Florida and its Major Metropolitan Areas: Measuring Economic Performance and Competitiveness

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ABSTRACT

From the highs of the housing bubble to the lows of the Great Recession, the Florida economy experienced significant change during the first decade of the twenty first century. This study explores the performance of the state and its major MSAs both in terms of economic growth and employment. In order to explore the relative competitiveness of each area, dynamic shift-share analysis was used to isolate the effects of national growth, industrial composition, and regional competitiveness in explaining the performance of each area's employment growth. While the industrial structure had a small positive impact on job growth for Florida and its metropolitan areas, regional competitiveness differed noticeably. Once one removes the effects of industrial structure and national growth, most areas exhibited positive competitive effects, led by Orlando and Jacksonville. Only Tampa had a negative competitive position. Though a detailed analysis is beyond the scope of this study, the primary factor found to help explain the relative competitiveness of each area was its skills ratio: the ratio of adults with college degrees to those without a high school diploma, which showed a correlation of 0.61 with competitiveness. This suggests at least a two-fold strategy for promoting job creation: strengthening efforts to increase high school graduation rates while also increasing the number of college graduates.

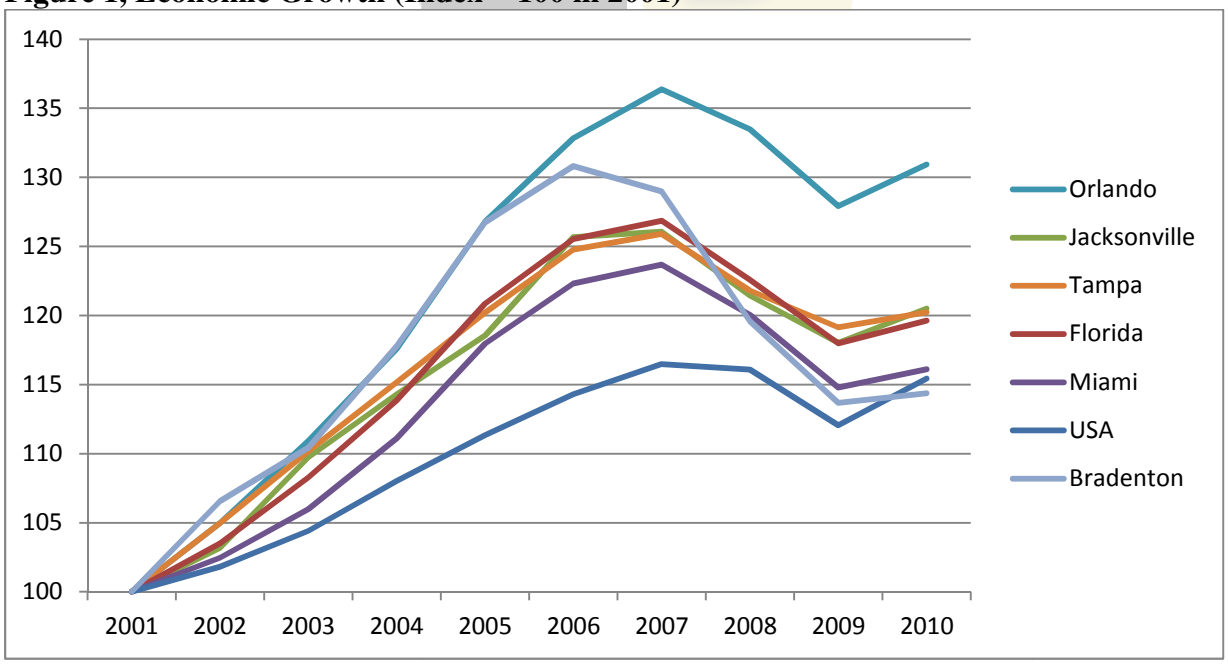
Florida and its Metropolitan Areas: Measuring Economic Performance and Competitiveness

From the highs of the housing bubble to the depths of the Great Recession, Florida's economy experienced extreme volatility during the first decade of the 21st century. During the first half of the decade, the Florida unemployment rate tended to be below the national average while it surged above it as the bubble burst and the recession took hold. In this study, we'll explore the performance of the Florida economy overall as well as its major metropolitan areas: Bradenton-Sarasota, Jacksonville, Miami, Orlando, and Tampa. When it comes to measuring the performance of a nation's economy, two of the most common measures are GDP and employment. Fortunately, both sets of data are also available for states and metropolitan areas.

