



# FISCAL RESEARCH CENTER

## **An Analysis of the Relative Decline in Employment Income in Georgia**

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## **Acknowledgments**

This report has benefitted from the valuable comments of Dave Sjoquist and Laura Wheeler's encouragement.

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## Executive Summary

Georgia's population and job growth were among the highest in the country in both the 1990-2000 and 2000-2008 periods. In the period from 1990 to 2000, Georgia ranked 10<sup>th</sup> among all states in the annual growth rate of per capita personal income. However, since 2000 the rate of growth in the average Georgian's personal income has declined sharply. The result is that per capita income in Georgia has declined relative to the U.S.

To an extent, the change in Georgia's rate of growth in per capita personal income relative to the nation can be explained by factors such as a changing age distribution and shifting components of income (wages, dividends, rents, social security payments, etc.). This report concentrates on one component of personal income, employment income, which comprises about two-thirds (67.8 percent in 2007) of total personal income in the U.S.

The story of employment income per job is similar to the story of per capita income.<sup>1</sup> Georgia had the 7<sup>th</sup> fastest growth rate of employment income per job of all states from 1990 to 2000, but from 2000 to 2008 Georgia's growth rate was next to last; higher only than Michigan. Figure 1 shows the trend of employment income per job in Georgia compared to the overall U.S. employment income per job from 1990 to 2008. Until 2000, Georgia's increase in employment income per job was increasing steadily compared to the nation, but since 2001, a time when the nation was entering a recession, Georgia's comparative employment income per job fell sharply.

In 2001, Georgia's employment income per job was \$40,860, 98.9 percent of the national employment income per job. By 2008, Georgia's employment income per job had fallen to 93.0 percent of the national level. If the ratio of Georgia's employment income per job to that for the U.S. had not fallen from its 2001 peak, Georgia's 2008 employment income per job would have been \$49,659, or \$2,899 (6.2 percent) higher than it actually was.

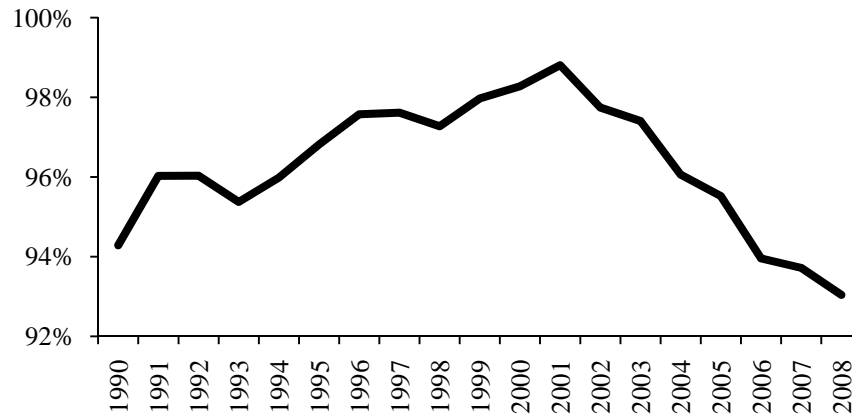
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<sup>1</sup> Note that we focus on employment income per job and not employment income per employed worker.

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**FIGURE 1. GEORGIA AVERAGE EMPLOYMENT INCOME AS A PERCENTAGE OF THE U.S**



This brief examines the change in employment income per job to better understand why employment income in Georgia has increased much slower than in the rest of the U.S. This examination also points to emerging trends in the structure of the Georgia and Atlanta economies that underlie changes in employment income.

### **Employment Income Per Job**

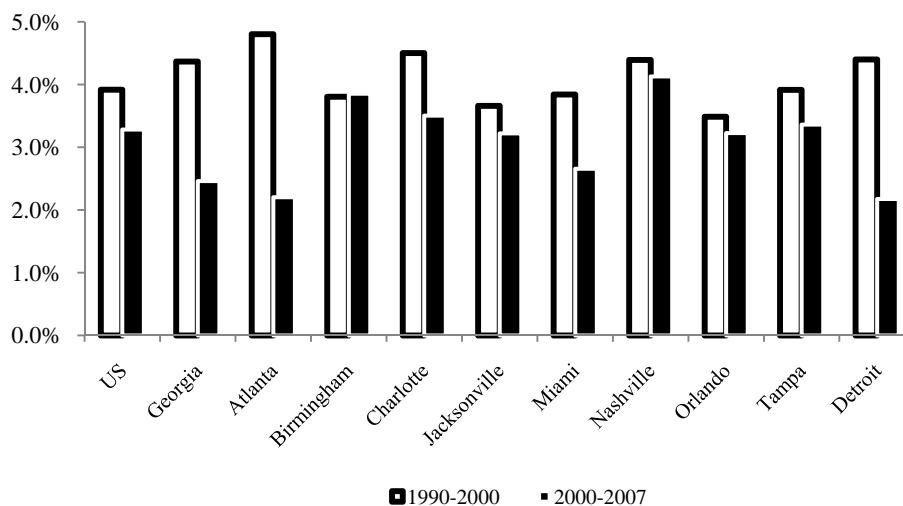
#### *Comparison of Georgia and the Atlanta MSA*

This section explores changes in employment income per job over the period 1990 to 2007 and how those changes differ between the Atlanta MSA and the rest of Georgia. In 1990, 52.7 percent of all jobs in Georgia were in the Atlanta Metropolitan Statistical Area (MSA). By 2000, the proportion had increased to 56.8 percent, and by 2007 to 58.0 percent. But, from 2000 to 2008 Georgia's growth in employment income per job was the second lowest among all states. Within the state, Atlanta had very low growth in employment income per job while the rest of Georgia had an average growth rate in employment income per job that was, until 2005, higher than the average growth rate for the U.S.

Figure 2 shows the annual average growth rate for employment income per job in the periods 1990 to 2000 and 2000 to 2007 (2008 data is not yet available for metro areas) for the U.S., Georgia, the Atlanta MSA, neighboring state MSAs that

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**FIGURE 2. EARNINGS/JOB ANNUAL AVERAGE GROWTH RATE: 1990-2000 AND 2000-2007**



have one million or more jobs, and Detroit.<sup>2</sup> Note that among the regional economies shown, the Atlanta MSA had the highest average annual growth rate in the 1990 to 2000 period and next to lowest (virtually tied for lowest) from 2000 to 2007.

### *Comparisons Across Industrial Sectors*

Table A shows the employment changes in Georgia by major sector from 2001 to 2007, the annual rate of change for employment by sector compared to the U.S., employment income per job, and the rate of change in employment income per job for each sector in 2001 and 2007.

Table A shows that, state-wide, manufacturing, information, and management of companies and enterprises are sectors that had absolute job loss. These sectors have very high employment income. But, sectors with large

<sup>2</sup>The data are taken from BEA Table CA04 <http://www.bea.gov/regional/reis/default.cfm?selTable=CA04> Earnings per job is calculated as “Earnings by Place of Work” (wages and salaries, insurance and pensions, proprietors’ income) divided by “Total Employment” (employees [full and part-time], sole proprietors, and active partners).

**TABLE A. EMPLOYMENT CHANGE IN GEORGIA INDUSTRIAL SECTORS: 2001-2007**

Sector	Georgia 2001 Employment	Georgia 2007 Employment	Georgia Job Change 2001-2007	Georgia Annual Ave Job Change	US Annual Ave Job Change	2001 Average Pay	2007 Average Pay	Georgia Annual Ave Pay Change	US Annual Ave Pay Change	Georgia LQ 2001	Georgia LQ 2007
Agriculture	115,099	110,431	(4,668)	-0.69%	-1.21%	17,249	14,442	-2.92%	2.93%	0.73	0.72
Construction	313,109	382,908	69,799	3.41%	2.83%	29,118	31,087	1.10%	2.27%	1.08	1.07
Manufacturing	520,835	449,574	(71,261)	-2.42%	-2.60%	44,726	56,558	3.99%	4.38%	1.04	1.01
Wholesale Trade	229,213	240,286	11,073	0.79%	1.00%	58,802	69,801	2.90%	3.61%	1.24	1.17
Retail Trade	549,060	587,745	38,685	1.14%	0.67%	22,479	25,303	1.99%	2.56%	1.01	0.99
Transportation and Warehousing	194,108	215,849	21,741	1.79%	1.22%	44,283	47,642	1.23%	2.14%	1.21	1.19
Information	154,864	128,775	(26,089)	-3.03%	-2.25%	62,783	79,515	4.02%	3.17%	1.30	1.18
Finance and Insurance	203,359	226,859	23,500	1.84%	1.22%	49,908	62,400	3.79%	4.75%	0.88	0.88
Real Estate and Rental and Leasing	156,853	272,216	115,363	9.62%	6.59%	15,679	13,597	-2.35%	-0.77%	0.96	1.09
Professional and Technical Services	293,582	342,160	48,578	2.58%	1.94%	46,723	53,644	2.33%	3.31%	0.94	0.94
Management of Companies and Enterprises	66,917	56,207	(10,710)	-2.87%	1.67%	66,098	98,471	6.87%	5.17%	1.28	0.93
Administrative and Waste Services	315,065	417,512	102,447	4.80%	2.54%	22,429	24,711	1.63%	2.91%	1.11	1.22
Educational Services	76,906	98,638	21,732	4.24%	3.83%	26,128	31,212	3.01%	2.65%	0.86	0.84
Health Care and Social Assistance	360,418	453,362	92,944	3.90%	2.59%	34,673	40,979	2.82%	3.85%	0.79	0.81
Arts, Entertainment, and Recreation	71,067	89,230	18,163	3.87%	2.39%	18,370	17,503	-0.80%	2.75%	0.75	0.78
Accommodation and Food Services	316,370	381,992	65,622	3.19%	2.09%	15,421	17,971	2.58%	3.49%	0.99	1.01
Other Services, Except Public Administration	252,261	308,835	56,574	3.43%	1.92%	17,908	19,759	1.65%	2.87%	0.95	0.99
Government and Government Enterprises	708,863	786,034	77,171	1.74%	0.76%	42,581	55,425	4.49%	4.80%	1.04	1.05
Federal Government, Civilian	93,199	95,999	2,800	0.49%	0.33%	70,504	96,717	5.41%	4.94%	1.16	1.12
Military	97,842	96,724	(1,118)	-0.19%	-0.47%	42,987	76,864	10.17%	10.00%	1.59	1.54
State and Local	517,822	593,311	75,489	2.29%	0.96%	37,487	45,249	3.19%	4.20%	0.96	0.99
State Government	150,313	168,372	18,059	1.91%	0.57%	39,443	46,175	2.66%	4.11%	1.02	1.05
Local Government	367,509	424,939	57,430	2.45%	1.10%	36,675	44,882	3.42%	4.24%	0.94	0.97

Source: BEA CA25N, CA06N, and computations.

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employment gains—administrative and waste services, accommodation and food services, and real estate and rental and leasing—have low employment income.

Essentially, there is a shift in growth from industrial sectors that provide high employment income per job to industries that provide low average wages. This shift in growth between sectors helps explain the relative decline in employment income per job in Georgia.

Essentially the same thing has happened both in the Atlanta MSA and in Georgia outside of Atlanta. The Atlanta MSA had absolute job loss in the manufacturing, information, and management sectors, as did Georgia outside Atlanta. These are all relatively high paying industries. Both the Atlanta MSA and Georgia outside Atlanta saw large employment gains in the real estate and administration and waste management sectors; relatively low paying industries. Again, there is a shift in growth from industrial sectors that provide high employment income per job to industries that provide low average wages.

Figure 3 shows the relationship between job growth and average wage. For each industry the chart shows the 2001 to 2007 rate of job growth in Georgia less the national job growth rate for that industry. The industries have been arranged left to right from low to high average employment income per job. Because Georgia's employment increased faster than the average for the U.S., most of the industries showed an increase that exceeded the U.S. employment growth rate. For the period, total U.S. employment grew by 8.7 percent and total Georgia employment grew by 14.0 percent. Note the cluster of high paying jobs in the low and negative job growth part of the chart. Georgia has seen growth in industrial sectors that provide lower average wage income and has seen decline in industrial sectors that pay higher average wage.

