

AN ECONOMIC REPORT TO THE GOVERNOR OF THE STATE OF TENNESSEE

Matthew N. Murray, Associate Director and Project Director
Center for Business and Economic Research

PREPARED BY THE

Center for Business and Economic Research
College of Business Administration
The University of Tennessee
Knoxville, Tennessee

IN COOPERATION WITH THE

Appalachian Regional Commission
Tennessee Department of Finance and Administration
Tennessee Department of Economic and Community Development
Tennessee Department of Revenue
and
Tennessee Department of Labor and Workforce Development
Nashville, Tennessee

THE STATE'S
ECONOMIC
OUTLOOK
JANUARY **2012**

CONTRIBUTORS

An Economic Report to the Governor of the State of Tennessee

AUTHORS

UT Center for Business and Economic Research

Matthew N. Murray, *Associate Director and Project Director*

William F. Fox, *Director*

Celeste K. Carruthers, *Assistant Professor of Economics*

Vickie C. Cunningham, *Research Associate*

J. Randy Gustafson, *Research Associate*

Melissa O. Reynolds, *Research Associate*

Angela R. Thacker, *Research Associate*

Ahiteme N. Houndonougbo, *Graduate Research Assistant*

Shukhrat Musinov, *Graduate Research Assistant*

UT Department of Agricultural Economics

Harwood D. Schaffer, *Research Associate Professor, Agricultural Policy Analysis Center*

Daryll E. Ray, *Blasingame Chair of Excellence Professor, Professor and Director of the
Agricultural Policy Analysis Center*

Patricia McDaniels, *UTIA Marketing and Communications Services*

PROJECT SUPPORT STAFF

UT Center for Business and Economic Research

Betty A. Drinnen, *Administrative Specialist*

Carrie B. McCamey, *Communications Coordinator*

Laura Ogle-Graham, *Business Manager*

The preparation of this report was financed in part by the following agencies: the Tennessee Department of Finance and Administration, the Tennessee Department of Economic and Community Development, the Tennessee Department of Revenue, the Tennessee Department of Labor and Workforce Development, and the Appalachian Regional Commission.

This material is the result of tax-supported research and as such is not copyrightable. It may be freely reprinted with the customary crediting of the source.

UT Publication Authorization Number R01-1493-229-006-12.

PREFACE

This 2012 volume of *An Economic Report to the Governor of the State of Tennessee* is the thirty-sixth in a series of annual reports compiled in response to requests by state government officials for assistance in achieving greater interdepartmental consistency in planning and budgeting efforts sensitive to the overall economic environment. Both short-term, or business cycle-sensitive forecasts, and longer-term, or trend forecasts, are provided in this report.

The quarterly state forecast through the first quarter of 2014 and annual forecast through 2021 represent the collective judgment of the staff of the University of Tennessee's Center for Business and Economic Research in conjunction with the Quarterly and Annual Tennessee Econometric Models. The national forecasts were prepared by IHS Global Insight, Inc. Tennessee forecasts, current as of January 2012, are based on an array of assumptions, particularly at the national level, which are described in Chapter One. Chapter Two details evaluations for major sectors of the Tennessee economy, with an agriculture section provided by the University of Tennessee Agricultural Policy Analysis Center. Chapter Three presents the long-run outlook and forecast for the state. Chapter Four provides a discussion of higher education progression and graduation from Tennessee universities and colleges.

The primary purpose of this annual volume—published, distributed, and financed through the Tennessee Department of Finance and Administration, Tennessee Department of Economic and Community Development, the Tennessee Department of Revenue, the Tennessee Department of Labor and Workforce Development, and the Appalachian Regional Commission—is to provide wide public dissemination of the most-current possible economic analysis to planners and decision-makers in the public and private sectors.



