

The “Creative Class” and Economic Development: An Analysis of
Workforce Attraction and Retention in the Atlanta Region

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Introduction

In *The Rise of the Creative Class* (2002), Richard Florida groups a disjointed band of workers together to form a distinct class. This new class would prefer not to be grouped together; in fact, the Creative Class values individuality and weak ties. They exhibit little loyalty to companies and geographies, flocking to regions that provide high levels of “technology, talent, and tolerance.” Cities must enhance these “three Ts,” Florida argues, to attract the Creative Class, who will stimulate economic growth in that region. Florida’s argument rests on the following assertion: the location decisions of his Creative Class determine the economic success of a city or region. Investments to attract these highly mobile workers are much more beneficial to a city than offering incentives to attract businesses. A region must build its pool of creative workers, and businesses will come.

Research conducted by Albert J. Sumell, Paula E. Stephan, and James D. Adams (*Capturing Knowledge: The Location Decision of New PhDs Working in Industry*; 2003) links investment in education with the mobility of PhDs. A city may be less likely to fund higher education institutions if its graduates tend to move away outside of the region. These graduates are vital to the economic development of a region because these workers attract businesses that value highly skilled employees, which will encourage highly educated workers to migrate into the region. Sumell, Stephan, and Adams’ data shows that between 1997 and 1999, Atlanta ranked ninth in the production of new PhDs, but only retained 25.9% of them¹. Atlanta ranked 15th among destination cities for new PhDs; 48.7% of PhDs in Atlanta were earned locally².

¹ Sumell, Stephan, and Adams (2003), 35.

² Ibid.

An important issue that arises from the Sumell study and Florida's work concerns the effectiveness of importing talent as an economic development strategy. The Atlanta region relied on an influx of educated workers to staff its targeted, high-tech business sectors during the 1990s. The region continues to sell itself as a competitive destination for young talent, attempting to attract these workers as well as high-tech businesses by marketing its quality of life. According to Florida, Atlanta's Creative Class makes up 32% of its workers; this ranks Atlanta 16th among large regions.³ The Metro Atlanta Chamber of Commerce launched the "Industries of the Mind" advertising campaign in 1998, and later renamed the campaign "Atlanta Smart City." During its tenure, the program attempted to attract a certain type of workforce to Atlanta, one that reflects Florida's Creative Class descriptions. However, the program may have merely improved Atlanta's image instead of attracting its targeted workforce. In addition, the program focuses more on drawing workers to staff Atlanta's major corporations than on attracting entrepreneurs.

This paper will critique Florida's thesis as an economic development strategy, and analyze the late 1990s Industries of the Mind – Atlanta Smart City campaign in Atlanta that mirrored his thesis. A shift share analysis will compare Atlanta's economy to that of other Southeastern cities during the late 1990s, with the goal of determining the effectiveness of Atlanta's workforce attraction policy during that time. As Rosita Smith of the Metro Atlanta Chamber of Commerce noted, it is difficult to study any specific effect that campaign had on workforce attraction. However, this analysis will use a shift share approach to determine trends in Creative Class immigration to Southeastern cities, and determine whether or not Atlanta effectively attracted more than its share of that

³ Florida (2002), 237.

population during the late 1990s. That determination cannot be conclusively tied to the Atlanta Smart City campaign specifically, but can be used to comment on talent attraction and talent cultivation policies.

The Chamber discontinued the Atlanta Smart City campaign in 2003 in response to a poor economy. If Florida's description of his Creative Class is correct, this highly mobile talent has little loyalty to the cities in which they live. As Atlanta focused on importing talent, the region lost an opportunity to develop a local workforce and local entrepreneurs that could have provided a more stable economic base. Economic development policy in Atlanta, specifically workforce attraction and development, must be refashioned in response to the changing economy. Atlanta must focus its workforce policy on locally fostered talent, and devote more of its resources to entrepreneurship support and less to corporate staffing. Atlanta's workforce policy in the late 1990s focused on attracting talent; the region's new focus should be on sustainable, local talent. In fact, as will be discussed further in this analysis, there are signs that the Chamber is moving in that direction. Attracting Florida's Creative Class as an economic development strategy is not a sustainable path to economic growth.

Economic Development in Atlanta and the Southeast: 1990-2000⁴

The following analysis compares Atlanta to other major southeastern cities, represented by Birmingham, Alabama; Richmond, Virginia; Jacksonville, Florida; and Nashville, Tennessee. These cities were chosen based on cultural similarities, size, and recent economic growth; they are often seen as Tier Two cities that compete with Atlanta

⁴ This time frame was used to gauge economic development strategies without including the effects of the recession that began in 2001. Florida's thesis is best applied during the high-tech bubble of the late 1990s. In addition, the economic comparisons in the following section are more complete using SIC 1997 and SIC 2000 data; bridging between NAICS and SIC classification systems can lead to incorrect values and lost data.

for business and worker relocations. In addition, the Athens MSA is included to measure Atlanta against another city in Georgia. Athens claims a major research institution, the University of Georgia, and a significant educated⁵ population; it is also recognized as one of the fastest growing creative centers in the country by Kevin Stolarick at Carnegie Mellon University in an article that will be discussed later in this paper⁶.

Most major southeastern cities saw an increase in population that outpaced the national average between 1990 and 2000 (see Table 1). Jacksonville and Birmingham increased their populations by one-fifth to one-quarter, respectively, while Richmond grew by 15% (Figure 1). Birmingham, however, gained only 1.5% more people between 1990 and 2000, far short of the national average of 13%. Atlanta more than tripled the national average, increasing its population by almost one-half during that same period.

Table 1: Population Growth 1990-2000

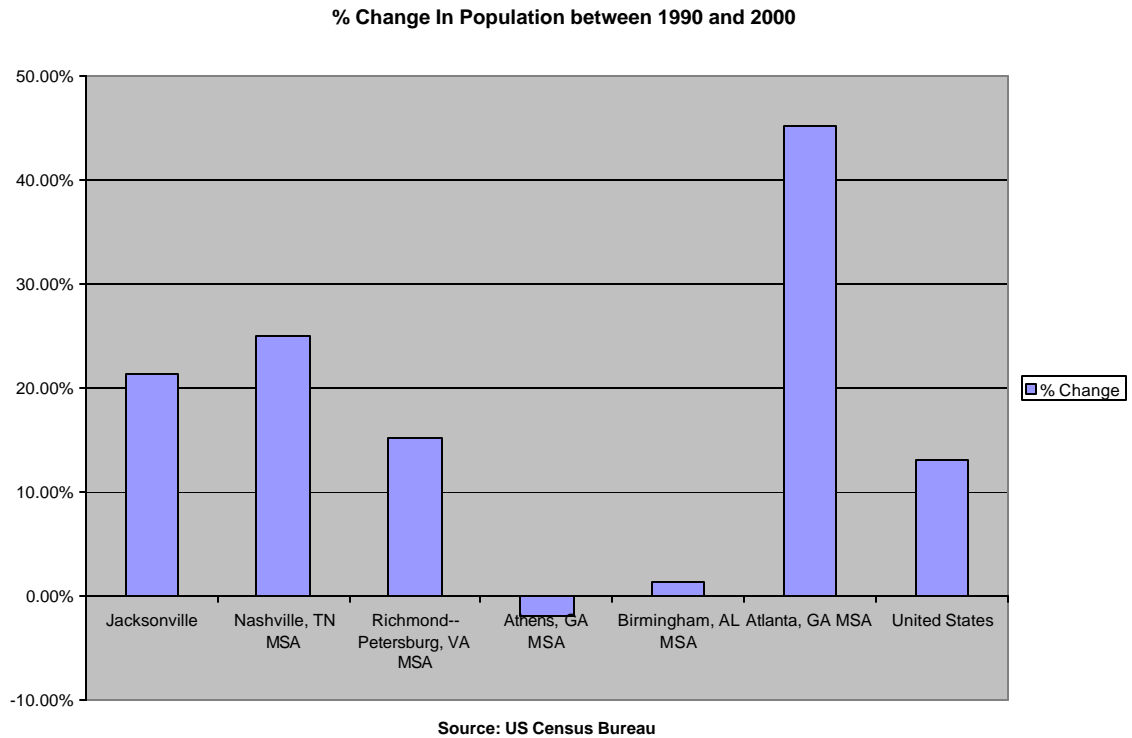
	Jacksonville, FL MSA	Nashville, TN MSA	Richmond-- Petersburg, VA MSA	Athens, GA MSA	Birmingham, AL MSA	Atlanta, GA MSA	United States
1990	906,727	985,026	865,640	156,267	907,810	2,833,511	248,709,873
2000	1,100,491	1,231,311	996,512	153,444	921,106	4,112,198	281,421,906

Source: US Census Bureau

⁵ The term “educated” refers to residents who hold a Bachelor’s or graduate degree.

⁶ *The Economist* (2004), 31.

Figure 1: % Change in Population between 1990 and 2000



Figures 2 and 3 show the age of each city as a percentage of that city’s total population. In 1990, Atlanta exceeded the other cities, as well as the national average, in the key 25-44 age group. Atlanta was also not burdened in comparison to the national average and to other southeastern cities in its proportion of residents over 65 years of age. By 2000, however, Atlanta lost some of its dominance in the 25-44 age group. All cities except Athens showed a loss in the 25 to 34 population of between 2 and 4%, a gain in the 35-44 group of between ½ and 1%, and a gain in the 45-54 age group of between 3 and 4%. This pattern roughly followed the national trend of an aging workforce. Athens is an outlier in the 18-24 age group, likely because of its large university population.

Figure 2: Age as % of Population in 1990

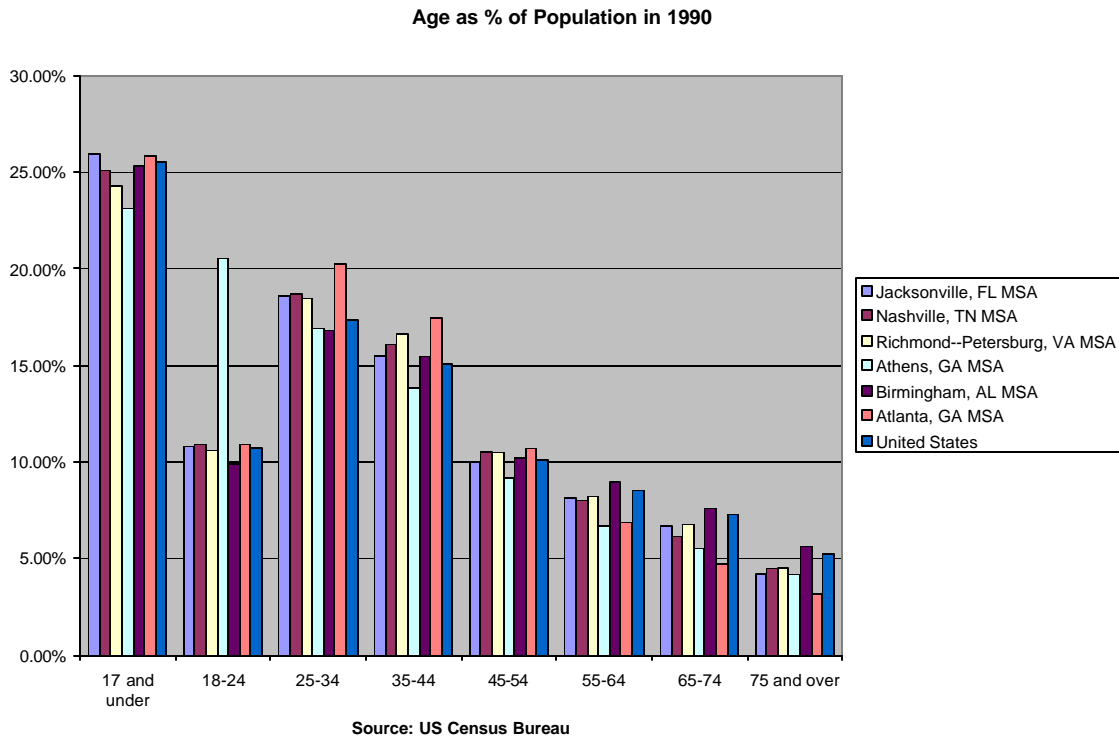
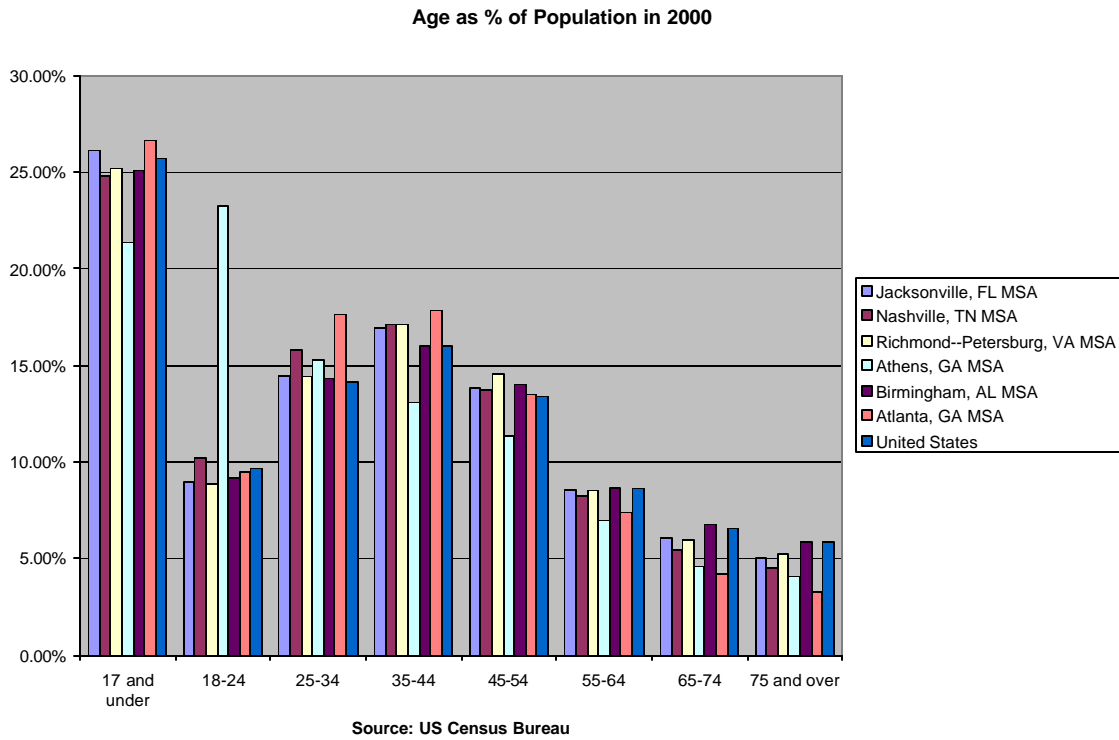