### **Base Employment Changes**

Table B presents estimations of the effects of base employment change in base industries between 2001 and 2007 in the state. A base industry is one that exports most of its goods or services from the state or region; a non-basic industry is one that provides goods or services to support base industries and their workers and

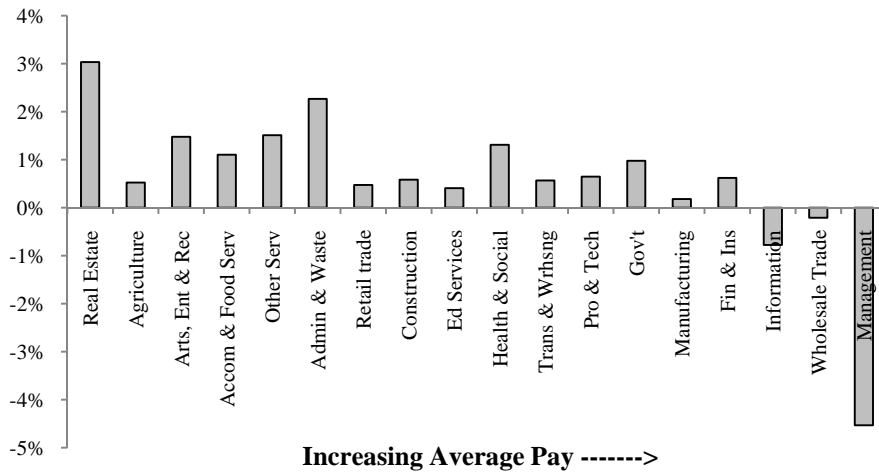


**TABLE B. BASE INDUSTRY EXTIMATED DIRECT AND INDIRECT CHANGE IN GEORGIA: 2001-2007**

	<b>Δ Base Jobs 2001-2007</b>	<b>Average Employment Income</b>	<b>Δ Total Employment Income</b>	<b>Δ Indirect Jobs 2001-2007</b>	<b>Average Employment Income</b>	<b>Δ Total Indirect Employment Income</b>
Manufacturing	(16,338)	58,910	(962,455,424)	(30,896)	41,872	(1,293,678,529)
Wholesale	(14,163)	69,391	(982,744,064)	(15,282)	36,148	(552,412,752)
Transportation and Warehousing	249	46,204	11,487,801	180	37,053	6,669,500
Information	(23,280)	76,111	(1,771,843,200)	(23,005)	42,426	(976,010,763)
Management of companies and Enterprises	(22,671)	92,679	(2,101,152,762)	(28,896)	43,435	(1,255,088,851)
Administration and Waste	57,195	30,642	1,752,600,000	40,329	34,564	1,393,933,698
Accommodation & Food Services	6,984	17,814	124,404,576	2,305	34,883	80,405,200
Real Estate, Rental and Lease	30,774	13,890	427,456,000	22,542	32,250	726,985,683
Federal Government Civilian	(3,392)	147,531	(500,419,648)	(3,385)	32,723	(110,766,780)
Federal Government Military	(5,496)	82,497	(453,388,512)	(3,067)	32,721	(100,356,542)
Net	9,862		(4,456,055,233)	(39,175)		(2,080,320,136)

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**FIGURE 3. GEORGIA JOB GROWTH RATE COMPARED TO U.S. JOB GROWTH RATE**



families. Base industries are important to the growth of a state or regional economy; they generate new income in local economies, which is spent on goods and services of the non-base industries, thereby creating non-basic or local jobs and thus expanding total employment. For example, Dalton’s carpet mills sell to customers all over the world generating jobs and employment income in Dalton. This income, far greater than it would be if the mills had only local customers, creates a demand for support activities such as yarn and thread mills, wholesaling, and trucking as well as activities that support employees, e.g. hospitals and doctors’ offices, daycare, and eating and drinking establishments. This is called a multiplier effect. Expansion of non-base industries in the absence of an increase in community income simply displaces existing employment in the same non-base industry. Thus, base industries are important for economic growth throughout a community.

There were actually over 9,800 new jobs estimated in base activities. But because the new jobs were in industries with low average wage and there were job losses in industries with higher average wages, the result is an estimated decrease of \$4.4 billion in base job payroll in 2007 as compared to 2001. Because of the reduced export based payroll and employee income, there is less new money to spend in the support segments of the state’s economy. This leads to an estimated indirect net

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decrease of over 39,000 support jobs, with an additional estimated total payroll loss of over \$2 billion. The loss of payroll in base industries from 2001 to 2007 amounts to over \$6.5 billion, direct plus indirect, or more than 2.2 percent of the state's total estimated 2007 payroll.

The same type of thing has happened in both the Atlanta MSA and in Georgia outside the Atlanta area. In the Atlanta MSA the direct net effect is an estimated loss of about 12,000 base jobs and an estimated export based payroll decrease of \$6.1 billion. About 92,000 jobs in high paying sectors with an estimated weighted average employee income of about \$83,000 were lost to base activity while an estimated 80,000 jobs in low paying sectors with a weighted average employee income of about \$20,000 were added to base activity. Substituting low paying jobs for high paying jobs lowers average employment income. In non-basic industries that provide support for export activities there is an estimated net decrease of over 100,000 jobs supported by export trade and a payroll diminishment of more than \$4.6 billion supported by export trade.

Outside the Atlanta MSA the net result is an estimated decrease in direct base employment of over 30,000 jobs and a decrease in export related payroll of over \$2 billion. The biggest loss is seen in manufacturing. The second biggest loss is in the military. (Note that the military is not usually thought of as a true industry. However, military payrolls have significant economic impact in non-basic local industries and businesses.) Indirectly, decreases in base activity in Georgia outside of the Atlanta MSA affects an estimated additional 54,000 jobs with an estimated additional loss of \$1.8 billion in payrolls.

### **Conclusion**

Even with strong population and employment growth, Georgia's rate of per capita income growth and its rate of growth in income per job have fallen to the second lowest of any of the 50 states. Georgia's employment growth is occurring in low paying industries; high paying industries are losing jobs or are growing very slowly. These trends are strongest in the Atlanta MSA, which has seen an absolute loss of jobs in some high paying industrial groups (manufacturing, information, and

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management of companies and enterprises) while low paying industries such as real estate rental and leasing, and accommodation and food services have grown substantially. The rest of Georgia has seen substantial population and job growth from 2001 to 2007, but it remains that 64 percent of all job growth and 75 percent of all population growth was in the Atlanta MSA. The economic driver for non-Atlanta Georgia is manufacturing. While this sector did not suffer job losses at the same rate as the nation as a whole, there was a loss of almost 50,000 manufacturing jobs in the period.

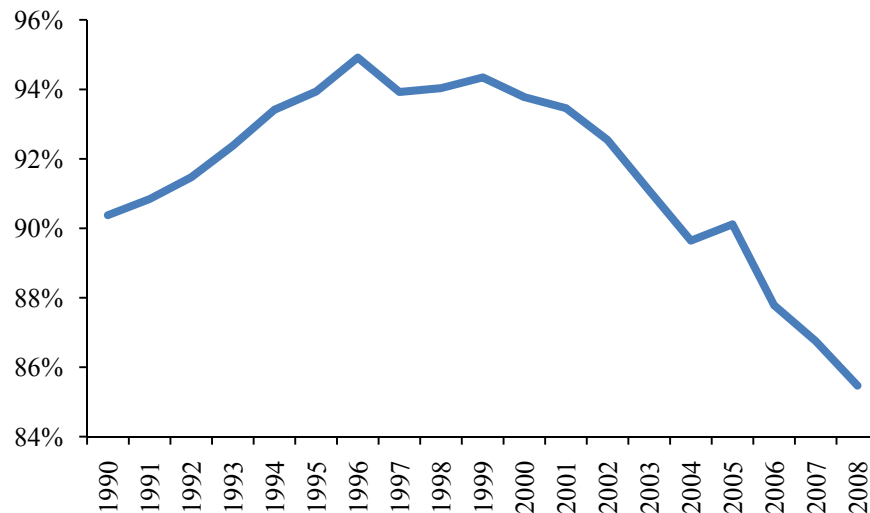
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## I. Introduction

Georgia's population and job growth were among the highest in the country in both the 1990-2000 and 2000-2008 periods. (See Appendix Tables A2 and A3) In the period from 1990 to 2000, Georgia ranked 10<sup>th</sup> among all states in the annual growth rate of per capita personal income.<sup>1</sup> On average, Georgia income per capita was growing faster than 80 percent of the other states. However, since 2000 the rate of growth in the average Georgian's personal income has declined sharply. Between 2000 and 2008 Georgia's annual average growth in personal income per capita was greater than that of only one other state—Michigan, a state beset with all the problems of a declining auto industry.<sup>2</sup> Figure 1 tracks Georgia's per capita personal income compared to the average in the nation as a whole. It shows strong growth until the mid-nineties, then a leveling and steep decline after about 1999.

**FIGURE 1. GEORGIA PER CAPITA INCOME AS A PERCENTAGE OF THE U.S.**



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<sup>1</sup> Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce.

<sup>2</sup> Note that the data used in this report extends only through 2007 and does not reflect effects of the current recession.

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To an extent, the change in Georgia's rate of growth in per capita personal income relative to the nation can be explained by factors such as a changing age distribution and shifting components of income (wages, dividends, rents, social security payments, etc.). For example, as a whole, the 0-17 age group, as a portion of the population, has increased more rapidly in Georgia than the U.S. in recent years. People in this age group generally do not produce income, but their numbers do count in the calculation of income per person. A greater number of non-working persons means that per capita income will be smaller. In addition, since 2000 both the "wage and salary" and "dividends, interest and rent" components of Georgia's per capita personal income have been growing more slowly than the nation as a whole, but the "social insurance, unemployment compensation, and pension" components of Georgia's per capita personal income are growing more rapidly than in the nation as a whole. These differences can also affect average per capita income. Turner (2009)<sup>3</sup> provides an extensive discussion and analysis of the change in Georgia per capita income.

In this report we consider one component of personal income, employment income,<sup>4</sup> which comprises about two-thirds (67.75 percent in 2007) of total personal income in the U.S. Considering employment income rather than total personal income controls for factors such as changes in the fraction of the population that do not work and in the relative components of the income mix.

Turner (2009) focuses on changes in per capita income, no matter the source of income. He does consider employment, but this report focuses in much more detail on employment income and changes in employment in major industry groups. The reports rely on different data sources (Bureau of Labor Statistics for Turner's report and Bureau of Economic Analysis for this report) and use different units of measurement (industries for this report and occupations for Turner). However, the reports have similar basic findings: 1) there has been substantial population and

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<sup>3</sup> Turner, Sean (2009). "Georgia Per Capita Income: Identifying the Factors Contributing to the Growing Income Gap." FRC Report 204. Atlanta GA: Fiscal Policy Center, Andrew Young School of Policy Studies, Georgia State University.

<sup>4</sup> Wages and salaries, supplements to wages and salaries, and proprietors' income (BEA Table CA04).

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employment growth; 2) the ratio of total population per job is increasing in Georgia, but not in most other states; and 3) Georgia's employment growth has been in lower paying jobs.

Changes in employment income per capita depend on the change in jobs per capita and in wages per job. In general, the ratio of jobs to total population has been increasing in the nation and most of the states since 1990. All else being equal, we would expect this to have a positive effect on per capita income. From 1990 to 2000 all states except Hawaii saw growth in the number of jobs relative to population. However, from 2000 to 2008 eleven states, Georgia included, saw a reversal of this trend; in these states the population was growing faster than the number of jobs. In these states the trend is toward fewer jobs per person. Figure 2 plots the ratio of jobs to population in Georgia and the U.S. as a whole for the period 1990 to 2008. While the ratio of jobs to the total population trended down for both the U.S. and Georgia in 2000 (the beginning of a recession), Georgia's downturn was more dramatic, and by 2008 Georgia had not returned to the 2000 level. (See Appendix Table A4 for job to population ratios for all states in 1990, 2000, and 2008.)

The story of employment income per job is similar to the story of per capita income. Georgia had the 7<sup>th</sup> fastest growth rate of employment income per job of all states from 1990 to 2000, but from 2000 to 2008 Georgia's growth rate was next to last; again, higher only than Michigan. Figure 3 shows the trend of the employment income per job in Georgia compared to the overall average U.S. employment income from 1990 to 2008. Until 2000, Georgia's was increasing steadily compared to the national average, but since 2001, a time when the nation was entering the 2001 recession, Georgia's employment income per job fell sharply compared to the nation. (Appendix Table A1 shows changes in employment income per job from 1990 to 2000 and from 2000 to 2008 for all states. The states are ranked from lowest to highest in the 2000-2008 period.)

In 2008, Georgia's employment income per job was \$40,860. If the 2008 ratio of Georgia's employment income per job to that for the U.S. had not fallen from its peak of 98.8 percent in 2001, Georgia's employment income per job would have been \$49,659, or \$2,899 (6.2 percent) higher than it actually was.

