

# Best-Performing Cities 2010

Where America's Jobs Are Created and Sustained

The background of the page is a large, high-resolution image of the Texas state flag, which is waving. It features a blue field with a white five-pointed star on the left, a white field on the right, and a red field at the bottom.

**Five of Top 10  
Metro Areas Lie Deep  
in the Heart of Texas**

Ross C. DeVol,  
Armen Bedroussian,  
Kevin Klowden, and  
Candice Flor Hynek

**October 2010**



MILKEN INSTITUTE

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The Milken Institute is an independent economic think tank whose mission is to improve the lives and economic conditions of diverse populations in the United States and around the world by helping business and public policy leaders identify and implement innovative ideas for creating broad-based prosperity. We put research to work with the goal of revitalizing regions and finding new ways to generate capital for people with original ideas.

We focus on:

**human capital:** the talent, knowledge, and experience of people, and their value to organizations, economies, and society; **financial capital:** innovations that allocate financial resources efficiently, especially to those who ordinarily would not have access to them, but who can best use them to build companies, create jobs, accelerate life-saving medical research, and solve long-standing social and economic problems; and **social capital:** the bonds of society that underlie economic advancement, including schools, health care, cultural institutions, and government services.

By creating ways to spread the benefits of human, financial, and social capital to as many people as possible—by *democratizing* capital—we hope to contribute to prosperity and freedom in all corners of the globe.

We are nonprofit, nonpartisan, and publicly supported.



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## Executive Summary

Our *Best-Performing Cities* index is updated on an annual basis to provide an objective, comprehensive measure of economic performance across metropolitan areas of the country. In most years, it gives a good indication of the underlying structural performance of regional economies.

While the 2010 edition still sheds light on structural factors underpinning the economic growth process, the severity of the recent recession brings more cyclical factors to bear. For example, several of this year's best-performing cities had military bases that benefited from Defense Base Realignment and Consolidation (BRAC) actions. A best-performing city in this context should be viewed as one that was able to minimize the job losses and economic dislocations in the midst of a severe national recession. We include measures of job, wage, and technology performance over a five-year period to capture the structural elements.

Among this year's key findings:

- Texas metros dominated the rankings even more impressively than last year. The state claimed three of the top 5 positions; five of the top 10 positions and 11 of the top 25 among the nation's 200 largest metros.
- **Killeen–Temple–Fort Hood, Texas**, moved past **Austin–Round Rock, Texas**, to secure first among the 200 largest metros in the country.
- **Washington–Arlington–Alexandria, DC–VA–MD–WV**, was the top performer among the 10 largest metros and an impressive sixth in the overall rankings.
- **Fargo, North Dakota–Minnesota**, was first on the small cities list, and **Bismarck, North Dakota**, was second.
- **Clarksville, Tennessee–Kentucky**, moved up 97 spots from last year to 39th, recording the biggest gain among metros.

Only a handful of cities eked out job gains in 2009. Through April 2010, just a few more cities managed increases in employment. The 2007-2009 recession came to an end in June 2009, but its effects continue to sting. Real GDP declined 4.1 percent from peak to trough, the most severe in the post-war period, eclipsing the previous record of 3.7 percent in the 1957-1958 recession.

While virtually no sector of the economy went unscathed, the magnitude of the contraction in business investment and manufacturing explains much of the severity in the recent period relative to other recessions. The bursting of the housing bubble, retrenching consumers, a severe drop in exports, and a slashing of business inventories cut across a wide swath of industries.

The ultimate measure of the severity of the recession is its impact on labor markets, and here the toll of the "Great Recession" was devastating and continues to this day. Based on the Bureau of Labor Statistics establishment survey, a total of 8.4 million jobs were lost during the recent recession, and the unemployment rate hit 10.1 percent.

Some economists are predicting that the economy is in store for a so-called double-dip recession, but they remain in the minority. The U.S. economy faces many headwinds, but it seems most likely that moderate, but disappointing, growth is the most likely outcome. It will be disappointing in the sense that job growth will not be sufficient to bring down the unemployment rate to where it was before the recent crisis.

The top performers shared many of the same characteristics as last year. None experienced a large correction in housing markets. In many cases, the excesses of the housing bubble years were largely avoided and overall economic performance was more stable than in other metros. One factor that was more vital than last year was a low dependence on durable goods manufacturing. As the production of capital equipment and consumer durable goods plummeted, metros without much of this activity were largely shielded. Another characteristic of top performers was a relatively small presence of financial services, an industry that experienced large job losses due to bank consolidation and losses on their loan portfolios.

Several metros with diversified technology bases—including high-tech manufacturing as well as high-tech services—were among the best performers. Most of the top-ranking metros have an employment mix that relies heavily on services, which experienced a smaller decline than most other sectors. Several metros had a large military presence and benefited from BRAC actions. A few of the best-performing metros had a dependence on energy exploration, services, and alternative energy investments. With just a few exceptions, the top-ranked metros had low business costs and favorable business climates.

### **The Top 25 Best-Performing Cities**

Texas metros dominated the 2010 rankings, eclipsing even last year's stellar performance. Lone Star State metros occupied 11 of the top 25 positions among the 200 largest metros in the country and five of the top 10. For the second year running, the same two Texas cities claimed the top two spots, except Killeen–Temple–Fort Hood edged past Austin–Round Rock to take first among the 200 largest metros. Another way to highlight Texas' dominance is that just two of the state's 13 metros didn't make the top 25, with the lowest-ranking metro coming in at 57th overall.

As highlighted throughout this report, Texas metros have benefited from a low reliance on durable goods manufacturing, a low cost of doing business, a favorable business climate, the benefits of BRAC activities, greater reliance on trade with Mexico and South America (which declined less than trade with other parts of the world), and ongoing energy exploration activities and alternative fuels research. Throw in their aggressive recruitment of businesses from out of state, and you have the ingredients for a very successful recipe.

North Carolina had three metros in the top 25; Raleigh–Cary at seventh, Durham at 15th and Fayetteville at 18th. These metros shared many of the same attributes as the Texas metros. No other states had more than one metro in the top 25.

Led by Texas, the South held 21 of the top 25 positions. The Northeast and West each had two metros in the top 25.

**Table 1. Best-performing cities: Top 25 large metros**

Rank according to 2010 index

<b>Metropolitan statistical area (MSA)</b>	<b>2010 rank</b>	<b>2009 rank</b>
Killeen-Temple-Fort Hood, TX	1	2
Austin-Round Rock, TX	2	1
Huntsville, AL	3	8
McAllen-Edinburg-Mission, TX	4	4
Kennewick-Richland-Pasco, WA	5	6 <sup>+</sup>
Washington-Arlington-Alexandria, DC-VA-MD-WV*	6	25
Raleigh-Cary, NC	7	10
Anchorage, AK	8	40
El Paso, TX	9	14
Houston-Sugar Land-Baytown, TX	10	5
Lafayette, LA	11	9
Trenton-Ewing, NJ	12	46
Brownsville-Harlingen, TX	13	70
San Antonio, TX	14	11
Durham, NC	15	6
Amarillo, TX	16	35
Dallas-Plano-Irving, TX*	17	13
Fayetteville, NC	18	31
Charleston-North Charleston, SC	19	30
Bethesda-Gaithersburg-Frederick, MD*	20	51
Oklahoma City, OK	21	26
Cambridge-Newton-Framingham, MA*	22	45
Fort Worth-Arlington, TX*	23	12
Lubbock, TX	24	29
Provo-Orem, UT	25	28

\*Indicates metropolitan division

\*Kennewick-Richland-Pasco, WA MSA moved to the large cities list. It ranked sixth in the best-performing small cities in 2009.

Source: Milken Institute.

### This Year's Best-Performing City

**Killeen–Temple–Fort Hood, Texas**, claimed the top spot in our 2010 *Best-Performing Cities* index, edging up from second last year. The area, which experienced a devastating tragedy at Fort Hood in 2009, should be heralded for its economic performance amid a severe national recession. The metro area's job growth ranked in the top 10 last year and over the five years from 2004-2009, but its overall performance was fueled by its first-place position in wage and salary growth over the five-year (2003-2008) and one-year (2007-2008) periods examined. Additionally, it ranked third in year-over-year job growth in the 12 months ending April 2010. Expansion at Fort Hood, with the associated economic ripple effects, is the primary catalyst for this stellar performance.



## The Ten Largest Cities

America's largest metropolitan areas face unique challenges to growth, including high density and minimal space for expansion. For this reason, it is appropriate to break out their performances separately. It isn't reasonable to expect cities like Los Angeles, New York, or Chicago to grow at the same rate as Austin, Raleigh, or Huntsville. However, the big metro areas could take new cues from the favorable business climates promoted by these fast-growing areas.

**Washington–Arlington–Alexandria, DC–VA–MD–WV–MD**, was the top-performing metro among the 10 largest metros based on population and ranked sixth overall on this year's list. The federal government was by far the primary driver of the region's job growth from 2008 to 2009, adding nearly 11,000 positions. Last year's stimulus package, known as The American Recovery and Reinvestment Act of 2009, provided a significant boost to the metro's economy. Of the awards distributed, D.C. received nearly 10 times as much stimulus per capita as the national average.<sup>1</sup>

## The Biggest Gainers

There are several commonalities among the biggest gainers on the 2010 *Best-Performing Cities* index. The most significant theme was a heavily service-based economy with little durable goods production. This is because the service sector tends to be less sensitive to business cycles. Conversely, metros with a heavier reliance on durable goods manufacturing, which took a dramatic hit during the recession, witnessed the largest declines in output and employment. Among the biggest gainers, a majority also didn't experience an extreme housing bubble earlier in the decade, allowing them to avoid a severe correction.