Figure 3: Age as % of Population in 2000



Figures 4 and 5 display information on the educational attainment levels of each city's population, as well as the national average. Jacksonville, Birmingham, Richmond, Atlanta, and Nashville all increased their percentages of residents with Bachelor's degrees by 3 to 4% from 1990 and 2000, while the national average was a 2½% increase. In both years, Atlanta had the highest overall percentage of its population with Bachelor's degrees at 18½% and 21½%, respectively, which was also higher than the national average. These cities also increased their percentage of graduate degrees by 1 to 2% from 1990 to 2000. Richmond tied Atlanta for percentage increase in this field, but overall Atlanta had the highest percentage of graduate degrees among these cities (except for Athens) at 10.5% of its population. Athens' high percentage of graduate degrees can be attributed to its university.

Figure 4: Educational Attainment as % of Population in 1990

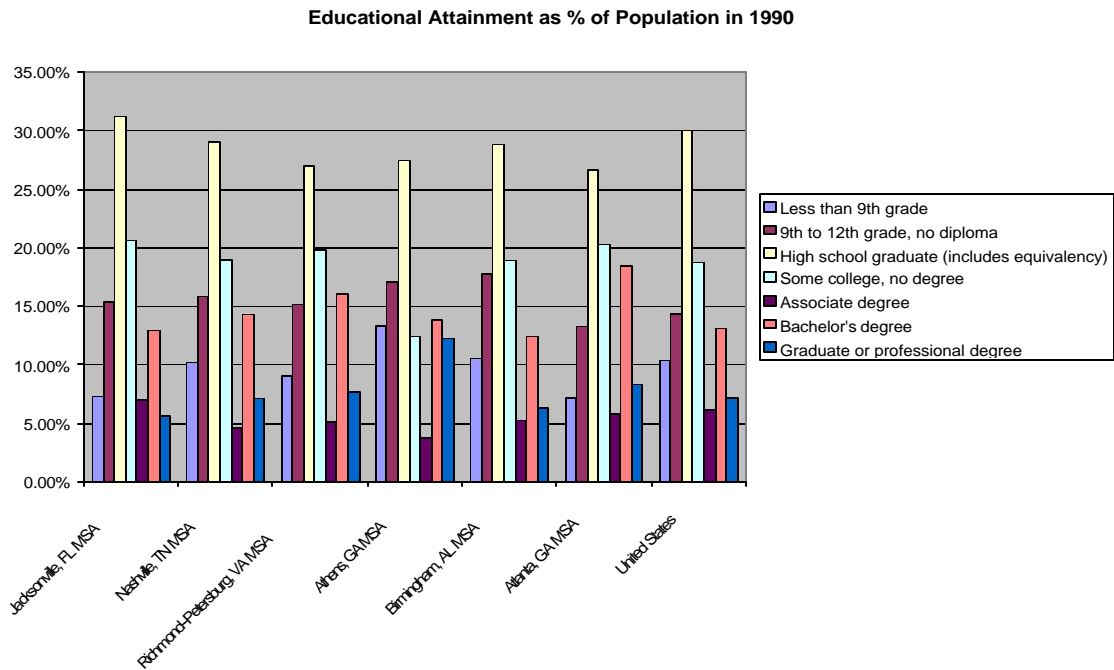
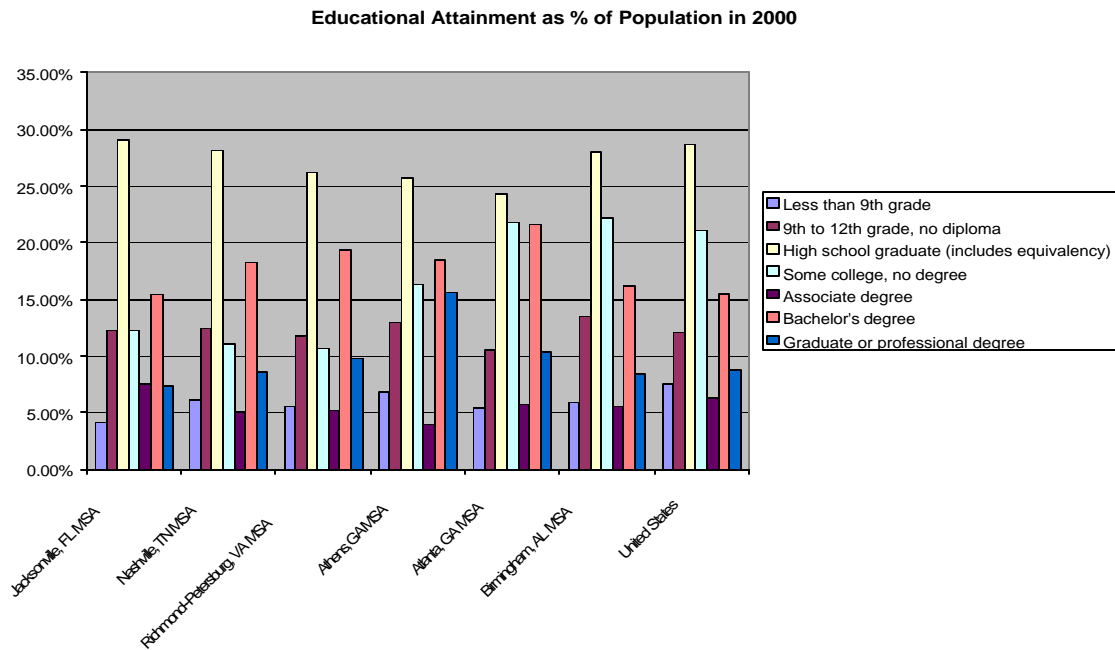


Figure 5: Educational Attainment as % of Population in 2000



Source: US Census Bureau

Unemployment trends between 1990 and 2000 are measured in Table 2. All these southeastern cities (except for Athens) as well as the nation saw a similar decline in the unemployment rate, between .02 and .05%. Athens is again the outlier as its unemployment rate increased by about 1½% between 1990 and 2000. Table 3 and Figure 6 illustrate the change in income per capita in these cities and the nation between 1989 and 1999. Atlanta saw the lowest increase in per capita income during that time than Birmingham, Jacksonville, Nashville, Richmond, and Athens, as well as the national average. However, the actual per capita income in Atlanta was higher in both years than for any of the other cities or the nation. This might show that other major southeastern cities may be successfully competing with Atlanta for job quality, even while Atlanta has targeted high-tech (and high income) job creation.

Table 2: Unemployment as % of Population 1990-2000

	United States	Athens, GA MSA	Atlanta, GA MSA	Birmingham, AL MSA	Jacksonville, FL MSA	Nashville, TN MSA	Richmond--Petersburg, VA MSA
1990	4.06%	3.71%	3.72%	3.75%	3.49%	3.34%	2.85%
2000	3.66%	5.19%	3.53%	3.45%	3.05%	3.09%	2.77%

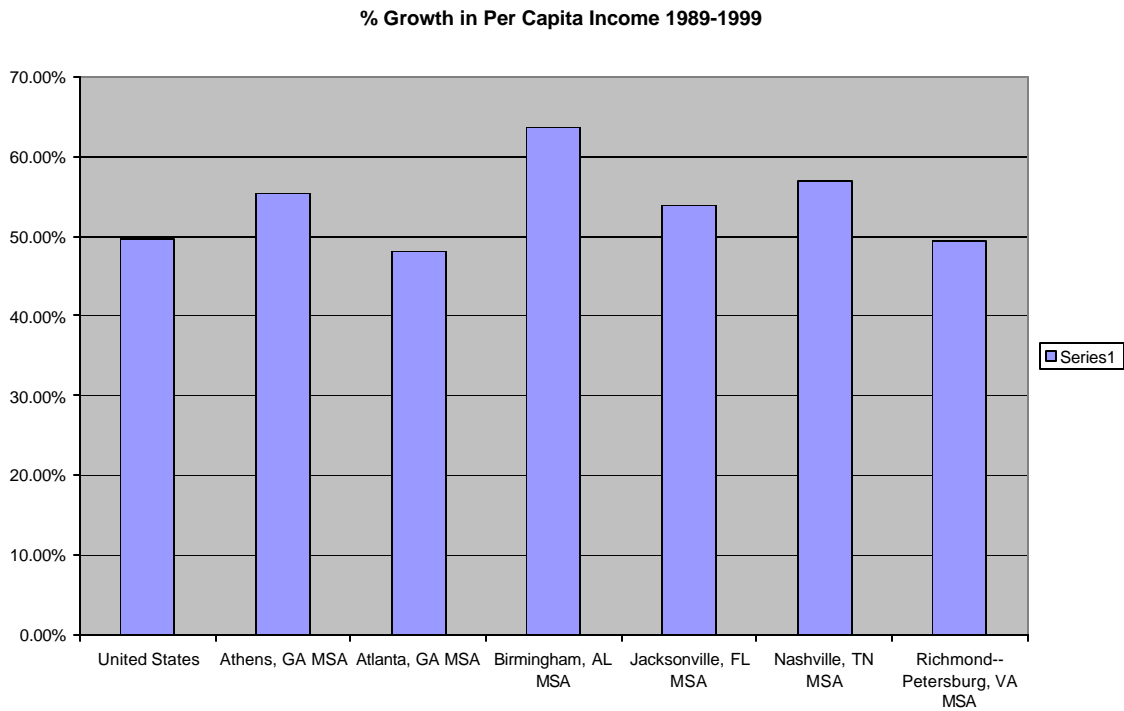
Source: US Census Bureau

Table 3: Income Per Capita 1989-1999

	United States	Athens, GA MSA	Atlanta, GA MSA	Birmingham, AL MSA	Jacksonville, FL MSA	Nashville, TN MSA	Richmond--Petersburg, VA MSA
1989	14,420	11,785	16,897	13,082	14,141	14,567	15,848
1999	21,587	18,303	25,033	21,410	21,763	22,874	23,685

Source: US Census Bureau

Figure 6: % Growth in Per Capita Income 1989-1999



Source: US Census Bureau

Atlanta’s substantial increase in its population between 1990 and 2000 sets it apart from other southeastern cities and the nation as a whole. However, other

demographic and economic indicators shown in this section demonstrate that Atlanta is following the trends of the southeast and the nation. Its unemployment rate changed with national and regional trends. Atlanta did not increase its share of educated and young workers more than its counterparts; it also had the lowest percentage increase in its per capita income out of these cities and the nation. These measures indicate that, despite its significant population growth, Atlanta attracted roughly the same percentage of residents in terms of age and education in 1990 as it did in 2000.