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FIGURE 2. RATIO OF JOBS TO POPULATION

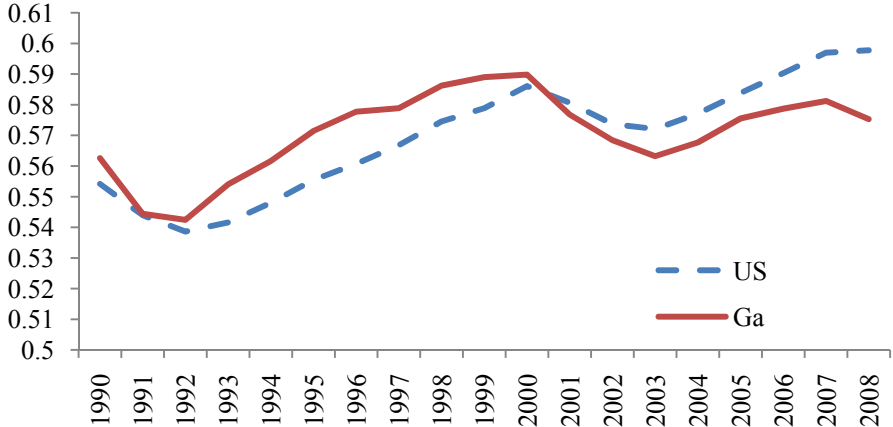
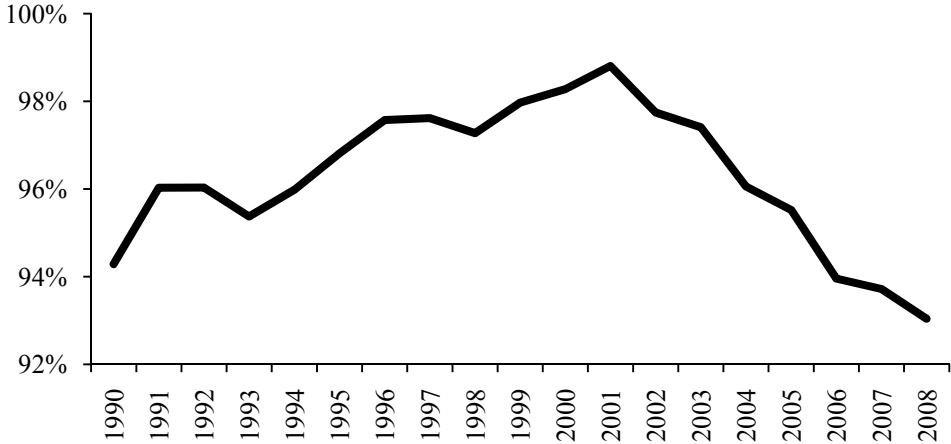


FIGURE 3. GEORGIA AVERAGE EMPLOYMENT INCOME AS A PERCENTAGE OF U.S.





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This report examines the change in employment income per job to better understand why employment income in Georgia has increased much slower than in the rest of the U.S. This examination also points to emerging trends in the structure of Georgia's economy and industrial mix that underlie the change in employment income. We explore changes in the industrial make-up of the state and the Atlanta metropolitan area (MSA) compared to other states and metropolitan areas.

The remainder of the report is organized as follows. In the next section we review the definitions of two concepts we use later on, namely "base industries" and "location quotients." We then turn to an examination of change in employment income per job since 1990 and a closer look at employment income per job from 2000 to 2008, paying attention to various industrial sectors and differences between Georgia as a whole, the Atlanta MSA, and Georgia outside the Atlanta MSA. We finish with concluding remarks.

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### **II. Base Industries and Location Quotients**

Before we begin the analysis we explain two concepts that are relevant to the analysis: base industries and location quotients. A base industry is one that exports most of its goods or services from the state or region; a non-basic industry is one that provides goods or services to support base industries and their workers and families. Base industries are important to the growth of a state or regional economy; they generate new income in local economies, which is spent on goods and services of the non-base industries, thereby creating non-basic or local jobs and thus expanding total employment. For example, carpet making is a well known base (export) industry in Dalton (Whitfield and Murray Counties). Carpet sales to customers all over the world generate jobs and thus earnings to the carpet workers in Dalton. This income, far greater than it would be if the mills had only local customers, creates a demand for support activities. Some support activities are directly related to carpet making, e.g. yarn and thread mills, wholesaling, and trucking. Other activities support the domestic needs of carpet mill employees, e.g. hospitals and doctors' offices, daycare, and eating and drinking establishments. It is estimated that for every 100 jobs in Dalton's carpet mills (direct jobs), 87 additional jobs in support activities (indirect jobs) are created in Whitfield and Murray Counties; for every \$100 of carpet mill payroll, an additional \$70 in earnings is created in support industries and services.<sup>5</sup> This is the familiar multiplier effect.<sup>6</sup> On the other hand, if, say, a new grocery store were to open, then the new store will, in the absence of an increase in income in the community, displace employment in existing area grocery stores. Thus, base industries are important for economic growth.

Different industries in Georgia have different multiplier effects. In general, the higher the employment income in the base industry, the greater the multiplier effect, i.e., the more non-base jobs that are created. Table 1 shows the number of

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<sup>5</sup> Calculated using IMPLAN. IMPLAN is an economic impact modeling program that can be used to estimate the volume and value of inter-industry transactions as well as household transactions and changes to a local economy that may be introduced by, for example, the opening or closing of a manufacturing plant. The system uses data derived from states, counties, etc., not national averages.

<sup>6</sup> Note that this is a very large multiplier; Dalton was chosen for this example because the carpet industry is so dominant, making the example very easy to visualize.

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**TABLE 1. EXAMPLES OF INDIRECT JOB CREATION PER 100 JOBS IN FOUR GEORGIA INDUSTRIES**

	Direct Jobs Created	Direct Average Employee Income <sup>7</sup>	Indirect Jobs Created	Indirect Average Employee Income	Total Jobs	Average Employee Income
Management of Companies and Enterprises	100	\$92,901	127.7	\$43,456	43,556	\$65,142
Wholesale Trade	100	72,813	107.6	41,168	41,268	56,411
Real Estate and Rental and Leasing	100	28,531	72.7	38,338	38,438	32,659
Accommodation and Food Services	100	23,496	38.7	40,606	40,706	28,091

Note: Estimated with the IMPLAN impact analysis program. Components of income are not defined.

support activity jobs created in Georgia for each 100 base jobs (directly created) in four selected industries. The table also shows the average compensation for jobs in the selected base industries and in the non-base jobs. Note that the number of jobs created indirectly varies in-line with the compensation of the direct job. Note also that compensation for the indirect jobs does not vary much across industries, but what differences exist are also in-line with the compensation of the direct job.

Location quotients (LQ) are measures that are used to identify base and non-base industries. A location quotient is the ratio of jobs in an industry to total jobs in a given region compared to a benchmark, usually the ratio of jobs in the same industry to total jobs in the nation. An LQ of 1.0 means that the share of an area's total jobs in a given industry is the same as in the nation. In most cases, an LQ above 1.0 identifies a base industry. For example, an LQ of 1.2 implies that 20 percent of the jobs in the industry being examined are "surplus" to the region's need for the industry's product; the surplus is assumed to be the result of exporting to areas outside of the local region. Continuing the example, there are about 147,000 textile mill jobs in the U.S.; 0.13 percent of total jobs. There are about 18,000 textile mill jobs in Dalton; 28.8 percent of Dalton's total jobs. The location quotient for textile

<sup>7</sup> Throughout this report employee income is based on data from the Bureau of Economic Analysis. However, the IMPLAN program uses a different data set; calculations of employee income presented in analyses using IMPLAN will be slightly different.

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mills in Dalton is 221.29 ( $28.8 / 0.13 = 221.19$ ).<sup>8</sup> Using the U.S. benchmark of 0.13 percent of all jobs in carpet manufacture, we would expect Dalton to only have about 120 carpet mill jobs, not 18,000. Virtually every carpet mill job in Dalton is a base job, i.e. associated with carpeting shipped outside Dalton. Further, almost all the \$879 million carpet mill payroll (IMPLAN estimate) is money that has come into the Dalton economy from elsewhere and supports, indirectly, an additional 15,800 jobs (IMPLAN estimate) that would not exist in the Dalton area economy otherwise.

Industries in a particular region with high location quotients are said to have a competitive advantage in that region since a region with an industry with a high LQ has a higher than average share of workers in that industry. Often there are one or more local factors (proximity to raw materials, superior local education, excellent transportation, a concentration of similar and supporting industries, etc.) that support such competitive advantages, but calculation of location quotients cannot identify the specific local factors or the extent of their influence.

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<sup>8</sup> Bureau of Labor Statistics Location Quotient Calculator at [http://data.bls.gov/LOCATION\\_QUOTIENT/servlet/lqc.ControllerServlet](http://data.bls.gov/LOCATION_QUOTIENT/servlet/lqc.ControllerServlet). Again, Dalton is an extreme example used here to illustrate the concept. Generally an LQ in a large metropolitan region above 1.5 is “high” and above 4 is “very high.”

### III. Employment Income Per Job

#### Comparison of Georgia and the Atlanta MSA

In this section we explore changes in employment income per job over the period 1990 to 2007<sup>9</sup> and how those changes differ between the Atlanta MSA and the rest of Georgia. The analysis in this report relates the average of employment income per job by industry to the change in employment level within that industry. However, within any industry there is a distribution of employment income per job, and it is possible that the employment income per job for the jobs that Georgia gained or lost might have been either much higher or lower than the industry average. But using the average does help explain the decline in Georgia's employment income per job relative to the U.S. seen in Figure 3.

In 1990, 52.7 percent of all jobs in Georgia were in the Atlanta Metropolitan Statistical Area (MSA).<sup>10</sup> By 2000, the proportion had increased to 56.8 percent, and by 2007 to 58.0 percent. Clearly, what happens to jobs in the Atlanta MSA has important consequences for the entire state. As noted above, from 2000 to 2008 Georgia's growth in employment income per job was the second lowest among all states. But within the state Atlanta had very low growth in employment income per job while the rest of Georgia had an average growth rate in employment income per job that was higher than the average growth rate for the U.S.

Figures 4 and 5 illustrate the situation. Figure 4 shows, for the period 2000 to 2008, annual employment income per job as a percentage of U.S. employment per job for Georgia, the Atlanta MSA, and Georgia outside the Atlanta MSA. To ease the comparison, the graph indexes all three ratios to 1.0 in the first year and, thus, the graph represents the percentage change in each ratio since 2001. Notice that the ratio for the Atlanta MSA has declined relative to the U.S. average while Georgia-Outside-

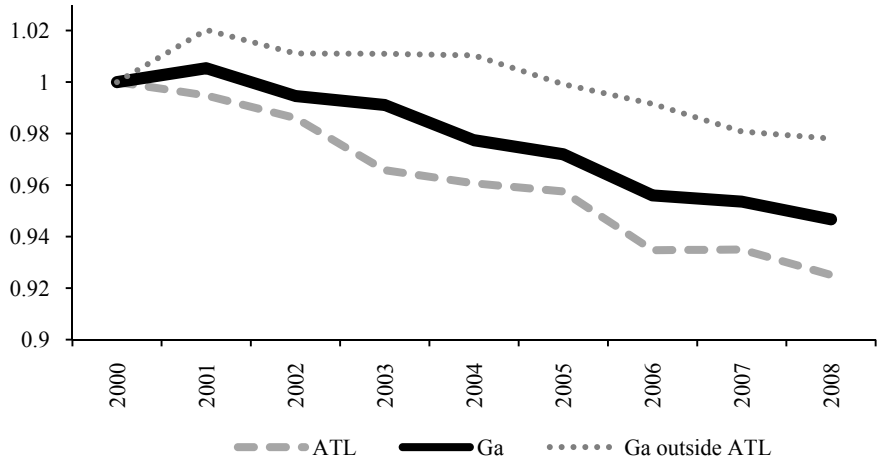
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<sup>9</sup> The discussion is generally restricted to 2007 and earlier years; although available for the nation and states, detailed 2008 data for metropolitan areas is not yet available.

<sup>10</sup> The Atlanta MSA is defined by the Bureau of the Census, it includes: Barrow, Bartow, Butts, Carroll, Cherokee, Clayton, Cobb, Coweta, Dawson, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Haralson, Harris, Henry, Jasper, Lamar, Meriwether, Newton, Paulding, Pickens, Rockdale, Spalding, and Walton Counties. New counties are added to MSAs over time as they grow. For example, eight new counties were added to the Atlanta MSA in 2004. BEA adjusts historic data to conform to new MSA definitions.

