.3. Short-Term Outlook, *continued*

Table 2.5. Selected US and Tennessee Economic Indicators, Seasonally Adjusted

	December 2003														
	History			Forecast Data								Annual			
	2003:2	2003:3	2003:4	2004:1	2004:2	2004:3	2004:4	2005:1	2005:2	2005:3	2005:4	2006:1	2002	2003	2004
US GDP (Bil96\$) SAAR.....	9629.4	9821.2	9905.2	10011.7	10121.8	10246.1	10355.1	10451.2	10538.6	10615.1	10689.0	10772.3	9439.9	9726.9	10183.7
% Chg Prev Qtr SAAR.....	3.28	8.21	3.46	4.37	4.47	5.00	4.32	3.76	3.39	2.94	2.81	3.15	2.45	3.04	4.70
% Chg Same Qtr Last Yr.....	2.52	3.54	4.07	4.81	5.11	4.33	4.54	4.39	4.12	3.60	3.22	3.07	2.45	3.04	4.70
US GDP (Bil\$) SAAR.....	10802.7	11063.4	11202.3	11382.6	11551.5	11738.9	11913.1	12082.0	12233.4	12372.7	12512.7	12673.7	10446.3	10939.2	11646.5
% Chg Prev Qtr SAAR.....	4.35	10.01	5.12	6.59	6.07	6.65	6.07	5.79	5.11	4.64	4.60	5.24	3.61	4.72	6.47
% Chg Same Qtr Last Yr.....	4.10	5.30	5.79	6.49	6.93	6.11	6.34	6.14	5.90	5.40	5.03	4.90	3.61	4.72	6.47
CHAINED PRICE INDEX, GDP (1996=1.0)	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1
% Chg Prev Qtr SAAR.....	1.00	1.67	1.61	2.13	1.53	1.57	1.67	1.96	1.66	1.65	1.74	2.03	1.13	1.63	1.69
% Chg Same Qtr Last Yr.....	1.54	1.70	1.66	1.60	1.73	1.71	1.72	1.68	1.71	1.74	1.75	1.77	1.13	1.63	1.69
US PERS CONSUMP DEFL (1996=1.0)...	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.2
% Chg Prev Qtr SAAR.....	0.81	2.31	1.90	1.25	1.23	1.92	2.02	1.81	1.76	1.85	1.98	2.08	1.37	1.96	1.60
% Chg Same Qtr Last Yr.....	1.76	1.91	1.93	1.56	1.67	1.57	1.60	1.74	1.88	1.86	1.85	1.92	1.37	1.96	1.60
TN PERSONAL INCOME (MIL96\$) SAAR 144839	145487	146639	148668	149881	150834	152164	154068	155374	156503	157573	158838	142904	145262	150387	
% Chg Prev Qtr SAAR.....	2.12	1.80	3.21	5.65	3.30	2.57	3.57	5.10	3.43	2.94	2.76	3.25	1.58	1.65	3.53
% Chg Same Qtr Last Yr.....	1.13	1.73	2.26	3.18	3.48	3.68	3.77	3.63	3.66	3.76	3.55	3.10	1.58	1.65	3.53
US PERSONAL INCOME (BIL96\$) SAAR 8113.9	8149.3	8204.3	8288.3	8368.0	8444.9	8529.5	8613.4	8692.2	8761.8	8826.1	8909.4	8033.3	8132.6	8407.7	
% Chg Prev Qtr SAAR.....	2.56	1.76	2.72	4.16	3.90	3.73	4.07	3.99	3.71	3.24	2.97	3.83	1.34	1.24	3.38
% Chg Same Qtr Last Yr.....	0.94	1.30	1.83	2.80	3.13	3.63	3.96	3.92	3.87	3.75	3.48	3.44	1.34	1.24	3.38
TN PERSONAL INCOME (MIL\$) SAAR.. 163441	165146	166999	169694	171604	173532	175928	178957	181345	183572	185709	188137	158717	164461	172689	
% Chg Prev Qtr SAAR.....	2.94	4.24	4.56	6.61	4.58	4.57	5.64	7.07	5.44	5.00	4.74	5.33	2.98	3.62	5.00
% Chg Same Qtr Last Yr.....	2.92	3.70	4.11	4.58	4.99	5.08	5.35	5.46	5.68	5.79	5.56	5.13	2.98	3.62	5.00
US PERSONAL INCOME (BIL\$) SAAR... 9156.0	9248.6	9354.8	9480.1	9600.5	9734.9	9881.8	10023.7	10159.6	10287.8	10414.3	10566.7	8922.2	9209.9	9674.3	
% Chg Prev Qtr SAAR.....	3.38	4.11	4.67	5.46	5.18	5.72	6.17	5.87	5.53	5.15	5.01	5.99	2.73	3.22	5.04
% Chg Same Qtr Last Yr.....	2.71	3.23	3.80	4.40	4.85	5.26	5.63	5.73	5.82	5.68	5.39	5.42	2.73	3.22	5.04
TN NONFARM JOBS (THOUS)..... 2669.7	2674.6	2678.7	2694.4	2698.3	2709.6	2717.5	2736.7	2749.1	2767.4	2779.1	2794.8	2667.2	2671.9	2704.9	
% Chg Prev Qtr SAAR.....	0.72	0.74	0.61	2.37	0.59	1.68	1.17	2.86	1.81	2.70	2.28	-0.80	0.18	1.24	
% Chg Same Qtr Last Yr.....	0.08	0.03	0.44	1.11	1.07	1.31	1.45	1.57	1.88	2.14	2.27	-0.80	0.18	1.24	
US NONFARM JOBS (MIL)..... 130.0	129.9	130.2	130.8	131.7	132.6	133.5	134.3	135.1	135.7	136.2	136.6	130.4	130.1	132.1	
% Chg Prev Qtr SAAR.....	-0.74	-0.22	1.04	1.56	2.82	2.91	2.58	2.49	2.38	1.84	1.40	1.31	-1.10	-0.22	1.56
% Chg Same Qtr Last Yr.....	-0.32	-0.25	-0.07	0.41	1.29	2.08	2.47	2.70	2.59	2.32	2.03	1.73	-1.10	-0.22	1.56
TN UNEMPLOYMENT RATE (%)..... 5.2	5.2	5.6	5.4	5.4	5.2	4.9	4.6	4.7	4.7	4.6	4.4	5.1	5.2	5.2	
US UNEMPLOYMENT RATE (%)..... 6.2	6.1	6.0	5.9	5.8	5.7	5.5	5.4	5.4	5.4	5.5	5.5	5.8	6.0	5.7	
BANK PRIME INTEREST RATE (%)..... 4.2	4.0	4.0	4.0	4.0	4.0	4.2	4.4	4.8	5.0	5.3	5.3	4.7	4.1	4.1	
TN MFG JOBS (THOUS)..... 415.0	413.1	411.0	409.8	410.2	410.3	410.1	411.4	412.3	412.7	412.3	413.7	426.6	414.2	410.1	
% Chg Prev Qtr SAAR.....	-2.61	-1.81	-2.03	-1.13	0.43	0.01	-0.13	1.25	0.86	0.41	-0.41	1.45	-6.07	-2.92	-0.98
% Chg Same Qtr Last Yr.....	-3.25	-2.83	-2.48	-1.89	-1.14	-0.68	-0.20	0.39	0.50	0.59	0.52	-0.57	-6.07	-2.92	-0.98
TN TAXABLE SALES (MIL96\$)..... 16909	17398	17034	17129	17308	17662	17632	17691	17871	17997	18140	18160	67359	68006	69732	
% Chg Prev Qtr SAAR.....	5.99	12.07	-8.09	2.25	4.24	8.44	-0.69	1.36	4.12	2.86	3.21	0.43	-0.97	0.96	2.54
% Chg Same Qtr Last Yr.....	-0.43	5.92	0.84	2.79	2.36	1.52	3.51	3.28	3.25	1.90	2.88	2.65	-0.97	0.96	2.54
TN TAXABLE SALES (MIL\$)..... 19081	19749	19400	19552	19817	20320	20385	20549	20858	21110	21379	21509	74808	76996	80074	
% Chg Prev Qtr SAAR.....	6.84	14.76	-6.89	3.18	5.52	10.56	1.29	3.26	6.14	4.92	5.20	2.45	0.39	2.93	4.00
% Chg Same Qtr Last Yr.....	1.33	7.96	2.66	4.18	3.86	2.89	5.08	5.10	5.26	3.89	4.88	4.67	0.39	2.93	4.00
TN AVG ANNUAL WAGE, NONFARM (96\$) 29853	29899	30003	30103	30294	30330	30444	30593	30731	30759	30742	30972	29661	29902	30293	
% Chg Prev Qtr SAAR.....	0.01	0.62	1.39	1.33	2.56	0.49	1.51	1.97	1.82	0.36	-0.22	3.03	1.51	0.81	1.31
% Chg Same Qtr Last Yr.....	0.36	1.17	1.30	0.84	1.48	1.44	1.47	1.63	1.44	1.41	0.98	1.24	1.51	0.81	1.31
TN AVG ANNUAL WAGE, NONFARM (\$) 33687	33940	34169	34360	34684	34895	35199	35535	35868	36079	36231	36685	32943	33854	34784	
% Chg Prev Qtr SAAR.....	0.82	3.03	2.73	2.26	3.83	2.45	3.53	3.87	3.80	2.37	1.70	5.11	2.90	2.76	2.75
% Chg Same Qtr Last Yr.....	2.13	3.12	3.13	2.20	2.96	2.81	3.01	3.42	3.41	3.39	2.93	3.24	2.90	2.76	2.75