Gains were recorded across the country. Tennessee, West Virginia, Kentucky, California, and Florida each landed two metros on the list. **Columbus, GA–AL**, made its second consecutive appearance on the list, leaping 67 spots to claim 45th. The metro experiencing the largest gain was **Clarksville, TN–KY**, which moved up 97 spots to 39th place. BRAC shifts to Fort Benning (Columbus) and increased defense spending at Fort Campbell (Clarksville) were key drivers of growth in those regions.

## The Best-Performing Small City

**Fargo, North Dakota**, jumped to first among the best-performing small metros in 2010, after finishing 10th the previous year. Fargo experienced a very mild recession and quickly recovered. The unemployment rate was below 4 percent, one of the lowest in the nation. The tight labor market elsewhere resulted in an increase of new residents. The increased global demand for agricultural commodities such as wheat, corn, and soybeans, which the state grows in abundance, has benefited the region in recent years. A growing presence in the technology sector, and biosciences in particular, has diversified the area's economy.

In this year's release, an **appendix** was added to give further background on the methodology and weighting scheme we developed. The appendix attempts to validate the methods used for determining relative metropolitan growth and its corresponding strength as exemplified by the existing weights. The regression model developed using the variables included in our ranking explains 88 percent of the total variation in real GDP growth among 379 metros from 1990 to 2008, a high degree of explanatory power.

## Introduction

The *Best-Performing Cities* index was 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. Specifically, it pinpoints where jobs are being created and maintained, where wages and salaries are increasing, and where economies and businesses are growing and thriving.

The index allows businesses, industry associations, economic development agencies, investors, academics, government officials, and public policy groups to assess, monitor, and gain insight into each metro's relative performance. It also provides benchmarking data that can be used in developing strategies to improve and maintain a metro's economic performance. Moreover, it is a tool for understanding consumer markets and business expansion opportunities. In today's recessionary climate, it helps determine which regions may present the lowest risk. The 2010 index applies the methodology used in previous indexes.

In a year when robust growth was in painfully short supply, the top-performing cities posted only mild increases in employment. Few cities actually experienced meaningful job growth in 2009. Coming out of the worst recession in the post-war era, the emphasis is not as much on job creation as on job retention. As a result, this year's index will hinge on a metro's degree of sensitivity to business cycles, highlighting those that were better able to weather the storm of the recession. In this kind of environment, it is even more important to evaluate each city's performance in relation to the nation as a whole and in relation to each other.

We have employed geographic terms and definitions used by the Office of Management and Budget (OMB), which in turn uses data from the 2000 census. The OMB defines a metropolitan statistical area (MSA) as a region generally consisting of a large population nucleus and adjacent territory with a high degree of economic and social integration, as measured by community ties.<sup>2</sup> Using these parameters, the agency identifies 374 metropolitan statistical areas.<sup>3</sup> County population growth accounts for the creation of new MSAs.

If specific criteria are met, an MSA with a single nucleus and a population of 2.5 million or more is further divided into geographic areas called metropolitan divisions. There are currently 29 metropolitan divisions. For example, two metropolitan divisions (Los Angeles–Long Beach–Glendale and Santa Ana–Anaheim–Irvine) make up the Los Angeles–Long Beach–Santa Ana MSA. We include the smaller metropolitan divisions in the index to reflect more accurate geographic growth patterns.

### Outcomes-Based, Not Cost-Based

The components shown in the following table are used to calculate our index rankings. The index measures growth in jobs, wages and salaries, and technology output over a five-year span (2004–2009 for jobs and technology output and 2003–2008 for wages and salaries) to adjust for extreme variations in business cycles. It also incorporates the latest year's performance in these areas (2008–2009 for jobs and technology output and 2007–2008 for wages and salaries). Lastly, it includes 12-month job growth performance (April 2009 to April 2010) to capture relative recent momentum among metropolitan economies.<sup>4</sup>

Employment growth is weighted most heavily in the index because of its critical importance in determining community vitality. Wage and salary growth also measures the quality of the jobs being created and sustained. Technology output growth is another important element in determining the economic vibrancy of cities.

We have incorporated other measures to reflect the concentration and diversity of technology industries within the MSAs. High-tech location quotients (LQs, which measure the concentration of the technology industry in a particular metro relative to the national average) are included to indicate a metro's participation in the knowledge-based economy.<sup>5</sup> We also measure the number of specific high-tech industries (out of a possible 25) whose concentrations in an MSA are higher than the national average.

The *Best-Performing Cities* index is solely an outcomes-based measure. It does not incorporate explicit input measures (business costs; cost-of-living components, such as housing; and other quality-of-life measures, such as commute times or crime rates). Static input measures, although important, are subject to large variations and can be highly subjective, making them less meaningful than more objective indicators of outcome.

Businesses choose to locate in particular areas for various reasons. Some, for instance, opt to remain in high-cost cities despite the availability of lower-cost locations. The output measures used for this index include the benefits of situating in expensive locations. Theoretically, a prospering region will raise wages and rents as its businesses tap into more human capital and available space. Nevertheless, holding all other factors constant (such as the productivity associated with being in one location versus another), a company will generally choose to locate where business costs are lower and employees enjoy higher living standards.

**Table 2. Components of the Best-Performing Cities index**

<b>Component</b>	<b>Weight</b>
Job growth (I=2004)	0.143
Job growth (I=2008)	0.143
Wage and salary growth (I=2003)	0.143
Wage and salary growth (I=2007)	0.143
Short-term job growth (Apr09-Apr10)	0.143
Relative high-tech GDP growth (I=2004)	0.071
Relative high-tech GDP growth (I=2008)	0.071
High-tech GDP location quotient	0.071
Number of high-tech industries with GDP LQ>1	0.071

Note: I refers to the beginning year of index.

Source: Milken Institute.

## National Economic Conditions

The painful 2007-2009 recession came to an end in June 2009, but its reverberations are still being felt. Real GDP declined 4.1 percent from peak to trough, the most severe in the post-war period, eclipsing the previous record of 3.7 percent experienced in the 1957–1958 recession. While virtually no sector of the economy went unscathed, the magnitude of the contraction in business investment and manufacturing explains much of the severity in the recent period relative to other recessions. However, what triggered the recession was the bursting of the housing and mortgage finance bubble as it cascaded throughout the financial system, ultimately leading to government intervention to stave off an even more serious economic contraction.

Overextended consumers facing heavy debt-servicing burdens on mortgages and credit cards, paired with wealth declines from losses in the stock market and the collapse in home values, deferred purchases of discretionary items such as cars and other consumer durables. Services tied to travel and tourism also witnessed a severe retrenchment. Foreign purchases of U.S. products and services fell, and a massive destocking of inventories combined with the fall in business investment caused industrial production to contract 14.8 percent from December 2007 to June 2009. The peak-to-trough decline in orders for manufacturing was 27.2 percent.<sup>6</sup>

The ultimate measure of the severity of the recession is its impact on labor markets, and here the toll of the “Great Recession” was devastating and continues to this day. Based on the Bureau of Labor Statistics establishment survey, a total of 8.4 million jobs were lost during the recent recession, and the unemployment rate hit 10.1 percent. Small businesses accounted for a disproportionate share of the losses, and few hired new workers during the recession. In most recessions, a number of small establishments continue to expand payrolls despite cutbacks at others.

The central question looking forward is what will be the strength of the recovery. Some economists are predicting a so-called double-dip recession, but they remain in the minority. The U.S. economy faces many headwinds, but it seems that moderate but disappointing growth is the most likely outcome. It will be disappointing in the sense that job growth over the next few years will not be sufficient to reduce the unemployment rate to pre-crisis levels.



## The Biggest Gainers

Those cities experiencing the biggest gains in the 2010 *Best-Performing Cities* index share important similarities. The most significant theme among the 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 this past recession, witnessed the largest declines in output and employment. A majority of the biggest gainers also didn't experience an extreme housing bubble earlier in the decade, allowing them to avoid a severe correction. For most metros, however, it was simply a case of not deteriorating as rapidly as the national economy.

Gains were recorded across the country. Tennessee, West Virginia, Kentucky, California, and Florida each landed two metros on the list. **Columbus, GA-AL**, made its second consecutive appearance on the list of biggest gainers, leaping 67 spots to claim 45th. The metro experiencing the largest gain was **Clarksville, TN-KY**, which moved up 97 spots to 39th place. Defense Base Closure and Realignment (BRAC) shifts to Fort Benning (Columbus) and increased defense spending at Fort Campbell (Clarksville) were key drivers of growth in those regions.

**Table 3. Biggest gainers**

Change in rankings

<b>Metropolitan statistical area (MSA)</b>	<b>2010 rank</b>	<b>2009 rank</b>	<b>Spots climbed</b>
Clarksville, TN-KY	39	136	+97
St. Louis, MO-IL	44	128	+84
Charleston, WV	61	144	+83
Pittsburgh, PA	32	109	+77
Huntington-Ashland, WV-KY-OH	73	149	+76
Green Bay, WI	102	171	+69
Columbus, GA-AL	45	112	+67
Lexington-Fayette, KY	100	161	+61
Vallejo-Fairfield, CA	115	173	+58
Brownsville-Harlingen, TX	13	70	+57
Visalia-Porterville, CA	70	124	+54
Jackson, MS	66	113	+47
Honolulu, HI	55	100	+45
Lincoln, NE	54	97	+43
Tallahassee, FL	88	129	+41
Pensacola-Ferry Pass-Brent, FL	116	157	+41
Duluth, MN-WI	122	163	+41
Louisville-Jefferson County, KY-IN	113	153	+40
Richmond, VA	79	118	+39
Chattanooga, TN-GA	133	172	+39

Source: Milken Institute.