Matthew N. Murray
Associate Director and Project Director
Center for Business and Economic Research

CONTENTS

EXECUTIVE SUMMARY	VIII
CHAPTER 1: THE U.S. ECONOMY	1
1.1. Introduction.....	1
1.2. The U.S. Economy: Year in Review.....	2
<i>Components of GDP</i>	2
<i>Inflation and Prices</i>	6
<i>The Labor Market</i>	6
1.3. The U.S. Forecast.....	8
<i>Consumption and the Labor Market</i>	8
<i>Investment and Interest Rates</i>	8
<i>Government Spending</i>	10
<i>International Trade</i>	10
<i>Prices and Inflation</i>	10
1.4. Alternative Scenarios.....	11
1.5. Forecast Summary and Conclusions	11
CHAPTER 2: THE TENNESSEE ECONOMY: SHORT-TERM OUTLOOK.....	13
2.1. Introduction.....	13
2.2. The Current Economic Environment	14
2.3. Fiscal Update.....	18
<i>A National Perspective</i>	18
<i>Tennessee and the Southeastern States</i>	19
2.4. Short-Term Outlook	23
2.5. Situation and Outlook for Tennessee Agriculture.....	28
<i>Overview of Agriculture in Tennessee</i>	28
<i>Tennessee Agricultural Sector Outlook</i>	30
<i>Ag Sector Issues and Opportunities</i>	33
CHAPTER 3: THE TENNESSEE ECONOMY: LONG-TERM OUTLOOK.....	37
3.1. Introduction.....	37

3.2. The 2010 Census: The Changing Face of Tennessee	37
<i>Children</i>	39
<i>Hispanics</i>	39
<i>The Older Population</i>	41
<i>Labor Force</i>	42
<i>Income and Poverty Estimates</i>	44
<i>Health Insurance</i>	46
3.3. Long-Term Retrospective and Prospective Outlook for Tennessee	49
<i>The Labor Market</i>	50
<i>Income, Earnings and Output</i>	53
CHAPTER 4: THE TRANSITION FROM COLLEGE TO CAREER IN TENNESSEE	57
4.1. Characteristics of College Completers and Non-Completers	57
<i>Students Entering Two-Year Schools</i>	58
<i>Students Entering Four-Year Schools</i>	60
<i>Graduation and Time to Degree</i>	60
<i>How Close Were Noncompleters to Graduation?</i>	62
4.2. From College to Career	64
<i>Employment of those Entering Two-Year Schools</i>	64
<i>Employment of those Entering Four-Year Schools</i>	64
<i>Student Characteristics and Employment Outcomes: Regression Analysis</i>	64
<i>The Returns to College Persistence: Regression Analysis</i>	68
4.3. Conclusions, Policy Implications, and Future Research	69
APPENDIX A: FORECAST DATA.....	1
Quarterly Forecast Tables	1
Annual Forecast Tables	26
APPENDIX B: HISTORICAL DATA	41
Quarterly History Tables.....	41
Annual History Tables	66

FIGURES AND TABLES

CHAPTER 1: THE U.S. ECONOMY	1
Figure 1.1. Inflation-Adjusted GDP Growth Expected to Rebound	3
Figure 1.2. Consumer Sentiment and Spending Growth Restrained	4
Figure 1.3. Exports Maintain Momentum While Import Gains are Slowing.....	6
Figure 1.4. Payroll Gains are Slow, Modestly Trimming Unemployment	7
CHAPTER 2: THE TENNESSEE ECONOMY: SHORT-TERM OUTLOOK.....	13
Table 2.1. Total Nonfarm Employment Growth Struggles to Rebound	14
Figure 2.1. Total Nonfarm Employment Growth Shows Wide Variation Across the Southeast.....	15
Figure 2.2. Many Counties Have Seen Growth in Total Covered Employment	16
Table 2.2. Unemployment Rates Remain Elevated	16
Figure 2.3. House Price Indexes Still on the Decline	20
Figure 2.4. December Tax Collections Reach Pre-Recession Levels but Recovery is Not Over	21
Figure 2.5. Employment Expected to Show Healthy Gains.....	23
Table 2.3. Selected U.S. and Tennessee Economic Indicators, Seasonally Adjusted	24
Figure 2.6. Growth in Inflation-Adjusted After-Tax Income from 1979 to 2007 Concentrated at the Top of the Income Distribution	26
Figure 2.7. Unemployment Rates Improve Slowly	27
Figure 2.8. Leading Tennessee Commodities for Cash Receipts, 2010.....	30
Figure 2.9. U.S. Government Farm Program Payments as a Percentage of Tennessee Net Farm Income	31
CHAPTER 3: THE TENNESSEE ECONOMY: LONG-TERM OUTLOOK.....	37
Figure 3.1. 100 Years of Tennessee and U.S. Population Growth	38
Figure 3.2. Tennessee Population Growth Largely around Urban Centers	40
Figure 3.3. Uneven Population Growth among Children under Age 18.....	40
Figure 3.4. 2010 Hispanic Population Density	42
Figure 3.5. 98 Percent of Seniors Live within 15 Miles of a Hospital.....	42
Figure 3.6. Higher Than Average Unemployment Leads to... ..	43
Figure 3.7. ...a Shrinking Labor Force.....	43