2.3. Short-Term Outlook, *continued*

Figure 2.5. Tennessee and US Job Growth, Year-Over-Year

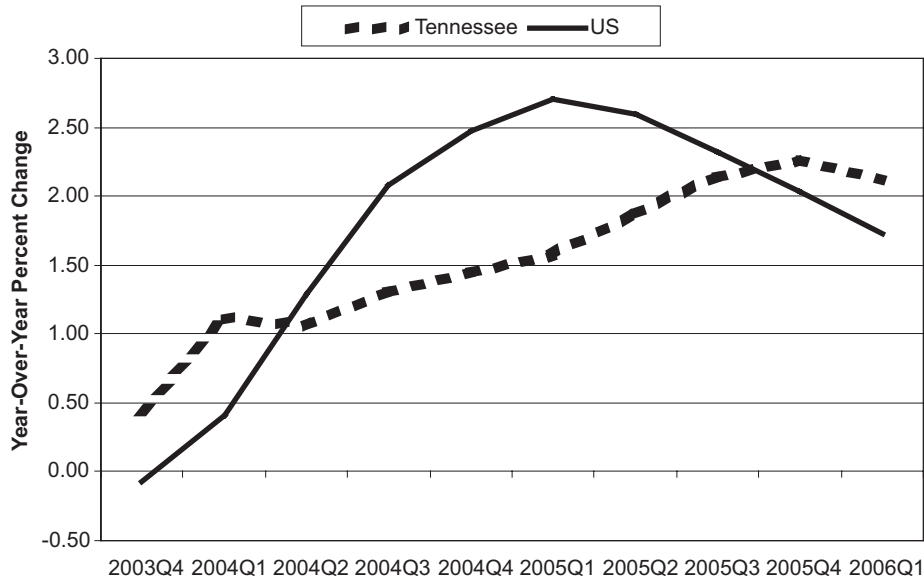
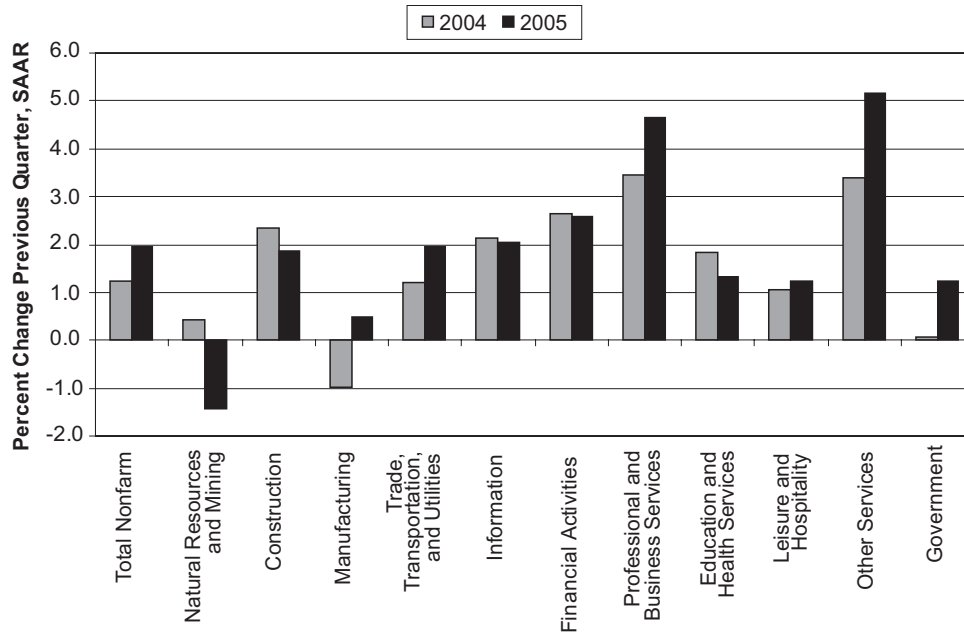


Figure 2.6. Tennessee Nonfarm Employment by Sector, Seasonally Adjusted, 2004 and 2005



2.3. Short-Term Outlook, *continued*

2.3.b. *Income and Sales*

In tandem with stronger job growth will be improvement in personal income growth for the state and the nation. Figure 2.7 shows projected quarterly year-over-year growth in inflation-adjusted personal income for Tennessee and the US through 2006Q1. Personal income growth in Tennessee will surpass the 3.0 percent mark in 2004Q1, the first time growth has moved above this bar in many quarters. The state is expected to do better than the US until 2004Q4 when the nation's rate of growth will outstrip Tennessee's. On an annual basis, expect state inflation-adjusted personal income to advance 3.5 percent in 2004 and 3.7 percent in 2005.

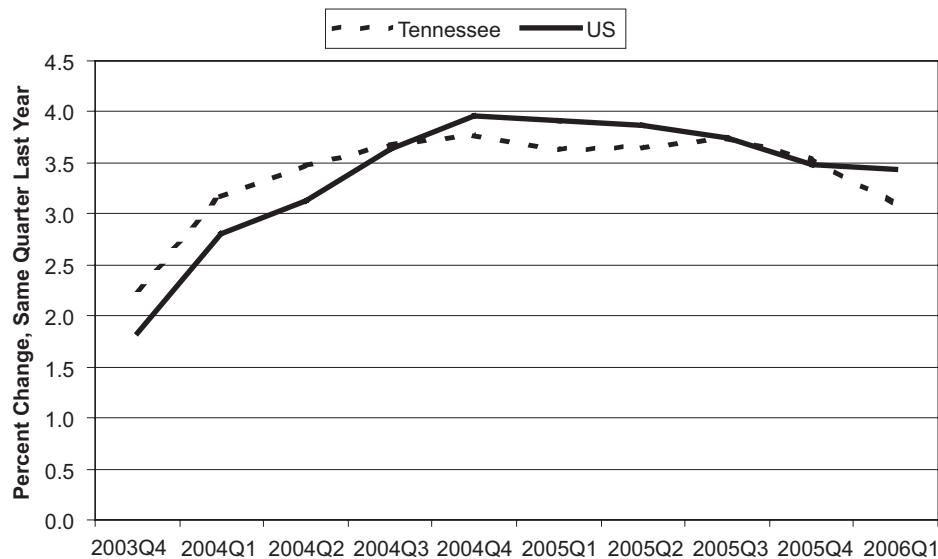
Nominal personal income in the state is projected to grow 5.0 percent in 2004 and 5.6 percent in 2005. Growth in wage and salary income – due largely to stronger job growth – is the primary source of improved income growth. After growing only 2.1 percent in 2002 and 3.0

percent in 2003, wage and salary income is anticipated to grow 4.1 percent in 2004 and 5.3 percent in 2005. Proprietors' income and rent, interest and dividend income will also show marked improvement in 2004 and 2005.

