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# **Economic and Demographic Trends Affecting Region 2000's Economy**

**May 2011**





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Dr. Mangum earned his Ph.D. in economics at George Mason University in 1995, where he was fortunate enough to receive his training under Nobel Laureate James Buchanan and the team of colleagues Dr. Buchanan had recruited to the Center for Study of Public Choice. He has nearly two decades of experience in quantitative analysis and policy development at the federal and state level.



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## Executive Summary

This report provides an assessment of recent demographic and economic trends in Region 2000. The principle findings from that assessment are as follows:

1. Region 2000, Virginia, and the nation as a whole are now emerging from a recession that, in terms of both length and employment losses, was the worst the country has experienced since the Great Depression of the 1930s.
2. The “Great Recession,” as it is increasingly being called, provided a crucial real-world test of the Region 2000 Partnership’s economic development policies. In recent years, those policies have focused on creating a business environment and human capital pipeline that will enable the region to restructure its industrial portfolio away from a near total dependence on the *Manufacturing* sector, and toward a greater emphasis on *Professional and Technical Services*.
3. The impact of the Great Recession clearly demonstrated both the success and timeliness of those economic development policies.
  - Although all areas of the country were negatively impacted during the recession, one of the most salient characteristics of the downturn was that regions with high concentrations of service industries fared better than regions with high concentrations of durable goods manufacturers.
  - Looking at Region 2000 specifically, the region was initially able to avoid the historically significant employment declines associated with the Great Recession because large employment losses in its *Manufacturing* sector were offset by equally large employment gains in its *Professional and Technical Services* sector. As a result, employment trends in Region 2000 remained positive for roughly a year longer than in other Virginia MSAs or the state as a whole.
  - As the recession wore on, however, the area’s employment situation was negatively impacted by widespread downturns in multiple sectors, most notably *Manufacturing, Construction, Retail Trade,* and *Administrative and Waste Services*.
  - During the recovery, although Region 2000’s economic revival was initially delayed by employment losses in the *Construction, Healthcare and Social Services,* and *Professional and Technical*

*Services* sectors, more recent data indicate that the region is now rebounding more robustly than either the state or other major MSAs.

4. Finally, our analysis of nationally published economic performance indices lends further support to the efficacy of the Region 2000 Partnership's economic development strategy. According to those indices, the region's growth and concentration in high-tech industries, along with its favorable business climate, are the two most important characteristics in positively differentiating Region 2000's economic performance from that of other U.S. MSAs.

*This report was commissioned by the Region 2000 Economic Development Council and produced by Mangum Economic Consulting, LLC.*

## Introduction

This report was commissioned by the Region 2000 Economic Development Council, a member organization of the Region 2000 Partnership, and provides an assessment of recent demographic and economic trends in Region 2000. The remainder of the report is divided into four sections. The *Region 2000 Partnership* section provides details on the member organizations that comprise the Partnership and the services that those organizations provide to the region. The *Demographic and Economic Trends* section provides a detailed analysis of recent demographic and economic trends within Region 2000, with a focus on how the region performed during the “Great Recession” of 2007. In the *Economic Performance Indices* section, we assess Region 2000’s recent economic performance relative to other metropolitan areas within the U.S. using two nationally published economic performance indices. Finally, the *Conclusion* section provides a summary and concluding comments.

## Region 2000 Partnership

The Region 2000 Partnership is comprised of six member organizations:

- Center for Advanced Engineering and Research (CAER), which works to establish strategic partnerships between regional high-tech industries, research universities, and national research and development centers to facilitate applied research projects, provide facilities, foster the commercialization of intellectual capital, and increase local engineering education opportunities.
- Economic Development Council, which focuses on growing existing businesses and recruiting new business investment in Region 2000, as well as supporting a technology-based economic development program.
- Local Government Council, which promotes collaboration between the local governments that make up Region 2000, and provides a nexus for multi-jurisdictional long-range planning and service delivery in areas such as telecommunications, transportation, waste disposal, and water supply.
- Technology Council, which fosters an environment that stimulates innovation and technology-focused organizations and serves a key role developing the region’s workforce pipeline through science, technology, engineering, and math (S.T.E.M.) initiatives.
- Workforce Investment Board, which provides career training and job placement services to adults, dislocated workers, and youth. These services range from self

service tools that assist individuals in making an effective job search to more intensive staff-assisted efforts in evaluation, training, and job placement.

- Young Professionals of Central Virginia, which works to attract and retain young professionals in Region 2000 by improving networking opportunities, encouraging civic involvement, and facilitating professional development.

By leveraging their resources and efforts through the Partnership, these organizations seek to more effectively facilitate economic growth, enhance local government collaboration, and improve the overall quality of life within the communities that make up Region 2000.<sup>1</sup>

## Demographic and Economic Trends

In this section, we provide an update on some of the key demographic and economic trends affecting Region 2000.

### Demographic Trends

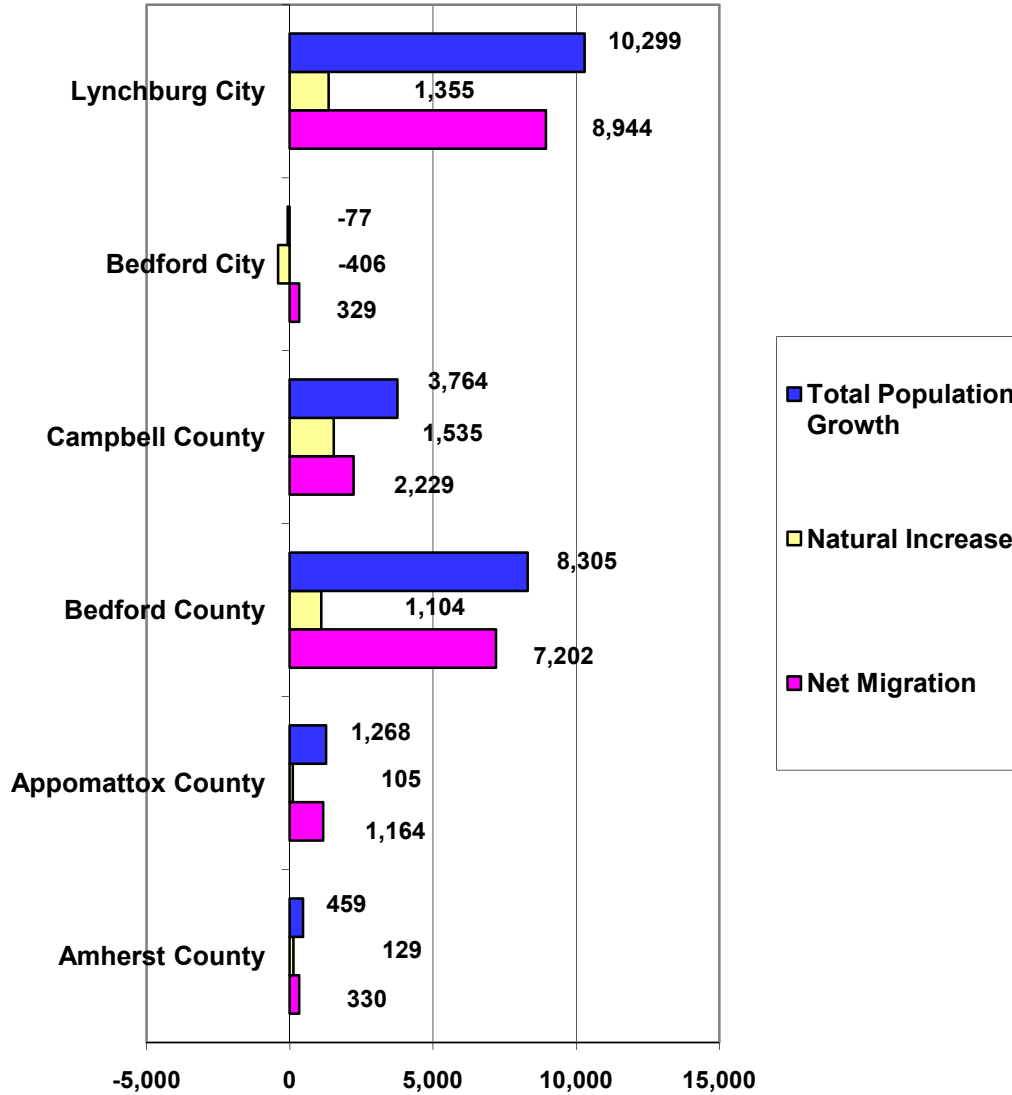
Between 2000 and 2010, the population of Region 2000 grew from 228,616 to 252,634, a total increase of 24,018 or 10.5 percent. Figure 1 breaks that total down according to locality, and also according to the components of change – natural increase and net migration. As this figure shows, the City of Lynchburg and Bedford County accounted for the majority of Region 2000’s population growth over the period (10,299 and 8,305 respectively). In addition, the data depicted in Figure 1 indicate that net migration, as opposed to natural increase, was the primary driver of population growth in each of Region 2000’s six localities.