## The Biggest Decliners

The ripple effects of the housing crisis are still evident across the biggest decliners' list. Housing prices have yet to stabilize in most of these metros as inventory remains high and delinquencies continue to engulf neighborhoods. Several of these metros are also dependent on travel and tourism, which endured a substantial decline and slow recovery.

This year, California had both the biggest decliner—**Santa Barbara–Santa Maria–Goleta, California**—and the most metros on the list, at four. The Santa Barbara area's low housing affordability will delay its housing correction for some time while budgetary problems at the state level will likely impede growth at its University of California campus. The metro's dependence on tourism will only add to economic woes until the recovery picks up.

**Table 4. Biggest decliners**

Change in rankings

<b>Metropolitan statistical area (MSA)</b>	<b>2010 rank</b>	<b>2009 rank</b>	<b>Spots down</b>
Santa Barbara-Santa Maria-Goleta, CA	138	43	-95
Fort Smith, AR-OK	150	62	-88
San Jose-Sunnyvale-Santa Clara, CA	132	50	-82
Greeley, CO	101	20	-81
Eugene-Springfield, OR	160	81	-79
Little Rock-North Little Rock-Conway, AR	93	23	-70
Portland-Vancouver-Beaverton, OR-WA	107	37	-70
New Haven-Milford, CT	153	88	-65
Bridgeport-Stamford-Norwalk, CT	111	49	-62
Greenville-Mauldin-Easley, SC	136	77	-59
Wichita, KS	72	15	-57
Lake County-Kenosha County, IL-WI*	152	95	-57
Las Vegas-Paradise, NV	164	107	-57
Ocala, FL	159	104	-55
Peoria, IL	87	33	-54
Reno-Sparks, NV	196	143	-53
Worcester, MA	129	79	-50
Santa Ana-Anaheim-Irvine, CA*	172	122	-50
Salt Lake City, UT	49	3	-46
Riverside-San Bernardino-Ontario, CA	146	103	-43

\*Indicates metropolitan division

Source: Milken Institute.





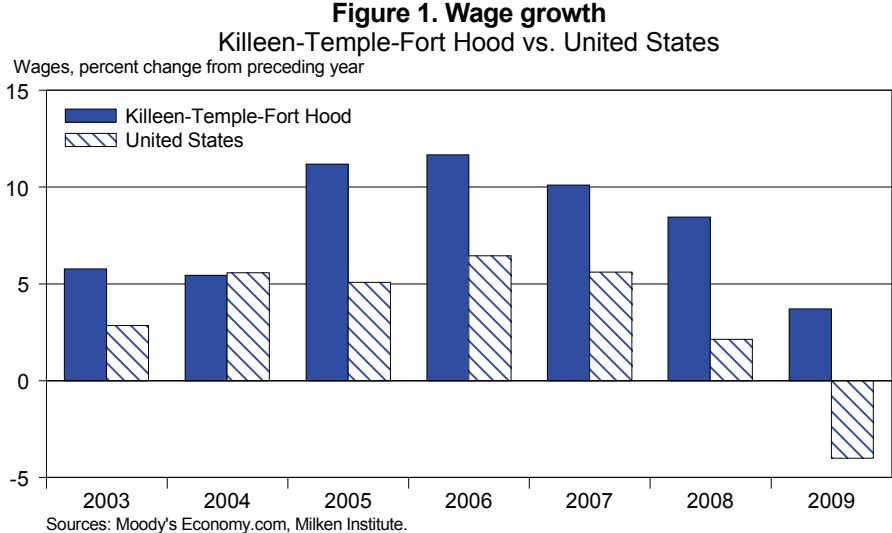
## The Best-Performing Large Cities

**Killeen–Temple–Fort Hood, Texas**, moved into the top spot in our 2010 *Best-Performing Cities* index, edging up from second last year. The area, which experienced a devastating tragedy at Fort Hood in 2009, should be heralded for its economic performance amid a severe national recession. The metro area recorded top 10 finishes in job growth over the five-year and one-year periods, but its overall performance was spurred by its first-place position in five-year and one-year wage and salary growth. Additionally, it ranked third on year-over-year job growth measured through April 2010. Expansion at Fort Hood, with the associated economic ripple effects, is the primary catalyst for this stellar performance.

The area’s economy has benefited from the base consolidations ordered in 2005. Based on estimates from the Defense Department, this long-term repositioning should transfer more than 8,000 military personnel to Fort Hood from 2006 through 2011. Military compensation has been rising faster than federal non-military and private-sector compensation over the last decade.<sup>7</sup> Average military pay surpassed \$70,000 in 2009, based on data from the Bureau of Economic Analysis. Base-related activity in local service sectors, such as professional and business services and many others, has provided stability to the area’s economy during the severe national recession.

Recognizing that the stimulus from Fort Hood will wane, the area is focused on diversifying its economy. Its location on the central I-35 trade corridor with Mexico provides such an opportunity. In the Killeen metro area, tangible results such as employment in support activities for transportation are more than twice as important to the local economy as they are to the U.S. economy overall.

A combination of less over-extension of mortgage credit in earlier years and more stability in employment during the recession mitigated the downturn in the housing market. Although new-home construction fell, prices didn’t plummet as in many other parts of the country. Higher education is an area where the metro has seen growth and is anticipating further advances. Central Texas College has already seen increased enrollment, and Texas A&M University Central Texas has broken ground on a new campus. This provides the metro an opportunity to establish new research-related jobs and further diversify its economy.<sup>8</sup>

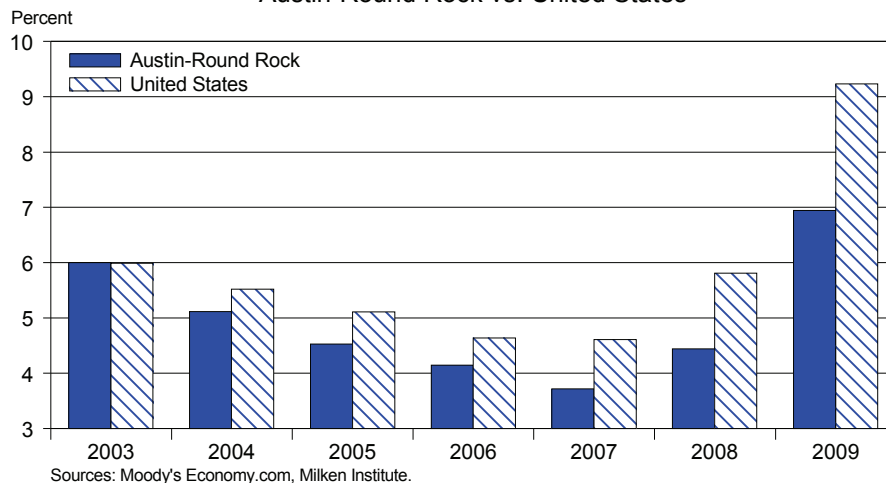


Slipping one spot to second overall, consistent performer **Austin–Round Rock, Texas**, also ranked second on job growth over the five-year period. It ranked in the top 25 on almost all growth performance categories. This is an impressive achievement when you consider that Austin is highly dependent on computers and information technology equipment, which was devastated by the recession. Dell and several of its chip producers suffered major declines as domestic and international IT markets collapsed. The presence of the University of Texas, Austin, and Austin’s role as the state capital helped insulate it from further damage. Austin’s low dependence on traditional durable goods manufacturing and tourism provided further stability. Austin’s housing market witnessed far less severe declines than most metro markets did.

Although employment fell in 2009, Austin’s unemployment rate peaked at 7.3 percent, roughly 3 percentage points less than the national figure. Austin’s relatively low cost of doing business for a leading knowledge-based economy hub, combined with a favorable business climate and access to an educated workforce, makes it a very attractive location to start or expand a business. Austin’s net population increased by 32,000 in 2009, according to the Census Bureau, compared with a peak of 48,000 in 2006.

Austin hopes to encourage more high-tech services, recognizing that hardware and chip makers will create fewer jobs in the future. That said, Samsung intends to add a production line in Austin that will employ 500 workers to make logic chips, demonstrating that Austin remains a key center of U.S. chip manufacturing and will attract new incremental capacity in the future.<sup>9</sup> On the high-tech service side, one recent success is Apple’s acquisition of Intrinsity Inc., which designed key parts of a chip for Apple’s iPad. Intrinsity had around 100 employees at the time of the acquisition, but it is likely that Apple will make additional investments and add more employees.<sup>10</sup> Apple already has around 2,500 employees in central Texas. Many other high-tech service firms such as Google and Facebook are adding employees in Austin.