Per capita personal income has done poorly in recent quarters and registered only 0.7 percent growth in 2003 (on an inflation-adjusted basis). Expect per capita income to drift upward until the first quarter of 2005, yielding growth of 2.1 percent in 2004. Slight improvement to 2.2 percent growth is anticipated for 2005. US per capita income will advance 2.5 percent and 2.9 percent in 2004 and 2005.

The slump in taxable sales should fade away as the short-run forecast horizon unfolds. Overall sales growth is projected to total 4.0 percent in 2004 and 4.8 percent in 2005. On a fiscal year basis, sales should be up 4.6 in 2004/05.

Figure 2.7. Projected Inflation-Adjusted Personal Income Growth, Tennessee and US



2.3. Short-Term Outlook, *continued*

2.3.c. *Short-Term Forecast Summary*

- A new accounting system for economic data is supplanting the old, familiar Standard Industrial Classification (SIC) system. The new North American Industrial Classification System (NAICS) allows for greater conformity with accounting systems throughout the continent. The implementation of the new system means less history for most economic data series including jobs and average wages. The Tennessee Quarterly and Annual Econometric Models have both been restructured based on NAICS.
- Unlike the nation, Tennessee was able to engineer positive, albeit weak, job growth in 2003 (0.2 percent). The state's manufacturing sector suffered a 2.9 percent setback for the year, which was significant improvement over the 6.1 percent pace of job loss in 2002. Expect job growth to total 1.2 percent in 2004, as service sector growth overcomes additional job losses in manufacturing. The US will experience 1.6 percent job growth for the year.
- The state unemployment rate was expected to average 5.2 percent in 2003 compared with 6.0 percent for the US. The same state average will prevail in 2004, although the unemployment rate should generally fall as the year progresses.
- Nominal personal income growth will register 5.0 percent in 2004, up from the 3.6 percent rate of growth realized in 2003. Per capita income will grow at a 3.5 percent pace for the year, an improvement over 2.6 percent growth in 2003. Tennessee per capita income growth will lag the nation in both 2004 and 2005.
- Taxable sales growth will improve to 4.0 percent in 2004. Expect growth of 4.6 percent for the 2004/05 fiscal year.

2.4. Situation and Outlook for Tennessee Agriculture⁵

2.4.a. Overview of Agriculture in Tennessee

Tennessee Farms. Farming continues to dominate Tennessee’s landscape with over 90,000 farms contributing to sales of crops, livestock, and forest products. Tennessee ranks fourth among all states in the number of farms (behind Texas, Iowa, and Missouri).⁶ Total land in farms in Tennessee totals 11.7 million acres. Forty-four percent of the state’s land area is farmland. The average size of all farms in Tennessee in 2002 was 130 acres.

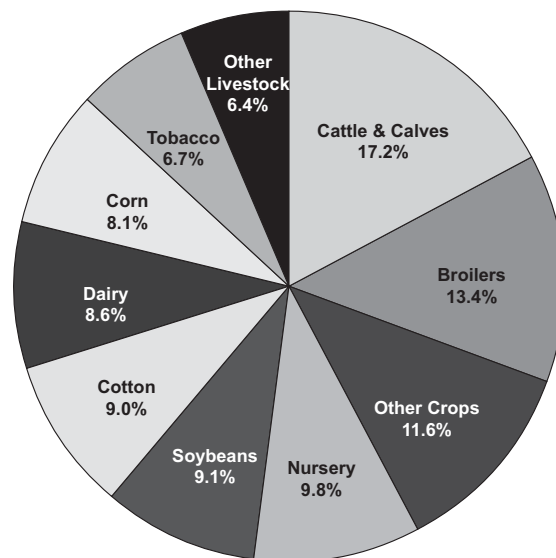
The vast majority of Tennessee farms—77 percent—reported agricultural sales between \$1,000 and \$9,999. Seventeen thousand farms (19 percent) reported agricultural sales between \$10,000 and \$99,999 while 4,000 of the state’s 90,000 farms reported sales over \$100,000. Farmland values have increased significantly in recent years. In 2003, agricultural land values in Tennessee reached \$2,500 per acre, an increase of more than 28 percent over the last five years.

Cash Receipts. Tennessee’s leading commodities include cattle and calves, broilers, nursery and floriculture products, soybeans, cotton, dairy products, corn, tobacco, fruits and vegetables, wheat, hay, and hogs. The state’s top generators of cash receipts for 2002 are presented in Figure 2.8. The total value of cash receipts for all commodities in 2002 was \$2.0 billion. In a flip-flop from the previous year, crops contributed 54 percent of agricultural receipts (\$1.09 billion), while livestock commodities contributed 46 percent (\$0.91 billion).

Over 17 percent of all agricultural receipts in Tennessee in 2002 were from cattle and calves, the dominant agricultural enterprise in the state. Another 13.4 percent of all receipts was contributed by sales of broilers and 8.6 percent was contributed by dairy products. Other livestock commodities (including hogs, eggs, and farm chickens, among others) contributed an additional \$128 million or 6.4 percent of agricultural cash receipts.

Leading all Tennessee crops in cash receipts in 2002 was the greenhouse-nursery-floriculture industry, generating \$196 million or nearly 10

Figure 2.8. Tennessee Agricultural Cash Receipts, 2002



⁵ Authors are Assistant Professor Kelly J. Tiller, Blasingame Chair of Excellence Professor Darryl E. Ray, and Associate Professor Daniel G. De La Torre Ugarte from the Agricultural Policy Analysis Center, Department of Agricultural Economics, the University of Tennessee.

⁶ According to the US Department of Agriculture (USDA) definition, a “farm” is any property with agricultural sales or intended sales totaling at least \$1,000 per year.

2.4. Situation and Outlook for Agriculture, *continued*

percent of all agricultural receipts. Soybeans and cotton each generated about nine percent of all cash receipts, followed by corn (\$163 million) and tobacco (\$134 million). Tobacco has historically generated well over \$200 million in cash receipts and been a leading cash crop. Recent quota cuts — more than 50 percent since 1998 — have resulted in significant declines in tobacco acreage and income. Other crops, including fruits and vegetables (tomatoes, snap beans, squash, peaches, and apples, among others), wheat, and hay generated an additional \$232 million in crop cash receipts.

Forest products are also a significant source of income in Tennessee. More than 14 million acres of farm and non-farm forest lands produce over 900 million board feet of hardwood and over 100 million board feet of softwood lumber annually. This level of production ranks Tennessee as the second leading producer of hardwood lumber. Sales of timber generated \$358 million from Tennessee forests in 2002.

Agricultural Exports and Trade.

Agricultural exports continue to be a growing source of income for Tennessee's farmers. Exports of raw agricultural products attributed to Tennessee producers totaled more than \$610 million in 2002. This was a 9 percent increase over 2001 exports and a 25 percent increase over export value in 2000. Leading Tennessee's export commodities was cotton, with exports valued at \$96 million in 2002. Other leading exports included soybeans and soy products (\$90 million), raw leaf tobacco (\$82 million) and wheat (\$82 million). All livestock and dairy exports totaled more than \$76 million.