Shift-Share and Location Quotient Analyses

Shift-share and location quotient analyses of Atlanta and other major southeastern cities show the economic strengths and weaknesses of each region. This section will analyze key three-digit SIC “creative” industries in each city⁷ except for Athens⁸; these industries were chosen out of all the SIC industries based on an interpretation of what Richard Florida defines as his “Creative Class.” Included in this analysis are the following industries: construction, film, education, entertainment, engineering, data processing, management services, financial services, and research⁹. Because of incomplete data, not all industries are shown for all cities. However, data for the Atlanta MSA was almost completely available. The years 1997 and 2000 were chosen to examine any change in certain creative industries before and after the “Industries of the Mind” campaign in Atlanta and the emergence of Richard Florida’s theory.

⁷ For shift-share and location quotient analyses for all two-digit SIC codes for each city, see the attached Appendix A: “Shift-Share and Location Quotient Analyses.”

⁸ Athens’ SIC data did not include any of the selected “creative” industries.

⁹ It is important to note that each of these industries employs workers in areas that would not be considered “creative” by Richard Florida, such as support services. However, the strength of the category itself can be used to show its importance in a city; in fact, the need for support services for these industries illustrates their strength.

Location quotients compare a region's percentage of employment in a certain industry to that of the nation. A location quotient of 1.00 indicates that a sector represents the same portion of a region's economy as it does in the nation. A location quotient greater than 1.00 indicates that the sector represents a greater share of the economy in the region than it does in the nation, while a location quotient of less than 1.00 indicates that the sector represents a smaller share of the economy in the region than it does in the nation. Shift-share analysis measures the change in employment in an industry. The national share shows changes that occurred in an industry because of changes in the national economy. The industrial mix shows changes that occurred in an industry because of industry-wide changes. The regional shift shows changes that occurred in an industry due to local factors that affected that industry.

Tables 4 and 5 illustrate Nashville's location quotients and shares of some "creative" industries. Advertising shows the strongest local share with a location quotient of 8.58, while nonresidential building construction also showed a significant local share at 4.08 in 2000. Producers, orchestras, and entertainers represented a greater share in Nashville than in the nation in 2000, with a location quotient of 1.76. Nashville's share of advertising decreased between 1997 and 2000, but the other two industries increased during that time. However, the regional shift in advertising jobs lost between 1997 and 2000 is significant. Nonresidential building construction and producers, orchestras, and entertainers also saw a regional share decline that was accounted for by the national share and industry mix. In fact, all of the sectors illustrated in these tables reflect a negative regional shift between 1997 and 2000.

Table 4: Employment in Nashville in Key “Creative” Sectors: 1997 to 2000

SIC	Description	1997	2000	Change	%Change
731	Advertising	1222	1282	3329	8.02%
737	Computer and data processing services	3986	6014	2028	50.88%
781	Motion picture production & services	1061	937	-124	-11.69%
792	Producers, orchestras, entertainers	3860	3461	-399	-10.34%
871	Engineering & architectural services	3881	4440	559	14.40%
821	Elementary and secondary school	1940	2215	275	14.18%
822	Colleges and universities	10877	11506	629	5.78%
154	Nonresidential building construction	4039	4236	8009	20.81%

Source: US Bureau of Labor Statistics

Table 5: Employment in Nashville in Key “Creative” Sectors: Shift-Share Analysis, 1997-2000

SIC	Description	National Share	Industry Mix	Regional Shift	Shift-Share	LQ 1997	LQ 2000
731	Advertising	3173	4714	-4558	3329	9.76	8.58
737	Computer and data processing services	305	1778	-54	2029	0.17	0.16
781	Motion picture production & services	81	85	-290	-124	0.27	0.2
792	Producers, orchestras, entertainers	295	-251	-443	-399	1.37	1.76
871	Engineering & architectural services	297	323	-61	559	0.27	0.25
821	Elementary and secondary school	148	136	-9	275	0.27	0.26
822	Colleges and universities	831	230	-432	629	0.77	0.72
154	Nonresidential building construction	2940	523	-4546	-1083	3.8	4.08

Source: US Bureau of Labor Statistics

Creative Class data for Jacksonville was only available for two sectors:

engineering & architectural services and management & public relations. Tables 6 and 7 illustrate the location quotients and shift-shares of these two industries in Jacksonville.

Both location quotients were less than 1.00; regional shifts were also negative for both, especially for engineering & architectural services.

Table 6: Employment in Jacksonville in Key “Creative” Sectors: 1997-2000

SIC	Description	1997	2000	Change	%Change
871	Engineering & architectural services	2989	3450	461	15.42%
874	Management & public relations	6440	5490	-950	-14.75%

Source: US Bureau of Labor Statistics

Table 7: Employment in Jacksonville in Key “Creative” Sectors: Shift-Share Analysis, 1997-2000

SIC	Description	National Share	Industry Mix	Regional Shift	Shift-Share	LQ 1997	LQ 2000
871	Engineering & architectural services	228	249	-16	461	0.20	0.20
874	Management & public relations	492	590	-2032	-950	0.40	0.29

Source: US Bureau of Labor Statistics

Data for Richmond was significantly more extensive than for Jacksonville. No location quotient emerges in Table 9 that exceeds 1.00. Computer and data processing services saw a substantial negative regional shift between 1997 and 2000, as well as both building construction industries. Engineering & architectural services and management & public relations increased significantly in the regional shift, as well as research & testing services and elementary and secondary school, to a lesser extent.

Table 8: Employment in Richmond in Key “Creative” Sectors: 1997-2000

SIC	Description	1997	2000	Change	%Change
679	Misc. Investing	184	166	-18	-9.78%
731	Advertising	1244	1282	38	3.05%
737	Computer and data processing services	4238	5453	1215	28.67%
792	Producers, orchestras, entertainers	589	550	-39	-6.62%
871	Engineering & architectural services	3181	4346	1165	36.62%
873	Research & testing services	827	1054	227	27.45%
874	Management & public relations	2832	4294	1462	51.62%
821	Elementary and secondary school	1176	1468	292	24.83%
822	Colleges and universities	2359	2562	203	8.61%
154	Nonresidential building construction	3138	3217	79	2.52%
152	Residential building construction	2902	3054	152	5.24%

Source: US Bureau of Labor Statistics

Table 9: Employment in Richmond in Key “Creative” Sectors: Shift-Share Analysis, 1997-2000

SIC	Description	National Share	Industry Mix	Regional Shift	Shift-Share	LQ 1997	LQ 2000
679	Misc. Investing	14	28	-60	-18	0.24	0.17
731	Advertising	95	141	-198	38	0.29	0.25
737	Computer and data processing services	324	1890	-999	1215	0.18	0.15
792	Producers, orchestras, entertainers	45	-38	-46	-39	0.21	0.19
871	Engineering & architectural services	243	265	657	1165	0.22	0.25
873	Research & testing services	63	16	148	227	0.08	0.09
874	Management & public relations	216	260	986	1462	0.18	0.22
821	Elementary and secondary school	90	83	120	293	0.16	0.17
822	Colleges and universities	180	50	-27	203	0.17	0.16
154	Nonresidential building construction	240	43	-203	80	0.31	0.28
152	Residential building construction	222	356	-426	152	0.25	0.22

Source: US Bureau of Labor Statistics

Birmingham saw an increase in employment in all three of its creative sectors between 1997 and 2000 as evidenced in Table 10. However, computer and data processing services suffered from a substantial negative regional shift, shown in Table 11. Nonresidential building construction benefited from a significant regional shift of 561, accounting for more than half of its shift-share increase. None of the sectors shows a location quotient above 1.00.

Table 10: Employment in Birmingham in Key “Creative” Sectors: 1997-2000

SIC	Description	1997	2000	Change	%Change
737	Computer and data processing services	4519	6568	2049	45.34%
822	Colleges and universities	1530	1775	245	16.01%
154	Nonresidential building construction	4235	5177	942	22.24%

Source: US Bureau of Labor Statistics

Table 11: Employment in Birmingham in Key “Creative” Sectors: Shift-Share Analysis, 1997-2000

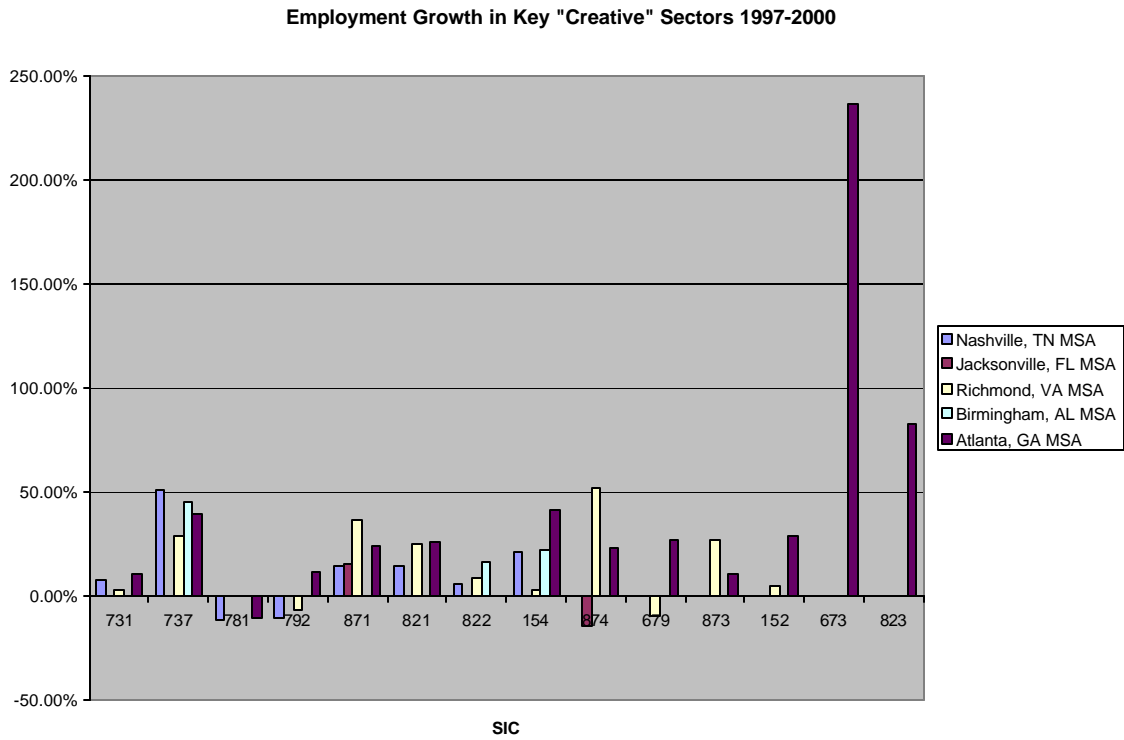
SIC	Description	National Share	Industry Mix	Regional Shift	Shift-Share	LQ 1997	LQ 2000
737	Computer and data processing services	345	2015	-312	2049	0.19	0.18
822	Colleges and universities	117	32	96	245	0.11	0.11
154	Nonresidential building construction	324	58	561	942	0.42	0.45

Source: US Bureau of Labor Statistics

Tables 12 and 13 illustrate Atlanta's location quotients and shift-shares in key creative industries. All industries except motion picture production & services grew in employment between 1997 and 2000. Employment in trusts expanded the most at 236.41% during that period. That industry also showed a somewhat strong location quotient of 1.33 in 2000. Miscellaneous investing, advertising, computer and data processing services, engineering & architectural services, management & public relations, colleges and universities, and nonresidential building construction also saw a location quotient in 2000 of greater than 1.00. Atlanta's regional shift in trusts, engineering & architectural services, management & public relations, and nonresidential building construction were affected by strong positive regional shifts between 1997 and 2000. Advertising, computer and data processing services, and colleges and universities suffered from negative regional shifts during that period. Figure 7 illustrates Atlanta's shift share in these key creative sectors compared to the other four southern cities.