ECONOMIC GROWTH

For metropolitan areas, GDP is estimated by aggregating the value added by each form of economic activity. Though real GDP is available, the data for value added for particular sectors are not always made publicly available (it may reveal information about large firms that operate in a particular location). Data for GDP were obtained from the Bureau of Economic Analysis. As can be seen in figure 1, the Florida economy boomed during the first half of the 2000s, led by Orlando:

Figure 1, Economic Growth (Index = 100 in 2001)



Beginning with an index of 100 in 2001, the above chart shows the growth in real GDP of the United States, Florida, and its largest metropolitan areas. Growth in the Orlando economy far exceeded all others, growing 36% between 2001 and 2007 (averaging 5.3% per year), before suffering a decline during the recession years of 2008-2009, ending the decade over 30% larger than it began. Several other economies grew about 20% over the decade including Florida,

Jacksonville, and Tampa, while the US and Miami grew about 15%, and Bradenton-Sarasota grew about 14%, after growing 30% from 2001-2006.

EMPLOYMENT

Another popular way to measure the performance of an economy is employment. The relative performance of the respective economies based on employment displays some similarities as well as differences compared with that found using GDP. As before, the Orlando economy stands out, experiencing an 11.2% increase in employment, far surpassing the runner up, Jacksonville, which saw employment rise by 4.3%. Tampa's employment growth was similar to the nation, both suffering declines of 0.4%.

The decade of the 2000s, bracketed by the bursting of the tech bubble to the aftermath of the housing bubble, exhibited huge sectoral shifts in employment. As can be seen in table 1, overall US employment declined slightly. However, some sectors experienced significant declines while others saw large gains in terms of the number of jobs. The largest fall was in manufacturing, which lost 28.6% of its jobs during the decade, followed by information (down 26.7%), and construction (down 19.4%). The big winner was education and health (up 24.6%), followed by leisure and hospitality (up 10.7%), and professional and business services (up 5.2%).

Table 1: Growth Rate of Employment

	USA	Florida	Bradenton	Jacksonville	Miami	Orlando	Tampa
Total	-0.4%	1.7%	1.8%	4.3%	1.2%	11.2%	-0.4%
Construction	-19.4%	-33.9%	-31.8%	-19.1%	-31.6%	-27.1%	-24.2%
Manufacturing	-28.6%	-31.5%	-34.2%	-26.0%	-38.4%	-23.4%	-29.9%
Trade/Tran/Ut	-3.7%	-0.8%	-5.5%	-0.6%	-1.1%	6.5%	-8.5%
Information	-26.7%	-26.9%	-22.7%	-33.3%	-32.8%	3.5%	-32.5%
Fin Activities	-1.6%	1.1%	6.1%	0.0%	-4.3%	16.8%	-3.3%
Prof/Bus Serv	5.2%	10.0%	33.1%	-0.3%	8.5%	9.4%	15.3%
Educ/Health	24.6%	27.9%	25.9%	42.9%	31.1%	41.4%	26.4%
Leisure/Hosp	10.7%	9.4%	9.8%	27.6%	13.7%	19.5%	3.3%
Other Service	1.6%	0.6%	-14.1%	-7.2%	-0.4%	12.3%	-5.1%
Government	4.7%	7.2%	9.4%	9.1%	2.2%	21.2%	5.5%

A similar pattern can be seen in Florida and its major metropolitan areas. Employment in Florida rose by just under 2% during the last 10 years, led by a 27.9% increase in education and health services and a 10% increase in professional and business services. The biggest declines took place in construction (down by 33%), manufacturing (down 31.5%), and information (down almost 27%). Those same three industries experienced the largest declines in some of the largest metropolitan areas including Miami, where each was down in excess of 30%), Tampa (each down between 24% and 33%), Bradenton (where construction and manufacturing declined more than 30% each and information fell by 22.7%), and Jacksonville, which experienced a 33.3% fall in information, 26% in manufacturing, and 19.1% in construction. Orlando saw just over a 27% decline in construction and 23.4% in manufacturing, but a slight increase in information. As with the nation, education and health tended to be the fastest growing sector in Florida, with employment gains of more than 40% in Jacksonville and Orlando, over 30% in Miami, and