To provide some additional context for these numbers, Figure 2 compares the percentage increase in total population in Region 2000 between 2000 and 2010 to that of Virginia as a whole. As these data indicate, Region 2000’s 10.5 percent increase fell slightly behind the statewide average of 13.0 percent. Although, it should be noted that both the City of Lynchburg and Bedford County experienced population growth that exceeded the statewide average (15.8 percent and 13.8 percent respectively). Another interesting aspect of these data pertains to the components of growth. As Figure 2 demonstrates, where statewide, total population growth was evenly split between natural increase and net migration (6.5 percent each), consistent with the data presented in Figure 1, in Region 2000 growth was disproportionately driven by net migration (8.8 percent), as opposed to

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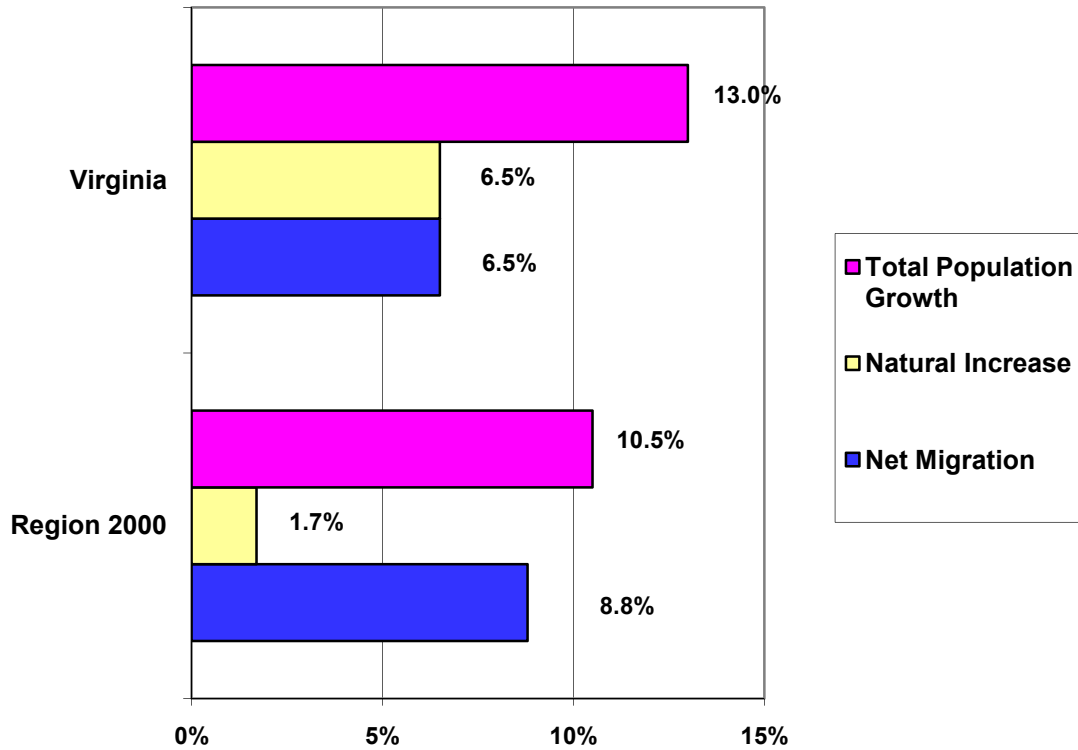
<sup>1</sup> Region 2000 encompasses six localities: Amherst County, Appomattox County, Bedford County, Campbell County, the City of Bedford, and the City of Lynchburg.

natural increase (1.7 percent). In other words, relative to the state as a whole, Region 2000 benefited from a comparative advantage in attracting new residents.



**Figure 1: Region 2000 – Components of Population Change between 2000 and 2010<sup>2</sup>**

<sup>2</sup> Data Source: U.S. Census Bureau.



**Figure 2: Components of Population Change between 2000 and 2010 – Region 2000 vs. Virginia<sup>3</sup>**

Table 1 provides detail on the distribution of population by race/ethnicity in Region 2000 in 2000 and 2010, as well as the growth in those race/ethnicity categories over the period. As these data show, there was very little change in the overall distribution of population by race/ethnicity in Region 2000 between 2000 and 2010. Where *Whites* comprised approximately 79 percent of total population in 2000, by 2010 that number had shifted to approximately 78 percent. In addition, the proportion of the total population comprised of *Blacks* remained constant at approximately 18 percent between 2000 and 2010.

As the data presented in Table 1 demonstrate, however, there were significant changes in regard to relative rates of growth. For example, *Hispanics*, although still a small proportion of the total population, experienced the second largest absolute increase in population between 2000 and 2010 and by far the largest percentage increase (the reader should keep in mind that *Hispanic* is an ethnicity category that spans all race categories, therefore numbers listed for *Hispanic* are not mutually exclusive of other data presented in Table 1). Moreover, *Asian* and *Other Races*, although also still a small proportion of

<sup>3</sup> Data Source: U.S. Census Bureau.

the total population, experienced similarly significant absolute and percentage increases in population between 2000 and 2010.

**Table 1: Region 2000 – Population Change between 2000 and 2010 by Race/Ethnicity<sup>4</sup>**

Race or Ethnicity	2000 Population	As % of Total 2000 Population	2010 Population	As % of Total 2010 Population	2000 to 2010 Abs. Increase	2000 to 2010 % Increase
White alone	181,577	79.4%	197,654	78.2%	16,077	8.9%
Black alone	41,526	18.2%	44,260	17.5%	2,734	6.6%
Asian alone	1,586	0.7%	3,351	1.3%	1,765	111.3%
Other Races alone	1,620	0.7%	2,933	1.2%	1,313	81.0%
Two or More Races	2,307	1.0%	4,436	1.8%	2,129	92.3%
Hispanic	2,177	1.0%	5,234	2.1%	3,057	140.4%

## Economic Trends

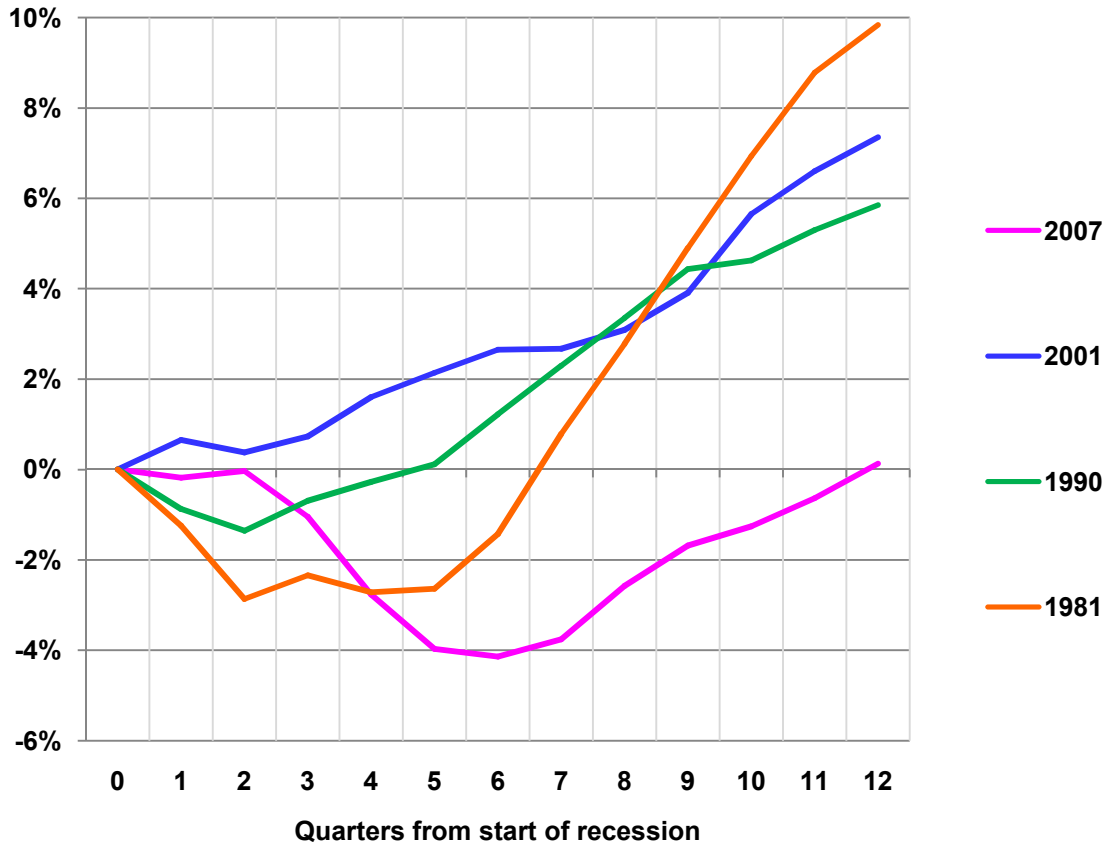
### *National*

To gain a better perspective on recent regional economic trends, it may be helpful to first briefly review recent events at the national level. Specifically, the depth and breadth of what is increasingly being referred to as the “Great Recession.” Figure 3 depicts the cumulative change in Gross Domestic Product (GDP), or the sum of all goods and services produced in the U.S., for the twelve quarters following the start of the last four recessions. As these data indicate, from peak to trough the 2007 recession entailed a six quarter contraction in the economy, making it the longest recession of the four shown and, in fact, our longest recession since the Great Depression of the 1930s.<sup>5</sup> In addition,

<sup>4</sup> Data Source: U.S. Census Bureau.

<sup>5</sup> According to the National Bureau of Economic Research, the nation’s “official” scorekeeper for recessions, the 2007 recession began in December of 2007 and ended in June of 2009. That means the contraction lasted 18 months, the longest of the post-war/post-Depression era. The average period of contraction for the twelve

it was also the deepest, with GDP declining a total of 4.1 percent by the trough of the recession, the greatest decline of the four recessions shown and the largest of any recession in the post-war period.