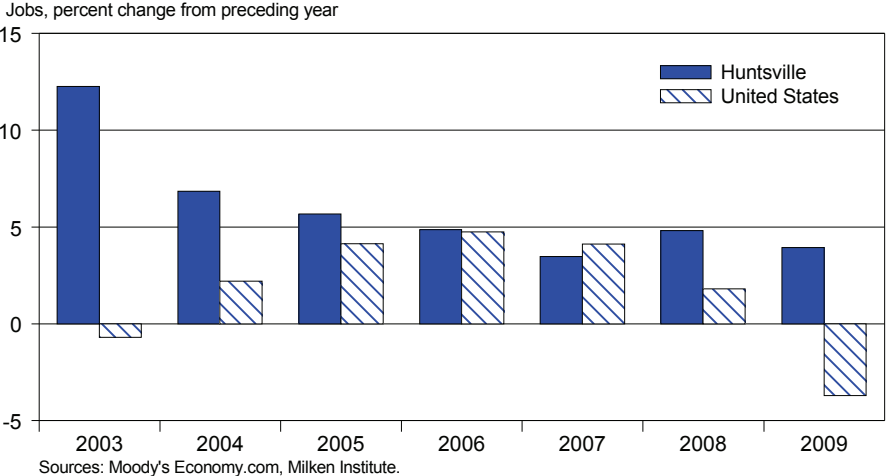
**Figure 2. Unemployment rate**  
Austin-Round Rock vs. United States



**Huntsville, Alabama**, jumped from eighth to third, holding its own in the top 10. Like Killeen, Huntsville is benefiting from base consolidation decisions made in 2005 but adds high-tech to the mix of reasons it is a consistent performer. The Redstone Arsenal is home to NASA’s Marshall Space Flight Center, the Missile Defense Agency, and more than 60 government agencies and organizations with more than \$50 billion in total annual budgets.<sup>11</sup> Slightly more than half of the 35,000 people who work behind the Redstone Arsenal’s gates every day are civilian government employees, and the remainder are government contractors.

Aerospace contractors are major employers in the metro area with over 4,400 jobs in total. Boeing, Northrop Grumman, and Lockheed Martin all have a major presence and spawn thousands of jobs in other industries. Huntsville is reported to have the nation’s highest concentration of engineers per capita. Excluding federal, state, and local government, three of the top five private-sector industries are high-tech services. Due to real estate space limitations behind the arsenal’s gates, construction recently began on the Redstone Gateway office park to house the next expansion.<sup>12</sup> The cancellation of the Constellation Project, which was to develop two space vehicles that could bring humans and cargo to the moon, was a blow to further expansion.<sup>13</sup> However, the area seems likely to get a slice of new NASA research funding.<sup>14</sup>

**Figure 3. Professional, scientific, and technical services**  
Huntsville vs. United States

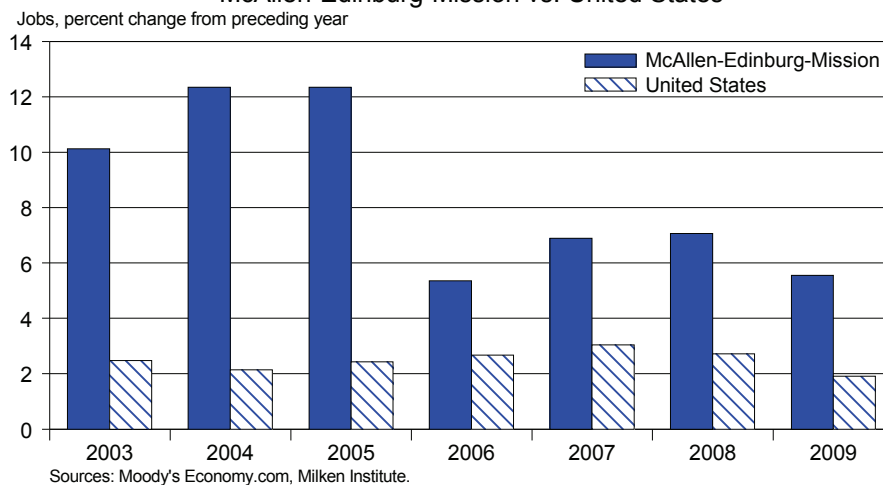


**McAllen–Edinburg–Mission, Texas**, held on to fourth, anchored in the upper echelon of metros by such key measures as job and wage and salary growth. McAllen is a consistent performer, remaining first in five-year job growth, matching last year’s position. For 2009, McAllen placed fifth in job growth overall among the 200 largest metros and second in 12-month job growth from April 2009 to April 2010. The metro area suffered during the recession in 2009, but the downturn was substantially milder than in the nation overall. McAllen continued to have high population growth.

McAllen’s location on the Mexican border has made it a key trade and logistics site. The number of cargo trucks crossing into Hidalgo County has more than tripled since the early 1990s.<sup>15</sup>

Neighboring Reynosa, Mexico, is an important maquiladora location, attracting many leading multinational firms. A trade-driven logistic infrastructure has developed. Low business costs make the McAllen area an attractive location for further expansion as firms remain focused on cost containment. Another key source of growth has been in the area's role as a regional health-care center. Edinburg Regional Medical Center, McAllen Medical Center, and Rio Grande Regional Hospital are three of the top four private employers in the metro area.<sup>16</sup>

**Figure 4. Health-care and social assistance services**  
McAllen-Edinburg-Mission vs. United States



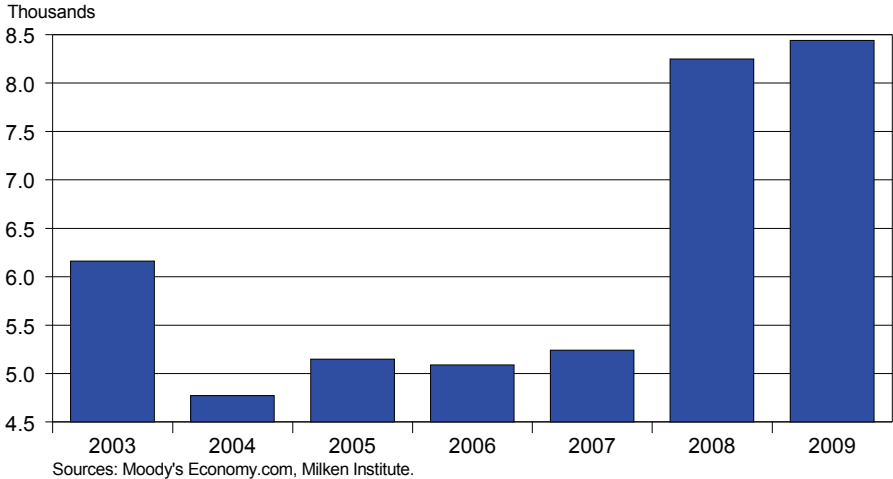
**Kennewick–Pasco–Richland, Washington**, was fifth this year. Population gains propelled the Kennewick metro area from the small metro list onto the list of the 200 largest metros. Kennewick has recorded some impressive feats: It was first in job growth in both the 2008-2009 and in April 2009-April 2010 measures. The stability of its economy in 2009 led to the large influx of new residents.

Many of the area's job opportunities are tied to the Department of Energy's Hanford environmental remediation project. Massive amounts of federal funding are streaming into the area. Last year's federal stimulus legislation—formally known as the American Recovery and Reinvestment Act of 2009 (ARRA)—appropriated significant funding for the Hanford project, which is attempting to demonstrate that an area with extensive nuclear contamination can be remediated and partly reclaimed. Much of the plutonium production for nuclear weapons was housed at the Hanford site. The Hanford project will last several decades, and the centerpiece is the construction of a \$12 billion vitrification plant, a facility that turns radioactive waste into glass for more stable storage.<sup>17</sup> This work supports construction, a wide range of professional services such as engineering and architectural design, and manufacturing.

The region is home to the U.S. Department of Energy's Pacific Northwest National Lab, operated by Battelle. Several large engineering firms—Bechtel National and Fluor Hanford among them—provide contract consulting services to the federal government. Another reason for stability in the region's economy is its large share of food manufacturing jobs, an area that didn't decline much

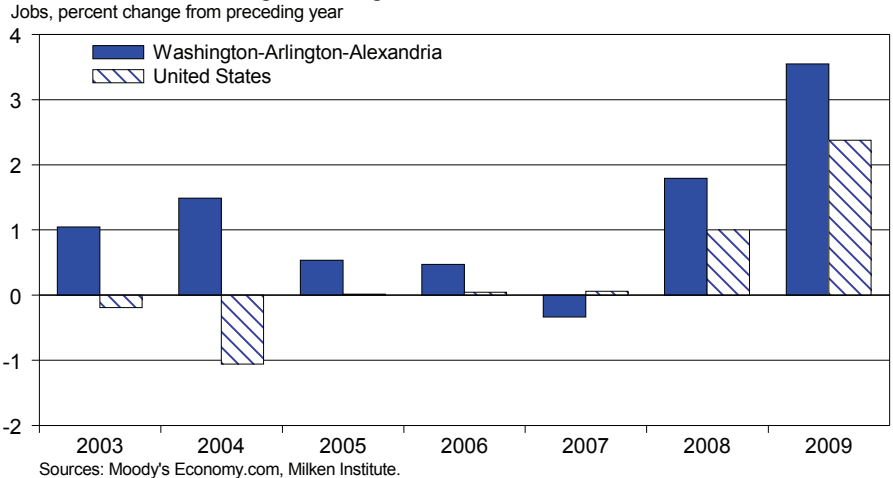
during the recession. Kennewick has 45 percent of all manufacturing jobs in food production versus the national average of 12 percent.<sup>18</sup> The housing market has seen just a modest decrease in prices, largely due to the region’s better job performance.