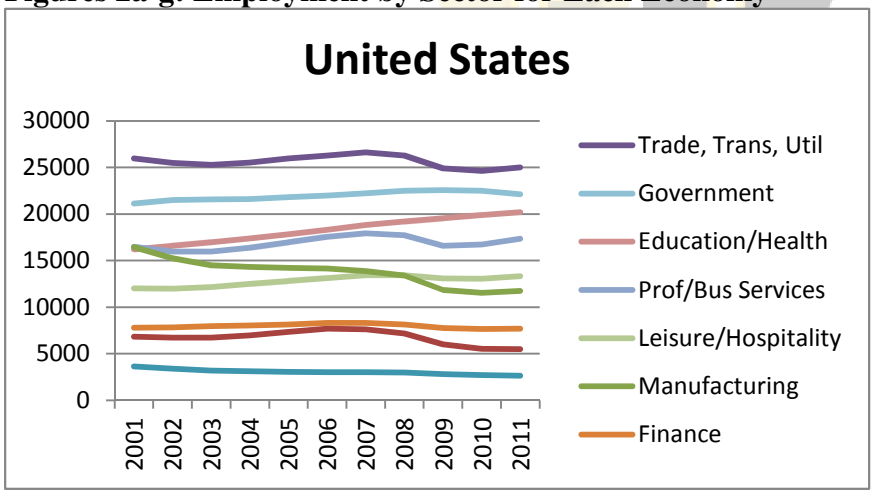
between 20% and 30% in the other metro areas as well as state-wide. Professional and Business Services was the fastest growing sector in Bradenton (about 33%).

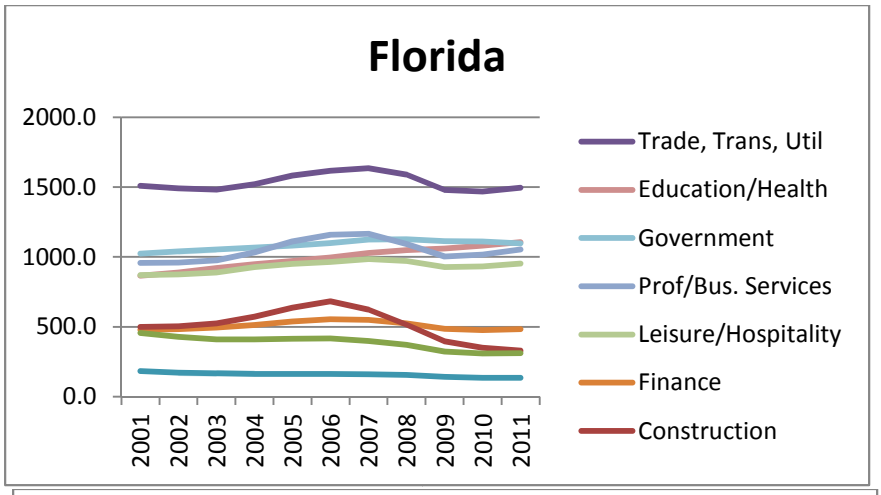
Given the great disparity in the growth rates of sectoral employment, the share of employment by sector changed significantly (see table 2). As expected, manufacturing experienced the biggest decline nationally as well as in most places in Florida (with the exception of Orlando and Florida as a whole) while education and health saw the largest increase in terms of share of employment nationally and in Florida. Trade, Transportation, and Utilities was the largest sector, both at the beginning and end of the decade in all places considered other than Orlando, but experienced a slight decline in each while Leisure and Hospitality overtook Trade, Transportation, and Utilities as the largest sector in Orlando.

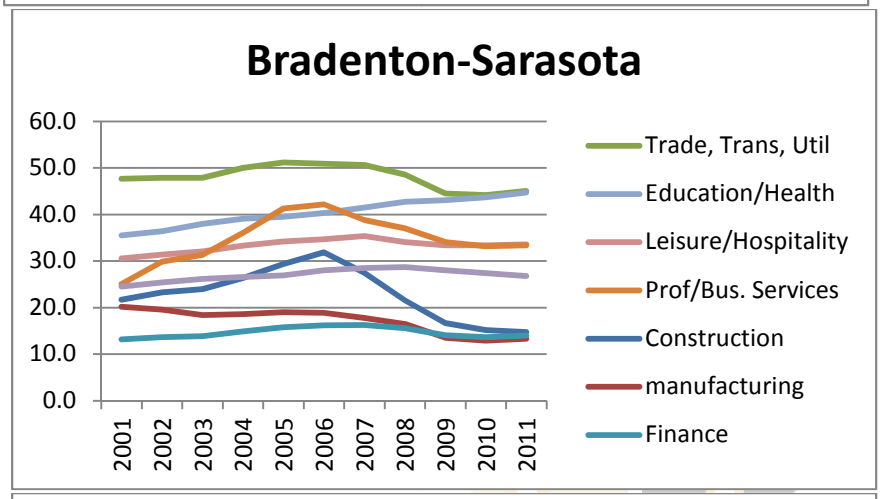
Table 2: Share of Employment by Industry, 2001 and 2011