Table 14 and Figure 8 show income changes in key creative sectors between 1997 and 2000 in Atlanta and the nation. Results are mixed depending on the sector. Atlanta saw a dramatic increase in income in the trusts sector compared with the national average, and also increased its advertising, motion picture, entertainers, research, and university incomes at a greater rate than the nation. However, the Atlanta region lags behind the national average in income growth in miscellaneous investing, computer services, engineering, management, elementary and secondary schools, and libraries.

Figure 7: Employment Growth in Key “Creative” Sectors 1997-2000¹⁰



Source: US Census Bureau

¹⁰ SIC Code Definitions:
 152 – Residential building construction
 154 – Nonresidential building construction
 673 - Trusts
 679 – Misc. Investing
 731 – Advertising
 737 – Computer and data processing
 781 - Motion Picture production & services
 792 – Producers, orchestras, entertainers
 821 – Elementary and secondary school
 822 – Colleges and universities
 823 - Libraries
 871 – Engineering & architectural services
 873 – Research & testing services
 874 – Management & public relations

Table 12: Employment in Atlanta in Key “Creative” Sectors: 1997-2000

SIC	Description	1997	2000	Change	%Change
673	Trusts	368	1238	870	236.41%
679	Misc. Investing	1191	1515	324	27.20%
731	Advertising	5933	6543	610	10.28%
737	Computer and data processing services	46466	64927	18461	39.73%
781	Motion picture production & services	2130	1903	-227	-10.66%
792	Producers, orchestras, entertainers	2437	2710	273	11.20%
871	Engineering & architectural services	18640	23131	4491	24.09%
873	Research & testing services	4246	4693	447	10.53%
874	Management & public relations	19463	24017	4554	23.40%
821	Elementary and secondary school	5070	6396	1326	26.15%
822	Colleges and universities	16477	16492	15	0.09%
823	Libraries	46	84	38	82.61%
154	Nonresidential building construction	11290	15913	4623	40.95%
152	Residential building construction	7830	10117	2287	29.21%

Source: US Bureau of Labor Statistics

Table 13: Employment in Atlanta in Key “Creative” Sectors: Shift-Share Analysis, 1997-2000

SIC	Description	National Share	Industry Mix	Regional Shift	Shift-Share	LQ 1997	LQ 2000
673	Trusts	28	35	807	870	0.48	1.33
679	Misc. Investing	91	183	49	323	1.57	1.57
731	Advertising	453	673	-517	609	1.39	1.25
737	Computer and data processing services	3550	20724	-5813	18461	1.97	1.75
781	Motion picture production & services	163	170	-559	-226	0.53	0.4
792	Producers, orchestras, entertainers	186	-159	245	272	0.86	0.92
871	Engineering & architectural services	1424	1553	1514	4491	1.28	1.32
873	Research & testing services	324	80	42	446	0.43	0.42
874	Management & public relations	1487	1784	1283	4554	1.22	1.25
821	Elementary and secondary school	387	356	583	1326	0.7	0.75
822	Colleges and universities	1259	349	-1593	15	1.17	1.03
823	Libraries	4	3	31	38	0.12	0.19
154	Nonresidential building construction	863	153	3607	4623	1.11	1.4
152	Residential building construction	598	961	728	2287	0.69	0.72

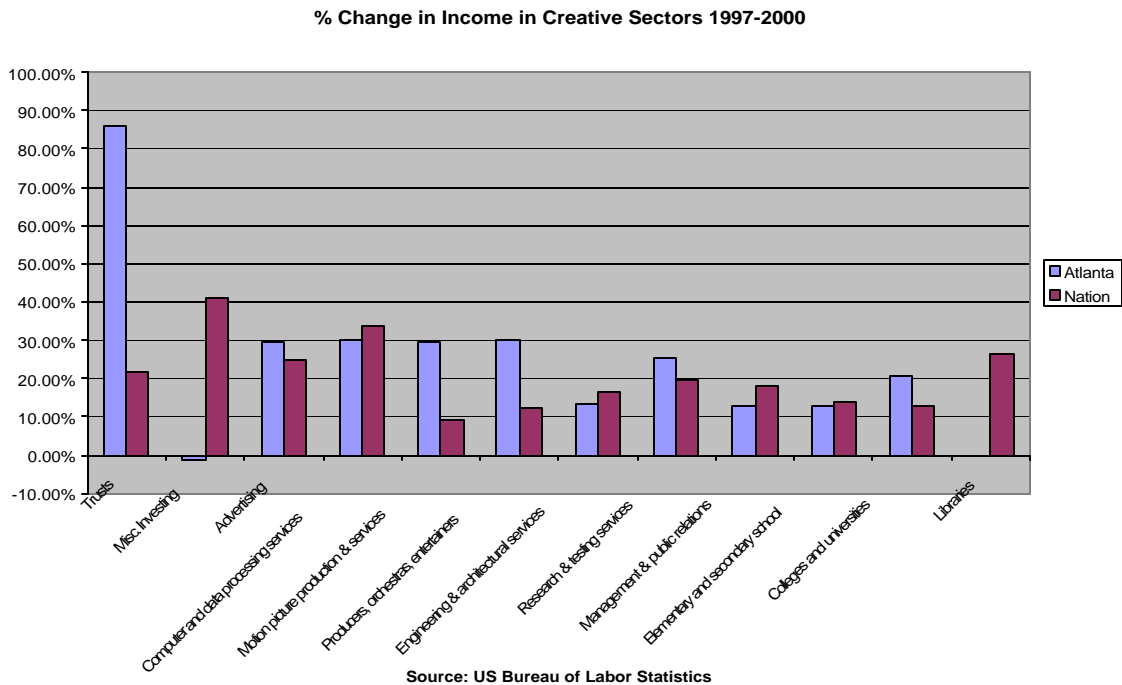
Source: US Bureau of Labor Statistics

Table 14: Changes in Income in Key Creative Sectors 1997-2000

		Atlanta				Nation			
SIC	Description	1997	2000	Change	%Change	1997	2000	Change	%Change
673	Trusts	39809	74029	34220	85.96%	36333	44206	7873	21.67%
679	Misc. Investing	59923	59277	-646	-1.08%	63868	89930	26062	40.81%
731	Advertising	45644	59163	13519	29.62%	49265	61441	12176	24.72%
737	Computer and data processing services	58748	76425	17677	30.09%	58929	78951	20022	33.98%
781	Motion picture production & services	41842	54230	12388	29.61%	54301	59318	5017	9.24%
792	Producers, orchestras, entertainers	28644	37181	8537	29.80%	37403	42079	4676	12.50%
871	Engineering & architectural services	49747	56255	6508	13.08%	47851	55831	7980	16.68%
873	Research & testing services	36125	45303	9178	25.41%	45898	54809	8911	19.41%
874	Management & public relations	58000	65385	7385	12.73%	49883	58847	8964	17.97%
821	Elementary and secondary school	24547	27663	3116	12.69%	21486	24428	2942	13.69%
822	Colleges and universities	34540	41660	7120	20.61%	32289	36437	4148	12.85%
823	Libraries	26306	26207	-99	-0.38%	18328	23122	4794	26.16%

Source: US Bureau of Labor Statistics

Figure 8: % Change in Income in Creative Sectors 1997-2000



Other than Atlanta, Nashville is the only city in this study that exhibited location quotients higher than 1.00 in 2000 for any creative industries. Atlanta, however, showed strength in multiple industries, focused mostly in the financial, engineering, and management sectors. This shift-share and location quotient analysis of Atlanta illustrates a city that exhibits a local strength in certain industries that Richard Florida would describe as “creative;” compared to other southeastern cities, Atlanta may have a strong regional advantage in attracting the Creative Class. However, the demographic analysis shows that Atlanta has not increased its share of young, educated workers significantly more than its peer cities and the nation.

Atlanta’s Economic Transition

According to the Georgia Department of Industry, Trade, and Tourism (GDITT), Georgia is experiencing an economic transition. The state lost a significant portion of its manufacturing sectors over the last few years to overseas firms, a trend that has affected the entire nation. GDITT argues that, instead of labor and land as Georgia’s strength, the state must turn to innovation as its primary resource¹¹. How do statewide trends affect Atlanta, the largest city in the state and one of the largest metropolitan areas in the nation? Atlanta is home to most of the state’s inventive capacity: educated workers and technology support systems, such as the Georgia Research Alliance (GRA) and the Advanced Technology Development Center (ATDC). Despite GDITT’s efforts to expand innovation throughout the state, Atlanta still dominates innovation in Georgia.

The Metro Atlanta Chamber of Commerce attempted to expand the region’s innovative sector during the late 1990s through the introduction of the “Industries of the Mind” campaign. The program, later called “Atlanta Smart City,” funded an advertising

¹¹ “Growing Georgia: Our Economic Future,” presented by Chris Clark of GDITT, March 10, 2004.

campaign to attract workers for Atlanta's existing business community. It highlighted the metro area's cultural amenities, such as the art community and recreation, as well as provided information about local businesses. Atlanta Smart City was aimed specifically at technology workers; resources on the campaign's website were tailored toward the perceived concerns of that particular type of worker.¹² The goal of the campaign was obvious: leverage Atlanta's cultural assets to attract an educated workforce to staff the metro area's existing technology businesses and to attract new, high-tech industries. The Atlanta Smart City campaign was discontinued in 2003 because of the weak economy. During its tenure, Atlanta Smart City reflected Richard Florida's argument that a city must attract and retain a Creative Class of workers to achieve economic growth; cities must compete with each other for these workers by providing the quality of life the Creative Class demands.

A look at the "15 Fastest Growing Occupations in Metro Atlanta," provided by the Georgia Department of Labor (GDOL), reflects projected growth mostly in the computer and health services sectors between 2000 and 2010.¹³ In fact, the top five occupations in GDOL's list are in the computer sector, including computer engineers and network administrators. The importance of fostering a strong health care sector cannot be overstated, especially over the next few decades as the national population ages. Another measure of a region's high-tech capacity is the number of new patents; between 1990 and 2001, Atlanta increased its patents by 8.49%, compared to 5.9% for the nation. However, Atlanta secured only 4.89 patents per 10,000 employees in 2001, compared with the national average of 7.71. Atlanta also expanded its economy between 1990 and 2001; the

¹² www.atlantasmartcity.com.

¹³ See Appendix B: "The 15 Fastest Growing Occupations in Metro Atlanta."

region saw an employment growth of 3.49% during that time period, compared to a national average of 1.91%.¹⁴ These trends seem to suggest that Atlanta has successfully targeted and retained a high-tech workforce. However, according to demographic data in an earlier section, Atlanta does not stand out among its peer cities or the nation in terms of growth in its educated workforce.

Atlanta's Technology Push: A Short History of the Late 1990s

In order to understand Atlanta's drive to attract a high-tech workforce, one must understand the movement that encouraged that strategy. During the late 1990s, some cities began to compete with each other for technology firms. Technology stocks helped push the stock market to record highs, and it became popular for a city to try to become the next Silicon Valley. Atlanta joined that trend and shifted its focus to high-tech business recruitment, leveraging its research assets at the Georgia Institute of Technology, Emory University, and Georgia State University. The Industries of the Mind program began during this time, and focused on four areas: "biotech, advanced manufacturing, software and software service, and telecommunications."¹⁵ The campaign addressed both economic development and quality of life issues in the metro area.

An interview with Wayne Clough, President of Georgia Tech, in 1998 provides an insight into the development of the Industries of the Mind program. He argued that "more so than any other field, success in high-technology relies on having the best talent."¹⁶ He points out the importance of a location near major research universities to a region's talent. GRA, founded in 1990, also plays an important role in creating an

¹⁴ Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School (2003).

¹⁵ Donner (1998), 70.