Figure 3.8. Median Household Income Peaked in 2008.....	45
Figure 3.9. \$145 Billion of Household Income Clustered in Metro Areas	45
Figure 3.10. Tennessee and U.S. Family Poverty Rates Inch Up Over Decade	46
Figure 3.11. Tennesseans Not Covered by Health Insurance on the Upswing	48
Figure 3.12. Tennessee Exhibits Higher Rate of Publicly Funded Health Insurance	49
Table 3.1. Selected U.S. and Tennessee Economic Indicators, Seasonally Adjusted	51
Figure 3.13. Private Employment Loses Ground, 2000 to 2nd Quarter 2011	52
Figure 3.14. Private Manufacturing Employment Collapses Between 2000 and 2nd Quarter 2011.....	52
CHAPTER 4: THE TRANSITION FROM COLLEGE TO CAREER IN TENNESSEE	57
Table 4.1. First-Time Freshmen Entering Two-Year Colleges in 2002 and 2003.....	59
Table 4.2. First-Time Freshmen Entering Two-Year Colleges in 2002 and 2003.....	59
Table 4.3. First-Time Freshmen Entering Four-Year Colleges in 2002 and 2003.....	61
Table 4.4. First-Time Freshmen Entering Four-Year Colleges in 2002 and 2003.....	61
Table 4.5. Time to Degree Completion for First-Time Freshmen.....	62
Figure 4.1. Extended Noncompleters Earned 40 - 43 Percent Fewer Credits Than Bachelor's Degree Recipients	63
Figure 4.2. Extended Noncompleters Enrolled for 32 - 33 Percent Fewer Semesters Than Bachelor's Degree Recipients.....	63
Figure 4.3. Degree Completers are More Likely to be Working in Tennessee Seven Years After Entering a Community College	65
Figure 4.4. Degree Completers Earn Higher Wages Seven Years After Entering a Community College.....	65
Figure 4.5. Degree Completers are More Likely to be Working in Tennessee Seven Years After Entering a Four-Year College or University.....	66
Figure 4.6. Degree Completers Earn Higher Wages Seven Years After Entering a Four-Year College or University	66
APPENDIX A: FORECAST DATA.....	1
APPENDIX B: HISTORICAL DATA	41