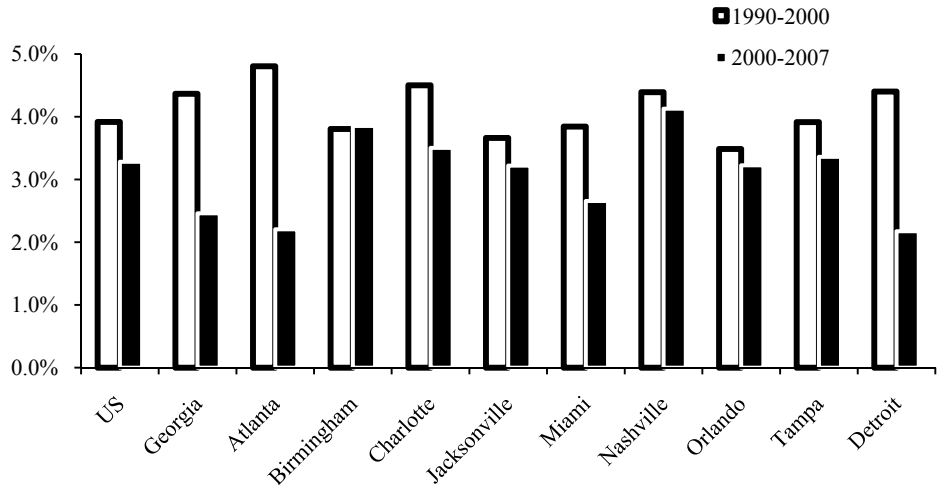
# An Analysis of the Relative Decline in Employment Income in Georgia

**FIGURE 4. AVERAGE EMPLOYMENT INCOME COMPARED TO U.S. NORMALIZED TO 2000**



Compiled from BEA Tables SA04 and AMSA04.

**FIGURE 5. EARNINGS/EMPLOYEE ANNUAL AVERAGE GROWTH RATE: 1990-2000 AND 2000-2007**



## **An Analysis of the Relative Decline in Employment Income in Georgia**

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Atlanta actually shows positive growth relative to the U.S. average for a portion of the period.

Figure 5 shows the annual average growth rate for employment income per job in the periods 1990 to 2000 and 2000 to 2007 (2008 data is not yet available for metro areas) for the U.S., Georgia, the Atlanta MSA, neighboring state MSAs that have one million or more jobs, and Detroit.<sup>11</sup> Note that among the regional economies shown, the Atlanta MSA had the highest average annual growth rate in the 1990 to 2000 period and next to lowest (virtually tied for lowest) from 2000 to 2007.

### **Comparisons Across Industrial Sectors**

Now we turn to an analysis of changing employment levels in various industrial groups between 2001 and 2007. Because average employment income varies from industry to industry, expansion in some industries and contraction in others can affect the overall average employment income. In addition to looking at employment changes by industry, the analysis will look at changes in locations quotients over the period. This will tell us if there are changes in the base sectors of the state and Atlanta MSA economies that imply changes in the number of indirect jobs and employment income. Keep in mind that base industries with higher employment income per job tend to spin-off more indirect jobs and indirect jobs with higher employment income. Expansion of jobs in a base industry with high employment income would not only directly raise the overall average employment income per job but would also tend to stimulate more indirect jobs with higher employee compensation, positively affecting overall average employment income per job. On the other hand, expansion of jobs in a base industry with low employment income per job would have smaller effects on both direct and indirect jobs: perhaps lowering the average employment income per job.

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<sup>11</sup> The data in Figure 5 are taken from BEA Table CA04 <http://www.bea.gov/regional/reis/default.cfm?selTable=CA04> Earnings per job is calculated as “Earnings by Place of Work” (wages and salaries, insurance and pensions, proprietors’ income) divided by “Total Employment” (employees [full and part-time], sole proprietors, and active partners).

## An Analysis of the Relative Decline in Employment Income in Georgia

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For the most part, this analysis will use the basic “2 digit” NAICS classifications to look at employment changes in industries in Georgia, the Atlanta MSA, and Georgia-Outside-Atlanta.<sup>12</sup>

*Georgia.* Table 2 shows the employment changes in Georgia by major sector from 2001 to 2007 and the annual rate of change for employment by sector for Georgia compared to the U.S. The table also shows employment income per job in Georgia in each sector in 2001 and 2007 and the rate of change in employment income per job<sup>13</sup> in Georgia and the U.S. in each sector, comparing 2001 and 2007. Lastly, the table shows location quotients for each sector in 2001 and 2007.

There are several trends apparent in Table 2:

- The sectors that saw an absolute decline in the number of jobs—manufacturing, information, and management of companies and enterprises—have, on average, very high average employee income.
- Many of the industrial sectors that experienced large employment gains—administrative and waste services, accommodation and food services, and real estate and rental and leasing—have low average employment income.
- In most sectors employment income per job is growing at a slower rate in Georgia than in the U.S. The exceptions—five sectors in which the growth rate in employment income per job is larger in Georgia than in the U.S.—include two sectors (information and management of companies and enterprises) that experienced very large job losses, one (administrative and waste services) with low average employment income per job, and the Federal civilian and military sectors.

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<sup>12</sup> The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying businesses by industry. The NAICS uses codes ranging from 2 to 6 digits, with each level increasing in specificity. See Appendix C for a listing and description of NAICS industries at the 2 digit level.

<sup>13</sup> This average is derived from Bureau of Economic Analysis data on employment in Table CA25 and compensation in Table CA06 <http://www.bea.gov/regional/reis>.



**TABLE 2. EMPLOYMENT CHANGE IN GEORGIA INDUSTRIAL SECTORS: 2001-2007**

Sector	Georgia 2001 Employment	Georgia 2007 Employment	Georgia Job Change 2001-2007	Georgia Annual Ave Job Change	US Annual Ave Job Change	2001 Average Pay	2007 Average Pay	Georgia Annual Ave Pay Change	US Annual Ave Pay Change	Georgia LQ 2001	Georgia LQ 2007
Agriculture	115,099	110,431	(4,668)	-0.69%	-1.21%	17,249	14,442	-2.92%	2.93%	0.73	0.72
Construction	313,109	382,908	69,799	3.41%	2.83%	29,118	31,087	1.10%	2.27%	1.08	1.07
Manufacturing	520,835	449,574	(71,261)	-2.42%	-2.60%	44,726	56,558	3.99%	4.38%	1.04	1.01
Wholesale Trade	229,213	240,286	11,073	0.79%	1.00%	58,802	69,801	2.90%	3.61%	1.24	1.17
Retail Trade	549,060	587,745	38,685	1.14%	0.67%	22,479	25,303	1.99%	2.56%	1.01	0.99
Transportation and Warehousing	194,108	215,849	21,741	1.79%	1.22%	44,283	47,642	1.23%	2.14%	1.21	1.19
Information	154,864	128,775	(26,089)	-3.03%	-2.25%	62,783	79,515	4.02%	3.17%	1.30	1.18
Finance and Insurance	203,359	226,859	23,500	1.84%	1.22%	49,908	62,400	3.79%	4.75%	0.88	0.88
Real Estate and Rental and Leasing	156,853	272,216	115,363	9.62%	6.59%	15,679	13,597	-2.35%	-0.77%	0.96	1.09
Professional and Technical Services	293,582	342,160	48,578	2.58%	1.94%	46,723	53,644	2.33%	3.31%	0.94	0.94
Management of Companies and Enterprises	66,917	56,207	(10,710)	-2.87%	1.67%	66,098	98,471	6.87%	5.17%	1.28	0.93
Administrative and Waste Services	315,065	417,512	102,447	4.80%	2.54%	22,429	24,711	1.63%	2.91%	1.11	1.22
Educational Services	76,906	98,638	21,732	4.24%	3.83%	26,128	31,212	3.01%	2.65%	0.86	0.84
Health Care and Social Assistance	360,418	453,362	92,944	3.90%	2.59%	34,673	40,979	2.82%	3.85%	0.79	0.81
Arts, Entertainment, and Recreation	71,067	89,230	18,163	3.87%	2.39%	18,370	17,503	-0.80%	2.75%	0.75	0.78
Accommodation and Food Services	316,370	381,992	65,622	3.19%	2.09%	15,421	17,971	2.58%	3.49%	0.99	1.01
Other Services, Except Public Administration	252,261	308,835	56,574	3.43%	1.92%	17,908	19,759	1.65%	2.87%	0.95	0.99
Government and Government Enterprises	708,863	786,034	77,171	1.74%	0.76%	42,581	55,425	4.49%	4.80%	1.04	1.05
Federal Government, Civilian	93,199	95,999	2,800	0.49%	0.33%	70,504	96,717	5.41%	4.94%	1.16	1.12
Military	97,842	96,724	(1,118)	-0.19%	-0.47%	42,987	76,864	10.17%	10.00%	1.59	1.54
State and Local	517,822	593,311	75,489	2.29%	0.96%	37,487	45,249	3.19%	4.20%	0.96	0.99
State Government	150,313	168,372	18,059	1.91%	0.57%	39,443	46,175	2.66%	4.11%	1.02	1.05
Local Government	367,509	424,939	57,430	2.45%	1.10%	36,675	44,882	3.42%	4.24%	0.94	0.97

Source: BEA CA25N, CA06N, and computations.

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Essentially, there is a shift in growth from industrial sectors that provide high employment income per job to industries that provide low average wages. This shift in growth between sectors helps explain the relative decline in employment income per job in Georgia. If the five sectors that lost jobs had simply held their own, i.e. kept exactly the same number of jobs in 2007 as 2001 (there was a total loss in these sectors of 138,844 jobs), there would have been \$7.31 billion more in Georgia's total payroll in 2007. In contrast, the three sectors cited that experienced large employment gains—real estate and rental and leasing, administration and waste services, and accommodation and food services—added 283,432 new jobs but only \$5.29 billion to the state's payroll. The trade-off was 170,000 additional jobs, but a \$2.03 billion decrease in total payroll; in essence a loss of \$11,990 per new job.

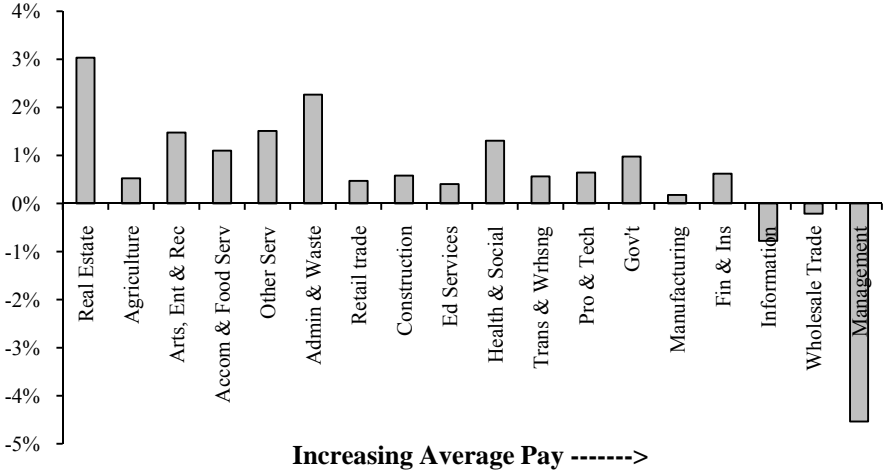
Figure 6 shows the relationship between job growth and average wage. For each industry the chart shows the 2001 to 2007 rate of job growth in Georgia less the national job growth rate for that industry. The industries have been arranged left to right from low to high average employment income per job. Because Georgia's employment increased faster than the average for the U.S., most of the industries showed an increase that exceeded the U.S. employment growth rate. For the period, total U.S. employment grew by 8.7 percent and total Georgia employment grew by 14.0 percent. Note the cluster of high paying jobs in the low and negative job growth part of the chart. Georgia has seen growth in industrial sectors that provide lower average wage income and has seen decline in industrial sectors that pay higher average wage. Figure 6A shows essentially the same thing in a different way. Whereas Figure 6 uses data from the 18 basic NAICS industry groups, Figure 6A uses the next level breakout of NAICS industrial subgroups; there are 83 industries in this subgroup.<sup>14</sup> In Figure 6A a data point is plotted for each of these 83 industrial subgroups based on the actual change in jobs from 2001 to 2007 and the 2007 annual employment income per job in Georgia. The heavy line sloping downward from left to right through the cluster of data points indicates that as industry subgroups increase

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<sup>14</sup> For example, the basic NAICS breakout includes "Information" as one industry, the more detailed second level listing breaks Information into seven sub-industries: 1) Publishing industries, except internet; 2) Motion picture and sound recording industries; 3) Broadcasting, except internet; 4) Internet publishing and broadcasting; 5) Telecommunications; 6) ISPs, search portals, and data processing; and 7) Other information services.