Over the last decade, US exports of agricultural commodities have increased by about 35 percent to over \$53 billion. Over the same period, exports of nonagricultural products increased nearly 60 percent to \$577 billion. While exports have increased briskly, rising US imports have outpaced export growth leading to a diminishing trade surplus in agriculture and a large trade deficit for nonagricultural products. The most recent trade balance (i.e., net exports, or total exports minus total imports) for agricultural products was just over \$11 billion, down from a record trade surplus of \$27 billion in 1996. The corresponding trade balance for nonagricultural products was a negative \$536 billion, continuing two decades of movement from a trade surplus to a widening trade deficit.

2.4.b. *Crops Outlook*

Tennessee crop producers are anticipating bumper crops for 2003 with record or near-record yields for several major crops. The larger crop, coupled with modest price recovery in 2003, is a welcome change from low yields and very low prices experienced in several recent years. Soybeans, in particular, are expected to be a bright spot as yield pressures in major soybean states are pressuring prices higher. Tennessee is well positioned to take advantage of a record-yielding soybean crop at higher prices.

Corn production in Tennessee is forecast nearly 33 percent higher than 2002 (87.1 million bushels) and the highest level since 1920. The expected corn yield of 134 bushels per acre would set a new state record. Tennessee's soybean yield is also forecast to set a record at 40 bushels per acre. Soybean production is forecast at 46 million

2.4. Situation and Outlook for Agriculture, *continued*

bushels, 32 percent above a year ago. The state's cotton farmers are also expecting to set a yield record of 772 pounds per acre and to produce 860,000 bales, 5 percent above 2002. While Tennessee recorded higher wheat yields in 2003 (50 bushels per acre compared to 46 in 2002), wheat acreage declined 10 percent in 2003, resulting in a slight decline in wheat production in 2003.

The price outlook for major crops highlights the extent to which major world agricultural markets are becoming increasingly more integrated. Price movements early in 2004 are largely dependent on crop production reports from the Southern Hemisphere and export sales and shipments. Generally, US and global crop stocks are relatively low, holding price expectations relatively steady. Tennessee cash prices at 2003 year-end averaged in the mid-\$2 per bushel range for corn, mid-\$7 per bushel range for soybeans, and \$3.75 per bushel range for wheat. Cotton prices unexpectedly dropped nearly \$0.20 per pound in November and December following unexpected price increases earlier in the fall. Given record cotton export levels, another strong price rally is unexpected early in 2004.

Tight world stocks-to-use ratios for major grains and soybeans set the stage for dramatic price increases if production falls short of expectations. Current farm policy allows prices to plummet or skyrocket without bounds. Sharp and sustained price increases could be just as devastating for the long-term future of US agriculture as the record-low prices experienced between 1998 and 2001.

2.4.c. *Livestock Outlook*

Ninety-eight percent of 2003 will be remembered as a very good year for the livestock industry. But it's the two percent at the tail-end of the year — the discovery of the first case of BSE or Mad Cow Disease in US cattle — that has the potential to cause cattle farmers' smiles to fade.

Tennessee's primary agricultural industry — cattle and calves — enjoyed strong price recovery early in 2003. High prices were sustained throughout the year with feeder cattle prices breaking \$90 per hundredweight by fall. The outstanding forage production year experienced by Tennessee and the Southeast further improved cattle profitability. Several factors contributed to the strong price performance. Supplies declined in the spring supporting prices. Beef exports also increased, in large part due to discovery of BSE in Canadian cattle. US beef gained much of Canada's lost export market share when imports of Canadian beef were banned. By late-2003, cattle market fundamentals suggested continued price strength.

But uncertainty flooded the cattle market outlook instantly when the first case of Mad Cow Disease was suspected and later confirmed in a Washington state cow. More recent revelations that the affected cow was actually born in Canada have potential to mitigate some of the market reaction. The immediate price fallout was nearly a 20 percent plunge in cattle futures in less than one trading week.

Potential losses in Tennessee's cattle market related to BSE could be partially offset by gains in

2.4. Situation and Outlook for Agriculture, *continued*

Tennessee's second-leading agricultural industry: broilers. Tennessee's exports of poultry and poultry products increased from \$28.7 million in 1999 to \$37.6 million in 2002, a 31 percent increase. Potential bans on imports of US beef products coupled with a glut of domestic beef supplies could strengthen demand for US poultry products, similar to the Canadian poultry industry experience following their BSE outbreak in May 2003. With broiler prices already relatively strong, near the \$0.60 per pound level, the price and production outlook appear positive.

Tennessee's dairy industry continued to shrink as the number of dairy farms declined to 784 in 2003, compared to 1,562 in 1991. Declining profitability is the primary contributor to the rapid dairy industry decline. Milk prices for much of 2003 continued at near record-low levels. Compounding the problem of low milk prices, production costs have continued to rise, further pressuring dairy farmers' cash flow situation. Lower farm-gate dairy prices have not been reflected at the consumer level, where retail milk prices have remained relatively flat while the dairy farmer's share of the consumer milk dollar has declined from about 50 cents to under 30 cents. Improvements in herd management and productivity are also a factor in Tennessee's dairy industry decline, where productivity gains generally favor large dairy operations (many milking thousands of heads and located in the West) over the generally small family operations typical in Tennessee. Increasing land values near metro areas are also contributing to the decline in dairy farms. Pressure to convert farmland to residential and industrial developments has

mounted and non-farm land uses are even more appealing given the dismal outlook for price and profitability recovery in Tennessee's dairy industry over the next few years.

2.4.d. *Trends and Concerns in Tennessee Agriculture*

The biological nature of agriculture and dependence on weather, disease outbreaks, and other factors outside a farmer's control mean that farmers operate under persistent uncertainty. In addition to the typical price and production uncertainty already discussed, a number of other trends and issues have the potential to influence the agriculture sector in Tennessee and beyond in the near to long term.

Agroterrorism and Biosecurity Concerns. As the US continually reassesses potential threats to national security, the food and feed system invariably emerges as a source of vulnerability. A number of measures have already been implemented to strengthen the security and dependability of our food supply. Additional measures are certain to follow, with uncertain impacts on producers and the agriculture sector. As one example, the USDA is in the process of developing the US Animal Identification Plan (USAIP) that will define the standards and framework for implementing a national animal identification system. The goals of the USAIP are to improve the traceability of US livestock to enhance the capability of animal health officials to accurately and effectively locate and trace individual animals and/or groups of animals within 48 hours should an animal health emergency arise.

2.4. Situation and Outlook for Agriculture, *continued*

Genetically Modified (GMO) Products.

US exports of grains and oilseeds, especially to Europe, have been affected by safety concerns related to GMO products. US producers have continued to expand production of GMO crops. Efforts to address the GMO issue are likely to affect the US agriculture sector for years to come.

Non-Traditional Crop Uses. Domestic demands for industrial uses of traditional food/feed crops has continued to expand. As one example, US domestic demand for corn is increasing at a rate faster than population growth, primarily due to increasing corn demands for ethanol, high fructose syrup, and industrial uses.

Dietary and Lifestyle Trends. Recent popularity of high-protein and low-carbohydrate dietary trends has resulted in increased domestic demand for eggs and meat products. Consumers are also increasingly exhibiting preferences for organic food products and locally-grown products.

Tobacco Quota Buyout. Tobacco producers in Tennessee and other major tobacco states face continued uncertainty about the future of the federal tobacco program and a proposed tobacco quota buyout. The 2003 legislation session ended without a resolution to the issue, but legislators have indicated that the issue will again be on the table in 2004.