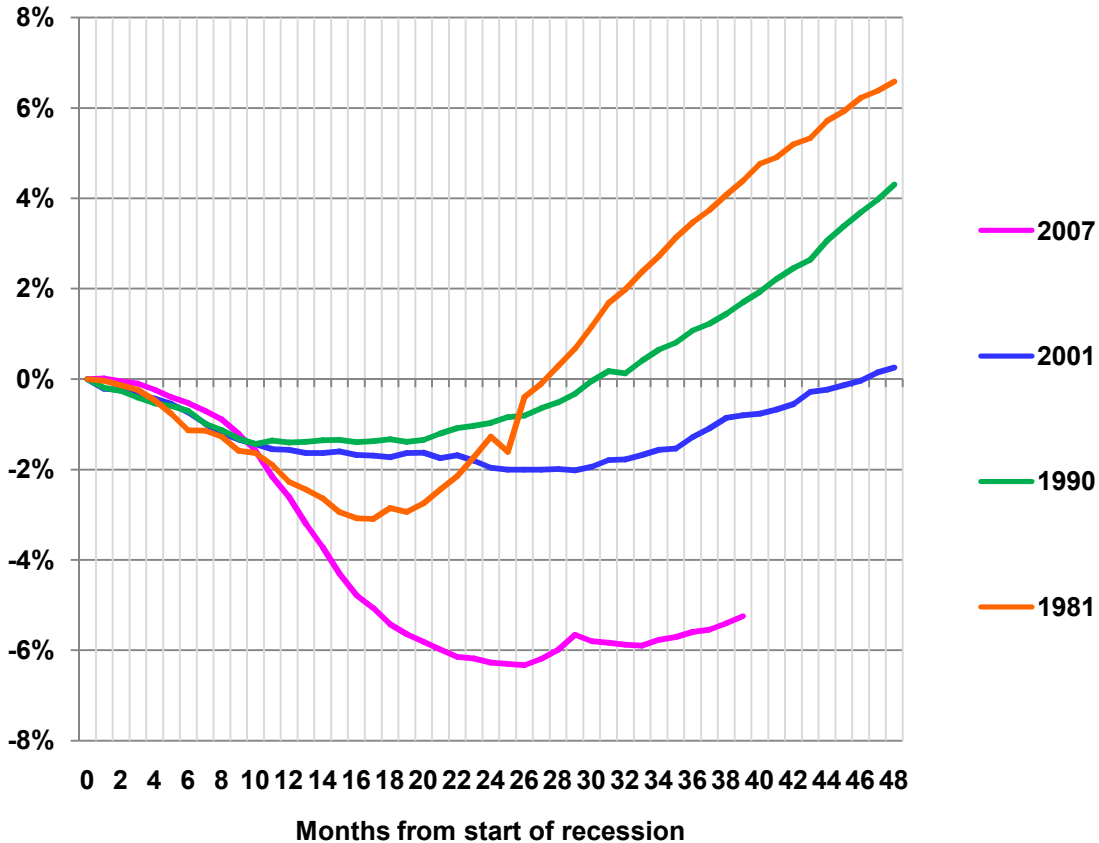


**Figure 3: Cumulative Change in U.S. GDP in Last Four Recessions<sup>6</sup>**

Figure 4 provides similar data for the cumulative change in U.S. employment for the 48 months following the start of the last four recessions. Here again, the data clearly illustrate the unusual severity of the 2007 recession. At its lowest point, U.S. nonfarm payroll employment fell by a cumulative 6.1 percent, the greatest decline of the four recessions shown and once again the largest of the postwar period.

recessions that occurred during this period was 11 months. Prior to the 2007 recession, the longest recessions of the post-war/post-Depression era were in 1973 and 1981, both of which involved 16 month contractions.

<sup>6</sup>Data Source: Federal Reserve Bank of Minneapolis. Data depict cumulative changes in U.S. Gross Domestic Product.



**Figure 4: Cumulative Change in U.S. Employment in Last Four Recessions<sup>7</sup>**

### *Regional Employment*

Figure 5 provides an overall perspective on employment trends in Region 2000 (Lynchburg MSA)<sup>8</sup> over the course of the 2007 recession, as well as in other major MSAs and the state as a whole. These data depict year-over-year changes in total non-farm payroll employment and are taken from the Virginia Employment Commission’s *Current Employment Statistics* survey for the period from January 2006 through April 2011.<sup>9</sup>

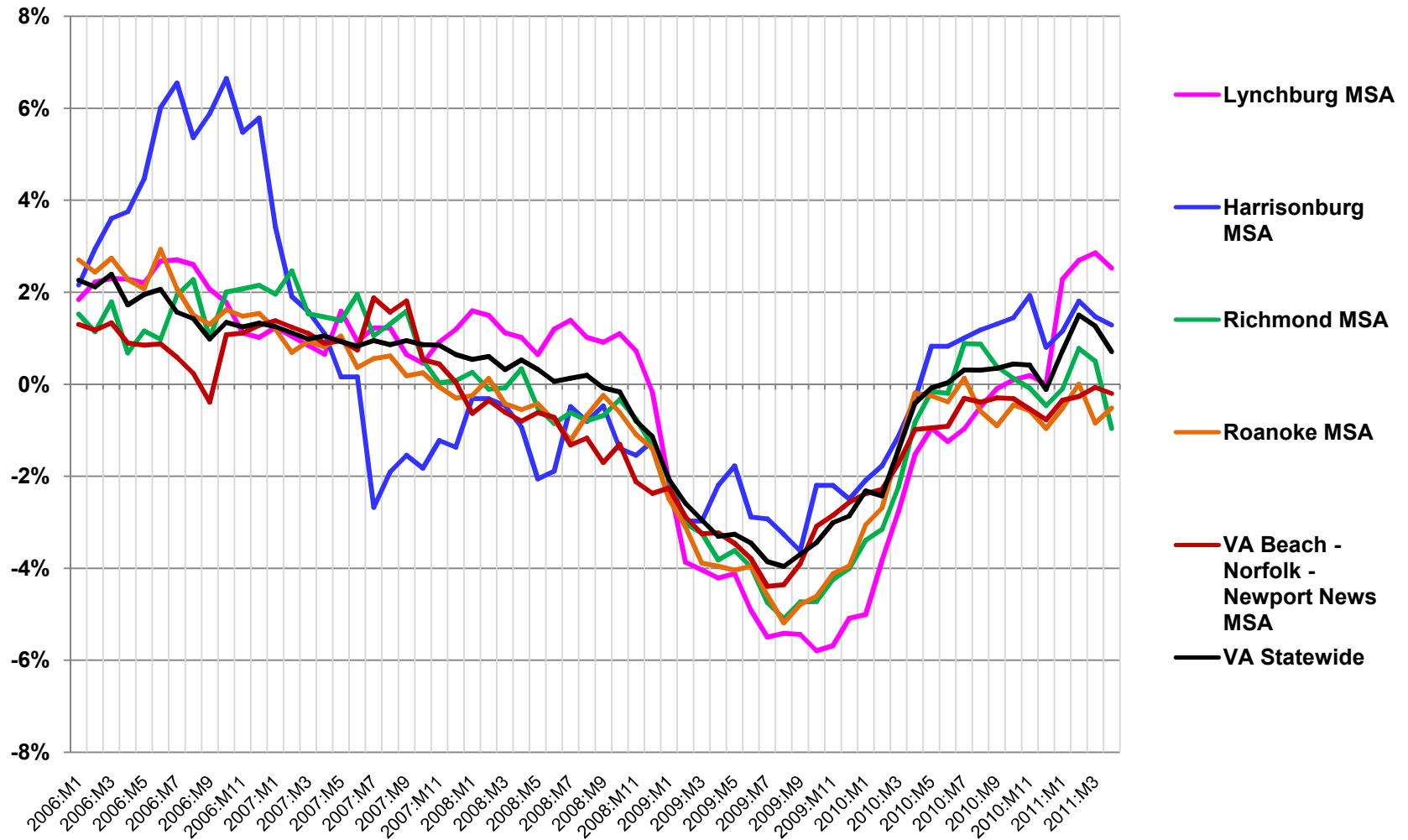
There are four characteristics of these data that are highly relevant to Region 2000:

<sup>7</sup>Data Source: Federal Reserve Bank of Minneapolis. Data depict cumulative changes in U.S. nonfarm payroll employment.

<sup>8</sup> Region 2000 is made up of the same six localities that comprise the Lynchburg MSA – Amherst, Appomattox, Bedford, and Campbell counties, and the cities of Bedford and Lynchburg.

<sup>9</sup> In contrast to the *Quarterly Census of Employment and Wages* which is a census of all employers, the *Current Employment Statistics* is a survey based on a relatively small sample of employers. As a result, data from the *Current Employment Statistics* survey are more current, but less definitive.

- 1) Employment trends in Region 2000 remained positive for roughly a year longer than in other major MSAs, or the state of Virginia as a whole. Relative to the prior year, employment in Region 2000 first began to trend downward in December of 2008. In contrast, employment in the Harrisonburg MSA trended downward in July of 2007, in the Richmond MSA in February of 2008, in the Roanoke MSA in November of 2007, in the Virginia Beach MSA in January of 2008, and statewide in September of 2008.
- 2) However, once employment in Region 2000 began to decline, it fell farther and faster than that in other major MSAs or the state as a whole. At its lowest point in October of 2009, total employment in Region 2000 was down -5.8 percent relative to the year before. In contrast, the largest year-over-year employment decline in the Harrisonburg MSA was -3.6 percent (September of 2009), in the Roanoke MSA -5.2 percent (August of 2009), in the Richmond MSA -5.1 percent (August of 2009), in the Virginia Beach MSA -4.4 percent (July of 2009), and statewide -4.0 percent (August of 2009).
- 3) The recovery was somewhat delayed in Region 2000 relative to other major MSAs or the state as a whole. Although year-over-year employment changes in the other MSAs depicted and the state as a whole began to trend upward in the second quarter of 2010, in Region 2000 that transition did not occur until the fourth quarter of 2010.
- 4) Recent data indicate that Region 2000 is rebounding more strongly than other major MSAs or the state as a whole. Data for the first four months of 2011 indicate that year-over-year employment in Region 2000 was increasing by 2.6 percent on average, as opposed to -0.5 percent in the Roanoke MSA, -0.2 percent in the Virginia Beach MSA, 1.4 percent in the Harrisonburg MSA, 0.1 percent in the Richmond MSA, and 1.0 percent statewide.



**Figure 5: Year-over-year change in Monthly Employment – January 2006 to April 2011<sup>10</sup>**

<sup>10</sup>Data Source: Virginia Employment Commission, *Current Employment Statistics*.

Figures 6 through 8 provide explanatory detail on the total employment changes that occurred in Region 2000 over the course of the 2007 recession. These graphs depict employment changes by major industry category for three periods – the beginning of the recession, the trough, and the recovery.

Between the third quarter of 2007 and the third quarter of 2008, Region 2000 continued to enjoy positive employment growth, even while the state as a whole and other major MSAs began to slip into recession. Over this period, total employment in Region 2000 increased by 1,232 jobs or 1.2 percent, while it declined by -0.9 percent in the Harrisonburg MSA, -0.7 percent in the Richmond MSA, -0.8 percent in the Roanoke MSA, -0.2 percent in the Virginia Beach MSA, and -0.1 percent statewide.

As shown in Figure 6, this increase in employment in Region 2000 was a combination of two countervailing influences. In the first instance, the area experienced a significant employment drop in the *Manufacturing* sector, with a loss of 2,261 jobs or -12.1 percent (as compared to a -4.7 percent drop in *Manufacturing* employment statewide). This employment loss was more than compensated for, however, by increases in two other sectors. Employment in the *Professional and Technical Services* sector increased dramatically, growing by 2,012 jobs or 60.4 percent (as opposed to 4.5 percent statewide), while employment in the *Healthcare and Social Services* sector increased significantly as well, growing by 1,100 jobs or 7.7 percent (as opposed to 3.9 percent statewide).

However, as the state and the nation entered the trough of the recession between the third quarter of 2008 and the third quarter of 2009, economic conditions in Region 2000 started to deteriorate. Over this period, total employment in Region 2000 declined by 5,719 jobs, or -5.5 percent, as compared to a -3.7 percent drop in employment in the Harrisonburg MSA, -4.8 percent in the Richmond MSA, -5.6 percent in the Roanoke MSA, -4.5 percent in the Virginia Beach MSA, and -3.9 percent statewide.