¹⁶ Ibid, 71.

innovation-based economy in Atlanta. The group brings together the region's major research institutions to attract prominent scholars in technology to Atlanta, which would attract a certain type of student, in turn creating a high-tech workforce. GRA works primarily by providing funding for research and start up technology firms. Another important asset is ATDC, which was founded in 1981 to support new technology firms by providing business incubator programs. The Intellectual Capital Partnership Program (ICAPP) is an economic development program run by the University System of Georgia. Founded in 1995, ICAPP joins the high-tech business community with Georgia's research institutions.

While GRA and ATDC are statewide organizations, most of their work has been focused in the Atlanta region. The "Centers of Innovation" program, announced by Governor Perdue in September of 2003 and managed by GDITT, will attempt to spread these benefits more evenly throughout the state. The program will work to bring companies to established "centers," such as the Savannah, Middle Georgia, Columbus, Southeast Georgia, and Augusta regions. While these ventures are notable, this analysis focuses mainly on the Atlanta region because Florida's thesis is almost completely urban-oriented.

The Atlanta Smart City campaign, although discontinued, still provides some information on the region's growth during the 1990s. Between 1992 and 2001, Atlanta saw an increase of 684,300 jobs, which was the largest increase in the country during that period. The city currently attracts between 60,000 and 70,000 new residents each year, again the largest in the country.¹⁷ The city also markets its higher education institutions; the Atlanta Regional Consortium for Higher Education (ARCHE) states that metro

¹⁷ www.atlantasmartcity.com/html/work/overview.html.

Atlanta “ranks second nationally in the production of engineering and related technology graduates and fourth in computer science degrees.”¹⁸ Atlanta Smart City also points out that Atlanta ranked second in “Where to Locate a Technology Business” by AT Kearney in 2001.¹⁹

The Atlanta Smart City Campaign

The Atlanta Smart City campaign began in the late 1990s at the Metro Atlanta Chamber of Commerce. Atlanta and the nation were experiencing a period of high economic growth, and the Chamber hoped to attract talent to staff its growing business sectors. The Chamber’s workforce development policy focuses on attracting, not fostering, talent. Rosita Smith was hired to manage the campaign and to address workforce attraction and retention in metro Atlanta. Ms. Smith noted in a recent interview²⁰ that the Chamber struggled with measuring the impact of the Atlanta Smart City campaign on workforce attraction.

Because the campaign was short lived, any potential long term analysis was impossible. However, Ms. Smith stated in that same interview that workforce attraction will not be a priority when the economy improves; the Chamber will focus more on fostering and retaining local talent. In fact, the Chamber’s recent industry targets include logistics, biosciences, software development, and headquarters. While these sectors are popular targets among metro Chambers across the county, Ms. Smith argues that they were chosen in part based on local workforce assets. Economic development strategies that emphasize workforce attraction over fostering local talent cannot be considered long

¹⁸ www.atlantasmartcity.com/html/learn/index.html.

¹⁹ www.atlantasmartcity.com/html/learn/rd.html.

²⁰ March 31, 2004: Rosita Smith, Business Development Manager, Economic Development Division, Metro Atlanta Chamber of Commerce.

term strategies. The Chamber was forced to abandon Atlanta Smart City as the economy suffered, realizing that it needed to focus on employing Atlanta's workers instead of the unemployed in other cities.

High-Tech Cities and Richard Florida's Creative Class

Atlanta's strategy for high-tech sector growth in the late 1990s (and currently) focused on importing talent, which would attract high-tech firms and spur a technology-based economy. GRA, ATDC, and ICAPP helped foster high-tech start-ups, but the focus on economic development policies in the Metro Atlanta Chamber of Commerce rested on attracting a certain type of workforce. This targeted talent mirrors Florida's Creative Class, an innovative group of highly mobile, technology-educated workers. Florida defines his new class generally; specific definitions are left to interpretation. However, the most important factor that defines a worker as a member of this class is if that person works in a creative profession (Florida never concretely defines "profession," either). In an interview with *Planning* magazine (2002), Florida defined "creativity" as "the ability to create meaningful new forms."²¹ Florida argues that "creativity is the driving force of economic growth,"²² and that economic developers should focus on targeting these workers instead of the traditional focus on targeting companies.

Florida specifies a sub-class within his Creative Class: the Super Creative Core. Creative Class members include professions "in business and finance, law, health care and related fields," which surround the core professions in "science and engineering, architecture and design, education, arts, music and entertainment."²³ The core includes those whose work revolves around the creation of new ideas, while the periphery

²¹ Langdon (2002), 11.

²² Florida (2002), xxvii.

²³ Ibid, 8.

members of the Creative Class need only be employed in careers that demand critical thinking. Florida further asserts that his Creative Class – with 38 million members in the United States alone, or 30% of all employed Americans – “values creativity, individuality, difference, and merit.”²⁴ This quality allows Florida to use measures such as the “Gay Index” and other indicators of tolerance in a city; he argues that tolerant cities will attract the Creative Class.

The Creative Class is growing, according to Florida, and its members’ preferences should shape decisions that cities make regarding quality of life issues. Florida asserts that this class despises hierarchical organizational structures, preferring instead business climates that support independence of thought and action. The Creative Class also gravitates toward diverse cities with strong arts cultures, historical buildings, and urban streetscapes. Florida advises cities to fund local universities over stadiums to attract and retain this class. He also encourages cities to research the quality of life preferences of educated residents, and invest in those preferences.²⁵

A recent article (2004) by Richard Florida applies his thesis to a recent decline in creative jobs in the United States. While many states are concerned about the outsourcing of manufacturing jobs overseas, Florida sees a similar trend in his creative sector. He argues that domestic firms are exporting “hundreds of thousands of white-collar brains jobs – everything from software coders to financial analysts for investment bankers.”²⁶ This article is an important update to the book because it shifts Florida’s argument from a growing Creative Class to one that is declining. His argument remains that the United States depends on these creative workers for economic growth and

²⁴ Ibid.

²⁵ Langdon (2002), 13.

²⁶ *Washington Monthly* (2004), 30.

innovative technology. A potential solution to reduce outsourcing, he argues, is to increase funding to the university system.

The applicability of Florida's book in a 2004 outsourcing economy is also addressed by Lionel Barber, United States managing editor of the *Financial Times*. In a recent article (2004) published in *The Economist*, Barber argues that "the shift towards a more flexible, knowledge-based workforce will accelerate in 2004 as American companies adjust to the demands of the global marketplace."²⁷ The most important aspect of creative workers in the current economy is flexibility; American corporations will pursue business decisions that reduce costs and increase efficiency, shedding many workers who are unable to alter their careers in response to a shifting economy. Barber also discusses the impact of Creative Class mobility on large cities, arguing that these cities may not be able to offer a competitive quality of life for creative workers. Smaller cities in geographically desirable areas offer lower property taxes and less crowded living, and have begun to attract these creative workers. His definition of the Creative Class, borrowed from Kevin Stolarick at Carnegie Mellon University, shows that Athens, Georgia, houses one of the nation's fastest growing creative populations, with a 41% increase between 1999 and 2004.

Criticisms of Florida's thesis concern his lack of a concrete definition of his Creative Class and lack of clear policy recommendations. David Sawicki (2003), a professor of city and regional planning at Georgia Tech, states that Florida's "arguments for its [the book's] connection to the actual processes of regional economic development are virtually nonexistent."²⁸ Florida ignores past researchers who have worked on the

²⁷ *The Economist* (2004), 30.

²⁸ *APA Journal* (2003), 90.

importance of occupation in economic development, according to Sawicki. His statistics, especially the “tolerance” index, are also flawed; Sawicki argues that Florida presents weak and contradictory statistical evidence to support his claims. Sawicki’s strongest criticism of Florida involves the weak and high-level economic development policy goals that emerge from the book.

A different measurement of “high-techness” comes from a recent article by Karen Chapple, Ann Markusen, Greg Schrock, Daisaku Yamamoto, and Pingkang Yu (2004). Their study favors large industrial cities over smaller cities; this finding contradicts Florida and other authors whose rankings credit many smaller cities with a stronger technology sector than larger cities. The authors achieved this ranking by employing a more inclusive definition of high-tech that incorporates science and technology industries. Chapple et al argue that, “some of the other studies, by using high-tech employment shares rather than total high-tech employment, penalize larger and more diversified cities with an older industrial base, even when they have successfully generated and retained large numbers of high-tech jobs.”²⁹ In addition, while some authors, arguably including Florida, ignore the high-tech service sector, Chapple et al includes that sector in their rankings. The authors conclude that narrow high-tech rankings favor small specialized cities over more diversified larger cities, even though, they argue, “specialization brings with it vulnerability.”³⁰ Using a measure of science and technology strength instead of just “high-techness,” Chapple et al create a more human capital oriented ranking system that encourages economic development practitioners to diversify among high-tech sectors.

²⁹ Chapple et al (2004), 11.

³⁰ Ibid.

Comparing the economic numbers promoted by Atlanta Smart City to the Chapple et al article highlights some weaknesses in Atlanta's high-tech sector share. Chapple et al point out that large employment gains during the 1990s do not necessarily indicate an increasing number of high-tech jobs in a city. According to Chapple et al, "Atlanta added 642,000 jobs from 1991 to 1999, despite the middling size of its high-tech workforce and its comparatively low degree of concentration."³¹ Using the measurement of high-tech job share provided by Chapple et al, Atlanta ranked 20th in 1997 with 10.2% while ranking first between 1991 and 1999 for absolute job growth. In terms of high-tech manufacturing, Chapple et al rank Atlanta poor in that sector, along with Houston, San Antonio, and Las Vegas. Chapple et al conclude that diversification within high-tech industries provides cities with a more secure economic development strategy.

Creative Class Attraction and Retention

Assuming that a city decides to implement strategies to attract and retain some definition of the Creative Class, policymakers will have to turn to other sources for recommendations on how to proceed past the problem identification phase. Florida does not offer concrete policy suggestions in his book that can be implemented by a city lacking in its share of the "creative" other than leveraging its natural assets. However, workforce development and occupational economic development scholars have discussed this issue for decades; in addition, other articles by Florida offer some suggestions for attraction strategies.

An article written by Richard Florida presents a survey of young "knowledge workers" conducted in 2000. The interviewees were asked what they look for in a city, or on what they base their location decisions. Leading the list is "quality of place –

³¹ Ibid, 18.

particularly natural, recreational, and lifestyle amenities.”³² He points out that high-tech cities like Austin and Seattle have invested heavily in bike paths, parks, and water recreation. Florida argues that cities should fund improvements in quality of life measures in order to attract and retain the Creative Class.

Another article by Florida, published in June 2001, discusses the importance of tolerance in a potentially high-tech city. “Open-minded” cities, as measured by a city’s gay population, measure higher in Florida’s high-tech rankings. To a lesser extent, a large artist population and foreign-born population, separately, also predict a high ranking in Florida’s article. However, while the “gay index” and other tolerance measures seem to coincide with a city’s high-tech rank in Florida’s measure, Sawicki points out that the percentage of African-Americans in a city actually runs counter to that high-tech rank.³³ Therefore, “tolerance” must be understood as specifically gay, artist, and foreign-born focused.

Employing services to attract certain types of residents is a tactic commonly used by cities to compete with each other for workforce quality. Charles Tiebout (1956) argues that, at the local level, cities exist to provide citizens with services; these communities attempt to increase scale until the good (in this case, services aimed at the Creative Class) begins to congest. Tiebout states that people congregate in communities on the basis of homogenous preferences. Communities attract like-minded residents, reducing the value diversity of pluralism and creating an entire society of homogenous residents. The structure works as long as citizens are willing to “vote with their feet,” or move to another community. Based on this knowledge, communities can provide the

³² Florida (2000), 5.

³³ *APA Journal* (2003), 91.

appropriate types and amounts of goods and services that will attract people to their communities.³⁴ Correctly interpreting the preferences of the Creative Class can be tricky, especially since its definition can be interpreted to encompass different sets of workers. However, Florida asserts some general assets that a city should leverage, including historical buildings, recreation, an arts scene, and education.

Cities may decide to develop their local workforce instead of importing talent as an economic development strategy. W.R. Thompson and P.R. Thompson (1985) focus on improving the quality of a city's existing workforce through workforce development initiatives. The authors argue that an occupational-functional approach, combined with the traditional export base theory and comparative advantage, is the best method to strengthen a community's economic base. The occupational-functional approach focuses on the existing workers within a community, instead of new employment. Thompson and Thompson criticize economic development plans that only use export industry targeting.³⁵ Florida is mostly silent on the issue of developing a local Creative Class; his discussions of funding for education are mainly aimed at the university level.