2.4.e. *Tennessee Agriculture Situation and Outlook Summary*

- Tennessee ranks fourth in the US in the number of farms. Agricultural land averaged \$2,500 per acre in 2003.
- Leading cash receipts for Tennessee farmers in 2002 was cattle and calves (17.2 percent of all receipts) followed by broilers (13.4 percent), other crops (11.6 percent), nurseries (9.8 percent), and soybeans (9.1 percent).
- The state's agricultural exports totaled more than \$610 million in 2002, an increase of 9 percent over 2001.
- The crop outlook for 2003 and 2004 is very positive, particularly for cotton, corn, and soybeans.
- The cattle outlook is muddied by the identification of Mad Cow disease in a US cow near the end of 2003. The broiler outlook is positive for the year. Expect further deterioration in dairy production through 2004.

2.5. A Long-Term Perspective on Demographics and the Economy of Tennessee

The short-term overview and outlook presented above emphasized the state's economic performance around the current short-run economic cycle. The focus here turns to long-term trends and the long-term forecast for Tennessee. This year we add a unique perspective as we present recently completed demographic projections extending to 2025, along with the traditional ten-year economic outlook. The first section below discusses population growth and population projections and includes a brief explanation of the model used for these projections. The second section presents the long-term economic overview and outlook.

2.5.a. Population and Demographic Change in Tennessee

During the period 1960 to 2000, the population of Tennessee grew from 3,567,089 to 5,689,283, exhibiting an overall growth rate of 59.5 percent and a compound annual growth rate of 1.2 percent. Figure 2.9 shows the population levels for Tennessee for the past four decades.

Although the state's total population grew fairly rapidly during these four decades, individual counties experience wide variation in their growth rates. During this period, the five counties exhibiting the highest growth rates are Williamson

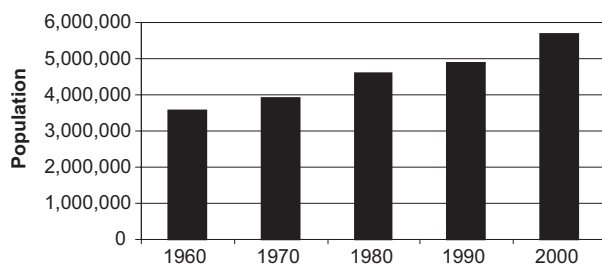
(401 percent), Cheatham (281 percent), Sumner (260 percent), Rutherford (248 percent), and Wilson (221 percent). These five counties are located in middle Tennessee, which according to the population projections discussed below should continue to see strong growth. The five counties experiencing the lowest growth rates are Lake (-17.0 percent), Haywood (-15.0 percent), Hancock (-12.5 percent), Crockett (-0.4 percent), and Gibson (7.7 percent).

Figure 2.10 shows the percentage changes for all the counties in the state from 1960 to 2000. The percentage growth in the population of the MSAs (based on the new MSA designations discussed earlier in this chapter) ranged from 39 percent (Chattanooga MSA) to 106 percent (Nashville-Davidson MSA).

In terms of percentage growth, the segment of the population that grew most rapidly is the 80 and over age group for both males and females. In terms of numbers of people, the 35 to 44 age group for both males and females had the greatest increases. There do not appear to be any striking differences in the age or gender patterns between metro and non-metro counties.

While Tennessee has seen strong population growth, so have most states in the southeast. As can be seen in Table 2.6, between 1960 and 2000 Tennessee exhibited an average growth rate across decades of about 12.5 percent which mirrors the combined average of the southeastern states (12.8 percent) and is only slightly higher than the nearly 12 percent average growth rate of the United States. The southeastern states exhibit a wide range in their population growth. For example, Florida experienced a 3.0 percent growth rate (compound annual growth rate, or CAGR), while

Figure 2.9. Tennessee Population, 1960 to 2000

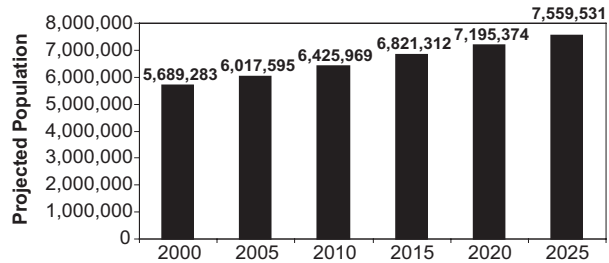


Source: US Census Bureau.

2.5. A Long-Term Perspective, *continued*

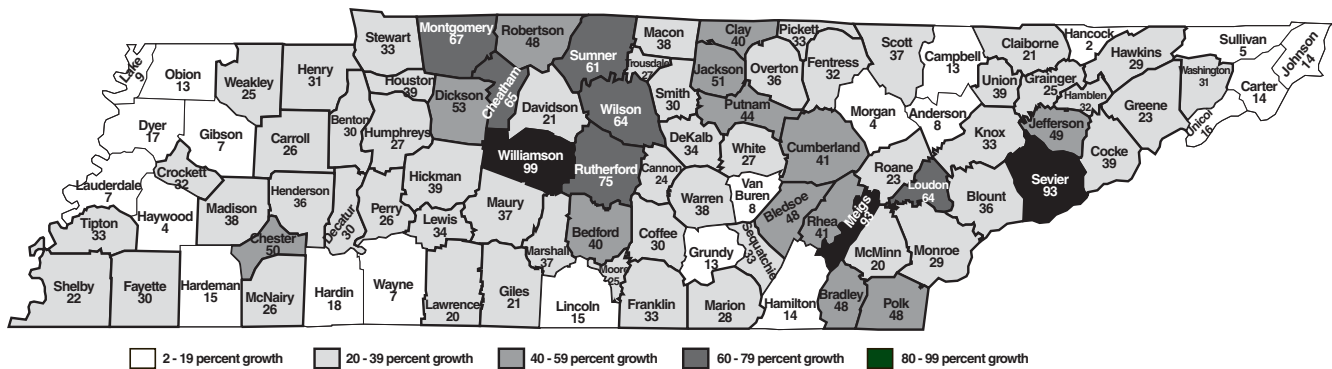
Sullivan (5.4 percent), and Lauderdale (7.1 percent). With the exception of Sullivan, all of these are relatively small, non-metropolitan counties. The five counties with the highest projected growth in population through 2025 are Williamson, Sevier, Meigs, Rutherford, and Montgomery. Williamson, Rutherford and Montgomery counties are metropolitan counties located in middle Tennessee where much of the state’s recent growth has been concentrated. Sevier county, adjacent to the Great Smoky Mountains National Park, will continue its strong rate of growth buoyed in part by rapid growth in the tourism trade.

Figure 2.11. Tennessee Projected Population Levels, 2000 to 2025



Source: CBER.

Figure 2.12. County Population Growth Rates, 2000 to 2025



Source: CBER.

A Synopsis of the Methodology behind CBER’s Population Projections

The population projections were developed using the cohort-component demographic model which consists of the “components” of population growth: births, deaths, and migration. The population is categorized by gender and five-year age groups and is carried forward at five-year intervals to the year 2025. Given assumptions about fertility rates and the migration and survival rates for each age and gender cohort between each five-year interval, the population estimates are obtained.

The county populations were projected first using the cohort-component method. The county estimates were summed to arrive at the state levels for total population and age-gender distributions of the population. The sub-county area population as a share of the calculated county population for each projection period is obtained using the exponential extrapolation method. Census 2000 provides the age-gender population at the sub-county level. The sub-county age-gender shares are applied to the sub-county population totals to allocate the population into the appropriate age-gender cohort. An important implication of this procedure is that the age-gender mix of the sub-county population is assumed to remain constant over the entire projection period.

More information on the population projections can be found on the web sites of the Center for Business and Economic Research <<http://cber.bus.utk.edu>> and the Tennessee Advisory Commission on Intergovernmental Relations <www.state.tn.us/tacir>, which funded the project.

2.5. A Long-Term Perspective, *continued*

2.5.b. *Long-Term Overview*

The state's short-term economic performance is driven primarily by international and national economic trends. When the national economy is booming, generally the state will enjoy strong economic growth. Similarly, when the national economy experiences sluggish growth — as is the case today — the state economy will perform relatively poorly. Long-term economic performance certainly is influenced by short-term business cycles. But other factors can be more important in fostering long-term prosperity. In particular, the educational attainment of the working-age population which creates productive workers (*human capital*), infrastructure that can support and accommodate economic growth (*infrastructure capital*), and the recruitment and retention of competitive business enterprises that use state-of-the art production technologies, whether they are service or manufacturing enterprises (*private capital*).