**Figure 5. Population growth**  
Kennewick-Pasco-Richland, WA



Ranked 25th last year, **Washington–Arlington–Alexandria, DC–VA–MD–WV–MD**, jumped to sixth place on this year’s list. The metro ranked 11th in 2008–2009 job growth, and its jobs base grew by 0.27 percent—13th in the nation—in the April 2009–April 2010 period. The federal government was by far the primary driver of 2008-2009 job growth, adding nearly 11,000 positions. Last year’s stimulus package provided a significant boost to the metro’s economy. In fact, of the awards distributed, the District of Columbia received nearly 10 times as much stimulus per capita as the national average.<sup>19</sup> The impacts from this federal spending have provided stability during the downturn, resulting in a milder recession in the Washington-Arlington-Alexandria area.

**Figure 6. Federal government**  
Washington-Arlington-Alexandria vs. United States



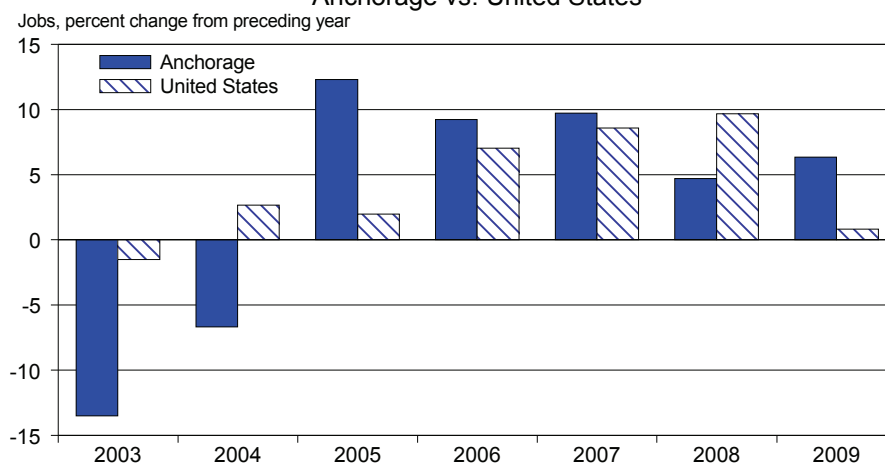
Support from the federal government has fueled growth across a spectrum of high-tech industries, providing \$78.5 billion of contract work in the region.<sup>20</sup> Northrop Grumman recently announced that it will relocate its corporate headquarters to Northern Virginia, creating nearly 300 executive positions.<sup>21</sup> In 2009, the number of U.S. companies engaged in government services rose to 335, an increase of 33 percent. More than half of them are based in Maryland, Virginia, and the District of Columbia.<sup>22</sup> One of those companies, headquartered in McLean, Virginia, Booz Allen Hamilton (BAH) will be focusing on its civil aviation operations in an effort to meet the FAA’s objectives of implementing the Next Generation Air Transportation System.<sup>23</sup> This move, while drawing from existing BAH employees, should help sustain jobs in the area.

**Raleigh–Cary, North Carolina**, placed seventh this year, improving by three spots. A sign of its sustainable economic presence, Raleigh–Cary recorded the third highest job growth in the nation over the five-year period. The metro placed 16th in five-year wage and salary growth, an indication of the quality of jobs produced. Its vast high-tech presence includes biotech, IT, software, and telecom, and includes major players like GlaxoSmithKline, SAS Institute, Cisco Systems, Verizon, and Nortel Networks. The combination of giant tech anchors and reputable research-oriented universities (Duke and North Carolina State universities) makes Raleigh–Cary an attractive business location. The recent collaboration of IBM and North Carolina State on streamlining the commercialization process sheds light on the region’s entrepreneurial spirit and long-term growth potential.<sup>24</sup>

Despite some restructuring of firms during the downturn, the region’s Research Triangle, a tightly integrated network of high-tech firms, places the metro in better position for fast recovery. Raleigh–Cary’s high-tech cluster provides long-term stability to its nationally recognized biopharmaceutical industry. The metro has witnessed robust population growth since 2000, attracting a sea of young professionals.

**Anchorage, Alaska**, leapfrogged 32 positions to capture eighth overall on this year’s index. It posted the second highest 2008-2009 job growth, when federal, state, and local governments combined added nearly 850 jobs. Much of the job growth has been triggered by federal stimulus funds; Alaska received the second highest amount per capita.<sup>25</sup> Despite the downturn experienced in most parts of the nation, the number of non-farm jobs in the Anchorage area increased 0.41 percent from April 2009 through April 2010.

**Figure 7. Oil and gas extraction**  
Anchorage vs. United States

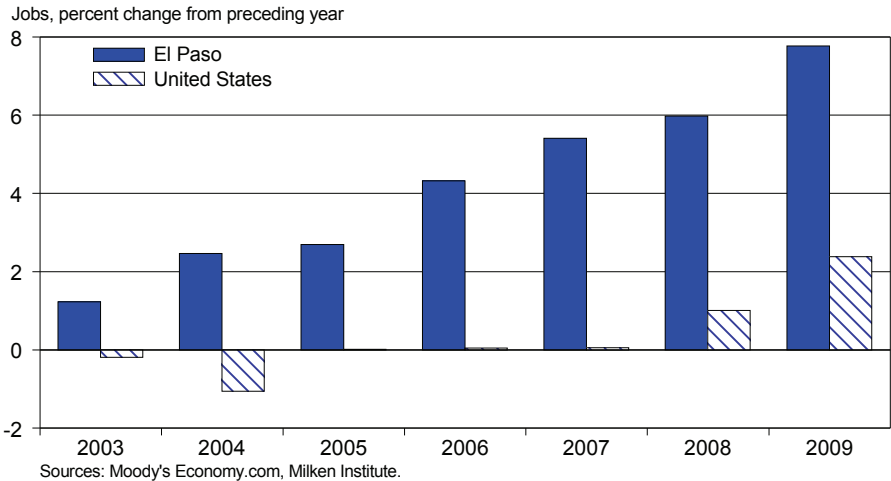


Sources: Moody's Economy.com, Milken Institute.

Oil and gas extraction and transportation, both key drivers of growth in the metro, have recently experienced modest gains. While production in most energy-producing regions across the country cooled off as prices stabilized, exploration in Alaska has remained healthy.<sup>26</sup> In addition, since many of the industry’s administrative offices are based in Anchorage, the metro has benefited through the secondary impacts of stable production. Headquartered in Anchorage, ASRC Energy Services employs approximately 2,100 in the metro.<sup>27</sup> BP Exploration Alaska and Conoco Phillips also conduct operations in the region. Anchorage serves as the transportation hub for the entire state. As the recovery picks up, the metro is poised to capitalize on increased cargo activity at the port.

Gaining five spots this year, **El Paso, Texas**, ranked ninth on the overall index. Military construction stemming from the BRAC-initiated expansion at Ford Bliss continues to contribute to the metro’s overall growth. El Paso has remained in the upper echelon in terms of both job creation and wage and salary growth. From 2008 to 2009, jobs in the metro grew nearly 2.5 percentage points faster than the national average—the 17th highest rate in the nation. Trade and commerce along the Mexican border are among the biggest drivers of growth in the area, and due largely to the strength in the Mexican peso, activity is gradually starting to pick up. Having generated almost \$28 billion in trade through May 2010, the Port of El Paso has witnessed a 47 percent increase in trade value compared to the same time last year.<sup>28</sup> In addition, the increasing number of truck crossings along the border, coupled with an increase in maquiladora activity in Juarez, indicates improved auto-related demand and production.<sup>29</sup>

**Figure 8. Federal government**  
El Paso vs. United States



Another bright spot in El Paso’s economy is an 80 percent increase in trade of computer products with Mexico in the year ending May 2010, an industry that accounts for the majority of the metro’s trade with its southern neighbor.<sup>30</sup> Approximately 150 jobs were created in the area’s computer and electronic product manufacturing industry, a rise of nearly 20 percent from April 2009 through April 2010.

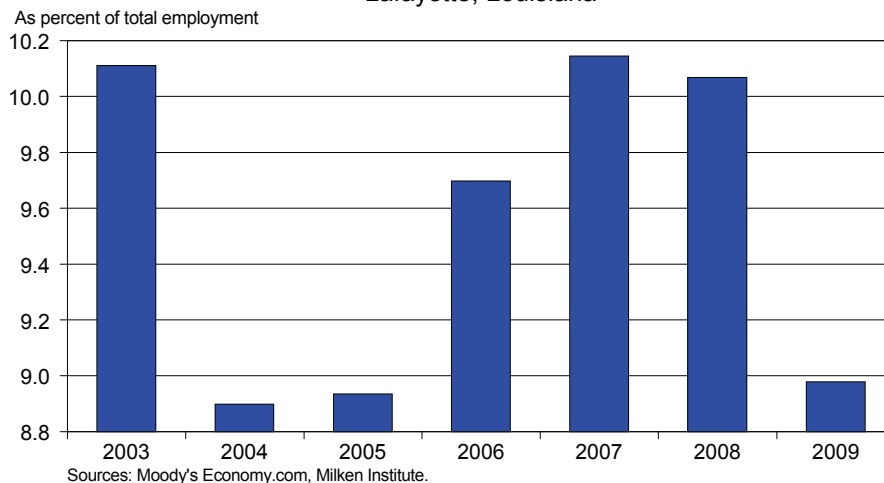


**Houston–Sugar Land–Baytown, Texas**, slipped five spots to tenth place. Led by the energy exploration sector, the metro’s five-year job growth ranked fifth. Capitalizing on its proximity to the Gulf of Mexico, Houston has successfully established itself as a center for trade and export. Major companies with operations in the area—including Exxon Mobil, Shell Oil, Chevron, and BP—employ thousands in engineering and professional jobs that support exploration-related activities. The rise in oil prices in 2009 helped jumpstart upstream activities. On the other hand, work at refineries has slowed during the downturn but is expected pick up gradually as the recovery continues.<sup>31</sup>