EXECUTIVE SUMMARY

The U.S. Economy

The U.S. economy continues to recover from the worst recession since the Great Depression. The recovery has not been smooth. Despite initial optimism, the first two quarters of 2011 experienced sluggish economic growth, but the expansion was back up again in late 2011. Political gridlock in tackling the nation's fiscal problems contributed to falling consumer and business confidence over the year. Nevertheless, decent employment gains placed the economy on firmer footing in the second half of the year. Revival in the manufacturing sector has been especially important for the improvement in the overall growth with pent-up demand powering purchases of domestic durables and light vehicles. Consumer spending on nondurables decelerated from 2.9 percent in 2010 to 1.7 percent in 2011, while spending on services rose 1.4 percent at annual rates. Inflation-adjusted private business investment grew at an annual rate of 8.7 percent in 2011, the boost largely due to companies addressing their replacement needs neglected during the recession. On the residential fixed investment side, the recovery continues from deeply depressed levels, but a major revival in the housing sector is not expected until 2013. The fiscal policy was tight during 2011, at all levels. Growth in exports once again outpaced that of imports growth, adding to growth in 2011. Inflation-adjusted GDP (gross domestic product) growth in the fourth quarter came in at 3.4 percent, a considerable improvement from disappointingly low growth in the 0.4 to 1.3 percent range posted during the first half of the year.

Firmer employment data and higher private sector confidence in late 2011 is partially attributed for the fall in the unemployment rate to 8.5 percent in close of 2011. Some of the drop in the unemployment rate, however, was driven by

lower labor force participation rates, which is not a good sign. Headline inflation picked up during the first half of 2011, but weaker consumer demand and declining energy prices caused it to decelerate during the second half. Overall for the year, the inflation rate stood at 3.1 percent annual rate.

Looking ahead to the 2012 outlook as the economic recovery solidifies, we expect the expansion to continue, albeit at a modest pace. With the payroll tax cut and emergency unemployment insurance benefits now largely anticipated to be extended for another year, the main downside risks for the domestic economy continue to come from the Eurozone sovereign debt crisis and the risk of rising gasoline prices. Given these influences, along with the slowing of world demand and ongoing tight credit in the U.S., inflation-adjusted GDP growth in 2012 is expected to come in at 2.0 percent.

Despite firmer domestic data in late 2011, consumers will remain cautious in their spending habits. Overall, the inflation-adjusted consumer spending in 2012 is forecast at 2.2 percent. Because a major revival in consumer spending is not expected, the labor market conditions will improve modestly, and the unemployment rate will drop to 8.8 percent in 2012. The private business investment outlook for 2012 is mixed. Overall investment growth will decelerate from 8.7 percent in 2011 to 5.3 percent in 2012, with healthy investment continuing in equipment and software while investment in structures continues to struggle. Fiscal policy will stay tight in 2012 with a combination of higher revenues and spending cuts helping to bring the federal deficit down to \$1.1 trillion. On the international trade side of GDP, export growth will continue to dominate import growth, adding to overall output growth.

The Tennessee Economy

The Short-Term Economic Outlook

Early expectations for strong economic growth in 2011 failed to materialize, though the year did end on a high note. Personal income growth slowed in the first three quarters of the year and rebounded with a 5.2 percent seasonally-adjusted gain in the fourth quarter. Personal income was up 4.8 percent in 2011, improvement from the 4.2 percent rate of growth in 2010 and the significant 2.9 percent setback in 2009. First quarter employment rose 1.3 percent, but was followed by a seasonally-adjusted loss in the second quarter and a weak showing in the third quarter. The fourth quarter offered welcomed relief by producing a turnaround that supported a 1.0 percent pace of job creation for the year. Last year was the first year since 2008 that the state and national economies were able to engineer nonfarm job gains. Notably, the state and national economies saw manufacturing employment expand in 2011 as well—the first year of growth since the 1990s.

Despite the job gains, the unemployment rate has remained stubbornly high. After peaking at 10.8 percent in the third quarter of 2009, Tennessee's unemployment rate has struggled to sustain downward momentum. On a quarterly basis the unemployment rate drifted down in the last three quarters of 2009 and in 2010. But the unemployment rate inched back up in the first three quarters of 2011. The fourth quarter, however, brought additional relief when the unemployment rate fell to 9.3 percent. For the year as a whole, 2011 yielded significant increases in employed people and the labor force, but only a small increase in the number of unemployed people.

Improved growth in personal income and employment has helped buoy taxable sales and state and local sales tax revenue. Taxable sales experienced back-to-back losses in 2008 and 2009 before rebounding with weak 2.5 percent growth in 2010. Sales growth in 2011 improved

to 6.1 percent, the strongest showing since 2005. Hotels and motels, along with purchases from manufacturers and automobile dealer sales were especially strong.