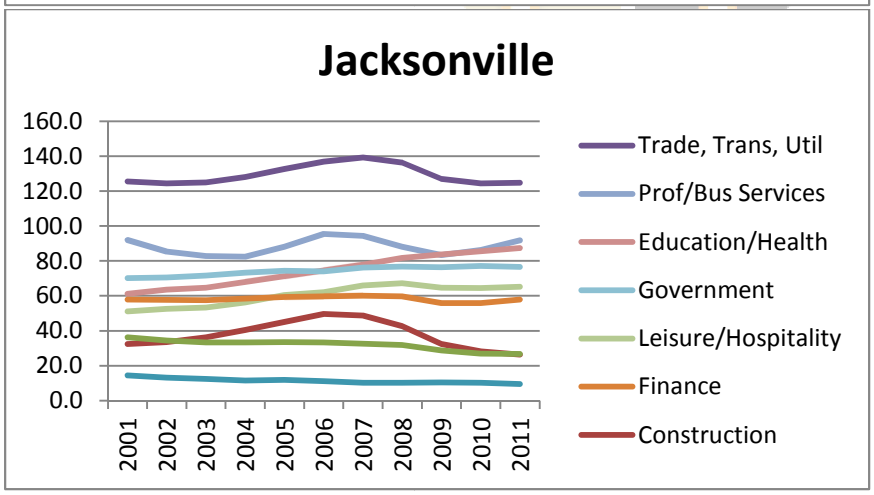
	USA		Florida		Bradenton		Jacksonville		Miami		Orlando		Tampa	
	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
Construction	5.2	4.2	7.0	4.5	9.2	6.2	5.8	4.5	5.5	3.7	6.6	4.3	6.0	4.5
Manufacturing	12.5	8.9	6.4	4.3	8.6	5.5	6.4	4.5	5.6	3.4	5.5	3.8	7.4	5.2
TTU	19.7	19.0	20.8	20.6	20.2	18.8	22.2	21.1	23.9	23.3	19.6	18.8	20.5	18.8
Information	2.8	2.0	2.6	1.8	1.9	1.4	2.5	1.6	3.0	2.0	2.5	2.3	3.4	2.3
Fin Activities	5.9	5.8	6.7	6.6	5.6	5.8	10.2	9.8	7.2	6.9	6.1	6.4	8.3	8.0
Prof Bus Serv	12.5	13.2	13.4	14.5	10.6	13.9	16.3	15.6	14.3	15.4	16.2	15.9	14.3	16.6
Ed & Health	12.3	15.4	12.1	15.2	15.0	18.6	10.8	14.8	12.0	15.6	9.6	12.2	12.6	16.0
Leisure/Hosp	9.1	10.1	12.2	13.1	13.0	14.0	9.0	11.1	10.4	11.7	18.8	20.2	10.6	11.0
Other Serv	4.0	4.1	4.3	4.2	5.4	4.6	4.4	3.9	4.3	4.2	4.7	4.7	4.1	3.9
Government	16.0	16.8	14.3	15.1	10.4	11.2	12.4	13.0	13.7	13.8	10.5	11.5	12.9	13.7