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**FIGURE 6. GEORGIA JOB GROWTH RATE COMPARED TO U.S. JOB GROWTH RATE**



**FIGURE 6A. GEORGIA RELATIONSHIP OF JOB GROWTH AND PAY 2001-2007**



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in average employment income per job, fewer jobs are created; in fact the trend is to see job loss in higher paying industries.<sup>15</sup> In general, jobs are growing more rapidly in lower paying industries and more slowly—or are being lost—in higher paying industries.

In addition, Georgia may be losing jobs in base industries, or Georgia's base industries may be growing slower than the same industries in the U.S. Losing base jobs means less new money coming into the economy and, consequently, less money to spread over jobs and a negative effect on employment income per job. Recall that base industries sell goods and services outside of the state or region, bringing in “new money” that supports additional supportive economic activity, jobs, and payroll. Of the eight sectors that had location quotients greater than 1.0 in 2000, all but one had lower location quotients in 2007. This means these industries were probably exporting less, bringing less new money into the state and providing less support to the non-base businesses and industries in the state. Among these sectors are wholesale trade, transportation and warehousing, information, and management of companies and enterprises; all sectors with relatively high employee income and large spin-off into supporting industries and businesses. Some base industries did see location quotient increase. These sectors include administrative and waste services, real estate, and accommodation and food services. These are sectors with relatively low average employee income and modest spin-off for other economic activity.

Table 3 presents an estimation<sup>16</sup> of the effects of base employment change in Georgia's base industries<sup>17</sup> between 2001 and 2007. There were actually over 9,800 new jobs estimated in base activities. But because the new jobs were in industries with low average wage and there were job losses in industries with higher average

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<sup>15</sup> In the following sections discussing the Atlanta MSA and Georgia outside the MSA there are similar charts, but with less detail. Data at this detailed level is not readily available for units smaller than states.

<sup>16</sup> The change in export employment was estimated by multiplying the part of the industry's 2001 location quotient greater than 1 (the surplus or export part) by the total employment, yielding the portion of employment producing export goods or services. The same was done for 2007 and the 2001 export portion was subtracted from the 2001 portion. The resulting estimate of the change in export employment in a specific sector was introduced to IMPLAN which estimated the direct effects—gain or loss of export derived payroll—and indirect effects—gain or loss of jobs and payroll in support activities.

<sup>17</sup> Industries with a location quotient greater than 1.0.

**TABLE 3. BASE INDUSTRY EXTIMATED DIRECT AND INDIRECT CHANGE IN GEORGIA: 2001-2007**

	<b>Δ Base Jobs 2001-2007</b>	<b>Average Employment Income</b>	<b>Δ Total Employment Income</b>	<b>Δ Indirect Jobs 2001-2007</b>	<b>Average Employment Income</b>	<b>Δ Total Indirect Employment Income</b>
Manufacturing	(16,338)	58,910	(962,455,424)	(30,896)	41,872	(1,293,678,529)
Wholesale	(14,163)	69,391	(982,744,064)	(15,282)	36,148	(552,412,752)
Transportation and Warehousing	249	46,204	11,487,801	180	37,053	6,669,500
Information	(23,280)	76,111	(1,771,843,200)	(23,005)	42,426	(976,010,763)
Management of companies and Enterprises	(22,671)	92,679	(2,101,152,762)	(28,896)	43,435	(1,255,088,851)
Administration and Waste	57,195	30,642	1,752,600,000	40,329	34,564	1,393,933,698
Accommodation & Food Services	6,984	17,814	124,404,576	2,305	34,883	80,405,200
Real Estate, Rental and Lease	30,774	13,890	427,456,000	22,542	32,250	726,985,683
Federal Government Civilian	(3,392)	147,531	(500,419,648)	(3,385)	32,723	(110,766,780)
Federal Government Military	(5,496)	82,497	(453,388,512)	(3,067)	32,721	(100,356,542)
Net	9,862		(4,456,055,233)	(39,175)		(2,080,320,136)

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wages, the result is an estimated decrease of \$4.4 billion in base-job payroll in 2007 as compared to 2001. Because of the reduced export based payroll and employee income, there is less new money to spend in the support segments of the state's economy. This leads to a negative estimated indirect effect of over 39,000 support jobs, with an additional estimated total payroll loss of over \$2 billion. The loss of payroll in base industries from 2001 to 2007 amounts to over \$6.5 billion, direct plus indirect, or more than 2.2 percent of the state's total estimated 2007 payroll.

*Atlanta.* The Atlanta MSA suffered absolute losses in employment in two very strong base industries: information and management of companies and enterprises. In 2001, these two industries had the highest location quotients in the Atlanta MSA. Almost 80 percent of the state's total job loss in these two industries (a loss of 29.7 thousand jobs out of 37.8 thousand jobs lost state-wide) was in the Atlanta MSA. These are the two highest paying private sector industries in the Atlanta MSA. The transportation and warehousing sector, an industry fundamental to Atlanta's economy, saw slow job growth (1.55 percent per year), an actual decline in average wage, and a decline in estimated base activity. Table 4 shows the employment changes in the Atlanta MSA by major sector from 2001 to 2007. The table also shows average employee income and change in employment income per job<sup>18</sup> in each sector in 2001 and 2007, and location quotients for 2001 and 2007. Comparing Table 1 to Table 4, we see that for all industry groups except agriculture and military, employment income per job in the Atlanta MSA is greater than the state as a whole, with the difference ranging from 7 to 20 percent higher. However, in about one-third of the industry groups, employment income per job grew faster in the state as a whole than in the Atlanta MSA: wholesale and retail trade, transportation and warehousing, information, professional and technical services, and other services. Average employment income per job in arts and entertainment saw declines in both the Atlanta MSA and the state as a whole, but the decline was much greater in the Atlanta MSA.

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<sup>18</sup> This average is derived from Bureau of Economic Analysis data on employment in Table CA25 and compensation in Table CA06 <http://www.bea.gov/regional/reis>.

**TABLE 4. EMPLOYMENT CHANGE IN ATLANTA MSA INDUSTRIAL SECTORS: 2001-2007**

	Atlanta MSA 2001 Employment	Atlanta MSA 2007 Employment	Atlanta MSA Job Change 2001-2007	Atlanta MSA Annual Ave Job Change	US Annual Ave Job Change	Atlanta MSA 2001 Average Pay	Atlanta MSA 2007 Average Pay	Atlanta MSA Annual Ave Pay Change	US Annual Ave Pay Change	Atlanta MSA LQ 2001	Atlanta MSA LQ 2006
<i>Sector:</i>											
Agriculture	18,935	18,143	(792)	-0.71%	-1.21%	11,148	10,853	-0.45%	2.93%	0.20	0.19
Construction	181,978	223,330	41,352	3.47%	2.83%	35,183	37,354	1.59%	2.27%	1.10	1.08
Manufacturing	207,050	183,986	(23,064)	-1.95%	-2.60%	53,608	67,260	4.45%	4.83%	0.72	0.71
Wholesale Trade	159,838	162,425	2,587	0.27%	1.00%	67,819	80,130	2.80%	3.61%	1.52	1.37
Retail Trade	308,790	327,411	18,621	0.98%	0.67%	25,417	28,205	1.94%	2.56%	0.99	0.95
Transportation and Warehousing	121,893	133,667	11,774	1.55%	1.22%	55,765	56,777	-1.84%	2.14%	1.32	1.27
Information	121,971	97,373	(24,598)	-3.68%	-2.25%	69,622	90,366	2.87%	3.17%	1.79	1.54
Finance and Insurance	137,939	153,301	15,362	1.78%	1.22%	59,162	73,948	4.03%	4.75%	1.05	1.02
Real Estate	107,865	189,909	82,044	9.89%	6.59%	18,352	16,169	-0.59%	-0.77%	1.16	1.31
Professional and Technical Services	220,556	255,870	35,314	2.51%	1.94%	53,312	60,960	2.07%	3.31%	1.24	1.21
Management of Companies and Enterprises	46,680	41,511	(5,169)	-1.94%	1.67%	75,276	109,915	6.90%	5.17%	1.56	1.18
Administrative and Waste Services	217,988	278,518	60,530	4.17%	2.54%	25,856	28,747	3.10%	2.91%	1.35	1.40
Educational Services	51,650	67,519	15,869	4.57%	3.83%	29,248	35,531	4.27%	2.65%	1.00	0.99
Health Care and Social Assistance	185,785	240,961	55,176	4.43%	2.59%	37,641	44,254	3.03%	3.85%	0.71	0.74
Arts, Entertainment, and Recreation	47,570	60,523	12,953	4.10%	2.39%	21,948	17,812	-3.92%	2.75%	0.87	0.91
Accommodation and Food Services	183,639	222,155	38,516	3.22%	2.09%	17,742	20,328	2.73%	3.49%	1.01	1.02
Other Services, Except Public Administration	140,100	176,160	36,060	3.89%	1.92%	20,266	21,832	1.44%	2.87%	0.92	0.97
Government and Government Enterprises	302,058	349,425	47,367	2.46%	0.76%	45,832	56,890	3.81%	4.80%	0.77	0.81
Federal, Civilian	46,433	45,812	(621)	-0.22%	0.33%	76,920	106,695	5.96%	4.94%	1.01	0.92
Federal, Military	18,473	19,747	1,274	1.12%	-0.47%	29,098	55,739	12.89%	10.00%	0.52	0.54
State and Local	237,152	283,866	46,714	3.04%	0.96%	41,049	48,932	2.95%	4.20%	0.77	0.82
State Government	56,734	65,906	9,172	2.53%	0.57%	42,837	49,950	2.40%	4.11%	0.67	0.71
Local Government	180,418	217,960	37,542	3.20%	1.10%	40,487	48,624	3.13%	4.24%	0.81	0.86

Source: BEA CA25N, CA06N, and computations.

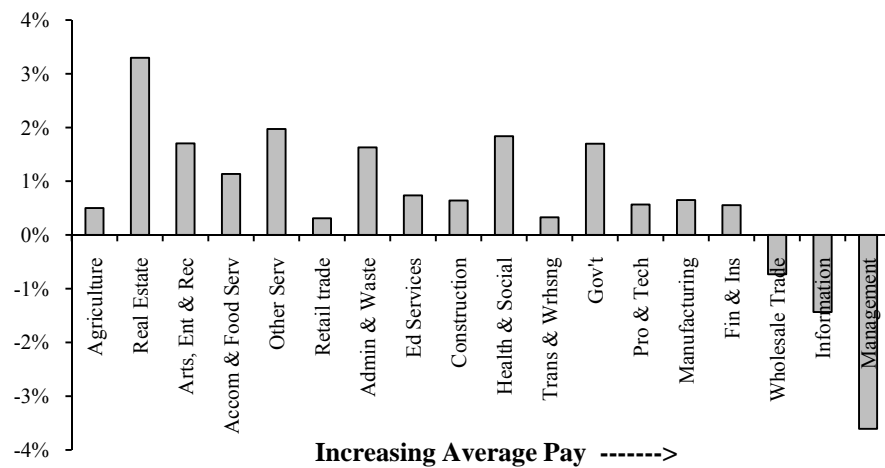
## An Analysis of the Relative Decline in Employment Income in Georgia

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In general, the same thing we observed in Georgia's economy is found in Atlanta. In fact, because of Atlanta's weight in Georgia's economy, it is the case that changes in Georgia reflect changes in Atlanta. In Atlanta there was job loss in higher paying base industries offset by job gains in low paying industries. The net result is employment growth, but a trend to lower employment income per job.

Figure 7 shows this relationship between job growth and average wage. As with Figure 6, Figure 7 shows the Atlanta MSA growth rate in each sector minus the growth rate for the nation as a whole. Industries are arranged left to right by increasing average employment income. As in Figure 6 (Georgia) high paying jobs are clustered with low job growth: faster growing industries pay less while high paying industries have no growth or actual job losses. In Figure 7A a data point is plotted for each of the 18 major NAICS industrial groups based on the actual change in jobs from 2001 to 2007 and the average 2007 employment income per job in the Atlanta MSA. The heavy line sloping downward from left to right through the cluster of data points indicates that as industry subgroups increase in average employment income per job, fewer jobs were created between 2001 and 2007.

**FIGURE 7. ATLANTA MSA JOB GROWTH RATE COMPARED TO U.S. JOB GROWTH RATE**





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**FIGURE 7A. ATLANTA MSA RELATIONSHIP OF JOB GROWTH AND PAY: 2001-2007**



Source: BEA Table CA05.