The economic outlook for Tennessee calls for conditions to improve further in 2012 and 2013, assuming nothing derails the path of growth for the nation. Nonfarm employment should see 1.3 percent growth this year and 1.6 percent growth in 2013, roughly in line with employment growth for the nation. Manufacturing employment will be up 1.5 percent in 2012 with growth in durable goods manufacturing offsetting declines in the nondurable goods sector. The unemployment rate will remain elevated but drift down below 9 percent by year's end. The state's annualized unemployment rate is expected to come in at 8.9 percent in 2012, slightly ahead of its national counterpart.

Personal income is expected to continue to grow at relatively decent rates in 2012 and 2013, buoyed by strong growth in proprietors' income. Taxable sales growth will slow but remain strong compared to the period of the Great Recession and its immediate aftermath.

The 2010 Census: The Changing Face of Tennessee

The 2010 Census is complete and most data have been released. Tennessee grew at a faster pace than the nation as a whole, achieving an 11.5 percent increase in population as compared with a 9.7 percent rise for the U.S. since Census 2000. The 2010 U.S. Census had only 10 questions about age, gender, race, ethnicity, family status, and type of dwelling. As a result, the decennial census provides relatively little information about our nation apart from those elements mandated by law for redistricting purposes. To find other information about Americans, for example income, education, health insurance status, and housing costs, one must turn to the American Community

Survey (ACS). With ACS data releases every year, a much more current set of estimates exists to meet the needs of policymakers, researchers, journalists, teachers, students, businesses, and non-governmental organizations.

There are a number of findings from the Census that are especially noteworthy. First, Williamson and Rutherford Counties, two exurbs of Nashville, were the fastest growing counties in the state, expanding by 44.7 and 44.3 percent respectively. Haywood County in rural west Tennessee was the slowest growing, losing 5.1 percent of its population over the decade. Second, the vast majority of the 7.0 percent increase in the number of children in Tennessee was made up of individuals of Hispanic origin. Third, the 65-plus cohort of Tennesseans increased at a 21.3 percent rate, more than double the 10.2 percent increase in the under-65 population. Finally, median household income in Tennessee, the southern U.S., and the nation as a whole peaked in 2008. Tennessee's median was \$43,610 in 2008, dropping to \$41,461 in 2010.

In many ways, Tennessee mirrors national trends in economics and demographics. Tennessee has grown older, slightly poorer, and more Hispanic over the past few years. With a few exceptions, most of our neighboring states are also older, slightly poorer, and more Hispanic. Economic growth should reverse the temporary slide in incomes, but there is no reversing the aging and diversification of the population. With the first baby-boomer having reached retirement age on January 1, 2011, the share of the 65 and older population is expected to exceed 20.0 percent of the total population over the coming decades. Tennessee's white-alone, non-Hispanic population declined 3.6 percentage points over the decade to 75.6 percent of the total population. If Tennessee follows national trends, this rate of decline should accelerate to 4.0 to 5.0 percent in the decades to come.

The Long-Term Economic Outlook

Most recessions have only a short-term impact on economic growth. The Great Recession, however, will prove to be an exception, as some lingering effects ripple through the entire decade. Employment will take two or three years to fully recover to pre-recession levels, but other measures of economic activity, like the unemployment rate, may not fully rebound within the decade.

Long-term trend economic growth tends to be influenced more by long-term factors like the growth of the population and the labor force. Labor force growth, along with growth in productivity, will be the primary determinant of how fast employment, income and gross state product grow. The expected slowing of labor force growth in the years ahead will lead to somewhat lower growth in overall economic activity. Standards of living and quality of life need not be sacrificed over a slower economy-wide growth trajectory. However, sustaining and improving quality of life will require investments that lead to greater productivity and thus higher worker earnings and incomes.