Houston is also leading efforts with respect to alternative energy. Just recently, Thermal Energy Corporation debuted its combined heat and power plant at Texas Medical Center, an investment expected to generate over 400 jobs.<sup>32</sup> Another key source of growth in the metro comes from health care. Ambulatory health-care services added nearly 6,000 jobs in the area in the year from 2008 to 2009, helping offset declines in other sectors stemming from the global slowdown. Leveraging its pool of talent and reputable medical research centers, Houston is developing its biotech and medical equipment manufacturing sector into a national leader.<sup>33</sup>

**Lafayette, Louisiana**, managed to maintain its ranking among the top performers, dropping just two spots to 11th. Over the past few years, the metro has not only benefited tremendously from post-Katrina migration trends but has also successfully capitalized on increased energy exploration in the Gulf of Mexico. The influx of new residents helped fuel jobs in health care and education. Lafayette’s biggest industry, support activities for mining, employs over 13,000 people, roughly 9 percent of the metro’s total employment base. The industry’s huge presence in the area has broader impacts across a variety of local manufacturing suppliers, ranging from chemicals to fabricated metal products. Lafayette ranked sixth in five-year job growth and second in five-year wage growth.

**Figure 9. Support activities for mining**  
Lafayette, Louisiana



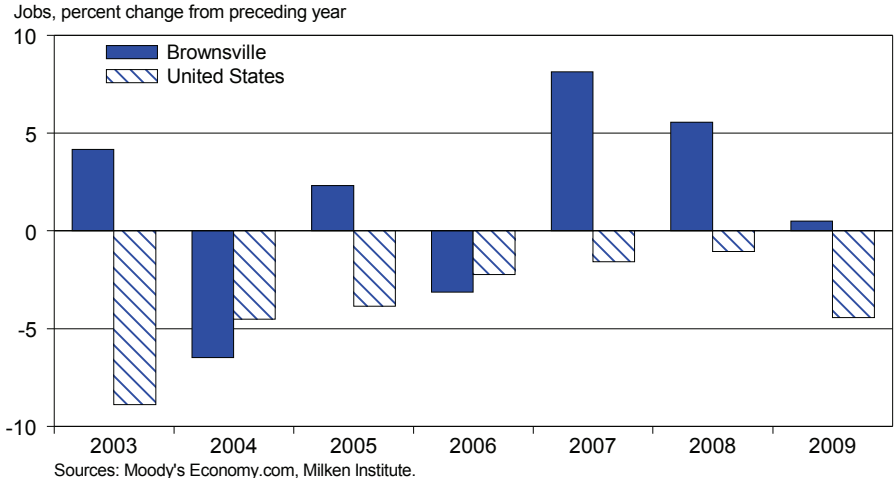
However, the number of jobs has declined 1.4 percent in the year ending April 2010. Since energy prices began falling from their peak levels, support activities for drilling appear to have tapered off. Furthermore, a drilling moratorium stemming from the recent oil spill in the gulf could threaten thousands of jobs in the metro area,<sup>34</sup> potentially creating negative ripple effects in a region whose economy depends on energy exploration.

**Trenton–Ewing, New Jersey**, improved 34 spots, capturing 12th place on this year’s index. The metro’s resilience in biotech R&D has contributed to its growing high-skilled labor pool. One of biotech’s biggest players, Bristol-Myers Squibb, has one of its primary R&D sites in the metro. The industry’s generally high pay has delivered a boost to wages, with Trenton ranking tenth in wage growth for the 2007–2008 period. Wages in the metro during that time grew over four percentage points more than the national average. Trenton’s high concentration of biotech employment and proximity to life sciences attractions have lured entrepreneurs and researchers to the area.

While industries such as health care and education services have largely benefited from the metro’s high per-capita wage structure, a downward trend has begun. Employment declined 1.2 percent in the year ending April 2010. Like many states, New Jersey is facing budgetary woes.<sup>35</sup> Although a reduction in public spending is likely to curb growth in the near term, the metro’s high-tech presence and other key attributes will keep it afloat in the long term.

**Brownsville, Texas**, skyrocketed a remarkable 57 spots this year to 13th. It ranked first in high-tech output growth, largely driven by telecommunication services, in 2008-2009 and second in the five-year period. The metro’s lower costs have attracted satellite telecom carriers and call centers such as Convergys and Advanced Call Center Technologies. The latter recently decided to expand its operation in the area and add 150 jobs.<sup>36</sup> Government efforts at the federal, state, and local levels continue to support the region’s trade and transportation infrastructure, creating a positive outlook for growth. In fact, the public sector added more than 650 jobs from 2008 to 2009. Health care has been another driver of growth in the region, mitigating some of the downturn’s effects.

**Figure 10. Telecommunications**  
Brownsville vs. United States



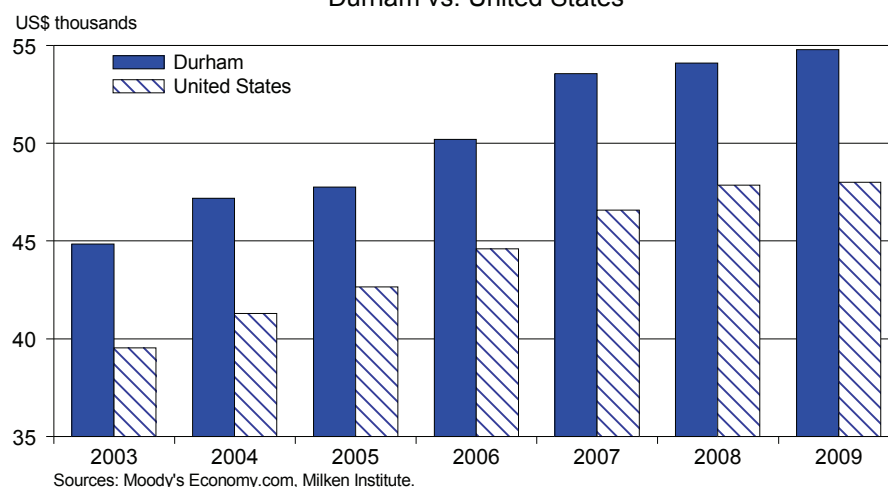
The metro, which serves as a transportation hub, is largely dependent on cross-border trade with Mexico. With the economy in recovery mode, a broad spectrum of industries linked to transportation and warehousing will benefit extensively from increased trade activity. It is noteworthy that support activities for transportation are twice as important to the region as they are to the nation as a whole. Its role in transportation and its attractive climate are reasons the region's first biodiesel terminal opened in Brownsville.<sup>37</sup> Venturing further into clean tech can give Brownsville another tool for long-term stability and growth.

**San Antonio, Texas**, finished 14th on this year's index, slipping three positions. In the 2004-2009 period, San Antonio's employment base grew over 10 percentage points faster than the national average, resulting in a ninth place finish for five-year job growth. BRAC-related growth has been the biggest driver. Because of base consolidations, the metro is evolving into a large-scale medical hub for military personnel, most notably the expansion of the Brooke Army Medical Center. Increased federal funding will boost demand for local suppliers and attract more private-sector support. Recently, Medtronic, which supplies products for diabetes patients, expanded its operations in San Antonio, a move that is expected to generate 1,400 high-paying jobs over the next five years.<sup>38</sup>

The metro's solid position in the rankings also reflects its lesser exposure to the housing crisis. Prices fell only moderately during the downturn, and more military employment has boosted demand and kept prices stable. San Antonio's reputation as a trade and distribution hub with a low-cost environment will open doors to more business opportunities in the long term.

**Durham, North Carolina**, dropped nine spots to 15th, still among the leaders. In 2009, the metro had the fourth highest concentration of high-tech output in the country—more than 2.5 times the national average. Duke University and IBM create important anchors for the region's information sector, supplying an abundance of human capital to the Research Triangle, one of the nation's most reputable biopharmaceutical and medical centers. The largest biotech company in the Triangle, Talecris Biotherapeutics, was recently acquired by Grifols, the largest maker of blood plasma products in Europe. Despite the acquisition, plans by Talecris to expand its blood plasma therapeutics plant in Clayton, also part of the Research Triangle, are still on target and expected to generate nearly 260 jobs in the area.<sup>39</sup>

**Figure 11. Wages per employee**  
Durham vs. United States



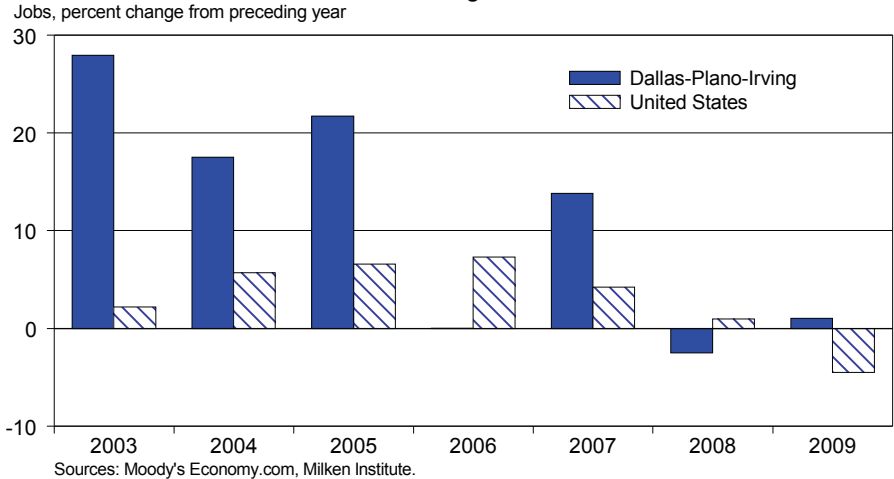
While some restructuring has taken place during the downturn, leading to job losses particularly among its key sectors, Durham has held up relatively well. Higher per capita income growth relative to the U.S. as a whole has kept housing prices from falling so rapidly, while leading to healthier spending in such sectors as education and health services. Public support has provided further stability to the region, as witnessed by a 4 percent increase in government employment in the previous year since January 2010.