Capital, capital, capital. Education or human capital is important at all levels. Broadly, one can distinguish between education in support of the existing adult workforce and education focused on training workers and citizens of tomorrow. Tennessee has a difficult challenge in addressing the needs of displaced workers and supporting their engagement in the new economy. Educating the workforce of tomorrow is equally important to fostering economic growth and making the state an attractive place to live. Infrastructure capital means roads, telecommunications, water, parks, and so on that enable businesses to do their very best in the marketplace and can support quality of life. Investments in infrastructure capital need to be carefully evaluated to ensure the greatest return on the state's investment. Finally the state, in concert with local governments, must do all that is

possible to attract and retain quality employers who pay good wages and offer fringe benefits, in particular health insurance, to employees. We need to recruit and retain the best and the brightest. The discussion that follows does not speak directly to issues of capital investment, as important as such investments are to the future of the state and its residents. But the ingredients for strong economic performance — capital, capital, capital — cannot be ignored nor neglected. Our investments today will dictate our economic prosperity tomorrow.

2.5.c. *Historical Trends*

The discussion of historical trends is compromised to some extent by the conversion from SIC to NAICS, as discussed in Section 2.2.a. Many economic data series under NAICS have short historical lives and other series — like gross state product — have yet to even be finalized. In what immediately follows, the emphasis falls on job trends under the new NAICS accounting system. Jobs data have one of the longer historical series and readers need to become accustomed to the NAICS data in order to monitor and gauge state versus national economic performance. Trends in income growth for Tennessee versus the nation are also discussed, with a focus on aggregate personal income and per capita personal income.

The troubles confronting manufacturing over the course of the current business cycle were discussed above. Much has been made of the recent declines in the national press, with fingers pointing to NAFTA and unfair trade with China, among others. But the ongoing recession has simply aggravated what is in reality a long-term decline in manufacturing jobs for the state and the nation. Figure 2.13 places the problem in

2.5. A Long-Term Perspective, *continued*

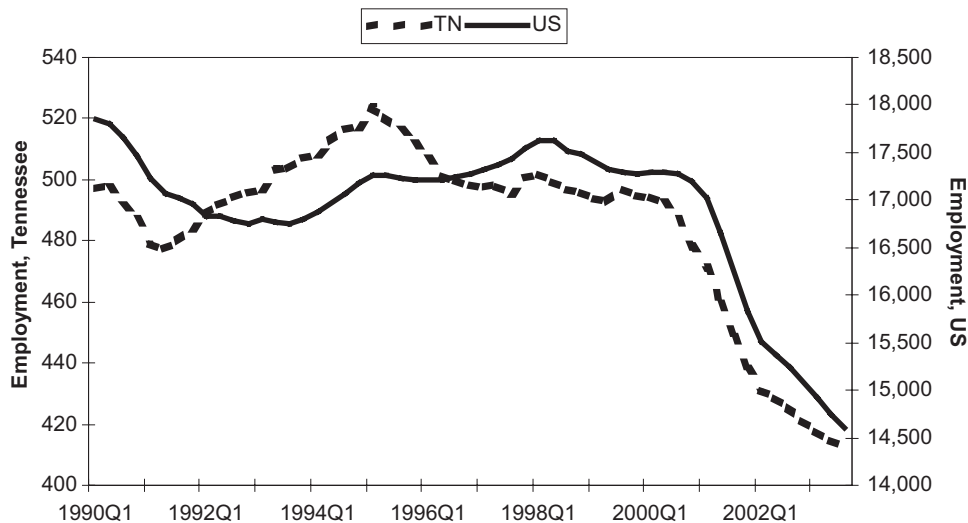
historical context, showing jobs in manufacturing for Tennessee and the US dating back to 1990Q1. Notable is the decline in jobs for the state's manufacturing sector that accelerated in 1995Q1. On an annual basis, the state has not engineered a net increase in manufacturing employment since 1998 (0.1 percent). The US was able to stave off decline until 1998 but since then has witnessed a similar pattern of job decline. While jobs have been declining, output in manufacturing has actually been rising as a result of productivity growth. It will be interesting to see NAICS-based gross state product data in December of 2004, to determine exactly what the consequences are for the output side of the manufacturing sector.

The decline in manufacturing jobs in Tennessee is due solely to contraction in the nondurable goods sector. Durable goods employment stood at 251,600 in 2003, up from 249,000 jobs in 1991. While this represents less than 2,000 jobs, it does reflect expansion rather than contraction. Over the same period, jobs in

the nondurable goods sector fell from 231,300 to 162,500, for a loss of nearly 70,000 jobs. Within durable goods manufacturing, primary metals, fabricated metal products, computer and electronic products, electrical equipment and appliances, and furniture have all experienced job losses while other broad sub-sectors have enjoyed some degree of employment expansion. In the nondurable goods sector, only the food, beverage and tobacco, and plastics and rubber sectors experienced job expansion between 1991 and 2003. Textile mill jobs have been nearly cut in half (a loss of nearly 7,000 jobs) while 48,300 jobs have been lost in apparel leaving only 9,600 jobs in the state.

As the manufacturing sector has been battered, other sectors of the state economy have experienced more healthy rates of growth. Overall, nonagricultural job growth was 1.7 percent (CAGR) between 1991 and 2003 indicating strong underlying growth outside of manufacturing. Comparing 2003 with 1991 shows that only the natural resources and mining sector

Figure 2.13. Seasonally-Adjusted Manufacturing Employment, Tennessee and US



2.5. A Long-Term Perspective, *continued*

witnessed job losses (amounting to less than one thousand jobs). The strongest growth rates were realized in the various service sectors. The other services category is up 74.1 percent (a gain of over 43,000 jobs) and the business and professional services category is up 84.7 percent (a gain of almost 144,000 jobs).

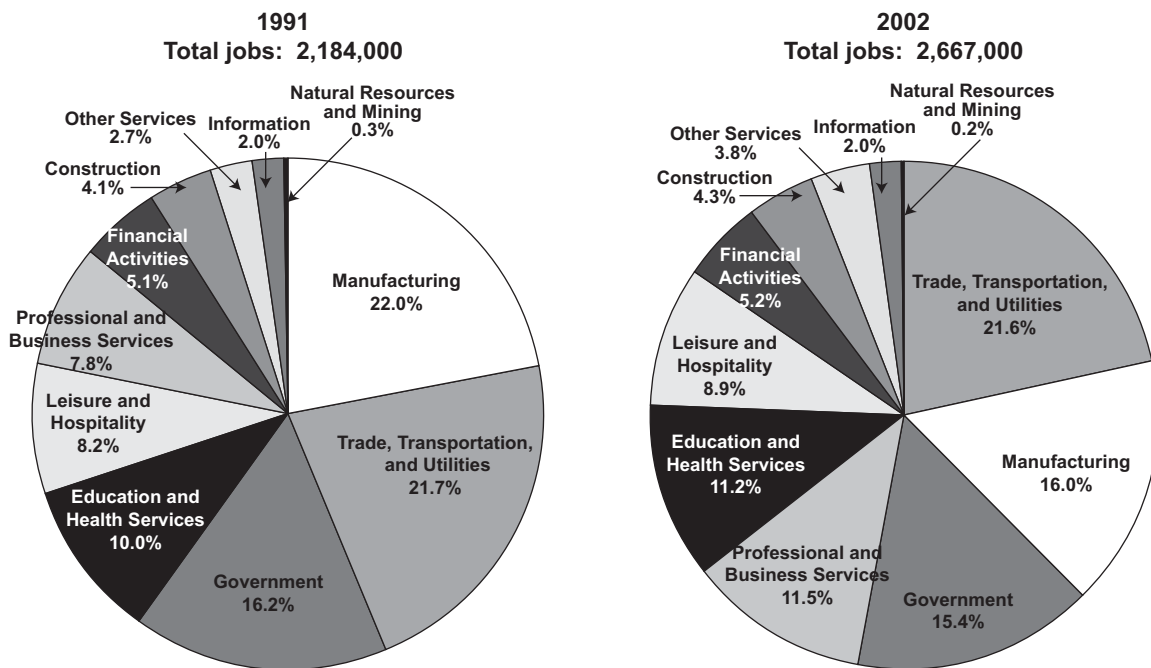
Shifting fortunes across economic sectors is illustrated in Figure 2.14, which shows the distribution of jobs by NAICS sector for 1991 and 2002. Most notable in the figure is the relative decline in manufacturing jobs from 22.0 percent to 16.0 percent, reflecting net job losses in manufacturing and healthy job gains elsewhere in the economy. With the exception of information and trade, transportation and utilities, all service sectors showed growth in their share of the state