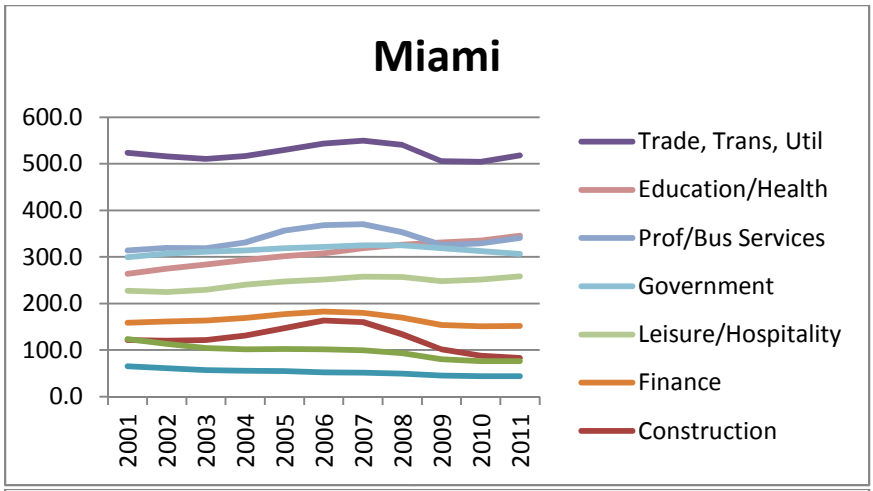
Figures 2a-g: Employment by Sector for Each Economy

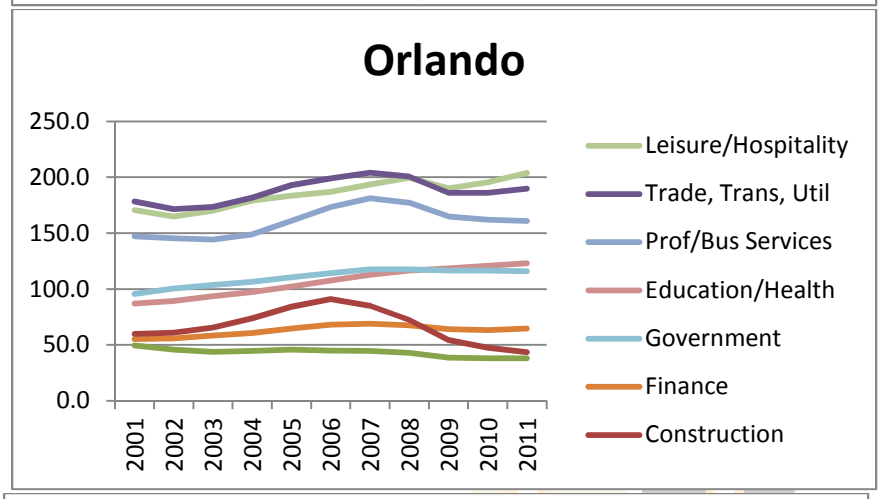


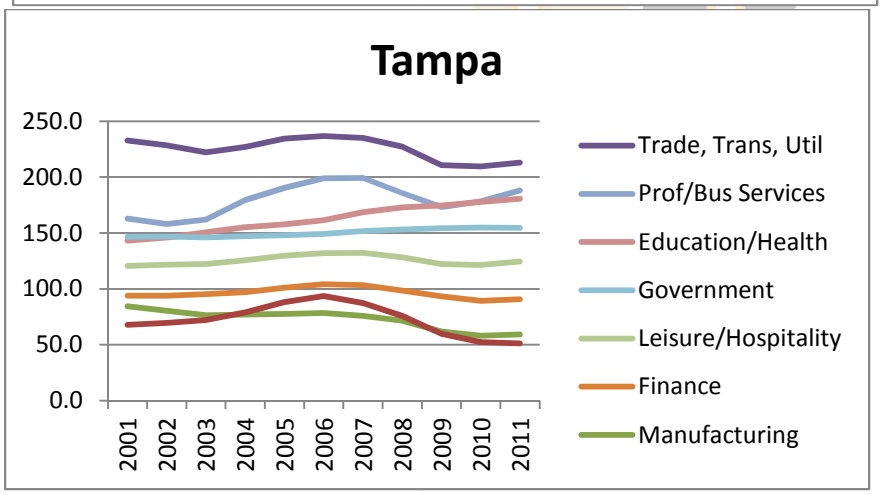

Florida
2000.0
1500.0
1000.0
500.0
0.0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
Trade, Trans, Util
Education/Health
Government
Prof/Bus. Services
Leisure/Hospitality
Finance
Construction


Bradenton-Sarasota
60.0
50.0
40.0
30.0
20.0
10.0
0.0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
Trade, Trans, Util
Education/Health
Leisure/Hospitality
Prof/Bus. Services
Construction
manufacturing
Finance


Jacksonville
160.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
Trade, Trans, Util
Prof/Bus Services
Education/Health
Government
Leisure/Hospitality
Finance
Construction







DYNAMIC SHIFT-SHARE ANALYSIS

Next, we examine the economic competitiveness of the economies of the major metropolitan areas of Florida by using employment data from 2001 through 2011. In order to determine the competitive position of each metropolitan area, shift-share analysis is employed. Shift-share analysis isolates the competitive position of a location from the impact of national

trends and the industrial mix of employment that existed in the area at the beginning of the time period being studied. To account for changes in the industrial mix during this period, dynamic shift-share analysis is applied (Barff and Knight, 1988).