**Amarillo, Texas**, climbed up the rankings, from 35th last year to 16th on this year’s index. Like many Texas metros, Amarillo avoided the housing bubble and didn’t experience the severe bust that ensued. In fact, broad-based job growth has provided more stability to the local economy. A surge in wage growth was behind the big jump in rankings; the metro recorded the second highest growth in wages and salaries from 2007 to 2008. Much of this stems from its energy exploration sector, which has long been a key performer in the area. The Amarillo area also benefits from rich and abundant farmland and extensive livestock operations, providing another source of wealth to the region. Tyson Foods is the largest employer, with a workforce of more than 3,500.<sup>40</sup>

Increased demand for helicopters has been another bright spot. Bell Helicopter and Boeing, who partner on certain aircraft, are likely to benefit from the defense contracts, and increasing production will lead to more jobs in the metro.<sup>41</sup>

With its highly diverse high-tech industry mix, **Dallas–Irving–Plano, Texas**, maintains its lead among the top performers, coming in at 17th this year, versus 13th a year ago. The metro ranked sixth in high-tech diversity (as measured by the number of high-tech industries with location quotients—or relative concentrations—above 1.0, which represents the national average). The area’s innovative IT and telecom sector includes major players like AT&T (which recently moved its headquarters to Dallas), Verizon, Texas Instruments, and Hewlett-Packard, just to name a few. Increased global demand for tech products and, in particular, the move to 4G networks will spark additional demand from equipment makers in the area. Locally based companies such as Sprint and MetroPCS will build out the network, while Nokia and Ericsson will provide the equipment.<sup>42</sup>

**Figure 12. Warehousing and storage**  
Dallas-Plano-Irving vs. United States



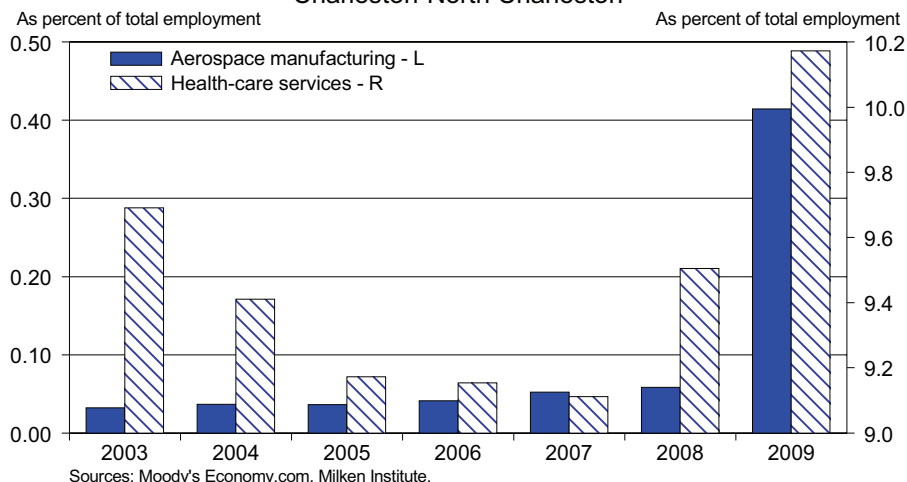
Because of its central location, Dallas is a distribution hub. Even during the downturn, its warehousing industry, which capitalized on its cost advantages, managed to expand slightly, adding roughly 110 jobs from 2008 to 2009. The metro will benefit further as international trade begins to recover.

**Fayetteville, North Carolina**, gained 13 spots, ranking 18th in the index. Fort Bragg, the primary driver of growth in the area, has benefited significantly from base consolidation. The added military personnel have stimulated demand across a broad array of supplier industries. As a result, Fayetteville’s employment base grew more than 4 percentage points faster than the national average to rank third in 2008–2009. It is anticipated that Fort Bragg will be the largest Army post after 2011, with approximately 65,000 jobs.<sup>43</sup> In the near term, expansion of various base facilities and the need for additional housing will likely lift the metro’s construction sector. The area will also benefit from the fact that the homebuyers’ tax credit, which expired in April 2010 for the general population, was extended for one year for military personnel who have been serving outside the country for 90 days or more.<sup>44</sup> Furthermore, the federal stimulus package will accelerate various infrastructure projects around the base.<sup>45</sup>

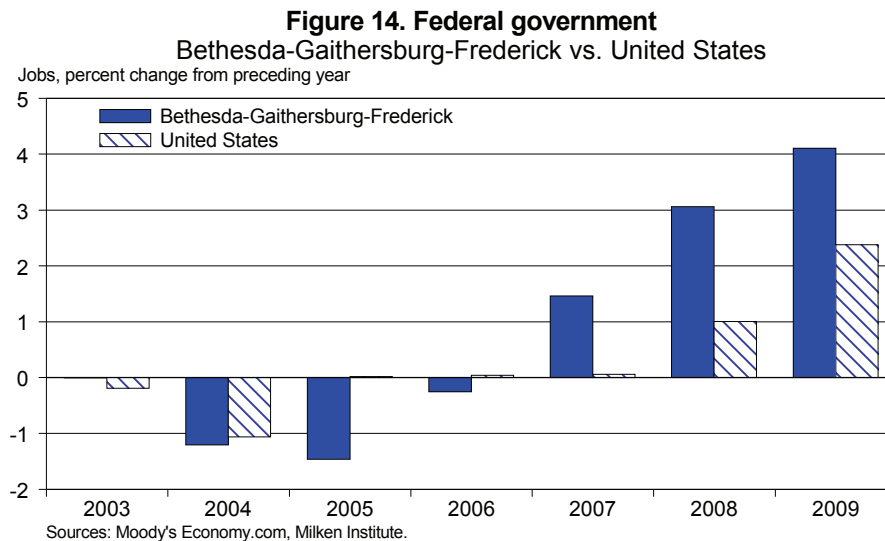
**Charleston–North Charleston, South Carolina**, climbed to 19th from 30th last year. The metro’s well-balanced industry mix helped carry it through much of the downturn. Once the main catalyst for growth, tourism is on the decline, so Charleston has turned to its vibrant aerospace sector, health services, and stable military presence for growth. Its emerging aerospace industry added more than 1,000 jobs from 2004 to 2009, contributing to Charleston’s coming in 19th in high-tech output for that period. Boeing recently decided to build an assembly plant for its 787 Dreamliner that is expected to employ 3,800 workers in the area.<sup>46</sup>

As the economy rebounds, increased inbound cargo activity at the Port of Charleston should help sustain long-term growth. A \$98 million grant awarded to Clemson University to build a wind turbine drivetrain testing facility in North Charleston underscores the metro’s attractiveness as a destination for clean tech.<sup>47</sup>

**Figure 13. Aerospace and health-care driving growth**  
Charleston-North Charleston



**Bethesda–Gaithersburg–Frederick, Maryland**, leaped 31 positions this year to 20th. The headquarters of Lockheed Martin, Bethesda’s strengths lie in defense-related applications. Increased federal spending on military products has provided steady job growth, mitigating some of the losses from the downturn. From 2008 to 2009, the U.S. government was responsible for adding nearly 2,000 jobs in the area.