The Atlanta MSA is also estimated to have a net loss (or slower growth than the U.S.) of base employment, direct base payroll, and, consequently, a net loss of jobs and payroll in the industries and businesses that support base activity and the households of workers in base activities. Using the same techniques that generated Table 3, Table 5 shows the estimate of base jobs and payroll for the Atlanta MSA from 2001 to 2007. The table also shows the estimate of change in jobs and payroll in supporting industries and business indirectly affected by change of export activity in the same period.<sup>19</sup> Some sectors gained base activity and some have lost; in general, sectors with high employment income per job lost base activity and those with low employee income gained base activity. The direct net effect is an estimated loss of about 12,000 base jobs and an estimated export based payroll decrease of \$6.1 billion. About 92,000 jobs in high paying sectors with an estimated weighted average employee income of about \$83,000 were lost to base activity while an estimated 80,000 jobs in low paying sectors with a weighted average employee income of about \$20,000 were added to base activity. Substituting low paying jobs for high paying

<sup>19</sup> Note that estimated net export losses in the Atlanta MSA are larger than those estimated for the state as a whole. The Atlanta MSA and Georgia have different export market areas, with the Atlanta MSA's area including Georgia outside the MSA.

**TABLE 5. BASE INDUSTRY DIRECT AND INDIRECT CHANGE IN ATLANTA MSA: 2001-2007**

	<b>Δ Base Jobs 2001-2007</b>	<b>Average Employment Income</b>	<b>Δ Total Employment Income</b>	<b>Δ Indirect Jobs 2001-2007</b>	<b>Average Employment Income</b>	<b>Δ Total Indirect Employment Income</b>
Wholesale Trade	(23,019)	76,693	(1,765,347,584)	(24,434)	39,403	(962,771,296)
Transportation and Warehousing	(2,916)	49,906	(145,508,592)	(2,039)	40,607	(82,796,880)
Information	(43,776)	82,463	(3,609,887,744)	(86,673)	40,916	(3,546,298,077)
Professional and Technical Services	799	54,901	43,880,080	754	37,231	28,072,185
Management of companies and Enterprises	(18,669)	103,996	(1,941,481,472)	(22,720)	39,457	(896,469,731)
Finance and Insurance	(3,831)	67,995	(260,482,416)	(4,227)	42,759	(180,740,956)
Administration and Waste Services	35,111	25,800	905,888,064	10,143	36,565	370,880,428
Accommodation and Food Services	2,607	19,994	52,119,188	793	38,401	30,452,180
Real Estate, Rental and Lease	41,613	13,994	582,334,272	28,128	21,596	607,464,199
Net	(12,079)		(6,138,486,204)	(100,275)		(4,632,207,948)

## An Analysis of the Relative Decline in Employment Income in Georgia

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jobs lowers average employment income. In non-basic industries that provide support for export activities there is an estimated net decrease of over 100,000 jobs supported by export trade and a payroll diminishment of more than \$4.6 billion supported by export trade.

*Georgia-Outside-Atlanta.* Atlanta's employment statistics so dominate the state's that it is important to look at the state outside the Atlanta MSA. Table 6 shows employment statistics by major sector from 2001 to 2007 for Georgia outside the Atlanta MSA. As with Tables 2 and 4, Table 6 also shows employment income per job and the change in employment income per job in each sector in 2001 and 2007 as well as location quotients for 2001 and 2007. The agriculture, manufacturing, and military sectors are the only strong base industries in the state that are not centered in the Atlanta MSA. While Georgia-Outside-Atlanta has a competitive advantage in manufacturing, this advantage is relative only to the United States where manufacturing employment is declining steadily: between 2001 and 2007 the U.S. manufacturing sector lost over 2.5 million jobs. Georgia-Outside-Atlanta lost 42,197 manufacturing jobs between 2001 and 2007, but this loss was slower than the nation as a whole, so Georgia's manufacturing LQ remained high. Of the 21 types of manufacturing industries reported at the "NAICS 3 digit level" only five in Georgia did not lose jobs between 2001 and 2007 (all 21 lost employment at the national level). Textile mills and textile product mills are by far the strongest export base manufacturing subsectors; they have 2007 location quotients of 5.28 and 7.88, respectively. Yet, these two subsectors lost over 25,000 jobs between 2001 and 2007; over 28 percent of the jobs they had in 2001. Apparel manufacturing lost over 60 percent of its total employment between 2001 and 2007. The only manufacturing subsector with a strong location quotient that did not lose jobs was Non-metallic Mineral Product Manufacturing,<sup>20</sup> which added over 1,600 jobs, an increase of over 8 percent.

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<sup>20</sup> "The Nonmetallic Mineral Product Manufacturing subsector transforms mined or quarried nonmetallic minerals, such as sand, gravel, stone, clay, and refractory materials, into products for intermediate or final consumption." <http://www.bls.gov/iag/tgs/iag327.htm>.

**TABLE 6. SOURCES OF EMPLOYMENT CHANGE IN GEORGIA INDUSTRIAL SECTORS OUTSIDE ATLANTA MSA: 2001-2007**

<i>Sector</i>	Not Atlanta 2001 Employment	Not Atlanta 2007 Employment	Not Atlanta Job Change 2001-2007	Not Atlanta Annual Ave Job Change	US Annual Ave Job Change	Not Atlanta 2001 Average Pay	Not Atlanta 2007 Average Pay	Not Atlanta Annual Ave Pay Change	US Annual Ave Pay Change	Not Atlanta LQ 2001	Not Atlanta LQ 2007
Agriculture	96,164	92,288	(3,876)	-0.68%	-1.21%	18,392	15,148	-3.18%	2.93%	1.44	1.45
Construction	131,131	159,578	28,447	3.33%	2.83%	20,702	22,316	1.26%	2.27%	1.06	1.06
Manufacturing	313,785	265,588	(48,197)	-2.74%	-2.60%	45,919	49,145	1.14%	4.38%	1.47	1.42
Wholesale trade	69,375	77,861	8,486	1.94%	1.00%	38,028	48,252	4.05%	3.61%	0.88	0.91
Retail trade	240,270	260,334	20,064	1.35%	0.67%	18,702	21,653	2.47%	2.56%	1.03	1.05
Transportation and warehousing	72,215	82,182	9,967	2.18%	1.22%	29,658	32,674	1.63%	2.14%	1.05	1.08
Information	32,893	31,402	(1,491)	-0.77%	-2.25%	37,421	45,869	3.45%	3.17%	0.65	0.69
Finance and insurance	65,420	73,558	8,138	1.97%	1.22%	30,395	38,334	3.94%	4.75%	0.66	0.68
Real estate	48,988	82,307	33,319	9.03%	6.59%	9,795	7,663	-4.01%	-0.77%	0.70	0.78
Professional and technical services	73,026	86,290	13,264	2.82%	1.94%	26,825	31,952	2.96%	3.31%	0.55	0.56
Management of companies and enterprises	20,237	14,696	(5,541)	-5.19%	1.67%	44,927	66,145	6.66%	5.17%	0.90	0.58
Administrative and waste services	97,077	138,994	41,917	6.16%	2.54%	14,735	16,625	2.03%	2.91%	0.80	0.96
Educational services	25,256	31,119	5,863	3.54%	3.83%	19,749	21,843	1.69%	2.65%	0.66	0.63
Health care and social assistance	174,633	212,401	37,768	3.32%	2.59%	31,517	37,264	2.83%	3.85%	0.89	0.90
Arts, entertainment, and recreation	23,497	28,707	5,210	3.39%	2.39%	11,125	16,851	7.16%	2.75%	0.58	0.60
Accommodation and food services	132,731	159,837	27,106	3.15%	2.09%	12,210	14,695	3.14%	3.49%	0.98	1.01
Other services, except public administration	112,161	132,675	20,514	2.84%	1.92%	14,962	17,007	2.16%	2.87%	0.99	1.01
Government and government enterprises	406,805	436,609	29,804	1.19%	0.76%	40,167	54,253	5.14%	4.80%	1.40	1.40
Federal, civilian	46,766	50,187	3,421	1.18%	0.33%	64,133	87,609	5.34%	4.94%	1.36	1.40
Military	79,369	76,977	(2,392)	-0.51%	-0.47%	46,220	82,283	10.09%	10.00%	3.01	2.92
State and local	280,670	309,445	28,775	1.64%	0.96%	34,461	41,870	3.30%	4.20%	1.22	1.23
State government	93,579	102,466	8,887	1.52%	0.57%	37,385	43,746	2.65%	4.11%	1.48	1.53
Local government	187,091	206,979	19,888	1.70%	1.10%	32,999	40,941	3.66%	4.24%	1.12	1.13

Source: BEA CA25N, CA06N, and computations.

## **An Analysis of the Relative Decline in Employment Income in Georgia**

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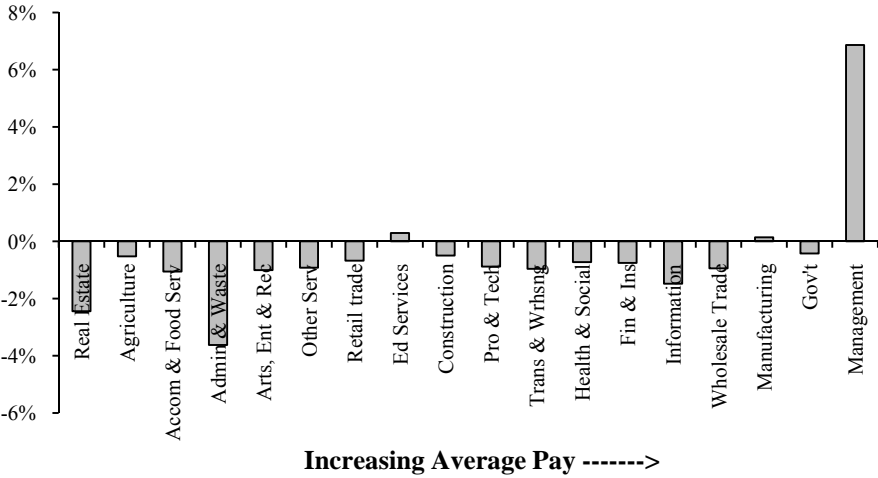
Overall, non-Atlanta MSA Georgia has shown reasonable job growth, adding over 235,000 jobs between 2001 and 2007, an annual growth rate of 1.78 percent. But, as discussed earlier, high paying industries are in decline; the jobs lost are being replaced by jobs in low paying industries. Table 6, for example, shows that the loss of over 48,000 manufacturing jobs with an average employee income of \$49,000 per year are almost exactly offset by a gain of 42,000 jobs in Administrative and Waste Services at an average employee income of under \$17,000 per year. If no manufacturing jobs had been lost (and none gained) in the non-Atlanta part of the state, Georgia's economy would have brought in \$2.3 billion more in payroll in 2007 than it did.

Figures 8 and 8A provide the same information for Georgia-Outside-Atlanta as Figures 6 and 6A and 7 and 7A provide for the state as a whole and for the Atlanta MSA. We see the same picture: high paying jobs are clustered in industries with low job growth. Figure 8 shows that every industrial sector, except one, in Georgia outside of the Atlanta MSA had job growth rates lower than the nation as a whole; the exception is manufacturing which did experience absolute job loss.

Table 7 presents the estimates of change in base jobs for the portion of Georgia outside the Atlanta MSA between 2001 and 2007. As is the case with the state as a whole and the Atlanta MSA, some sectors have increased estimated base activity and others have seen a decrease; the net result is an estimated decrease in direct base employment of over 30,000 jobs and a decrease in export related payroll of over \$2 billion. The biggest loss is seen in manufacturing. The second biggest loss is in the military. (Note that the military is not usually thought of as a true industry. However, military payrolls have significant economic impact in non-basic local industries and businesses.) Indirectly, decreases in base activity in Georgia outside of the Atlanta MSA negatively affects an estimated additional 54,000 jobs with an estimated additional loss of \$1.8 billion in payrolls.

# An Analysis of the Relative Decline in Employment Income in Georgia

**FIGURE 8. GEORGIA OUTSIDE THE ATLANTA MSA JOB GROWTH RATE COMPARED TO U.S. JOB GROWTH RATE**



**FIGURE 8A. GEORGIA OUTSIDE OF ATLANTA RELATIONSHIP OF JOB GROWTH AND PAY: 2001-2007**



Source BEA Table CA05.