Tennessee is expected to see relatively strong growth in the decade to come, especially in comparison to the weak growth that characterized the last decade that included two recessions. Nonfarm employment is expected to grow at a 1.3 percent compound annual growth rate between 2012 and 2021. Manufacturing employment will see employment gains through 2014 before reverting back to a trend-decline in employment; the near-term job gains in manufacturing will be insufficient to offset all of the employment losses over the course of the Great Recession. The state unemployment rate, like its national counterpart, will remain elevated throughout the decade. By 2021, the state and national unemployment rates will have drifted down to below 5 percent, but these rates will exceed the lows established prior to the last recession.

The Transition from College to Career in Tennessee

The Tennessee economy's ability to compete with the rest of the U.S. and the world crucially depends on the state's ability to develop and retain a highly skilled labor force. Tennessee's two-year and four-year institutions of higher education are key components of the state's strategy to create and sustain an amply-skilled labor force. In 2011 we initiated a series of studies for HCM Strategists, The Gates Foundation, and the Tennessee Higher Education Commission (THEC) on the determinants of student success in college and beyond.¹ This chapter summarizes some of the results of these studies, focusing on student transitions from Tennessee public institutions of higher education to the Tennessee workforce.

We undertake a careful analysis of all students who began as first-time freshmen at any one of the state's *public* institutions of higher education in 2002 for the 2002/2003 school year and in 2003 for school year 2003/04.² We explore a series of important outcomes for these students, including their:

- persistence through college
- degree completion
- likelihood of working in the Tennessee economy and
- earnings if they are working in the Tennessee economy.

Each student's experience is tracked across campuses (if they chose to attend another school) and into the labor force. Thus, we follow students who begin at each campus to determine whether they obtained a degree at their initial campus or at any other public or private school in Tennessee or elsewhere in the nation. We analyze student

education and work experience outcomes through the end of calendar year 2010 for both cohorts (2002 and 2003 first-time freshmen) of students. Selected findings include the following:

1. 72 percent of two-year college entrants and 45 percent of four-year college entrants failed to earn a degree by the spring of 2010.
2. Degree recipients had higher ACT scores than noncompleters, and higher ACT scores were associated with higher earnings after college.
3. Degree recipients came from neighborhoods that were more affluent and less diverse than those of noncompleters.
4. The vast majority of bachelor's degree recipients finished college within 150% of normal time (six years). Associate's degree recipients were less expeditious.
5. Four-year college noncompleters were close to minimum degree requirements, in terms of credits and semesters, but tended to stay in college just two-thirds as long as bachelor's degree recipients.
6. Degree recipients earned nearly \$10,000 more than noncompleters seven years after entering college.
7. The short-term returns to college persistence (i.e., the earnings premium for additional semesters enrolled) were positive for noncompleters but negative for degree recipients, indicating that persistence could be a good signal in the absence of a degree but excessive alongside a degree.

The report begins with a discussion of data used in this study as well as descriptive statistics for 2002 and 2003 first-time freshmen in Tennessee. This is followed by a summary of statistical analyses that explain which characteristics are most closely linked to workforce participation and earnings shortly after college. The last section offers conclusions, policy implications, and opportunities for additional research.

¹ See Carruthers, Celeste K., William F. Fox, Matthew N. Murray, and Angela R. Thacker. "Educational Outcomes for Students Attending Tennessee Higher Education Institutions," (forthcoming) prepared for the Tennessee Higher Education Commission; and Carruthers, Celeste K., William F. Fox, Matthew N. Murray, Grant Thrall, and David Wright, "College Participation, Persistence, Graduation, and Labor Market Outcomes: An Input-Adjusted Framework for Assessing the Effectiveness of Tennessee's Higher Education Institutions," (forthcoming), prepared for the Context for Success Project, an initiative of HCM Strategists and the Gates Foundation.

² Students are regarded as beginning in 2002 if they are first-time enrollees in the summer or fall of 2002. Students in 2003 are defined in a similar manner. Students who are dual-enrolled while in high school are considered first-time enrollees when they begin higher education after graduation from high school.