Shift-share analysis is used to analyze the composition of employment growth of major metropolitan areas in Florida in the 2000s. This technique makes it possible to separate growth into three components: national growth, industrial structure, and regional competition (Niemi, 1985).

The national growth component, N, measures the increase in employment that would occur if all the industries in the area grew at the same rate as national employment. Shown below is the equation that represents this effect:

(1) $N = \Sigma[Ny * Ri]$ where

- Ny represents the growth rate of employment during the period
- Ri represents the percentage of employment originating in industry i.

The industrial structure effect, I, accounts for the impact of the area's industrial composition. An area with a high concentration of high growth industries will have a positive industrial structure effect while an area with a high concentration of low growth industries will have a negative industrial effect. The industrial structure effect is represented by the equation below:

(2) $I = \Sigma [Ri * (Ni - Ny)]$ where

- Ni represents the national growth rate of industry i.

The regional competition effect, C, measures the difference between local and national industrial growth rates. A positive competitive position implies that, after accounting for national growth trends and the industrial mix of the respective MSA, the MSA's economic performance is above average. It can be represented as follows:

(3) $C = \Sigma [Ri * (Ci - Ni)]$ where

- Ci represents the MSA's growth rate of industry i.

By combining (1), (2) and (3), the MSA employment growth can be decomposed into three components, national employment growth, the MSA's industrial structure, and regional competition. The following equation illustrates the procedure:

(4) Growth rate in MSA employment = $\Sigma [Ny * Ri] + \Sigma [Ri * (Ni - Ny)] + \Sigma [Ri * (Ci - Ni)]$

In order to account for continuous changes in the industrial mix of the region, this technique was applied annually to the data during the time period under study and then summed to determine the dynamic effect over the entire period (Barff and Knight, 1988).

Table 3: Empirical Results

MSA	Employment Growth	Industrial Mix	Regional Competitiveness
Florida	1.72	1.48	1.31
Bradenton	1.78	1.41	1.43
Jacksonville	4.32	0.75	3.89
Miami	1.20	1.55	0.23
Orlando	11.21	1.66	9.83
Tampa	-0.40	0.92	-0.73

Over the last decade, employment grew in Florida and four of its five largest metropolitan areas. The industrial mix made a positive contribution for each area, having the

smallest impact in Jacksonville and the largest in Orlando (not much difference for each). However, there were significant differences in terms of regional competitiveness. The competitive position of Florida was slightly positive compared to the nation as was Bradenton. Miami's competitive position was neutral while Tampa had a small negative competitiveness effect. Jacksonville had a moderately positive effect, but Orlando stands out with a large and positive competitive position. This indicates that, once the effects of national growth and the industrial composition are taken into account, Orlando still outperformed significantly in terms of employment growth.

FACTORS AFFECTING ECONOMIC COMPETITIVENESS

After determining the competitive position of each metropolitan area, the question arises: why are some MSAs competitive, while others are not? Many studies have analyzed local economic development, but, thus far, there has been little consensus about the relevance of specific factors in explaining relative economic performance.

Most studies have considered the effects of taxes, wages, and education on state and/or local economic performance. Traditionally, state and local taxes were thought to play a minor to insignificant role (Due 1961, Carlton 1979, Schmenner 1982, and Wheat 1986). However, other studies indicate that state and local taxes do have a significant negative effect (Bartik, 1991 and Munnell, 1990). Although the literature cited suggests many alternatives, a common measure of taxes used is state and local tax revenue per capita. (Place, 1986). This study employs revenue per capita as well as local taxes as a percent of income when considering the role taxes play in explaining competitiveness.