**TABLE 7. BASE INDUSTRY DIRECT AND INDIRECT CHANGE IN GEORGIA-OUTSIDE ATLANTA MSA: 2001-2007**

	<b>Δ Base Jobs 2001-2007</b>	<b>Average Employment Income</b>	<b>Δ Total Employment Income</b>	<b>Δ Indirect Jobs 2001-2007</b>	<b>Average Employment Income</b>	<b>Δ Total Indirect Employment Income</b>
Agriculture (non proprietor)	(783)	9,256	(7,243,294)	(517)	24,123	(12,471,521)
Transportation and Warehousing	2,964	39,615	117,412,304	1,745	30,042	52,422,650
Manufacturing	(35,932)	50,052	(1,798,462,608)	(55,204)	33,525	(1,850,723,001)
Retail	5,809	23,695	137,634,496	2,069	28,666	59,309,083
Other Services	1,327	19,785	26,254,695	471	27,299	12,857,829
Federal Military	(11,736)	85,953	(1,008,727,552)	(6,851)	27,138	(185,925,859)
Federal civilian	3,239	113,792	368,576,576	2,503	27,149	67,953,013
Accommodation and Food Services	4,253	8,492	36,116,168	1,211	27,783	33,645,311
Net	(30,859)		(2,128,439,215)	(54,573)		(1,822,932,495)

## **An Analysis of the Relative Decline in Employment Income in Georgia**

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*Projections.* The Atlanta Regional Commission has developed forecasts of population and employment for the 20-county Atlanta region out to the year 2040.<sup>21</sup> The major growth industry projected by ARC is the Healthcare/Social Assistance industry. Note that this is not presently an export industry and, even with growth, may not become an export industry in the future. The growth in this industry is driven by the aging “baby-boomers” and expansion is likely to meet the needs of “home grown” demand arising from the aging of the current resident population. The second highest growth is projected to be in professional and technical services. This sector currently has a relatively large employment base in the Atlanta MSA, has relatively high average employee income, and has grown steadily. It is a strong export sector; growth here is likely to spur growth in non-basic industries and businesses.

ARC’s data shows that the job to population ratio in 2005 was 0.601 jobs per capita, but this ratio is calculated to fall to 0.542 jobs per capita by 2040. This is likely also a consequence of the aging population.

Figures 9<sup>22</sup> and 9A present job growth by industry in the same manner presented in Figures 6, 6A, 7, 7A, 8, and 8A. As there is no projection of relative employee income change among industries, the analysis uses 2007 average employee income. There is still clustering of high paying industries at the low or negative growth end of the graph, but the clustering is not as pronounced because the very high growth industries are professional technical services and, as mentioned above, health care and social assistance, both of which have above average employment income (although just above average in the case of health care and social assistance). These forecasts indicate that, all else being equal, the Atlanta region is likely to continue to see a decline in per capita income and per employee wages relative to the rest of the nation, but a decline not as pronounced as that seen between 2001 and 2007.

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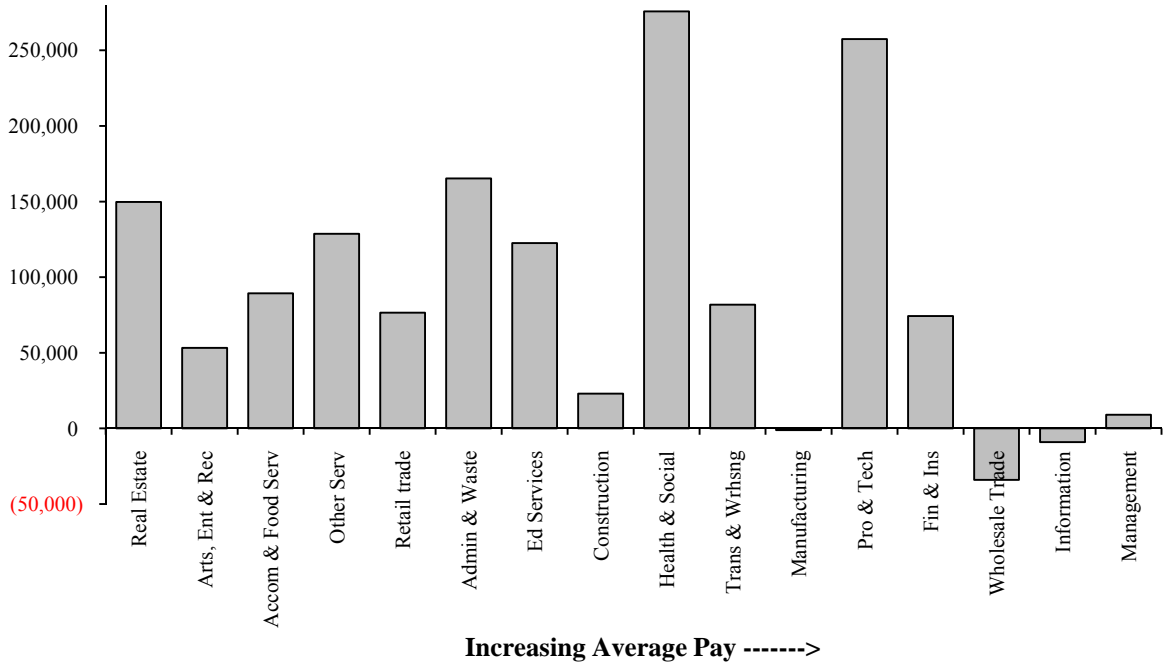
<sup>21</sup> ARC’s “Atlanta Metropolitan Region” is a 20 county region whereas the Atlanta MSA—the region used throughout this report—is a 28 county region. While not strictly comparable with the MSA data used elsewhere in the report the projections are very useful.

<sup>22</sup> As there are no national 2040 job projections, Figure 9 shows the absolute number of jobs projected as opposed to a comparison of local and national growth rates.



# An Analysis of the Relative Decline in Employment Income in Georgia

**FIGURE 9. ATLANTA PROJECTED JOB GROWTH 2040 AND AVERAGE PAY**



**FIGURE 9A. ATLANTA PROJECTED JOB GROWTH AND PAY 2040**



Source: ARC.

### **IV. Conclusion**

Even with strong population and employment growth, Georgia's rate of per capita income growth and its rate of growth in income per employee have fallen to the second lowest of any of the 50 states. Georgia's employment growth is occurring in low paying industries; high paying industries are losing jobs or are growing very slowly. These trends are strongest in the Atlanta MSA, which has seen an absolute loss of jobs in some high paying industrial groups (manufacturing, information, and management of companies and enterprises) while low paying industries such as real estate, rental and leasing and accommodation and food services have grown substantially. The rest of Georgia has seen substantial population and job growth from 2001 to 2007, but it remains that 64 percent of all job growth and 75 percent of all population growth was in the Atlanta MSA. The economic driver for non-Atlanta Georgia is manufacturing. While this sector did not suffer job losses at the same rate as the nation as a whole, there was a loss of almost 50,000 manufacturing jobs in the period. These trends are forecast to continue into the future, at least in the Atlanta region.

# **An Analysis of the Relative Decline in Employment Income in Georgia**

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## **APPENDIX**

## An Analysis of the Relative Decline in Employment Income in Georgia

**TABLE A1. EMPLOYMENT INCOME PER JOB**

	Average Employment Income 1990	Average Employment Income 2000	Average Employment Income 2008	Ann Avg Change 1990-2000	Ann Avg Change 2000-2008
United States	26,566	39,914	50,259	4.16%	2.92%
Michigan	27,928	40,927	47,579	3.90%	1.90%
Georgia	25,047	39,227	46,760	4.59%	2.22%
Oregon	23,581	36,319	43,913	4.41%	2.40%
New Jersey	31,994	49,460	59,910	4.45%	2.42%
South Carolina	22,504	32,958	40,001	3.89%	2.45%
Nevada	26,018	38,898	47,478	4.10%	2.52%
Connecticut	31,772	51,080	62,529	4.86%	2.56%
Washington	26,171	42,565	52,365	4.98%	2.62%
Idaho	21,936	30,940	38,099	3.50%	2.64%
Ohio	25,964	36,750	45,297	3.54%	2.65%
New Hampshire	24,198	38,629	47,722	4.79%	2.68%
North Carolina	23,121	35,893	44,357	4.50%	2.68%
Florida	23,913	35,304	43,666	3.97%	2.69%
California	29,519	46,024	57,204	4.54%	2.76%
Colorado	24,578	40,801	50,837	5.20%	2.79%
Pennsylvania	26,859	39,400	49,119	3.91%	2.79%
Massachusetts	29,692	48,553	60,552	5.04%	2.80%
Texas	25,168	40,383	50,737	4.84%	2.89%
Arizona	23,296	37,003	46,496	4.74%	2.90%
Utah	21,789	32,645	41,077	4.13%	2.91%
Vermont	21,686	31,329	39,459	3.75%	2.93%
Wisconsin	23,267	34,630	43,852	4.06%	3.00%
Illinois	28,895	43,012	54,540	4.06%	3.01%
Indiana	23,889	34,795	44,134	3.83%	3.02%
Minnesota	25,040	38,439	49,004	4.38%	3.08%
Kentucky	22,199	32,491	41,479	3.88%	3.10%
New York	34,458	51,102	65,258	4.02%	3.10%
Tennessee	22,765	34,605	44,261	4.28%	3.12%
Delaware	28,141	40,590	51,960	3.73%	3.14%
Missouri	23,494	35,123	45,230	4.10%	3.21%
Maine	22,559	31,003	40,039	3.23%	3.25%
Alabama	23,148	32,565	42,128	3.47%	3.27%
Mississippi	20,110	29,459	38,697	3.89%	3.47%
Maryland	27,424	41,090	54,058	4.13%	3.49%

*Table A1 continues next page...*

## An Analysis of the Relative Decline in Employment Income in Georgia

**TABLE A1 (CONTINUED). EMPLOYMENT INCOME PER JOB**

	Average Employment Income 1990	Average Employment Income 2000	Average Employment Income 2008	Ann Avg Change 1990-2000	Ann Avg Change 2000-2008
Rhode Island	25,587	37,402	49,300	3.87%	3.51%
Hawaii	27,494	35,689	47,249	2.64%	3.57%
Virginia	26,004	40,130	53,585	4.43%	3.68%
West Virginia	23,330	31,287	41,900	2.98%	3.72%
Kansas	22,332	32,961	44,162	3.97%	3.72%
Arkansas	20,568	30,057	40,305	3.87%	3.74%
Montana	19,470	26,673	35,778	3.20%	3.74%
Nebraska	22,227	32,221	43,385	3.78%	3.79%
New Mexico	22,026	31,469	42,513	3.63%	3.83%
Iowa	21,390	30,952	41,850	3.76%	3.84%
Oklahoma	22,530	31,148	42,930	3.29%	4.09%
Alaska	32,414	39,042	53,903	1.88%	4.11%
Louisiana	23,710	32,506	45,427	3.21%	4.27%
South Dakota	19,742	28,677	40,196	3.80%	4.31%
District of Columbia	41,191	64,297	92,594	4.55%	4.66%
Wyoming	22,314	31,050	45,106	3.36%	4.78%
North Dakota	19,909	28,658	41,686	3.71%	4.80%

Source: Regional Economic Information System, Bureau of Economic Analysis, US Department of Commerce SA04 State income and employment summary, "[=HYPERLINK\("http://www.bea.gov/regional/docs/footnotes.cfm?tablename=SA04"\)](http://www.bea.gov/regional/docs/footnotes.cfm?tablename=SA04)".

## An Analysis of the Relative Decline in Employment Income in Georgia

**TABLE A2. TOTAL EMPLOYMENT**

	<b>Employment 1990</b>	<b>Employment 2000</b>	<b>Employment 2008</b>	<b>Ann Avg Change 1990-2000</b>	<b>Ann Avg Change 2000-2008</b>
United States	138,330,900	165,370,800	181,755,100	1.80%	1.19%
Alabama	2,047,865	2,399,989	2,640,717	1.60%	1.20%
Alaska	338,924	392,367	452,986	1.47%	1.81%
Arizona	1,894,104	2,795,770	3,437,191	3.97%	2.62%
Arkansas	1,203,622	1,493,267	1,599,446	2.18%	0.86%
California	16,834,516	19,466,162	21,063,338	1.46%	0.99%
Colorado	2,039,626	2,926,410	3,285,413	3.68%	1.46%
Connecticut	2,003,473	2,095,998	2,279,011	0.45%	1.05%
Delaware	420,105	503,567	553,149	1.83%	1.18%
District of Columbia	773,210	737,374	814,340	-0.47%	1.25%
Florida	6,740,289	8,841,607	10,424,100	2.75%	2.08%
Georgia	3,663,988	4,854,298	5,571,666	2.85%	1.74%
Hawaii	724,262	756,682	873,749	0.44%	1.81%
Idaho	548,397	781,456	939,793	3.61%	2.33%
Illinois	6,390,424	7,354,515	7,657,328	1.42%	0.51%
Indiana	3,069,771	3,647,047	3,718,148	1.74%	0.24%
Iowa	1,634,995	1,920,708	2,025,350	1.62%	0.67%
Kansas	1,473,893	1,757,875	1,875,134	1.78%	0.81%
Kentucky	1,906,123	2,313,509	2,442,252	1.96%	0.68%
Louisiana	2,005,292	2,385,392	2,576,960	1.75%	0.97%
Maine	701,002	785,319	840,874	1.14%	0.86%
Maryland	2,737,249	3,065,202	3,471,985	1.14%	1.57%
Massachusetts	3,614,703	4,057,959	4,251,139	1.16%	0.58%
Michigan	4,790,620	5,586,781	5,397,807	1.55%	-0.43%
Minnesota	2,691,896	3,317,475	3,567,295	2.11%	0.91%
Mississippi	1,202,603	1,481,524	1,558,262	2.11%	0.63%
Missouri	2,972,034	3,470,477	3,672,794	1.56%	0.71%
Montana	433,400	554,952	651,425	2.50%	2.02%
Nebraska	988,048	1,175,618	1,253,549	1.75%	0.81%
Nevada	755,587	1,250,807	1,638,004	5.17%	3.43%
New Hampshire	642,570	777,955	857,040	1.93%	1.22%
New Jersey	4,309,704	4,712,709	5,176,293	0.90%	1.18%
New Mexico	761,396	964,673	1,117,433	2.39%	1.85%
New York	9,727,348	10,346,129	11,289,001	0.62%	1.10%
North Carolina	3,902,373	4,887,145	5,497,808	2.28%	1.48%
North Dakota	373,890	443,449	498,718	1.72%	1.48%