Quality of Life in Atlanta: a Marketable Asset?

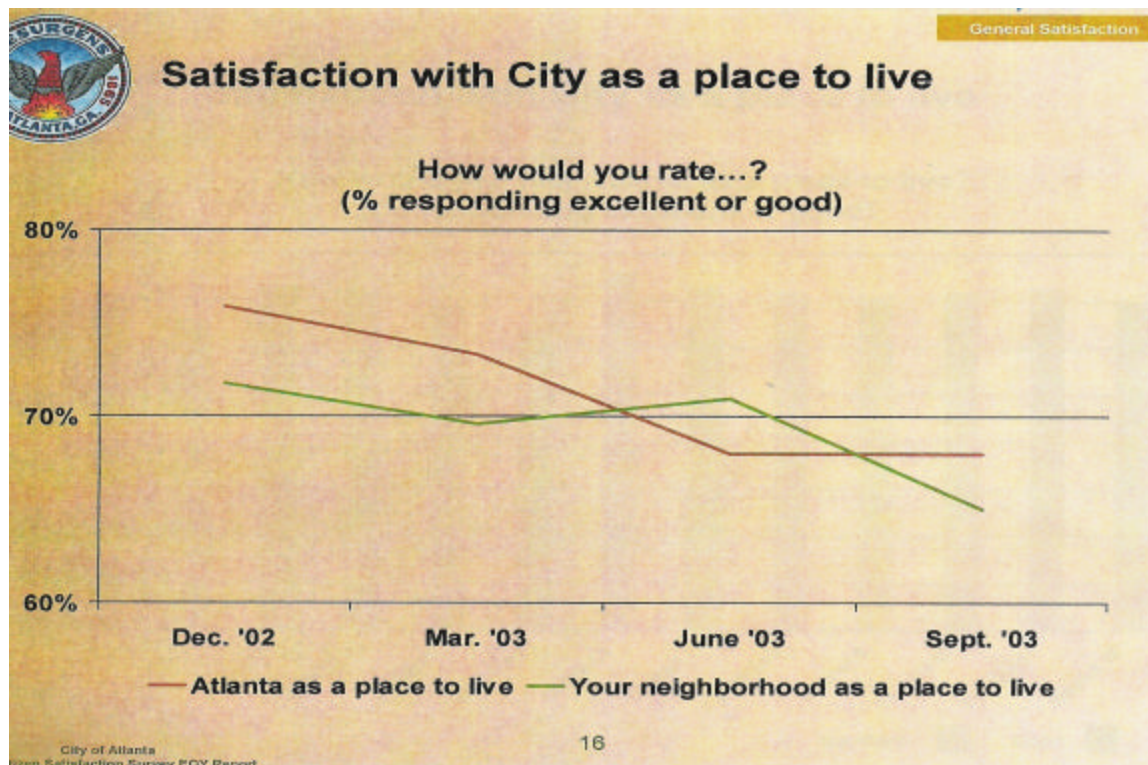
Thompson and Thompson's focus on fostering local talent proves an important strategy for large cities like Atlanta. As the city expands, quality of life issues become more important as the city's infrastructure suffers from that population boom. The quality of Atlanta's workforce may depend more on its local talent than attracting a quantity of new workers. According to a survey conducted by the City of Atlanta in 2003, the percentage of Atlanta residents satisfied with the city as a place to live dropped

³⁴ Tiebout (1956).

³⁵ Thompson and Thompson (1985).

dramatically between 2002 and 2003.³⁶ Some of this decline can be blamed on the current sewer crisis, which is a result of a crowded city with an antiquated infrastructure. Other problems that plague Atlanta, as well as many other large cities, are traffic congestion, pollution, and urban sprawl.

Figure 9: “Satisfaction with Atlanta as a Place to Live” 2003



Source: City of Atlanta

While Atlanta is suffering from a strain on its infrastructure, the city does offer a quality of life that has attracted hundreds of thousands of transplants over the last decade. The Atlanta Smart City campaign marketed Atlanta’s arts scene, proximity to recreation, mild climate, and nightlife. The city also boasts numerous parks, and the Trees Atlanta program works to maintain greenspace in the city. However, competition from Tier Two

³⁶ “2003 Citizen Satisfaction Survey EOY Report.”

cities in these amenities, as well as in lower taxes and less congestion may harm Atlanta's ability to attract and retain talent.

John D. Kasarda and Michael D. Irwin (1991) take a human ecological perspective in their analysis of local job growth. This perspective considers “transportation access, population density, agglomeration economies . . . , age of public and private infrastructure, and economic conditions in adjacent, functionally integrated market areas.”³⁷ Kasarda and Irwin argue that modern telecommunication and transportation has limited the need for density in economic growth, but that high-density cities suffer from “congestion, more costly land and rents, [and] limited room for expansion.”³⁸ The authors state that most firms choose low-density areas when deciding to relocate. While dated, this analysis supports current trends in the economic growth of Tier Two cities. Atlanta may not be able to compete with these cities in terms of its quality of life, but should increase its focus on local entrepreneurship assets to attract the Creative Class.

Leveraging Atlanta's Entrepreneurship and Intellectual Capital Assets

Atlanta may attract and retain more of the Creative Class by marketing its entrepreneurship support structures and its research universities in addition to its quality of life. GRA, ATDC, and ICAPP all provide support services for new high-tech businesses, but an analysis of tax incentives across business types shows that intellectual capital firms do not benefit from Georgia's traditional incentives package. A study on economic development incentives and the bioscience industry, conducted by Ernst & Young for GRA in 2003, argues that companies with “small numbers of employees but

³⁷ Kasarda and Irwin (1991), 736.

³⁸ Ibid, 737.

high investments in intellectual capital” do not benefit from traditional income tax credits.³⁹ This is because these types of companies “do not usually have profits upon relocation or expansion.”⁴⁰ The study argues that economic development packages aimed at small bioscience firms should supply “tax incentive programs that provide an immediate cash benefit such as sales and use tax exemptions on the purchase of research and development equipment and refundable or saleable income tax credits and/or unused net operating loss carry forwards.”⁴¹

This study can be aggregated to any small firm dependant on significant investments in intellectual capital. Tax incentive programs like the ones suggested by Ernst & Young would “provide a steady source of capital during the critical development stages.”⁴² The study criticize s specific incentives provided by the State of Georgia, including the “Research and Development Tax Credit” (O.C.G.A. Code 48-7-40.12). This credit requires a firm to maintain a positive net income for a period of three years prior to receiving the credit, which might be difficult to achieve in high-tech firms. The “Investment Tax Credit” (O.C.G.A. Code 48-7-40.2 through 40.4) seems to be tailored to existing firms that are attempting to expand within the state; new firms that do not have facilities could not earn this credit. Finally, the “Headquarters Job Tax Credit” (O.C.G.A. Code 48-7-40.2) requires a firm to have 100 or more employees to qualify for a tax break.

Atlanta can also leverage its existing technology partnerships to more fully take advantage of the benefits of “clusters.” Michael E. Porter (2000) defines clusters as

³⁹ Ernst & Young (2003), 1.

⁴⁰ Ibid.

⁴¹ Ibid.

⁴² Ibid.

“geographic concentrations of interconnected companies,”⁴³ and argues that location is important in securing competitive advantage in an advanced economy. He further states that “clusters are a driving force in increasing exports and are magnets for attracting foreign investment.”⁴⁴ Clusters benefit from a trained workforce, geographic proximity to shipping destinations, and innovation gains. High-tech companies rely on access to innovation and intellectual capital; clusters provide a mechanism for technology transfer. These industries will expand with the addition of new technology firms to these clusters.

ATDC, GRA, and ICAPP all function as cluster facilitators; those assets should be marketed as a workforce attraction tool in addition to Atlanta’s quality of life assets. Atlanta Smart City, the Chamber’s main marketing tool to attract talent to the region, provides some information on those programs but focuses mostly on Atlanta’s existing large businesses. The talent targeted by the Chamber is by definition creative, and may be more attracted to a city that boasts its entrepreneur support over its largest employers. Atlanta should focus on these entrepreneurship facilitators for another reason: it may not be able to compete against other, smaller cities in the Southeast for a high quality of life.

Conclusions and Policy Implications for the Atlanta Region

The Atlanta region grew dramatically in the 1990s in a population boom that outpaced the national average by 300%. However, the type of resident it intended to attract in the late 1990s remained elusive; between 1990 and 2000, Atlanta’s share of residents between 25 and 44 declined with national trends. Atlanta also did not increase its share of educated workers at a rate higher than its peer cities or the national average. The region had the lowest percentage growth in per capita income of other southeastern

⁴³ Porter (2000), 15.

⁴⁴ Ibid, 16.

cities and the nation between 1990 and 2000. Atlanta has a more diverse economy within the Creative Class than the other cities, however, based on its location quotients and shift-shares in select SIC industries. This shift-share analysis correlates with the Chapple et al study on diversified economies in large cities.

While the Atlanta region lacks certain quality of life benefits that are available in smaller cities, it can leverage its entrepreneurship assets to attract its targeted talent. It is obvious from the demographic and economic analyses that the current strategies to attract the Creative Class have not given Atlanta an advantage over other southeastern cities. The region must focus more on marketing and expanding its entrepreneur programs like GRA, ICAPP, and ATDC, and on refashioning current incentives to make the region more attractive to new, high-tech firms. Richard Florida's Creative Class may not be attracted solely to a high quality of life, but may be drawn to cities that also encourage and support individual economic growth outside of the existing large business structure.

Most importantly, Atlanta must focus on its local human capital resources as a more stable workforce development strategy. The threat of mobility that Florida's Creative Class holds over cities might be overcome by developing local talent and convincing Atlanta natives to remain in the region. Investments in education, small business development, and other programs aimed at local talent could provide sustainable economic growth in the future. Investigating and implementing a refashioning of tax incentives to aid small businesses, as analyzed by Ernst & Young, should also be included in a more locally-driven economic development strategy. While focusing on local talent instead of workforce attraction is easier during economic downturns than during economic booms, Atlanta must continue to foster a stable workforce throughout

economic cycles by supporting its local talent. Atlanta should sell itself to its own residents, and, when the economy improves, its local talent might show more loyalty to the city than Florida's thesis predicts.

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Appendix A: “Shift-Share and Location Quotient Analyses”

Athens, GA MSA

SIC	Description	1997	2000	Change	%Change	National Share	Industry Mix	Regional Shift	Shift-Share	LQ 1997	LQ 2000
17	Special trade contractors	1670	1819	149	8.92%	173	155	-178	149	0.83	0.86
20	Food and kindred products	3170	3073	-97	-3.06%	328	-326	-99	-97	3.29	3.65
23	Apparel and other textile mill products	859	597	-262	-30.50%	89	-286	-64	-262	1.83	1.89
30	Rubber and misc. plastic products	444	464	20	4.50%	46	-39	13	20	0.78	0.92
32	Stone, clay and glass products	484	475	-9	-1.86%	50	-26	-33	-9	1.54	1.65
37	Transportation equipment	283	444	161	56.89%	29	-27	159	161	0.27	0.48
49	Electric, gas, and sanitary services	317	279	-38	-11.99%	33	-38	-33	-38	0.64	0.66
55	Automotive dealers and service stations	1229	1265	36	2.93%	127	-72	-19	36	0.94	1.05
58	Eating and drinking places	5518	5137	-381	-6.90%	571	-220	-732	-381	1.27	1.27
59	Misc. retail	2642	2093	-549	-20.78%	273	-1	-821	-549	1.66	1.36
63	Insurance carriers	215	226	11	5.12%	22	-13	1	11	0.27	0.31
72	Personal services	677	715	38	5.61%	70	-38	6	38	1.00	1.15
73	Business services	3049	2991	-58	-1.90%	315	392	-765	-58	0.67	0.61
75	Auto repair, services, and parking	593	615	22	3.71%	61	-3	-36	22	0.93	1.00
81	Legal services	415	415	0	0.00%	43	-16	-27	0	0.77	0.82
87	Engineering & management services	490	690	200	40.82%	51	20	129	200	0.29	0.40
TOTAL		22055	21298	-757	51.51%						