As shown in Figure 7, the causes of this employment decline were widespread. Although Region 2000's *Manufacturing* and *Construction* sectors experienced the largest absolute job losses (-1,560 and -1,315 respectively), those losses were not out of line with overall statewide trends (a -9.5 percent decline in *Manufacturing* employment in Region 2000 as opposed to -10.6 percent statewide, and a -16.7 percent decline in *Construction* employment in Region 2000 as opposed to -15.1 percent statewide). Similarly, although Region 2000's *Retail Trade* and *Administrative and Waste Services* sectors also experienced large job losses (-754 and -752 respectively), in percentage terms those losses too were largely consistent with statewide trends.

Two industry sectors – *Finance and Insurance* and *Transportation and Warehousing* – were harder hit in Region 2000 than in the rest of the state however. Between the third

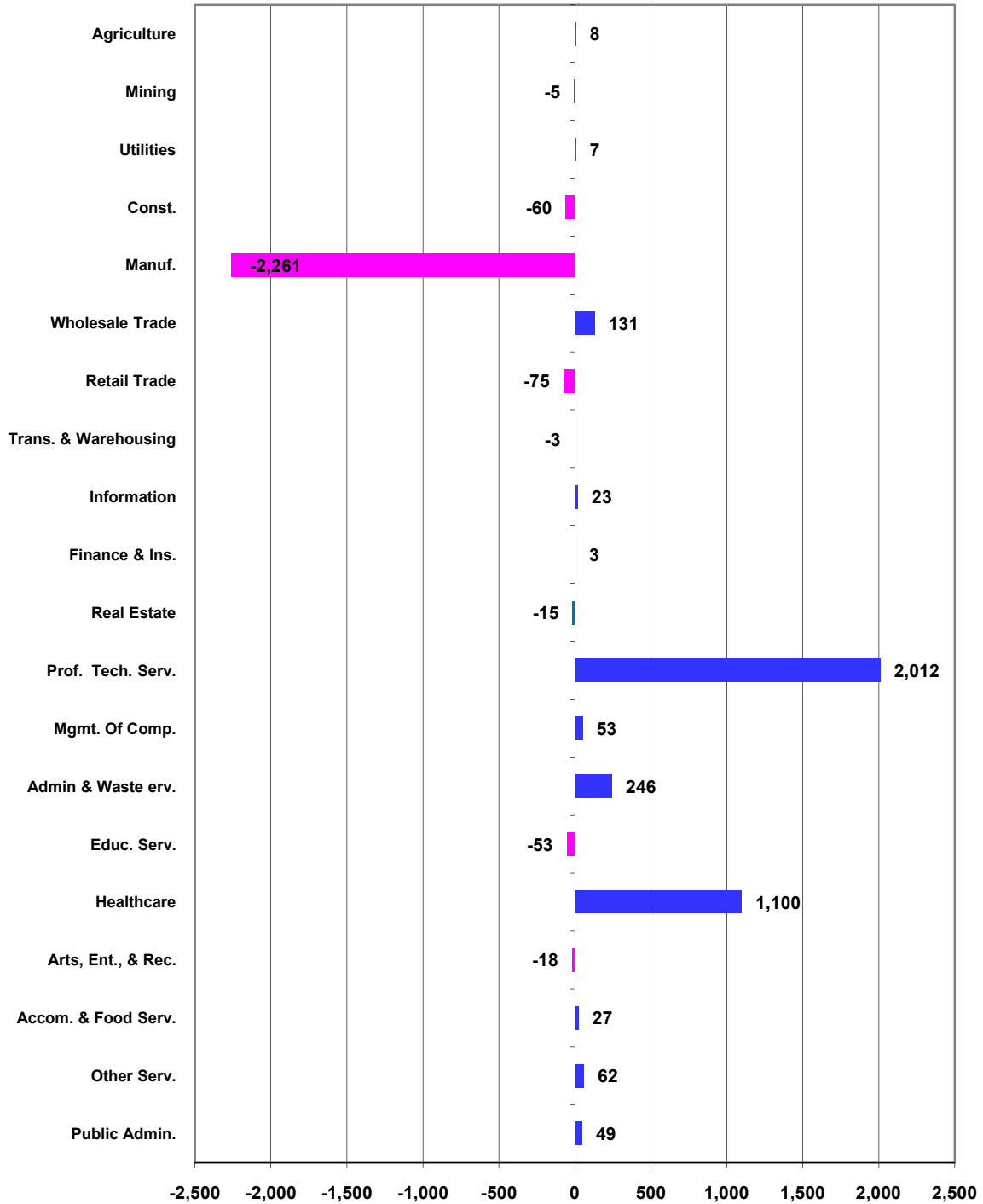
quarter of 2008 and the third quarter of 2009, Region 2000's *Finance and Insurance* sector shed 467 jobs for an employment loss of -13.1 percent, while statewide the employment loss in this sector was only -4.7 percent. Likewise, over this period Region 2000's *Transportation and Warehousing* sector shed 351 jobs for an employment loss of -11.6 percent, while statewide the employment loss in this sector was only -6.6 percent.

Just as Region 2000 was late in entering the recession, it was also late in exiting it. As the state and the nation began to move into recovery between the third quarter of 2009 and the third quarter of 2010, employment conditions in Region 2000 continued to lag. Where total employment in Region 2000 declined by 1,518 jobs, or -1.5 percent, over this period, it grew 0.7 percent in the Harrisonburg MSA and 0.4 percent statewide, but stayed constant in the Richmond MSA, and declined by -1.6 percent in the Roanoke MSA and -0.5 percent in the Virginia Beach MSA.

As shown in Figure 8, this lingering weakness in Region 2000's employment picture was largely driven by continued softness in the *Construction* sector (which shed 525 jobs over the period – a -8.0 percent loss in employment as compared to -2.1 percent statewide), an anomalous employment loss in the *Healthcare and Social Services* sector (a decline of 811 jobs or -5.2 percent, in contrast to a 1.4 percent increase statewide), and a small deterioration in the *Professional and Technical Services* sector (a loss of 211 jobs or -4.0 percent, in contrast to a 1.9 percent increase statewide).

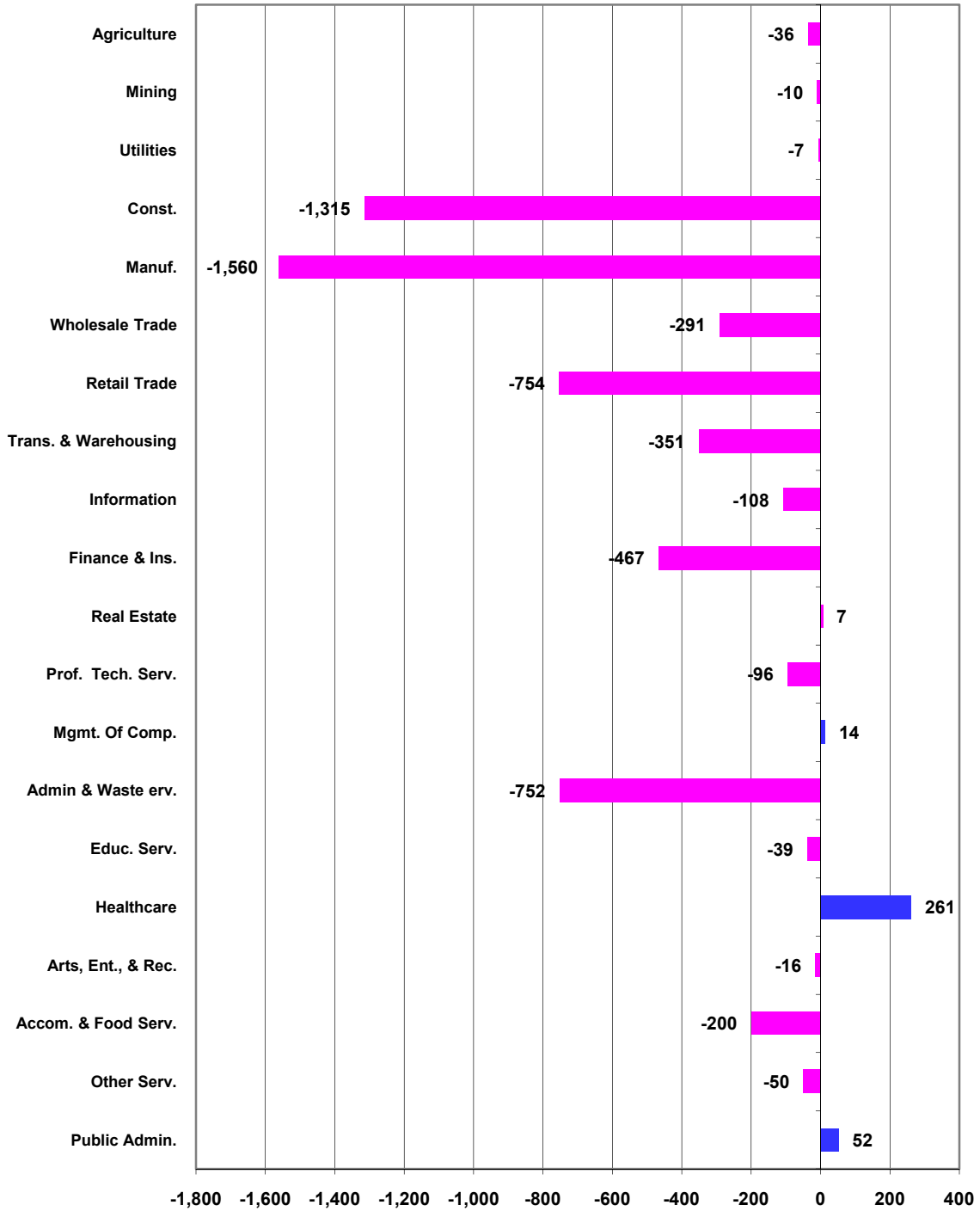
At the other end of the spectrum, Region 2000's *Retail Trade* sector rebounded more quickly than was typical for the state as a whole (an increase of 537 jobs or 4.4 percent, as compared to a 0.5 percent increase statewide). Given that employment changes in this sector serve as a proxy for changes in consumer expenditures, and that increases in consumer expenditures are a leading indicator for economic recovery, this is a noteworthy trend. Moreover, the significance of that trend is likely confirmed by the more recent total employment data depicted in Figure 5, which showed that during the first four months of 2011 total employment in Region 2000 was increasing faster than the statewide norm.