*Table A2 continues next page...*

## An Analysis of the Relative Decline in Employment Income in Georgia

**TABLE A2 (CONTINUED). TOTAL EMPLOYMENT**

	Employment 1990	Employment 2000	Employment 2008	Ann Avg Change 1990-2000	Ann Avg Change 2000-2008
Ohio	5,863,015	6,782,014	6,819,050	1.47%	0.07%
Oklahoma	1,654,743	2,002,817	2,206,469	1.93%	1.22%
Oregon	1,626,385	2,094,825	2,339,488	2.56%	1.39%
Pennsylvania	6,292,542	6,911,969	7,407,409	0.94%	0.87%
Rhode Island	550,468	578,198	612,258	0.49%	0.72%
South Carolina	1,912,747	2,274,642	2,579,280	1.75%	1.58%
South Dakota	409,374	515,569	566,490	2.33%	1.18%
Tennessee	2,777,416	3,471,266	3,759,569	2.26%	1.00%
Texas	9,242,899	12,151,442	14,469,900	2.77%	2.21%
Utah	938,218	1,377,859	1,702,493	3.92%	2.68%
Vermont	340,784	401,138	434,917	1.64%	1.02%
Virginia	3,699,593	4,373,557	4,916,428	1.69%	1.47%
Washington	2,842,491	3,522,932	4,012,270	2.17%	1.64%
West Virginia	777,862	880,154	934,944	1.24%	0.76%
Wisconsin 11/	2,814,229	3,404,577	3,619,782	1.92%	0.77%
Wyoming	270,832	325,674	404,855	1.86%	2.76%

Source: Regional Economic Information System, Bureau of Economic Analysis, US Department of Commerce SA04 State income and employment summary, "[=HYPERLINK\("http://www.bea.gov/regional/docs/footnotes.cfm?tablename=SA04"\)](http://www.bea.gov/regional/docs/footnotes.cfm?tablename=SA04)".

## An Analysis of the Relative Decline in Employment Income in Georgia

**TABLE A3. TOTAL POPULATION**

State	1990	2000	2007	2008	Ann Avg Change 1990-2000	Ann Avg Change 2000-2007	Ann Avg Change 2000-2008
United States	249,622,814	282,171,936	301,290,332	304,059,724	1.23%	0.94%	0.94%
Alabama	4,050,055	4,451,687	4,626,595	4,661,900	0.95%	0.55%	0.58%
Alaska	553,290	627,428	681,111	686,293	1.27%	1.18%	1.13%
Arizona	3,684,097	5,166,810	6,353,421	6,500,180	3.44%	3.00%	2.91%
Arkansas	2,356,586	2,678,217	2,830,557	2,855,390	1.29%	0.79%	0.80%
California	29,959,515	33,998,767	36,377,534	36,756,666	1.27%	0.97%	0.98%
Colorado	3,307,618	4,327,788	4,842,770	4,939,456	2.72%	1.62%	1.67%
Connecticut	3,291,967	3,411,714	3,489,868	3,501,252	0.36%	0.32%	0.32%
Delaware	669,567	786,404	861,953	873,092	1.62%	1.32%	1.32%
District of Columbia	605,321	571,723	587,868	591,833	-0.57%	0.40%	0.43%
Florida	13,033,307	16,047,246	18,199,526	18,328,340	2.10%	1.81%	1.68%
Georgia	6,512,602	8,230,053	9,523,297	9,685,744	2.37%	2.11%	2.06%
Hawaii	1,113,491	1,211,479	1,277,356	1,288,198	0.85%	0.76%	0.77%
Idaho	1,012,384	1,299,474	1,496,145	1,523,816	2.53%	2.03%	2.01%
Illinois	11,453,316	12,437,888	12,825,809	12,901,563	0.83%	0.44%	0.46%
Indiana	5,557,798	6,091,392	6,335,862	6,376,792	0.92%	0.56%	0.57%
Iowa	2,781,018	2,928,046	2,983,360	3,002,555	0.52%	0.27%	0.31%
Kansas	2,481,349	2,692,681	2,777,382	2,802,134	0.82%	0.44%	0.50%
Kentucky	3,694,048	4,048,831	4,236,308	4,269,245	0.92%	0.65%	0.66%
Louisiana	4,221,532	4,468,879	4,373,310	4,410,796	0.57%	-0.31%	-0.16%
Maine	1,231,719	1,277,179	1,315,398	1,316,456	0.36%	0.42%	0.38%
Maryland	4,799,770	5,310,451	5,618,899	5,633,597	1.02%	0.81%	0.74%
Massachusetts	6,022,639	6,362,583	6,467,915	6,497,967	0.55%	0.23%	0.26%
Michigan	9,311,319	9,955,146	10,049,790	10,003,422	0.67%	0.14%	0.06%
Minnesota	4,389,857	4,933,787	5,182,360	5,220,393	1.17%	0.70%	0.71%
Mississippi	2,578,897	2,848,293	2,921,030	2,938,618	1.00%	0.36%	0.39%
Missouri	5,128,880	5,605,868	5,878,399	5,911,605	0.89%	0.68%	0.67%
Montana	800,204	903,283	956,624	967,440	1.22%	0.82%	0.86%
Nebraska	1,581,660	1,713,194	1,769,473	1,783,432	0.80%	0.46%	0.50%
Nevada	1,220,695	2,018,244	2,554,344	2,600,167	5.16%	3.42%	3.22%
New Hampshire	1,112,384	1,240,361	1,312,256	1,315,809	1.09%	0.81%	0.74%
New Jersey	7,762,963	8,430,913	8,653,126	8,682,661	0.83%	0.37%	0.37%
New Mexico	1,521,574	1,820,704	1,964,402	1,984,356	1.81%	1.09%	1.08%
New York	18,020,784	18,998,429	19,429,316	19,490,297	0.53%	0.32%	0.32%
North Carolina	6,664,016	8,078,824	9,041,594	9,222,414	1.94%	1.62%	1.67%

*Table A3 continues next page...*



## An Analysis of the Relative Decline in Employment Income in Georgia

**TABLE A3 (CONTINUED). TOTAL POPULATION**

State	1990	2000	2007	2008	Ann Avg Change 1990-2000	Ann Avg Change 2000-2007	Ann Avg Change 2000-2008
North Dakota	637,685	641,183	637,904	641,481	0.05%	-0.07%	0.01%
Ohio	10,864,162	11,363,719	11,477,641	11,485,910	0.45%	0.14%	0.13%
Oklahoma	3,148,825	3,453,861	3,608,123	3,642,361	0.93%	0.63%	0.67%
Oregon	2,860,375	3,430,828	3,735,549	3,790,060	1.84%	1.22%	1.25%
Pennsylvania	11,903,299	12,285,041	12,419,930	12,448,279	0.32%	0.16%	0.17%
Rhode Island	1,005,995	1,050,725	1,053,136	1,050,788	0.44%	0.03%	0.00%
South Carolina	3,501,155	4,023,396	4,404,914	4,479,800	1.40%	1.30%	1.35%
South Dakota	697,101	755,657	795,689	804,194	0.81%	0.74%	0.78%
Tennessee	4,894,492	5,703,094	6,149,116	6,214,888	1.54%	1.08%	1.08%
Texas	17,056,755	20,946,049	23,843,432	24,326,974	2.08%	1.87%	1.89%
Utah	1,731,223	2,244,210	2,668,925	2,736,424	2.63%	2.51%	2.51%
Vermont	564,798	609,876	620,748	621,270	0.77%	0.25%	0.23%
Virginia	6,216,884	7,104,354	7,698,775	7,769,089	1.34%	1.15%	1.12%
Washington	4,903,043	5,911,104	6,449,511	6,549,224	1.89%	1.25%	1.29%
West Virginia	1,792,548	1,806,977	1,809,836	1,814,468	0.08%	0.02%	0.05%
Wisconsin	4,904,562	5,374,133	5,598,893	5,627,967	0.92%	0.59%	0.58%
Wyoming	453,690	493,963	523,252	532,668	0.85%	0.83%	0.95%

Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce.  
<http://www.bea.gov/regional/docs/footnotes.cfm?tablename=SA1-3>.

## An Analysis of the Relative Decline in Employment Income in Georgia

**TABLE A4. RATIO POPULATION/EMPLOYMENT**

	1990	2000	2007	2008		1990	2000	2007	2008
United States	1.79	1.69	1.67	1.67	Missouri	0.77	0.76	0.72	0.73
Alabama	1.93	1.77	1.84	1.85	Montana	1.83	1.71	1.68	1.68
Alaska	1.93	1.83	1.80	1.89	Nebraska	1.69	1.51	1.47	1.48
Arizona	1.80	1.66	1.70	1.72	Nevada	1.67	1.61	1.56	1.58
Arkansas	1.77	1.68	1.71	1.74	New Hampshire	1.71	1.66	1.63	1.63
California	1.70	1.64	1.66	1.68	New Jersey	1.69	1.46	1.41	1.42
Colorado	1.61	1.47	1.51	1.50	New Mexico	1.92	1.80	1.70	1.76
Connecticut	1.58	1.55	1.57	1.58	New York	1.72	1.58	1.55	1.54
Delaware	1.84	1.66	1.68	1.68	North Carolina	1.74	1.61	1.58	1.57
District of Columbia	1.75	1.63	1.64	1.65	North Dakota	1.89	1.71	1.67	1.65
Florida	1.77	1.73	1.71	1.75	Ohio	1.62	1.59	1.53	1.52
Georgia	1.93	1.74	1.74	1.75	Oklahoma	1.96	1.84	1.77	1.77
Hawaii	1.78	1.68	1.69	1.68	Oregon	1.63	1.61	1.56	1.54
Idaho	1.71	1.60	1.60	1.61	Pennsylvania	1.64	1.51	1.45	1.43
Illinois	1.95	1.78	1.76	1.79	Rhode Island	1.88	1.76	1.70	1.68
Indiana	1.59	1.59	1.53	1.59	South Carolina	1.81	1.80	1.71	1.72
Iowa	1.75	1.63	1.61	1.62	South Dakota	1.84	1.82	1.76	1.73
Kansas	1.83	1.62	1.59	1.61	Tennessee	1.74	1.72	1.63	1.62
Kentucky	1.73	1.57	1.56	1.55	Texas	1.98	1.87	1.76	1.78
Louisiana	1.62	1.48	1.45	1.46	Utah	1.79	1.77	1.69	1.68
Maine	1.82	1.76	1.76	1.74	Vermont	2.29	2.04	1.96	1.94
Maryland	2.13	1.91	1.86	1.89	Virginia	1.52	1.59	1.46	1.47
Massachusetts	1.65	1.55	1.54	1.53	Washington	1.83	1.62	1.48	1.49
Michigan	1.59	1.45	1.42	1.42	West Virginia	1.69	1.43	1.31	1.29
Minnesota	1.67	1.52	1.50	1.49	Wisconsin	2.09	1.86	1.74	1.71
Mississippi	1.83	1.65	1.58	1.62	Wyoming	1.67	1.51	1.34	1.32

Derived from Tables A2 and A3.

## **An Analysis of the Relative Decline in Employment Income in Georgia**

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**John Matthews** is a Senior Research Associate in the Fiscal Research Center in the Andrew Young School of Policy Studies at Georgia State University and a visiting professor in both GSU's Public Administration and Urban Studies and The Graduate School of City Planning at the Georgia Institute of Technology. Dr. Matthews' main research interest is in urban growth policy.

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# An Analysis of the Relative Decline in Employment Income in Georgia

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