Atlanta, GA MSA

SIC	Description	1997	2000	Change	%Change	National Share	Industry Mix	Regional Shift	Shift-Share	LQ 1997	LQ 2000
1	Agricultural and production crops	1136	715	-421	-37.06%	87	-104	-404	-421	0.12	0.08
2	Agricultural production livestock	307	330	23	7.49%	23	6	-6	23	0.10	0.11
17	Special trade contractors	61828	77083	15255	24.67%	4724	7395	3136	15255	1.04	1.19
20	Food and kindred products	23437	24849	1412	6.02%	1791	-1776	1397	1412	0.83	0.83
22	Textile mill products	12356	10160	-2196	-17.77%	944	-2675	-465	-2196	1.19	1.19
23	Apparel and other textile mill products	8852	7529	-1323	-14.95%	676	-2712	713	-1323	0.64	0.64
25	Furniture and fixtures	5192	5599	407	7.84%	397	57	-47	407	0.61	0.61
26	Paper and allied products	13415	12766	-649	-4.84%	1025	-1599	-75	-649	1.17	1.17
28	Chemicals and allied products	10229	10533	304	2.97%	781	-813	336	304	0.59	0.59
29	Petroleum and coal products	474	645	171	36.08%	36	-76	211	171	0.20	0.20
30	Rubber and misc. plastic products	13207	14262	1055	7.99%	1009	-804	850	1055	0.79	0.79
32	Stone, clay and glass products	9068	9595	527	5.81%	693	-250	84	527	0.98	0.98
33	Primary metal industries	8449	8053	-396	-4.69%	646	-777	-265	-396	0.71	0.71
34	Fabricated metal products	11202	11738	536	4.78%	856	-428	108	536	0.45	0.45
36	Electronic and other electronic equipment	18567	17907	-660	-3.55%	1419	-1174	-905	-660	0.66	0.66
37	Transportation equipment	21905	20857	-1048	-4.78%	1674	-1531	-1191	-1048	0.71	0.71
38	Instruments and related products	7457	7219	-238	-3.19%	570	-757	-51	-238	0.52	0.52
39	Misc. manufacturing industries	3382	4404	1022	30.22%	258	-254	1018	1022	0.52	0.52

41	Local and interurban passenger transit	3667	3755	88	2.40%	280	49	-242	88	0.50	C
45	Transportation by air	47559	57176	9617	20.22%	3634	2639	3345	9617	2.48	2
46	Pipelines, except natural gas	394	425	31	7.87%	30	-56	57	31	1.65	1
47	Transportation services	12091	12728	637	5.27%	924	-145	-142	637	1.65	1
48	Communication	52288	61986	9698	18.55%	3995	4865	838	9698	2.20	2
49	Electric, gas, and sanitary services	12435	12467	32	0.26%	950	-1153	235	32	0.86	C
50	Wholesale trade durable goods	114369	123399	9030	7.90%	8738	-1246	1538	9030	1.73	1
51	Wholesale trade nondurable goods	49271	52053	2782	5.65%	3764	-2158	1175	2782	1.08	1
54	Food stores	53815	55464	1649	3.06%	4111	-4023	1561	1649	0.92	C
55	Automotive dealers and service stations	34234	36483	2249	6.57%	2615	-1075	708	2249	0.89	C
58	Eating and drinking places	129500	141430	11930	9.21%	9894	-1658	3694	11930	1.01	1
59	Misc. retail	40724	47855	7131	17.51%	3111	1080	2940	7131	0.87	C
60	Depository Institutions	29343	29251	-92	-0.31%	2242	-2220	-114	-92	0.86	C
62	Security and commodity brokers	6493	8587	2094	32.25%	496	1217	381	2094	0.65	C
63	Insurance carriers	26086	25503	-583	-2.23%	1993	-822	-1754	-583	1.11	1
65	Real estate	24308	27656	3348	13.77%	1857	-289	1779	3348	1.03	1
70	Hotels and other lodging places	25377	27458	2081	8.20%	1939	151	-9	2081	0.87	C
72	Personal services	18409	19685	1276	6.93%	1406	-537	407	1276	0.92	C
73	Business services	193108	230950	37842	19.60%	14753	30050	-6961	37842	1.44	1
75	Auto repair, services, and parking	20473	22522	2049	10.01%	1564	450	34	2049	1.09	1
76	Misc. repair services	5211	6081	870	16.70%	398	-511	982	870	0.83	C

79	Amusement and recreation services	20650	22503	1853	8.97%	1578	657	-381	1853	0.77	C
80	Health services	111874	124392	12518	11.19%	8547	-3819	7790	12518	0.69	C
81	Legal services	16045	18757	2712	16.90%	1226	-168	1654	2712	1.01	1
82	Educational services	24976	28137	3161	12.66%	1908	1458	-205	3161	0.97	C
83	Social services	25989	30339	4350	16.74%	1986	1764	600	4350	0.63	C
87	Engineering & management services	54773	66600	11827	21.59%	4185	3730	3912	11827	1.09	1
TOTAL		1383925	1537886	153961	11.12%						

Birmingham

SIC	Description	1997	2000	Change	%Change	National Share	Industry Mix	Regional Shift	Shift-Share	LQ 1997	LQ 2000
17	Special trade contractors	15809	17550	1741	11.01%	1464	1635	-1358	1741	1.14	1
20	Food and kindred products	6617	6319	-298	-4.50%	613	-609	-302	-298	1.00	1
32	Stone, clay and glass products	2879	2718	-161	-5.59%	267	-126	-302	-161	1.33	1
34	Fabricated metal products	7059	6703	-356	-5.04%	654	-384	-626	-356	1.22	1
37	Transportation equipment	2056	1997	-59	-2.87%	190	-177	-72	-59	0.29	0
38	Instruments and related products	341	266	-75	-21.99%	32	-40	-66	-75	0.10	0
41	Local and interurban passenger transit	1154	910	-244	-21.14%	107	-3	-348	-244	0.68	0
47	Transportation services	727	795	68	9.35%	67	-20	21	68	0.42	0
48	Communication	9928	10493	565	5.69%	919	763	-1117	565	1.79	1
50	Wholesale trade durable goods	22513	22124	-389	-1.73%	2085	-610	-1864	-389	1.46	1
51	Wholesale trade nondurable goods	10077	10551	474	4.70%	933	-605	145	474	0.95	1
55	Automotive dealers and service stations	8377	8664	287	3.43%	776	-399	-90	287	0.93	0
58	Eating and drinking places	25296	28224	2928	11.57%	2342	-734	1319	2928	0.85	0
59	Misc. retail	9627	9910	283	2.94%	891	99	-708	283	0.88	0
60	Depository Institutions	10629	12037	1408	13.25%	984	-976	1400	1408	1.34	1
72	Personal services	4705	4580	-125	-2.66%	436	-214	-347	-125	1.01	0
73	Business services	31628	34091	2463	7.79%	2929	4409	-4875	2463	1.01	0
75	Auto repair, services, and parking	4358	4775	417	9.57%	404	25	-12	417	0.99	1
76	Misc. repair services	1830	2154	324	17.70%	169	-209	363	324	1.25	1
79	Amusement and recreation services	3863	4466	603	15.61%	358	60	185	603	0.62	0
80	Health services	42673	42119	-554	-1.30%	3952	-2148	-2357	-554	1.13	1

81	Legal services	4840	5198	358	7.40%	448	-129	39	358	1.30	1
83	Social services	5939	6649	710	11.95%	550	307	-147	710	0.62	0
87	Engineering & management services	9684	10853	1169	12.07%	897	503	-230	1169	0.82	0
	TOTAL	242609	254146	11537	4.76%						

Jacksonville

SIC Description	1997	2000	Change	%Change	National Share	Industry Mix	Regional Shift	Shift-Share	LQ 1997	LQ 2000
07 Agricultural Services	3636	4112	476	13.09%	265	244	-33	476	0.94	1.12
08 Forestry	347	311	-36	-10.37%	25	12	-73	-36	3.31	3.31
15 General Building Contractors	5909	8037	2128	36.01%	431	445	1252	2128	1.12	1.12
16 Heavy Construction, ex. Building	3692	3757	65	1.76%	269	191	-395	65	1.16	1.16
17 Special Trade Contractors	17978	18228	250	1.39%	1312	2212	-3274	250	1.26	1.26
23 Apparel and Other Textile Products	289	316	27	9.34%	21	-88	93	27	0.09	0.09
27 Printing and Publishing	3762	3800	38	1.01%	275	-287	50	38	0.61	0.61
28 Chemicals and Allied Products	2067	1951	-116	-5.61%	151	-157	-110	-116	0.50	0.50
30 Rubber and Misc. Plastics Products	1230	1005	-225	-18.29%	90	-71	-244	-225	0.31	0.31
31 Leather and Leather Products	378	420	42	11.11%	28	-113	127	42	1.04	1.04
34 Fabricated Metal Products	3404	3620	216	6.35%	248	-118	86	216	0.57	0.57
35 Industrial Machinery and Equipment	2448	2045	-403	-16.46%	179	-242	-340	-403	0.28	0.28
36 Electronic & Other Electric Equipment	783	870	87	11.11%	57	-47	77	87	0.12	0.12
38 Instruments and Related Products	2432	3257	825	33.92%	177	-238	886	825	0.70	0.70
41 Local and Interurban Passenger Transit	2483	2681	198	7.97%	181	42	-25	198	1.43	1.43
42 Trucking and Warehousing	9791	10390	599	6.12%	714	284	-400	599	1.46	1.46
45 Transportation By Air	5188	5027	-161	-3.10%	379	306	-845	-161	1.13	1.13
47 Transportation Services	2204	2243	39	1.77%	161	-19	-103	39	1.25	1.25
48 Communication	6482	8908	2426	37.43%	473	625	1328	2426	1.14	1.14
50 Wholesale Trade Durable Goods	16708	19026	2318	13.87%	1219	-125	1224	2318	1.06	1.06
51 Wholesale Trade Nondurable Goods	10757	10866	109	1.01%	785	-434	-242	109	0.98	0.98
52 Building Materials & Garden Supplies	3964	4710	746	18.82%	289	114	343	746	1.07	1.07
53 General Merchandise Stores	11977	13194	1217	10.16%	874	-67	410	1217	1.11	1.11

54 Food Stores	19409	22334	2925	15.07%	1416	-1385	2893	2925	1.39	
55 Automotive Dealers & Service Stations	10950	11255	305	2.79%	799	-306	-188	305	1.18	
56 Apparel and Accessory Stores	3884	4855	971	25.00%	283	-9	696	971	0.86	
57 Furniture and Home furnishings Stores	3639	3901	262	7.20%	266	231	-234	262	0.91	
58 Eating and Drinking Places	32787	33354	567	1.73%	2392	-307	-1518	567	1.07	
59 Miscellaneous Retail	9158	10251	1093	11.93%	668	274	151	1093	0.82	
60 Depository Institutions	10520	11489	969	9.21%	768	-760	961	969	1.29	
64 Insurance Agents, Brokers, & Service	3344	3525	181	5.41%	244	-99	36	181	1.14	
65 Real Estate	6218	6231	13	0.21%	454	-53	-388	13	1.09	
67 Holding and Other Investment Offices	2483	1373	-1110	-44.70%	181	96	-1387	-1110	2.81	
70 Hotels and Other Lodging Places	7169	8286	1117	15.58%	523	67	527	1117	1.03	
72 Personal Services	4888	4910	22	0.45%	357	-126	-209	22	1.02	
73 Business Services	47199	56698	9499	20.13%	3444	7507	-1452	9499	1.47	
75 Auto Repair, Services, and Parking	5452	5905	453	8.31%	398	139	-83	453	1.21	
76 Miscellaneous Repair Services	2421	2043	-378	-15.61%	177	-229	-326	-378	1.61	
79 Amusement & Recreation Services	5060	6305	1245	24.60%	369	178	698	1245	0.79	
80 Health Services	40113	42940	2827	7.05%	2927	-1232	1132	2827	1.03	
81 Legal Services	4065	4027	-38	-0.93%	297	-29	-306	-38	1.07	
83 Social Services	8945	10192	1247	13.94%	653	638	-44	1247	0.91	
86 Membership Organizations	2801	3743	942	33.63%	204	45	693	942	0.69	
87 Engineering & Management Services	12231	12765	534	4.37%	892	875	-1233	534	1.01	
88 Private Households	1116	1012	-104	-9.32%	81	37	-223	-104	0.73	
99 Nonclassifiable Establishments	1034	900	-134	-12.96%	75	1354	-1563	-134	1.82	
TOTAL	362795	397068	34273	9.45%						