Taken in combination what these data show is that, largely because of the strength of its *Professional and Technical Services* sector, Region 2000 was initially able to avoid the historically significant employment losses associated with the 2007 recession. As the recession wore on, however, the area's employment picture was overtaken by widespread downturns in multiple sectors, most notably *Manufacturing, Construction, Retail Trade, and Administrative and Waste Services*. Finally, although recovery was initially delayed by employment losses in the *Construction, Healthcare and Social Services, and Professional and Technical Services* sectors, more recent data indicate that Region 2000 is rebounding more robustly than either the state or other major MSAs.



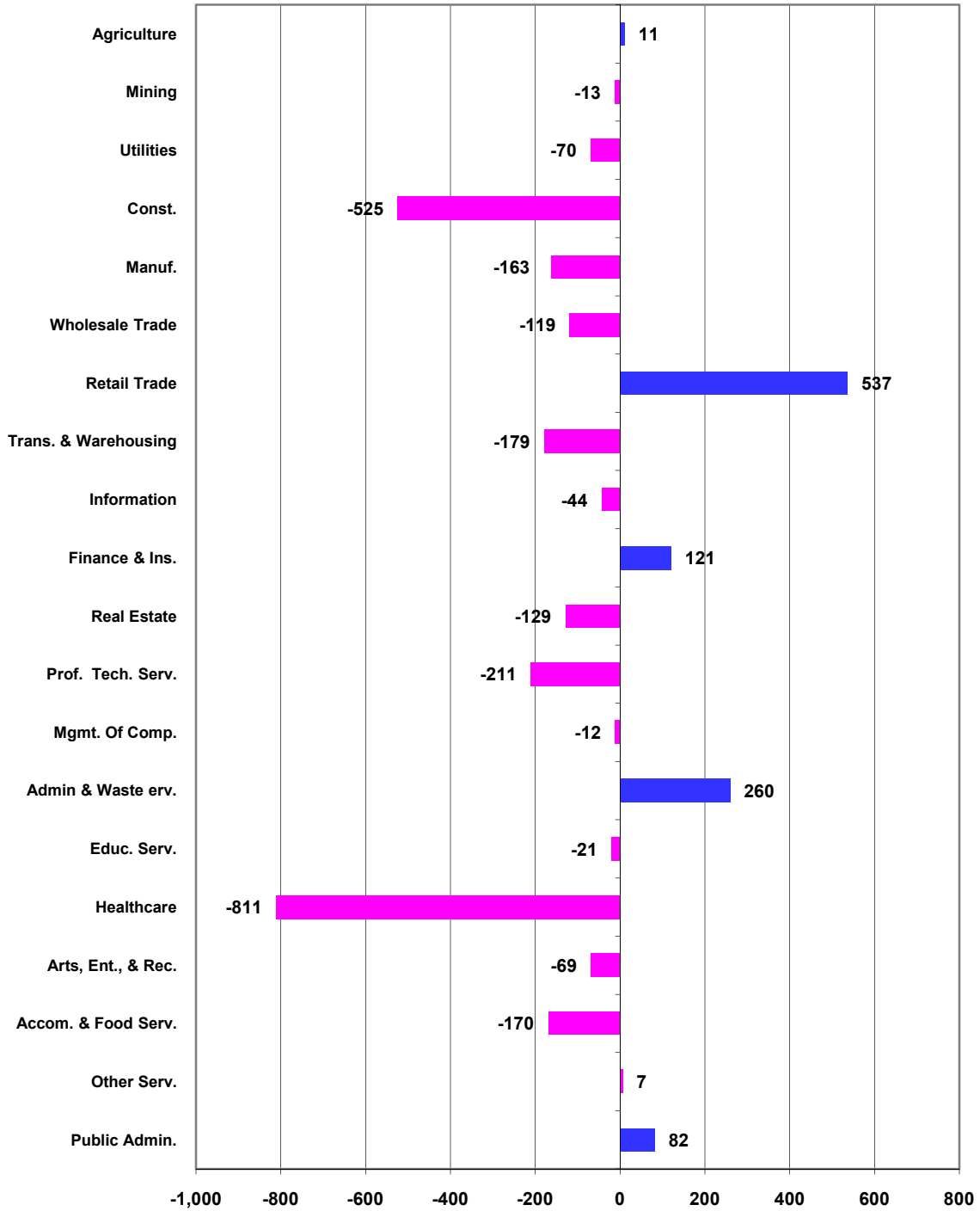
**Figure 6: 2007:Q3 to 2008:Q3 Change in Employment by Major Industry Category – Region 2000<sup>11</sup>**

<sup>11</sup>Data Source: Virginia Employment Commission, *Quarterly Census of Employment and Wages*.



**Figure 7: 2008:Q3 to 2009:Q3 Change in Employment by Major Industry Category – Region 2000<sup>12</sup>**

<sup>12</sup>Data Source: Virginia Employment Commission, *Quarterly Census of Employment and Wages*.



**Figure 8: 2009:Q3 to 2010:Q3 Change in Employment by Major Industry Category – Region 2000<sup>13</sup>**

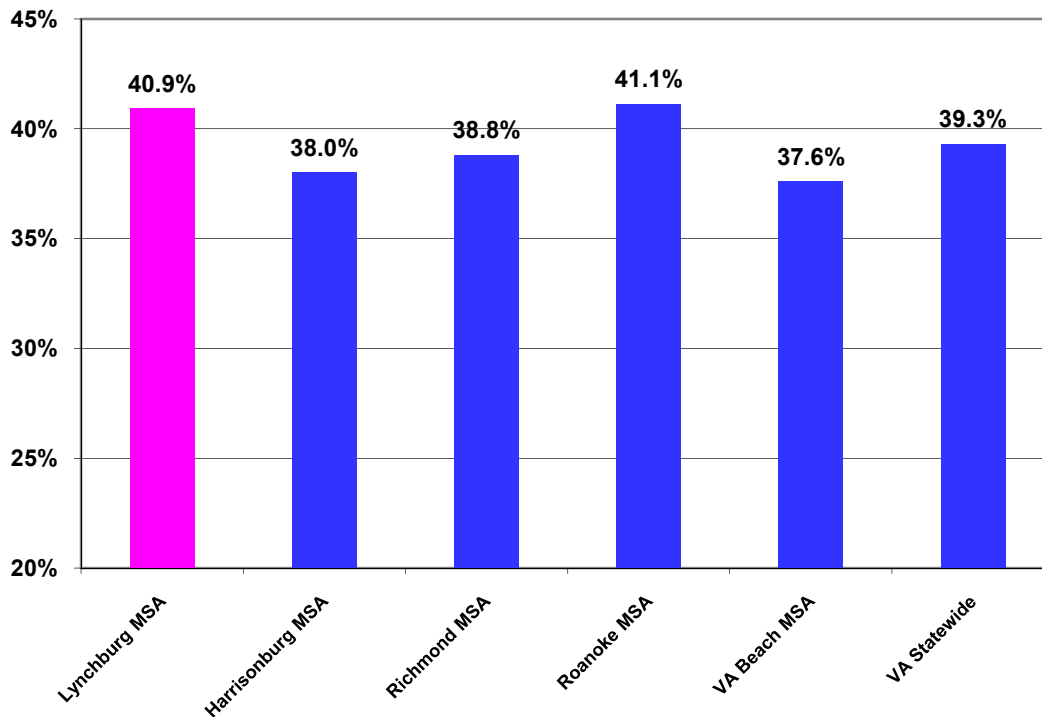
<sup>13</sup>Data Source: Virginia Employment Commission, *Quarterly Census of Employment and Wages*.

## Regional Small Business and Startups

In this portion of the section we look at trends in small business employment and new business startups.

### Small Business Employment:

Because small businesses (establishments with fewer than 50 employees) tend to be more innovative and better able to adapt to changing market conditions, a greater incidence of these firms is typically taken as a sign of a positive entrepreneurial environment. Figure 9 depicts 2010:Q3 small businesses employment in Region 2000 (Lynchburg MSA) as a percentage of total employment, as well as for the other major MSAs depicted earlier and the state as a whole. As these data show, with the exception of the Roanoke MSA, small businesses accounted for a larger proportion of total employment in Region 2000 than is typical for the state as a whole or for the other MSAs shown.

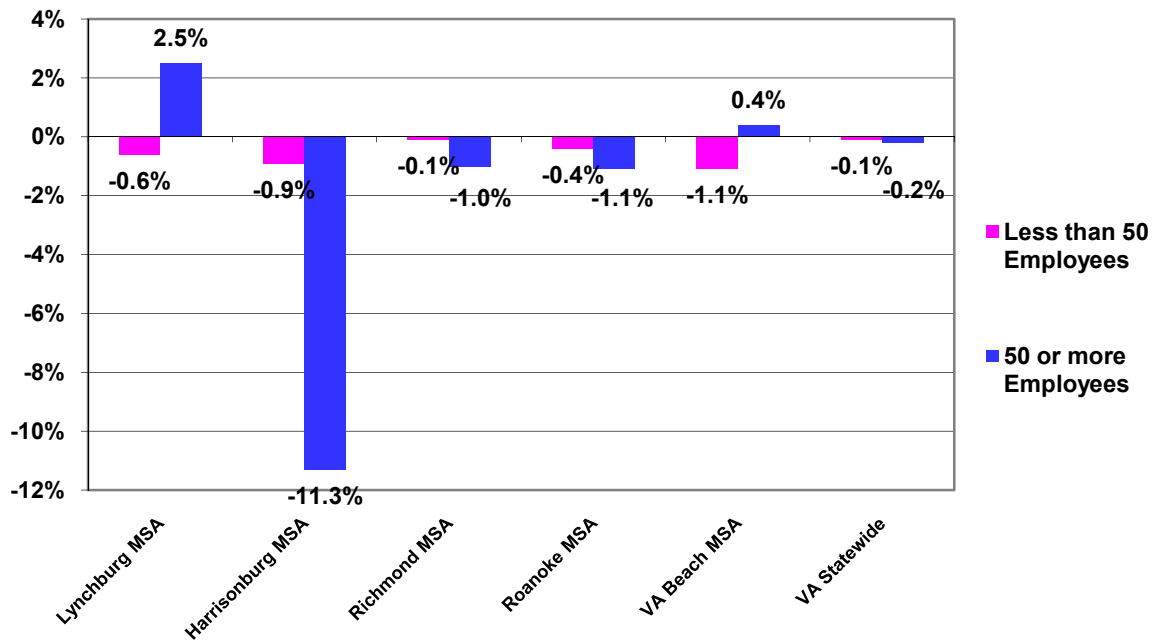


**Figure 9: Small Businesses Employment as a percentage of Total Employment (2010:Q3)<sup>14</sup>**

<sup>14</sup>Data Source: Virginia Employment Commission.