Many think that human capital also enhances a region's ability to grow. Hall et. al. (2011) developed a concept called the skills ratio to examine the education profiles of immigrants in metropolitan areas, where the skills ratio is the ratio of college graduates compared to high school dropouts among the adult population. A recent analysis by Silvia, Brown, and Swankoski (2012) considered the role of the skills ratio in explaining labor market performance. A basic implication of labor economics is that those with higher levels of education tend to be more employable than those without. For the period from 2006-2010, they found that states with higher skills ratios tended to have larger employment gains relative to others. The relevant data for the economies in question are included in table 4 (the average for the entire period is used).

Table 4: Educational Attainment of Adult Population

	College Grads	High School Dropouts	Skills Ratio
Bradenton	27.4	12.4	2.21
Jacksonville	27.3	11.9	2.29
Miami	29.7	17.9	1.66
Orlando	29.8	13.3	2.24
Tampa	27.2	14.0	1.94
Florida	26.7	15.5	1.72
USA	28.9	15.9	1.82

When it comes to the local economy, other possible factors that may affect the competitive position include the cost of labor, tax rates, and spillover effects from the industrial

mix. Though the impact of the industrial mix is removed to obtain the competitive position, it's possible that the two may be related. For example, during the construction boom of the mid-2000s, areas with high levels of construction may have experienced multiplier effects as construction workers spent income at retailers, restaurants, and other local establishments. Thus, there may be a relationship between those with positive industrial mix effects and those with strong competitive positions. Table 5 shows both the competitive and industrial mix effects for each of the areas.

Table 5: Other Factors That May Affect Competitiveness

	Regional Competitiveness	Industrial Mix	Average Annual Wage
Bradenton	1.43	1.41	$35,640
Jacksonville	3.89	0.75	$36,480
Miami	0.23	1.55	$39,350
Orlando	9.83	1.66	$36,330
Tampa	-0.73	0.92	$37,530
Florida	1.31	1.48	$37,260
USA			$40,690

Both economic theory and past studies (Munnell 1990, Bauer and Cromwell 1989, and Carlton 1979) suggest that wages have a significant effect on business activity and growth. Higher labor costs are likely to reduce the rate of employment growth. The studies cited made use of several measures of labor costs, one of which, the average annual wage, was chosen as the measure for this study (shown in table 5).

The factor most highly correlated with competitiveness was found to be the skills ratio, with a correlation of 0.61, followed by the average wage (-0.47), the industrial mix effect (0.28), and finally, the tax measures - revenue per capita displayed a correlation of -0.16 while taxes as a percent of income had a correlation of -0.18. The limited sample size suggests caution in interpreting the significance of the correlations.

SUMMARY AND CONCLUSIONS

In this paper, the comparative performance of employment growth for the major metropolitan areas in the state of Florida was considered for the period, 2001-2011. First, descriptive information about the performance of each of the economies was examined, revealing Orlando as the most successful economy both in terms of economic growth and gains in employment. Next, a dynamic shift-share analysis of employment growth was undertaken to examine the impact of national growth, industrial structure, and regional competitiveness on MSA growth. Among the five MSAs studied, it was found that the industrial structure effect was positive in all of them as well as for Florida as a whole, while the regional competitiveness effect was positive in most (all except Tampa). The mix of industries tended to add a little less than 1% to employment growth during the decade in Jacksonville and Tampa and about 1.5% in the other areas. This suggests that Florida and its MSAs benefitted slightly from their mix of industries. The most important factor in explaining the relative performance of employment growth was found to be differences in regional competitiveness, which ranged from a small drag for Tampa to a large and positive impetus for Orlando.

Finally, the factors that help explain differences in competitiveness were explored. Education and wages were found to have sizeable impacts in explaining competitiveness; the former positive and the latter negative. Wages, a proxy for the cost of labor, had a negative effect (correlation of -0.47), which is in accordance with the literature cited earlier (for example, Munnell 1990). The significance of education is similar to that found by Silvia, Brown, and Swankoski (2012) which found that the skills ratio has a significant impact on employment growth and unemployment rates over time. Taxes were found to have a minimal effect on competitiveness. The insignificance of taxes in this study may be explained by the minimal differences in tax burden in the MSAs included in the study.

A main implication of this study is that metropolitan areas may differ significantly in terms of competitiveness. The best approach to improve the competitive position of the local economy is to enhance the educational outcomes of the local labor force. This involves both supporting efforts to help students complete high school as well as increasing the number of college graduates. Success in both reducing the portion of low-skilled workers as well as increasing the number of high-skilled workers provides the best environment for long-term growth in employment.

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