job pie. Professional and business services grew from 7.8 percent of nonagricultural jobs to 11.5 percent of jobs in 2002.

Tennessee's unemployment rate fared well during most of the 1990s and in the early 2000s. The unemployment rate spiked to 6.7 percent in 1991 due to the recession, then drifted down to 4.8 percent in 1994. After moving into the 5 percent range in 1995, the unemployment rate was able to move back to 4.2 percent by 1998. With 1997 as an exception, the state has enjoyed a lower rate of unemployment than the nation going back to 1991.

The state's economic performance has by some measures, including the unemployment rate, been better than the nation. But the state has not done well in other areas, in particular its per capita

Figure 2.14. Distribution of Nonagricultural Jobs, 1991 and 2002, NAICS Basis



2.5. A Long-Term Perspective, *continued*

income growth. Tennessee per capita income relative to the US is shown in Figure 2.15 for the 1990–2002 period. After peaking in 1995, the state has seen its relative standing vis-à-vis the nation slip each year with the exception of 2002. Most components of personal income have slipped relative to the US, including most prominently per capita wages and salaries.

The situation for total nominal personal income is shown in Figure 2.16. The history for total personal income growth is similar to that for per capita personal income growth. Tennessee consistently outperformed the nation by a significant margin through the mid-1990s but has lagged the US since then with the exception of two years.

Figure 2.15. Tennessee Per Capita Income as a Percent of US Per Capita Income, 1990 to 2002

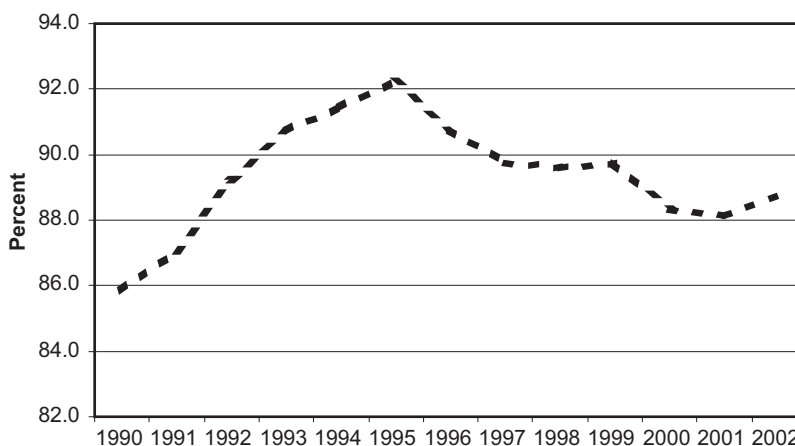
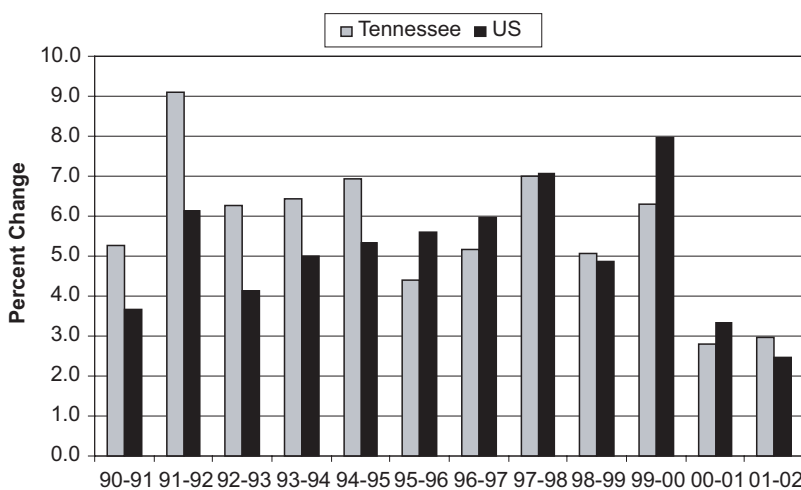


Figure 2.16. Annual Growth in Total Personal Income, Tennessee and US



2.6. Long-Term Outlook

The long-term outlook captures the state economy's movement back to full employment and its expected trend performance to 2013. As is typical of a long-term forecast, there is no effort to estimate the timing of the next economic cycle, although one is likely to take place before the close of 2013. The long-term outlook calls for services to continue to grow as a share of total nonagricultural jobs. Inflation-adjusted personal income will grow at a 3.6 percent compound annual growth rate between 2004 and 2013.

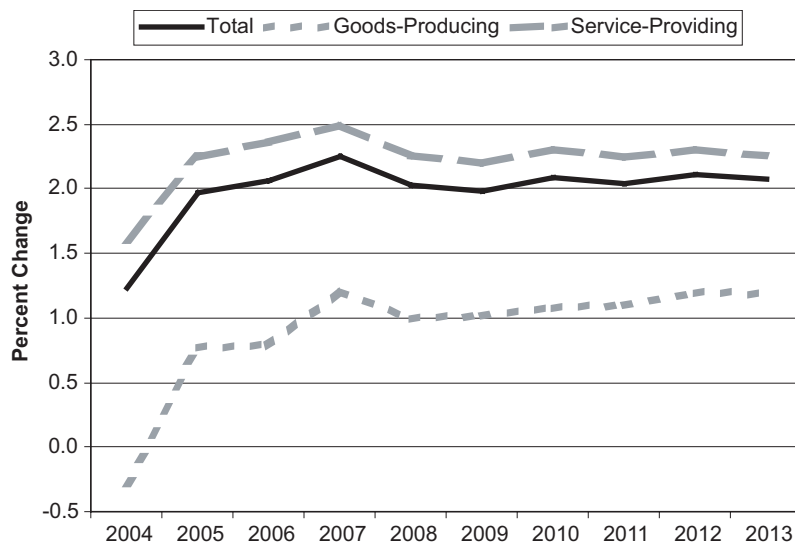
2.6.a. State Labor Markets

The rising tide of service sector growth versus job growth in goods-producing sectors is shown in Figure 2.17. Generally job growth will exceed 2 percent in the service-providing sector as opposed to growth rates hovering around 1.0 for the goods-producing sector. Total nonagricultural

job growth will be 2.1 percent (CAGR) between 2004 and 2013. Service sector growth will be led by other services (5.2 percent, CAGR), and business and professional services (4.2 percent, CAGR) and education and health services (2.6 percent, CAGR). Manufacturing job growth is expected to be 0.6 percent (CAGR) as job growth in durable goods manufacturing more than offsets job losses in nondurable goods manufacturing. By 2013, service jobs will have grown to 82.2 percent of all jobs in the state versus 80.5 percent in 2004.