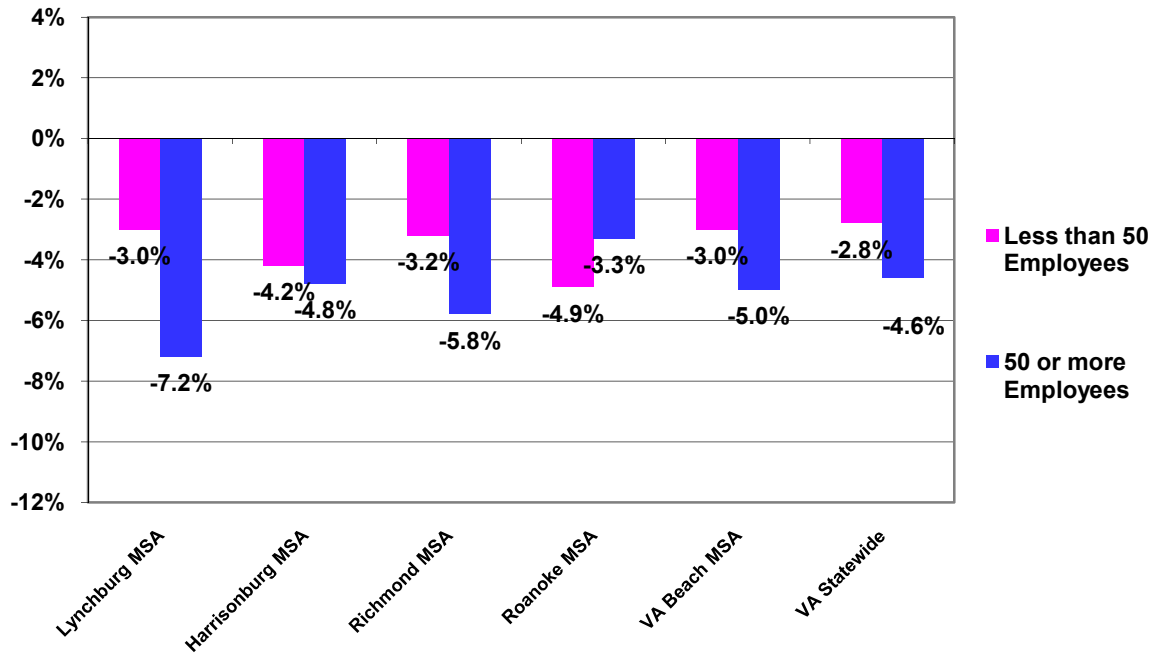
In the aggregate, small businesses also tend to be less negatively impacted during economic contractions, and in Virginia that was typically the case during the 2007 recession as well (although in further testimony to the historic severity of the 2007 recession, small businesses accounted for a disproportionate share of overall employment losses nationally). Figures 10 through 12 contrast the percentage change in employment in small businesses (fewer than 50 employees) and large businesses (50 or more employees) in Region 2000 (Lynchburg MSA) as well as in the other major MSAs used in earlier charts and the state as a whole. These data again cover the three periods of the 2007 recession – the beginning of the recession (2007:Q3 to 2008:Q3), the trough (2008:Q3 to 2009:Q3), and the recovery (2009:Q3 to 2010:Q3).

As the data depicted in Figure 11 on the next page demonstrate, during the trough of the recession small businesses were less adversely impacted than large businesses in Region 2000, as well as statewide and in all but one of the other major MSAs shown. The performance of small businesses relative to large businesses during the beginning of the recession and the recovery tended to be more mixed, however (*see* Figures 10 and 12).

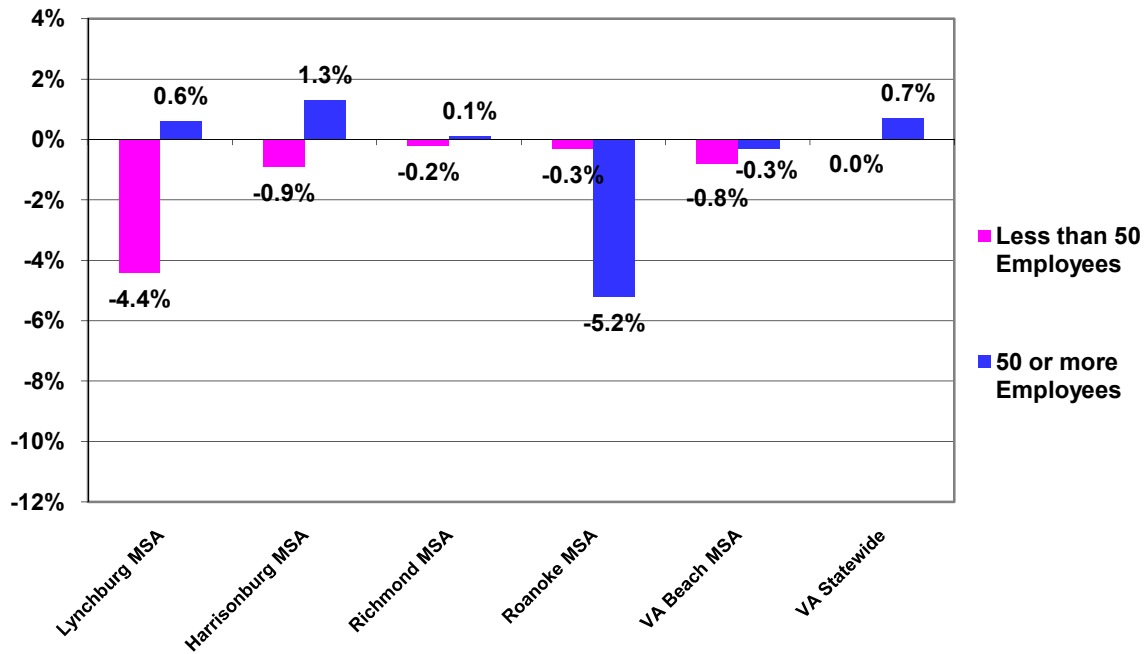


**Figure 10: 2007:Q3 to 2008:Q3 Change in Employment by Firm Size<sup>15</sup>**

<sup>15</sup>Data Source: Virginia Employment Commission.



**Figure 11: 2008:Q3 to 2009:Q3 Change in Employment by Firm Size<sup>16</sup>**

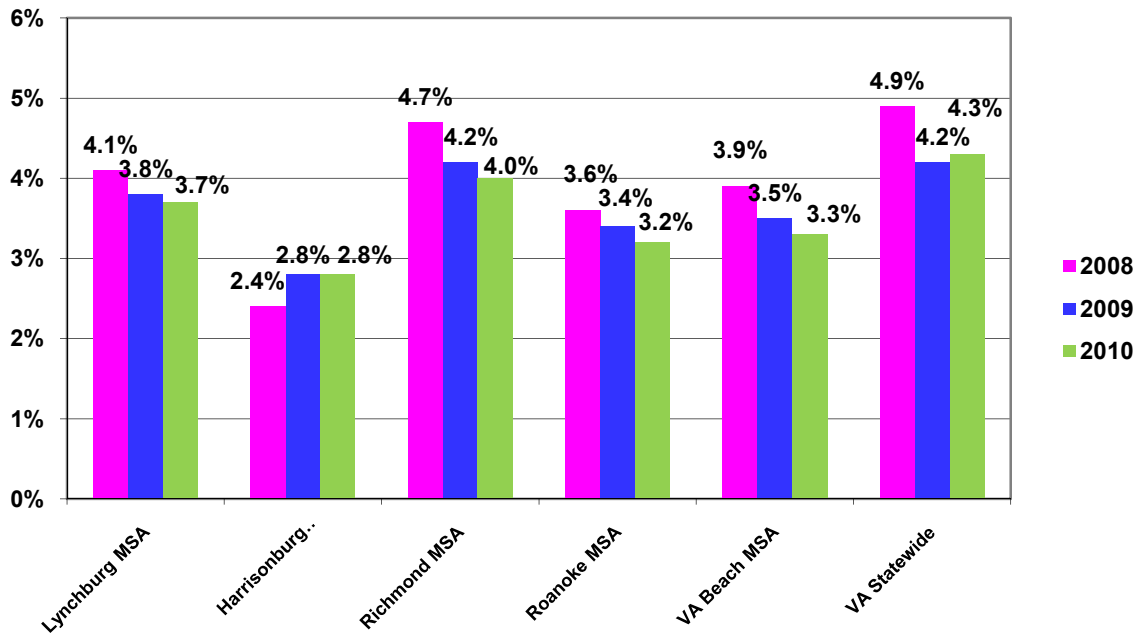


**Figure 12: 2009:Q3 to 2010:Q3 Change in Employment by Firm Size<sup>17</sup>**

<sup>16</sup>Data Source: Virginia Employment Commission.

<sup>17</sup>Data Source: Virginia Employment Commission.

Another metric often used to gauge a region’s entrepreneurial environment is the number of new startup businesses that the region produces. Figure 13 displays new business startups as a percentage of total business establishments for Region 2000 (Lynchburg MSA), other major MSAs, and the state as a whole in 2008, 2009, and 2010.<sup>18</sup> As these data show, Region 2000 does well on this metric as well.