Nashville

SIC Description	1997	2000	Change	%Change	National Share	Industry Mix	Regional Shift	Shift-Share	LQ 1997	LQ 2000
SIC 01 Agricultural Production Crops	379	325	-54	-14.25%	31	-37	-48	-54	0.13	0.09
SIC 02 Agricultural Production Livestock	189	212	23	12.17%	15	3	5	23	0.21	0.24
SIC 07 Agricultural Services	3519	3479	-40	-1.14%	286	207	-533	-40	0.73	0.70
SIC 14 Nonmetallic Minerals, Except Fuels	652	625	-27	-4.14%	53	-31	-49	-27	1.20	1.16
SIC 15 General Building Contractors	7300	7732	432	5.92%	593	489	-650	432	1.11	1.06
SIC 16 Heavy Construction, ex. Building	3575	4146	571	15.97%	291	155	125	571	0.90	0.75
SIC 17 Special Trade Contractors	19434	21802	2368	12.18%	1579	2230	-1441	2368	1.10	0.91
SIC 20 Food and Kindred Products	5135	4713	-422	-8.22%	417	-414	-425	-422	0.61	0.59
SIC 21 Tobacco Products	653	725	72	11.03%	53	-153	172	72	3.17	2.73
SIC 22 Textile Mill Products	1772	1742	-30	-1.69%	144	-392	218	-30	0.57	0.56
SIC 23 Apparel and Other Textile Products	4033	2945	-1088	-26.98%	328	-1255	-161	-1088	0.98	0.36
SIC 25 Furniture and Fixtures	3228	3282	54	1.67%	262	20	-228	54	1.26	1.21
SIC 28 Chemicals and Allied Products	3036	3027	-9	-0.30%	247	-256	0	-9	0.59	0.58
SIC 29 Petroleum and Coal Products	39	63	24	61.54%	3	-6	27	24	0.06	0.10
SIC 30 Rubber and Misc. Plastics Products	6702	5639	-1063	-15.86%	545	-441	-1167	-1063	1.35	0.85
SIC 31 Leather and Leather Products	1179	1070	-109	-9.25%	96	-361	156	-109	2.61	2.30
SIC 32 Stone, Clay, and Glass Products	4150	4780	630	15.18%	337	-134	427	630	1.51	0.97
SIC 33 Primary Metal Industries	1994	1992	-2	-0.10%	162	-193	29	-2	0.56	0.55
SIC 34 Fabricated Metal Products	8462	9677	1215	14.36%	688	-364	892	1215	1.14	0.79
SIC 36 Electronic & Other Electric Equipment	9949	10513	564	5.67%	809	-678	433	564	1.18	0.67
SIC 37 Transportation Equipment	15665	15248	-417	-2.66%	1273	-1171	-519	-417	1.70	1.65
SIC 38 Instruments and Related Products	1094	1004	-90	-8.23%	89	-116	-63	-90	0.25	0.22

SIC 39 Miscellaneous Manufacturing Industries	2199	1849	-350	-15.92%	179	-176	-353	-350	1.13	C
SIC 45 Transportation By Air	4839	5367	528	10.91%	393	245	-110	528	0.85	C
SIC 47 Transportation Services	2135	2425	290	13.58%	174	-36	152	290	0.98	1
SIC 48 Communication	6446	8978	2532	39.28%	524	568	1440	2532	0.91	1
SIC 49 Electric, Gas, and Sanitary Services	1998	1784	-214	-10.71%	162	-195	-181	-214	0.46	C
SIC 50 Wholesale Trade Durable Goods	24010	23889	-121	-0.50%	1951	-379	-1694	-121	1.22	1
SIC 51 Wholesale Trade Nondurable Goods	13240	13330	90	0.68%	1076	-644	-342	90	0.97	C
SIC 52 Building Materials & Garden Supplies	5188	5573	385	7.42%	422	106	-143	385	1.13	1
SIC 54 Food Stores	10182	12668	2486	24.42%	828	-811	2469	2486	0.59	C
SIC 55 Automotive Dealers & Service Stations	12057	13028	971	8.05%	980	-437	428	971	1.05	1
SIC 57 Furniture and Home furnishings Stores	5802	5802	0	0.00%	472	320	-791	0	1.17	1
SIC 58 Eating and Drinking Places	39038	46153	7115	18.23%	3173	-690	4632	7115	1.02	1
SIC 59 Miscellaneous Retail	11597	15209	3612	31.15%	943	251	2419	3612	0.83	C
SIC 62 Security and Commodity Brokers	1669	2132	463	27.74%	136	305	23	463	0.56	C
SIC 63 Insurance Carriers	8158	9267	1109	13.59%	663	-297	743	1109	1.17	1
SIC 64 Insurance Agents, Brokers, & Service	4966	5885	919	18.51%	404	-189	704	919	1.37	1
SIC 65 Real Estate	6539	6805	266	4.07%	531	-110	-156	266	0.93	C
SIC 70 Hotels and Other Lodging Places	11966	13477	1511	12.63%	973	13	526	1511	1.38	1
SIC 72 Personal Services	5752	5983	231	4.02%	467	-196	-41	231	0.97	C
SIC 73 Business Services	42639	57261	14622	34.29%	3465	6427	4729	14622	1.07	1
SIC 75 Auto Repair, Services, and Parking	6146	6316	170	2.77%	500	105	-435	170	1.10	1
SIC 79 Amusement & Recreation Services	7736	7788	52	0.67%	629	208	-785	52	0.97	C
SIC 80 Health Services	51385	52600	1215	2.36%	4176	-2005	-957	1215	1.06	1
SIC 81 Legal Services	3237	3429	192	5.93%	263	-50	-21	192	0.68	C
SIC 83 Social Services	9269	10913	1644	17.74%	753	584	307	1644	0.76	C

SIC 84 Museums, Botanical, Zoological Gardens	500	476	-24	-4.80%	41	56	-121	-24	1.12	C
SIC 86 Membership Organizations	5365	5724	359	6.69%	436	42	-119	359	1.07	1
SIC 87 Engineering & Management Services	16395	18192	1797	10.96%	1332	1037	-572	1797	1.09	1
SIC 89 Services, Nec	135	411	276	204.44%	11	-4	269	276	0.54	1
TOTAL	422727	467455	44728	10.58%						

Richmond

SIC	1997	2000	Change	%Change	National Share	Industry Mix	Regional Shift	Shift-Share	LQ 1997	LQ 2000
1	532	461	-71	-13.35%	41	-49	-63	-71	0.35	0.24
2	81	94	13	16.05%	6	1	5	13	0.17	0.14
7	2878	3395	517	17.96%	221	182	114	517	1.16	0.92
15	6183	6400	217	3.51%	474	442	-700	217	1.84	1.26
20	4071	3617	-454	-11.15%	312	-310	-457	-454	0.94	0.63
23	1037	842	-195	-18.80%	80	-318	43	-195	0.49	0.39
24	1569	1772	203	12.94%	120	-68	151	203	0.77	0.64
25	1287	1519	232	18.03%	99	14	120	232	0.98	0.81
26	5826	5529	-297	-5.10%	447	-696	-48	-297	3.31	2.50
27	7068	6708	-360	-5.09%	542	-565	-337	-360	1.78	1.29
29	46	142	96	208.70%	4	-7	100	96	0.13	0.33
30	2728	3367	639	23.42%	209	-167	597	639	1.06	0.99
32	1381	1326	-55	-3.98%	106	-38	-123	-55	0.97	0.68
34	3495	2398	-1097	-31.39%	268	-135	-1231	-1097	0.92	0.46
35	4598	4512	-86	-1.87%	353	-471	33	-86	0.83	0.63
37	615	747	132	21.46%	47	-43	128	132	0.13	0.12
38	784	1035	251	32.02%	60	-80	271	251	0.35	0.36
39	1198	1350	152	12.69%	92	-90	151	152	1.19	1.02
41	1540	1629	89	5.78%	118	20	-49	89	1.38	1.02
45	3588	4030	442	12.32%	275	198	-31	442	1.22	0.92
47	1363	1338	-25	-1.83%	105	-17	-113	-25	1.21	0.85
48	5620	6979	1359	24.18%	431	521	407	1359	1.54	1.25
49	5004	4128	-876	-17.51%	384	-465	-794	-876	2.25	1.43
50	18973	18969	-4	-0.02%	1455	-212	-1247	-4	1.88	1.34
52	3474	4095	621	17.88%	266	87	268	621	1.47	1.20
53	11760	13574	1814	15.43%	902	-110	1022	1814	1.70	1.40
57	9608	9569	-39	-0.41%	737	573	-1349	-39	3.76	2.51
58	28716	29408	692	2.41%	2203	-376	-1134	692	1.46	1.07
60	14028	13088	-940	-6.70%	1076	-1066	-950	-940	2.69	1.91
61	7479	12332	4853	64.89%	574	850	3429	4853	5.07	5.35
62	3127	2877	-250	-7.99%	240	585	-1075	-250	2.04	1.13
63	9441	10230	789	8.36%	724	-300	365	789	2.63	2.07
64	3690	3879	189	5.12%	283	-123	29	189	1.98	1.51
65	5510	5624	114	2.07%	423	-67	-242	114	1.52	1.11
67	1040	981	-59	-5.67%	80	36	-175	-59	1.84	1.19
70	4746	5583	837	17.64%	364	27	446	837	1.06	0.88
73	34504	40267	5763	16.70%	2646	5359	-2242	5763	1.68	1.21
76	1189	1461	272	22.88%	91	-117	298	272	1.24	1.18
78	1462	1336	-126	-8.62%	112	7	-245	-126	1.04	0.67
82	4211	4709	498	11.83%	323	245	-70	498	1.07	0.80
83	9721	9342	-379	-3.90%	746	657	-1782	-379	1.54	0.99
84	352	509	157	44.60%	27	41	89	157	1.53	1.41
86	3903	4453	550	14.09%	299	48	202	550	1.51	1.21
87	9003	11768	2765	30.71%	691	610	1464	2765	1.17	1.01

89	254	103	-151	-59.45%	19	-6	-165	-151	1.99	0.58
TOTAL	248683	267475	18792	7.56%						

Appendix B: “The 15 Fastest Growing Occupations in Metro Atlanta”

SOC _Code	Occupational Title	Employment		Total Growth	% Change	Annual Growth	Annual		Total Annual
		2000	2010			Rate	Openings	Replacements	Openings
		15-1031	Computer Software Engineers, Applications	1,948	4,592	2,644	135.73	8.95	264
15-1030	Computer Software Engineers	3,080	7,040	3,960	128.57	8.62	396	21	417
15-1041	Computer Support Specialists	2,889	6,500	3,611	124.99	8.45	361	12	373
15-1032	Computer Software Engineers, Systems Software	1,132	2,448	1,316	116.25	8.02	132	8	140
15-1071	Network and Computer Systems Administrators	1,275	2,738	1,463	114.75	7.94	146	5	151
31-9092	Medical Assistants	818	1,753	935	114.30	7.92	94	22	116
31-1011	Home Health Aides	1,067	2,246	1,179	110.50	7.73	118	14	132
15-1000	Computer Specialists	14,045	27,918	13,873	98.78	7.11	1387	131	1518
15-0000	Computer and Mathematical Occupations	14,530	28,836	14,306	98.46	7.09	1431	144	1575
15-1051	Computer Systems Analysts	1,687	3,319	1,632	96.74	7.00	163	15	178
13-1111	Management Analysts	1,484	2,882	1,398	94.20	6.86	140	13	153
13-1030	Claims Adjusters, Appraisers, Examiners, and Inves	1,329	2,428	1,099	82.69	6.21	110	15	125
13-1031	Claims Adjusters, Examiners, and Investigators	1,249	2,276	1,027	82.23	6.18	103	14	117
31-1010	Nursing, Psychiatric, and Home Health Aides	4,565	8,115	3,550	77.77	5.92	355	58	413
25-2011	Preschool Teachers,	1,790	3,170	1,380	77.10	5.88	138	22	160

	Except Special Education									
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Source: Georgia Department of Labor (2003)