Additional detail on the expected fate of the state's manufacturing sector is offered in Figures 2.18 and 2.19. The first figure offers projected compound annual growth rates in durable goods manufacturing while the second provides the same detail for the nondurable goods sector out to 2013. Machinery and electrical equipment, appliances

Figure 2.17. Tennessee Job Growth, Goods-Producing and Service-Providing Sectors, 2004 to 2013



2.6. Long-Term Outlook, *continued*

and components will show the strongest rates of growth in the durable goods sector, while beverage and tobacco and food will be drivers in the nondurable goods sector. Textiles and apparel will continue to suffer. By 2013, it is expected that only 4,300 jobs will remain in textile mills, 2,200 jobs in textile product mills, and 2,100 jobs in apparel.

The state unemployment rate will drift down to 4.0 percent by 2011, reaching a low last realized in 1999. Tennessee's unemployment rate will compare favorably to its US counterpart throughout the long-term forecast horizon. After growing at a 1.5 percent rate (CAGR) between 1992 and 2003, the labor force is expected to grow more slowly at a 1.3 percent rate between 2004 and 2013. Growth in employed people will also slow, from 1.6 percent between 1992 and 2003, to 1.5 percent between 2004 and 2013.

2.6.b. *Income and Sales*

Inflation-adjusted personal income will rise at a 3.6 percent (CAGR) between 2004 and 2013. Wage and salary income, which will account for 54.9 percent of personal income in 2004, will grow at the slightly slower rate of 3.3 percent over the same time period. Tennessee's inflation-adjusted per capita personal income is expected to advance at a 2.3 percent (CAGR) through 2013. Nominal personal income in Tennessee will grow at a 6.1 percent (CAGR) while income growth will be 5.8 percent for the US between 2004 and 2013. By 2013, Tennessee's per capita personal income will be 87.2 percent of the US average, as opposed to 88.5 percent in 2004.

The anticipated 6.1 percent (CAGR) increase in nominal personal income will buoy taxable sales growth for state retailers. Taxable sales should grow at a 5.1 percent (CAGR) through the long-term forecast horizon 2004–2013.

2.6. Long-Term Outlook, *continued*

Figure 2.18. Projected Job Growth, Durable Goods Manufacturing, 2004 to 2013

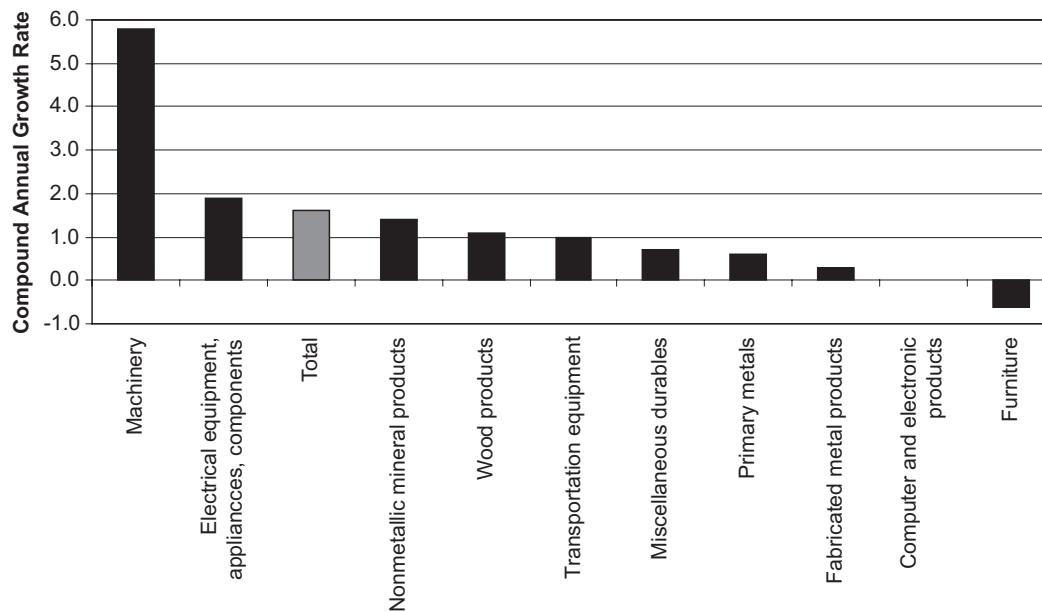
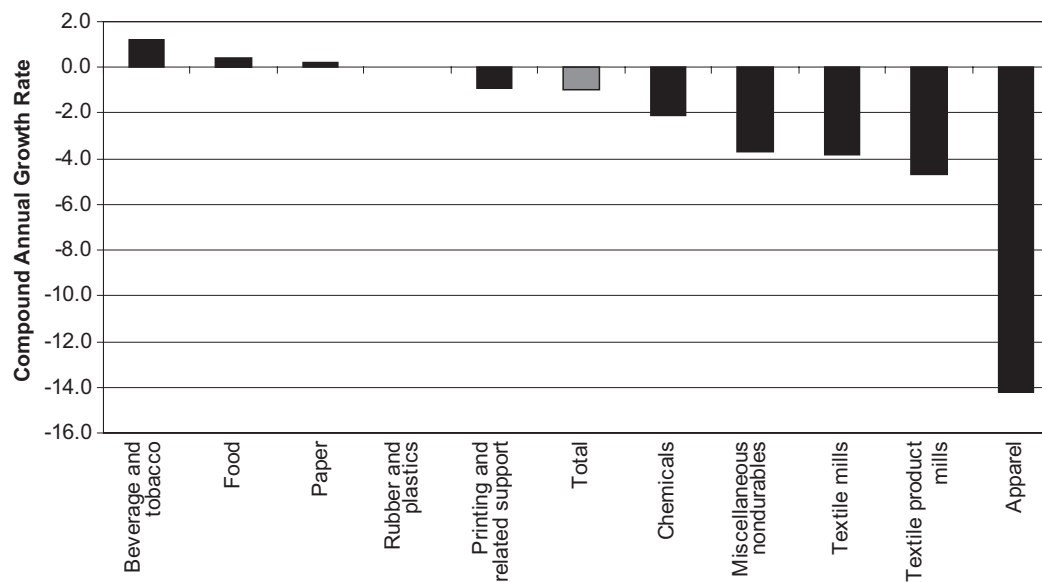


Figure 2.19. Projected Job Growth, Nondurable Goods Manufacturing, 2004 to 2013



2.6. Long-Term Outlook, *continued*

2.6.c. *Long-Term Forecast Summary*

- The state has experienced significant changes in population and demographic structure since the 1960s. Between 1960 and 2000 Tennessee's population was up 59 percent. Growth in the state has mirrored average growth across the Southeast.
- The state population is expected to grow 32.0 percent between 2000 and 2025.
- Short-term economic trends in Tennessee are heavily influenced by the national economic environment. In the long-run, state growth is tied closely to human capital investments, infrastructure investments, and private sector investments in productive capital like computers and machinery.
- The state's manufacturing sector has lost jobs during every year going back to 1998. Over the long-term, net job gains in durable goods manufacturing have been insufficient to offset job losses in the nondurable goods sector. Expect manufacturing jobs to grow at only a 0.6 percent compound annual growth rate through 2013, with 1.6 percent growth in durable goods manufacturing more than offsetting 1.0 percent decline in the nondurable goods sector.
- As the manufacturing sector has struggled, the service sector of the economy has prospered. Accounting for 78 percent of jobs in 1991, services represented 80.5 percent of nonagricultural jobs in 2003 and will increase their dominance to 82.2 percent by 2013. Professional and business services and other services will enjoy the strongest rates of job growth.
- Per capita income in Tennessee has not fared well in recent years when compared to the nation. After peaking in 1995, state per capita income as a percent of US per capita income has generally declined. The differential will widen with time and by 2013, Tennessee's per capita personal income will be 87.2 percent of the US average as opposed to 88.5 percent in 2004.
- The state unemployment rate will fall below its national counterpart through the long-term forecast horizon.