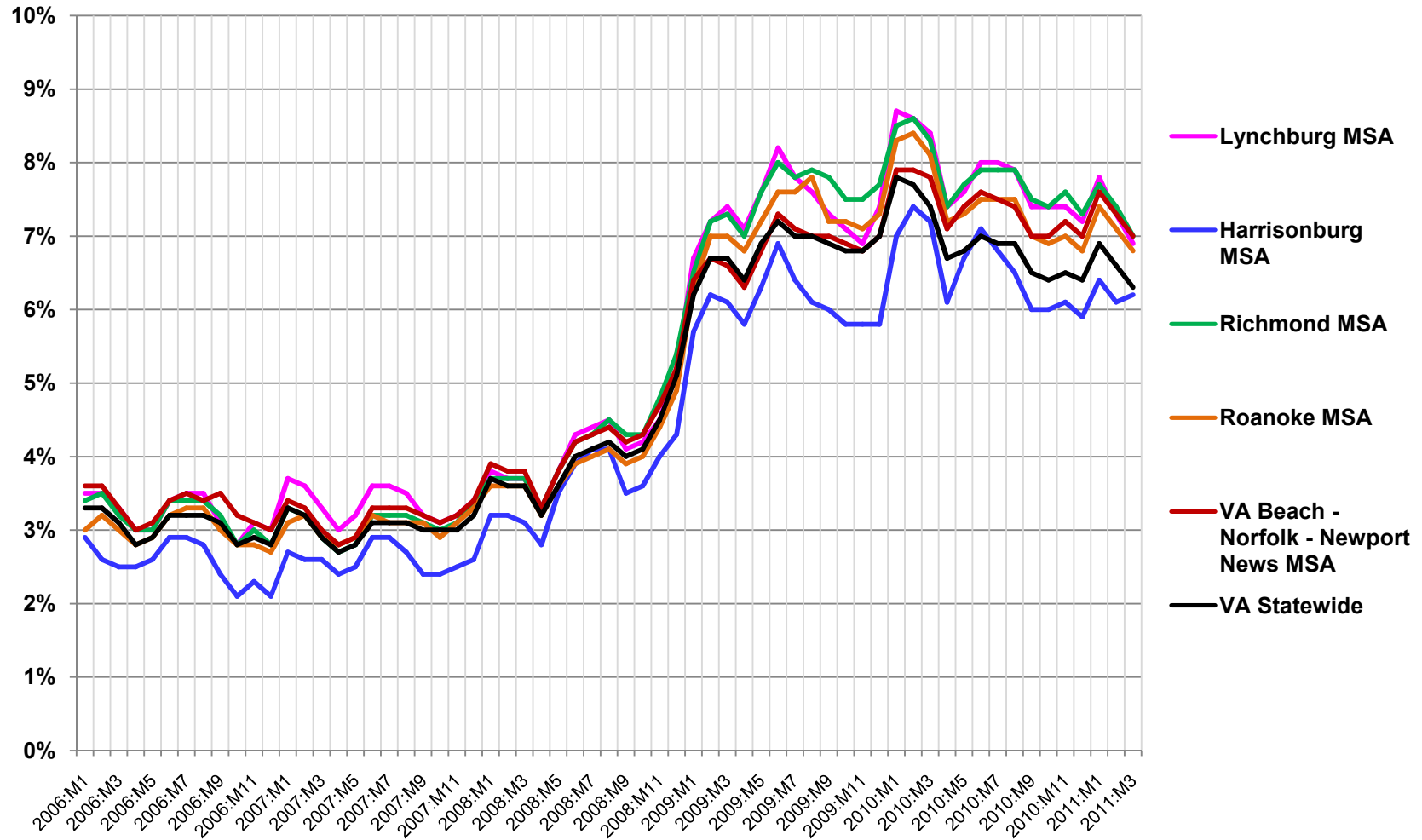
**Figure 13: Startups as a Percentage of total Business Establishments<sup>19</sup>**

### *Regional Unemployment*

The final economic trend we evaluate in this section is unemployment. Figure 14 provides information on unemployment rates for Region 2000 (Lynchburg MSA) and the other jurisdictions. As these data show, unemployment rates escalated rapidly across the state starting in late 2008 and early 2009 and have generally remained in the 7 to 8 percent range since. As of March 2011, the most recent month for which we have data, unemployment stood at 6.9 percent in Region 2000, 6.2 percent in the Harrisonburg MSA, 7.0 percent in the Richmond MSA, 6.8 percent in the Roanoke MSA, 7.0 percent in the Virginia Beach MSA, and 6.3 percent statewide (unemployment rates typically lag behind changes in employment during a recovery, as firms initially respond to rising customer demand by increasing overtime hours or hiring part-time workers instead of hiring additional full time workers).

<sup>18</sup> 2010 data are based on the first through third quarter only.

<sup>19</sup>Data Source: Virginia Employment Commission.



**Figure 14: Unemployment Rate – January 2006 to March 2011<sup>20</sup>**

<sup>20</sup>Data Source: Virginia Employment Commission, .

## Economic Performance Indices

In this section, we use two nationally published economic performance indices, the Milken Institute's *Best Performing Cities Index* and Forbes' *Best Places for Business and Careers* index, to assess Region 2000's recent economic performance relative to other metropolitan areas within the U.S.

### Best Performing Cities Index

The Milken Institute annually publishes a ranking of the best performing metropolitan areas in the U.S. called the *Best Performing Cities Index*. This index is “designed to measure objectively which U.S. metropolitan areas are most successful in terms of job creation and retention, the quality of jobs being produced, and overall economic performance.”<sup>21</sup> The *Best Performing Cities Index* is an “outcome” index, in that it measures economic results (e.g., growth in employment, and wages and salaries), not the causal factors that generate those results (e.g., workforce preparedness and cost of doing business).

The *Best Performing Cities Index* is comprised of nine empirical metrics:

- 5 Year Job Growth (2004 to 2009): weight = 0.143%
- 1 Year Job Growth (2008 to 2009): weight = 0.143%
- 5 Year Wage and Salary Growth (2003 to 2008): weight = 0.143%
- 1 Year Wage and Salary Growth (2007 to 2008): weight = 0.143%
- Short-Term Job Growth (April 2009 to April 2010): weight = 0.143%
- 5 Year High-Tech GDP Growth (2004 to 2009): weight = 0.071%
- 1 Year High-Tech GDP Growth (2008 to 2009): weight = 0.071%
- High-Tech GDP Location Quotient (2009): weight = 0.071%
- Number of High-Tech GDP Location Quotients > 1: weight = 0.071%

These metrics capture short-term and long term growth in employment, wages/salaries, and high-tech industry output, along with an area's relative concentration (as measured by its location quotient<sup>22</sup>) in high-tech industries. The index is heavily weighted toward

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<sup>21</sup> Ross C. Devol, Armen Bedroussian, Kevin Klowden, and Candice Flor Hynek, *Milken Institute*, “Best Performing Cities 2010: Where America's Jobs are Created and Sustained,” October 2010. p.5.

<sup>22</sup> The location quotient (LQ) is a standard measure of relative concentration. An LQ greater than one indicates that an area has a greater level of concentration in an industry than is typical for the nation (or state). While an LQ of less than one indicates that the area has a lower level of relative concentration in that industry.

employment growth, which the authors feel is of “critical importance in determining community vitality,” and growth and relative concentration in high-tech industries, which Ross DeVol, principal author of the index, has shown in earlier research to be a major determinant of overall economic growth.<sup>23</sup>

In generally summarizing the differences between metropolitan areas that experienced the biggest gains between 2009 and 2010 in the *Best Performing Cities Index*, and those that experienced the largest declines, the authors find that:

*The most significant theme among gainers was a heavily service-based economy with little durable goods production. Because the service sector tends to be less sensitive to business cycles, metros with a larger share of their economic activity in that sector typically are less likely to suffer major declines in their economy. Conversely, metros with a heavier reliance on durable goods manufacturing, which took a dramatic hit during the past recession, witnessed the largest declines in output and employment.*<sup>24</sup>

Table 2 lists Region 2000’s overall ranking in the 2008 through 2010 *Best Performing Cities Index*, along with those of other Virginia MSA’s. As these data indicate, Region 2000 (Lynchburg MSA) was ranked 35<sup>th</sup> among the 200 large U.S. MSAs in 2010, up from 60<sup>th</sup> in 2009, and 71<sup>st</sup> in 2008. The only Virginia MSA to rank higher in 2010 (or 2009 and 2008) was Washington D.C., which benefited from large increases in federal government employment and a disproportionate share of “stimulus” dollars over the 2008 to 2009 period.

Table 3 provides additional detail on how Region 2000 ranked on the nine specific empirical metrics that comprise the 2010 *Best Performing Cities Index* relative to other Virginia MSAs, and relative to its prior standing in 2009. What these data show is that, relative to the 200 other large U.S. MSAs evaluated, Region 2000 (Lynchburg MSA) achieved its highest rankings in *short-term job growth* (ranked 12<sup>th</sup>), *5 year relative high-tech GDP growth* (ranked 3<sup>rd</sup>), and *1 year relative high-tech GDP growth* (ranked 18<sup>th</sup>).

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<sup>23</sup> See Ross C. DeVol, “America’s High-Tech Economy: Growth, Development and Risks for Metropolitan Areas,” *Milken Institute*, July 1999. In an empirical analysis of growth differentials between metropolitan areas, DeVol determined that “65 percent of the total output growth differential between metros could be explained on the basis of their relative growth in high-tech and the initial high-tech density.”

<sup>24</sup> Ross C. DeVol *et. al.*, 2010. p.9.

**Table 2: Best Performing Cities Index – Virginia MSA Rankings<sup>25</sup>**

	Lynchburg, MSA	Richmond, MSA	Roanoke, MSA	VA Beach, Norfolk, Newport News, MSA	Washington, Arlington, Alexandria, MSA
<b>Overall 2010 Ranking</b>	35	79	105	78	6
<b>Overall 2009 Ranking</b>	60	118	126	87	25
<b>Overall 2008 Ranking</b>	71	102	168	89	41

**Table 3: 2010 Best Performing Cities Index – Virginia MSA Details<sup>26</sup>**

	Lynchburg, MSA	Richmond, MSA	Roanoke, MSA	VA Beach, Norfolk, Newport News, MSA	Washington, Arlington, Alexandria, MSA
<b>5-yr job growth<sup>27</sup></b>	101.89	100.58	99.44	98.99	104.51
<i>2010 Rank</i>	69	86	111	118	41
<i>2009 Rank</i>	74	79	146	123	64
<b>1-yr job growth<sup>28</sup></b>	99.54	100.19	100.07	100.79	102.81
<i>2010 Rank</i>	114	82	86	63	11
<i>2009 Rank</i>	33	135	129	138	24
<b>5-yr wages &amp; salaries growth<sup>29</sup></b>	100.18	101.64	97.63	98.30	105.36
<i>2010 Rank</i>	88	66	124	115	42
<i>2009 Rank</i>	105	86	156	74	51

<sup>25</sup>Data Source: Ross C. Devol *et al.*, 2010.

<sup>26</sup>Data Source: Ross C. Devol *et al.*, 2010.

<sup>27</sup>Metropolitan area job growth relative to the United States average between 2004 and 2009. U.S. average = 100.0.

<sup>28</sup>Metropolitan area job growth relative to the United States average between 2008 and 2009. U.S. average = 100.0.

<sup>29</sup>Salary and Wage growth relative to the United States average between 2003 and 2008. U.S. average = 100.0.

**Table 3: 2010 Best Performing Cities Index – Virginia MSA Details (continued)<sup>30</sup>**

	Lynchburg, MSA	Richmond, MSA	Roanoke, MSA	VA Beach, Norfolk, Newport News, MSA	Washington, Arlington, Alexandria, MSA
<b>1-yr wages &amp; salaries growth<sup>31</sup></b>	100.98	99.48	100.19	99.64	101.59
<i>2010 Rank</i>	66	136	107	128	41
<i>2009 Rank</i>	84	101	137	91	23
<b>Short-term job growth<sup>32</sup></b>	0.29%	-1.84%	-1.60%	-1.01%	0.27
<i>2010 Rank</i>	12	119	103	62	13
<i>2009 Rank</i>	13	136	50	26	19
<b>5-yr relative High-Tech GDP growth<sup>33</sup></b>	149.67	103.47	100.71	99.32	95.69
<i>2010 Rank</i>	3	54	75	85	109
<i>2009 Rank</i>	157	114	129	144	75
<b>1-yr relative High-Tech GDP growth<sup>34</sup></b>	104.03	101.54	101.27	103.64	102.81
<i>2010 Rank</i>	18	49	56	22	34
<i>2009 Rank</i>	120	168	59	93	179

<sup>30</sup>Data Source: Ross C. Devol *et al.*, 2010.

<sup>31</sup> Salary and Wage growth relative to the United States average between 2008 and 2009. U.S. average = 100.0.

<sup>32</sup> Percentage job growth/decline between April 2009 and April 2009.

<sup>33</sup> High tech sector output growth relative to the United States average between 2004 and 2009. U.S. average = 100.0.

<sup>34</sup> High tech sector output growth relative to the United States average between 2008 and 2009. U.S. average = 100.0.

**Table 3: 2010 Best Performing Cities Index – Virginia MSA Details (continued)<sup>35</sup>**

	Lynchburg, MSA	Richmond, MSA	Roanoke, MSA	VA Beach, Norfolk, Newport News, MSA	Washington, Arlington, Alexandria, MSA
<b>High-Tech GDP Location Quotient<sup>36</sup></b>	1.01	0.97	0.85	0.93	1.87
<i>2010 Rank</i>	83	90	118	101	16
<i>2009 Rank</i>	158	100	95	95	164
<b>Number of High-Tech GDP Location Quotients over one<sup>37</sup></b>	6	7	5	8	9
<i>2010 Rank</i>	100	80	116	64	54
<i>2009 Rank</i>	78	78	57	78	148

In addition, relative to 2009, the data displayed in Table 3 also indicate that all of Region 2000’s most significant improvements were in the high-tech area. Specifically, its ranking for *5 year relative high-tech GDP growth* climbed from 157<sup>th</sup> to 3<sup>rd</sup>, while its ranking for *1 year relative high-tech GDP growth* climbed from 120<sup>th</sup> to 18<sup>th</sup>, and its ranking for *high-tech GDP location quotient* (a measure of relative industry concentration) climbed from 158<sup>th</sup> to 83<sup>rd</sup>.

For purposes of the *Best Performing Cities Index*, the Milken Institute employs a list of 25 specific industries to define the “high-tech” sector. Ten of those 25 are high-tech manufacturing industries and 15 are high-tech service industries. In 2010, Region 2000 boasted employment in three out of the ten identified high-tech manufacturing industries, and in two of those (*Computer and Peripheral Equipment Manufacturers* and *Semiconductor and Other Electronic Component Manufacturing*) enjoyed a level of

<sup>35</sup>*Data Source:* Ross C. Devol *et al.*, 2010.

<sup>36</sup> Combined metropolitan area high tech location quotient during 2009. Location Quotient (LQ) is a measure of high tech concentration. A metro with an LQ higher than 1.0 is said to have a higher concentration of high-tech industries than is typical in the U.S., and, conversely, a metro with an LQ less than 1.0 is said to have a lower concentration of high-tech industries.

<sup>37</sup> Measures the number of high technology industries out of the 25 industries identified with a location quotient (LQ) that is greater than one.

industry concentration that exceeded the statewide average.<sup>38</sup> Region 2000 also boasted employment in ten out of the 15 identified high-tech service industries in 2010, and in one of those (*Architectural, Engineering, and Related Services*) enjoyed a level of industry concentration that exceeded the statewide average.<sup>39</sup>

In addition to being a relatively recession-resistant high growth sector, it is important to also note that Region 2000's high-tech industries typically pay very high wages. Where the average wage across all industries in Region 2000 in 2010 was \$698 per week, the average wage in these 13 high-tech industries was \$1,373 (197 percent above the regional norm).

### Best Places for Business and Careers

The Forbes' *Best Places for Business and Careers* index is also published annually and is commonly used to compare the economic attractiveness of U.S. metropolitan areas. In contrast to the *Best Performing Cities Index*, *Best Places for Business and Careers* is not an outcome index, but instead compares metropolitan areas on the basis of factors judged to enhance economic success. Specifically, the *Best Places for Business and Careers* index ranks metropolitan areas according to three empirical metrics: 1) cost of doing business (based on cost of energy, labor, office space, and taxes), 2) projected job growth (based on a three year annualized average), and 3) educational attainment (based on the percentage of the population 25 years of age and older with a BA degree).

Table 4 provides the overall and individual metric rankings for Region 2000 (Lynchburg MSA) from the 2010 *Best Places for Business and Careers* index, along with those of other Virginia MSAs. As these data indicate, in 2010 Region 2000 was ranked 28th out of the 200 large U.S. MSAs evaluated, the highest ranking of any Virginia MSA. Looking at the rankings for the individual metrics, it becomes apparent that much of Region 2000's overall success in this index is attributable to its very low cost of doing business, which was the 42<sup>nd</sup> lowest of the 200 large MSAs evaluated nationally.

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<sup>38</sup> The three high-tech manufacturing industries from the Milken Institute list of ten that exhibited employment in Region 2000 in 2010 were: 1) *Computer and Peripheral Equipment Manufacturers*, 2) *Medical Equipment and Supplies Manufacturing*, and 3) *Semiconductor and Other Electronic Component Manufacturing*. The employment location quotients for *Computer and Peripheral Equipment Manufacturers* and *Semiconductor and Other Electronic Component Manufacturing* both were greater than one (7.3 and 1.3 respectively) indicating that the regional concentration of employment in these industries exceeded the statewide norm.

<sup>39</sup> The ten high-tech service industries from the Milken Institute list of 15 that exhibited employment in Region 2000 in 2010 were: 1) *Motion Picture and Video Industries*, 2) *Wired Telecommunication Carriers*, 3) *Wireless Telecommunication Carriers*, 4) *Other Telecommunications*, 5) *Data Processing and Related Services*, 6) *Other Information Services*, 7) *Architectural, Engineering, and related Services*, 8) *Computer Systems Design and Related Services*, 9) *Scientific Research and Development Services*, and 10) *Medical and Diagnostic Laboratories*. The employment location quotient for *Architectural, Engineering, and related Services* was greater than one (1.4) indicating that the regional concentration of employment in this industry exceeded the statewide norm.

**Table 4: Best Places for Business and Careers Index – Virginia MSA Rankings<sup>40</sup>**

	Lynchburg, MSA	Richmond, MSA	Roanoke, MSA	VA Beach, Norfolk, Newport News, MSA	Washington, Arlington, Alexandria, MSA
<b>Overall Rank</b>	28	50	39	45	30
<b>Cost of doing business<sup>41</sup></b>	42	123	61	70	195
<b>Projected job growth<sup>42</sup></b>	174	129	90	94	80
<b>Educational attainment<sup>43</sup></b>	160	66	140	100	6

## Conclusion

Region 2000, Virginia, and the nation as a whole are now emerging from a recession that, in terms of both length and employment losses, was the worst the country has experienced since the Great Depression of the 1930s. The “Great Recession,” as it is increasingly being called, provided a crucial real-world test of the Region 2000 Partnership’s economic development policies. In recent years, those policies have focused on creating a business environment and human capital pipeline that will enable the region to restructure its industrial portfolio away from a near total dependence on the *Manufacturing* sector, and toward a greater emphasis on *Professional and Technical Services*. The impact of the Great Recession clearly demonstrated both the success and timeliness of those economic development policies. Although all areas of the country were negatively impacted during the recession, one of the most salient characteristics of the downturn was that regions with high concentrations of service industries fared better than regions with high concentrations of durable goods manufacturers.

Looking at Region 2000 specifically, the region was initially able to avoid the historically significant employment declines associated with the Great Recession because large employment losses in its *Manufacturing* sector were offset by equally large employment

<sup>40</sup>Data Source: Forbes’ *Best Places for Business and Careers* ([http://www.forbes.com/lists/2010/1/business-places-10\\_Best-Places-For-Business-And-Careers\\_Rank.html](http://www.forbes.com/lists/2010/1/business-places-10_Best-Places-For-Business-And-Careers_Rank.html)).

<sup>41</sup>Index based on cost of energy, labor, office space, and taxes.

<sup>42</sup>Three year annualized projection.

<sup>43</sup>Based on proportion of population 25 years of age and older with a BA degree.

gains in its *Professional and Technical Services* sector. As a result, employment trends in Region 2000 remained positive for roughly a year longer than in other Virginia MSAs or the state as a whole. As the recession wore on, however, the area's employment situation was negatively impacted by widespread downturns in multiple sectors, most notably *Manufacturing, Construction, Retail Trade, and Administrative and Waste Services*. During the recovery, although Region 2000's economic revival was initially delayed by employment losses in the *Construction, Healthcare and Social Services, and Professional and Technical Services* sectors, more recent data indicate that the region is now rebounding more robustly than either the state or other major MSAs.

Finally, our analysis of nationally published economic performance indices lends further support to the efficacy of the Region 2000 Partnership's economic development strategy. According to those indices, the region's growth and concentration in high-tech industries, along with its favorable business climate, are the two most important characteristics in positively differentiating Region 2000's economic performance from that of other U.S. MSAs.