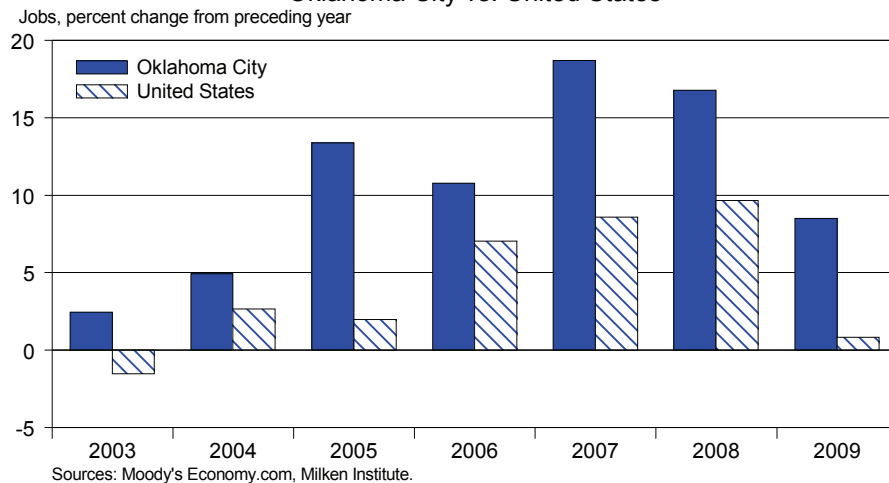
Establishments engaged in medical research and biotech have contributed to the metro ranking 18th in high-tech diversity. The National Institutes of Health headquarters has been a magnet for federally funded R&D as well as venture capital for biotech. Not surprisingly, the region’s high-tech output grew 10 percentage points faster than the national average from 2008 to 2009 to rank third. In addition, the National Naval Medical Center recently broke ground on a facility that will focus on soldiers with traumatic brain injuries and psychological issues.<sup>48</sup>

**Oklahoma City, Oklahoma**, jumped five spots to take 21st place. The metro was among the few that experienced a short downturn and are in recovery. Relatively little exposure to subprime mortgages shielded it somewhat from the housing collapse. In addition, the housing market benefited from the presence of Tinker Air Force Base, the Mike Monroney Aeronautical Center, and a number of aerospace suppliers. Oil and natural gas extraction— a big presence in the metro area— has begun to recover from the recession and falling energy prices. The active rig count in Oklahoma was 133 as of August 2010. The state had 94 active rigs in 2009, about half as many as in 2008.<sup>49</sup> Like most states, Oklahoma is facing a budget crisis; its tax revenues fell 26.9 percent over the past year, more than any other state’s.

Another bright spot for Oklahoma City was the July 2010 opening of a \$1.8 million, 6,000-square-foot terminal for corporate jets and private charters. Capable of handling 10,000 flights a year, the terminal replaces an older facility. AAR Corp., which operates the terminal, runs a maintenance hangar, and has fueling contracts at Will Rogers World Airport, employs 615 full-time workers and has an annual payroll of \$30 million.<sup>50</sup>

The top job creator in Oklahoma City was government, which added 1,850 jobs from 2008 to 2009. In the same period, the area’s large health-care industry created 1,300 jobs, and oil and gas extraction added 730 positions.

**Figure 15. Oil and gas extraction**  
Oklahoma City vs. United States



**Cambridge–Newton–Framingham, Massachusetts,** leaped 23 spots, landing at 22nd on the list of the 200 largest metros. It is home not only to world-renowned universities but also a large number of high-tech, health-care, defense, and financial firms. The diverse economy and highly skilled labor force, as well as the state’s targeted business tax initiatives, make the region highly competitive. In 2008, Massachusetts launched a \$1 billion, 10-year initiative that includes incentives for life sciences companies to expand, research grants for scientists, and other infrastructure investments to support the industry. Pharmaceuticals giant Sanofi-Aventis, one of 56 companies to apply for related tax credits this year, has announced a \$65 million expansion in Cambridge expected to create 300 jobs.<sup>51</sup> Defense spending has also helped the local economy, benefiting university research and defense contractors such as Raytheon, which is headquartered in the metro. As the wars in Iraq and Afghanistan wind down, cutbacks in defense spending will be offset by gains in other industries as the economy improves.

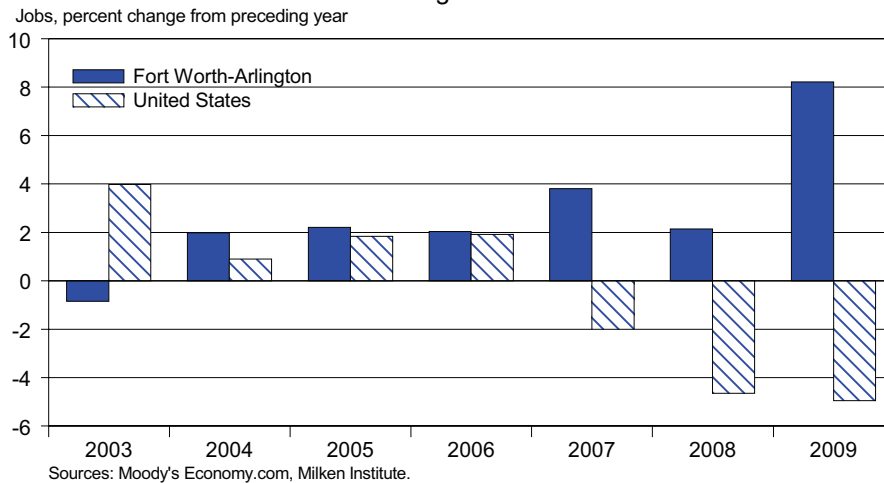
Health-care services had a strong year, adding 1,780 jobs from 2008 to 2009. Management of companies was responsible for creating 730 jobs, while the federal government created 200 jobs in the area.

**Fort Worth–Arlington, Texas,** tumbled sharply from 12th last year to 23rd this year. The lower-cost Fort Worth continues to capitalize on spillover from Dallas and is experiencing robust population growth. As the economy recovers and natural gas prices improve, the area will likely see improved growth in energy exploration. Other key industries in Fort Worth such as aerospace and auto manufacturing are feeling the effects of the recovery. GM’s light truck production plant expanded its existing shift, while Bell Helicopter’s deliveries of V-22 Ospreys and H-1 helicopters increased, offsetting some of the pullback in F-22 orders.<sup>52</sup> The finance industry is growing, with credit intermediation services adding more than 1,700 jobs from 2008 to 2009. The metro’s overall employment growth, driven by energy exploration and health-related services, fared better than the national average from 2008 to 2009, with Fort Worth at 45th.



Employment declined by just 1.1 percent in the year ending April 2010. Anchor firms American Airlines, which is headquartered in the metro; Texas Health Resources; and Lockheed Martin, which maintains a major presence there, provide longer-term stability for the area.

**Figure 16. Credit intermediation and related activities**  
Fort Worth-Arlington vs. United States



**Lubbock, Texas**, captured the 24th spot, a slight improvement from 29th. Lubbock is one of the few metros that are faring better than the nation as a whole, with unemployment at 6.7 percent in July 2010.<sup>53</sup> Lubbock's housing market is fairly stable because the region did not experience a housing bubble. Texas Tech University provides the biggest economic engine in the region, with over 13,000 employees and an annual economic impact of \$1.15 billion in Lubbock County.<sup>54</sup> However, state budget woes resulting in a 5 percent reduction (\$30 million) in state funding for the university through 2011 will pose some challenges for the local economy.<sup>55</sup> Health care has played a role in job creation, with ambulatory health-care services adding 700 jobs in 2008-2009. The metro is a large cotton grower, so improving cotton prices and better weather could help bolster incomes. Still, the area's wage and salary growth ranked 13th in the 2007-2008 period.

**Provo-Orem, Utah**, climbed three spots to take 25th in the index. The area's economy has been creating jobs faster than the national average for several years. From 2004 to 2009, Provo-Orem's employment base expanded 10.2 percentage points faster than the U.S. average, ranking 10th overall in this indicator, while five-year wage growth ranked fourth. High-tech information services and hardware are driving much of the growth. Provo-Orem has benefited from increased research and spin-offs from Brigham Young University, the largest employer in the metro. Construction of a \$1 billion National Security Agency data center near Lehi will also improve the region's employment outlook.<sup>56</sup> The housing industry is still reeling, especially the market for second homes.

Data processing, hosting, and related services added 510 jobs in 2008-2009. Local government added 490 workers, and education services created 360 jobs.





## America's 10 Largest Cities: Performance

Among America's 10 largest metropolitan areas, the rise of **Washington–Arlington–Alexandria** from 41st place to sixth over the past two years and the continued decline of many large non-Texas cities in the Sun Belt are the main stories. The two largest cities in Texas still hold a place in the top 25 despite some minor declines: **Houston–Sugar Land–Baytown** fell five places but remains in the top 10, and **Dallas–Plano–Irving** dropped four places to a still respectable 17th place. (The Washington, Houston, and Dallas metro areas were profiled earlier in the section on the top 25 best-performing cities.)

Significant declines continue to hit former high fliers. The formerly booming metros of **Phoenix–Mesa–Scottsdale, Arizona; Atlanta–Sandy Springs–Marietta, Georgia; and Riverside–San Bernardino–Ontario, California**, have all fallen from the top 100. California's problems are further illustrated by **Los Angeles–Long Beach–Glendale** coming in last among the 10 largest cities. One other key factor bolstering many of the major metros has been the significant declines in population flight to the suburbs and fewer people moving to formerly thriving Sun Belt metros. For instance, Chicago saw its fastest population growth in a decade.<sup>57</sup>

**Table 5. Performance of the 10 largest metros**

Rank according to 2010 index

<b>Metropolitan statistical area (MSA)</b>	<b>2010 rank</b>	<b>2009 rank</b>	<b>Spots up/down</b>
Washington-Arlington-Alexandria, DC-VA-MD-WV*	6	25	+19
Houston-Sugar Land-Baytown, TX	10	5	-5
Dallas-Plano-Irving, TX*	17	13	-4
New York-White Plains-Wayne, NY-NJ*	48	38	-10
Philadelphia, PA*	83	96	+13
Phoenix-Mesa-Scottsdale, AZ	117	93	-24
Atlanta-Sandy Springs-Marietta, GA	126	106	-20
Riverside-San Bernardino-Ontario, CA	146	103	-43
Chicago-Naperville-Joliet, IL*	148	148	0
Los Angeles-Long Beach-Glendale, CA*	158	139	-19

\* Indicates metropolitan division

Source: Milken Institute.

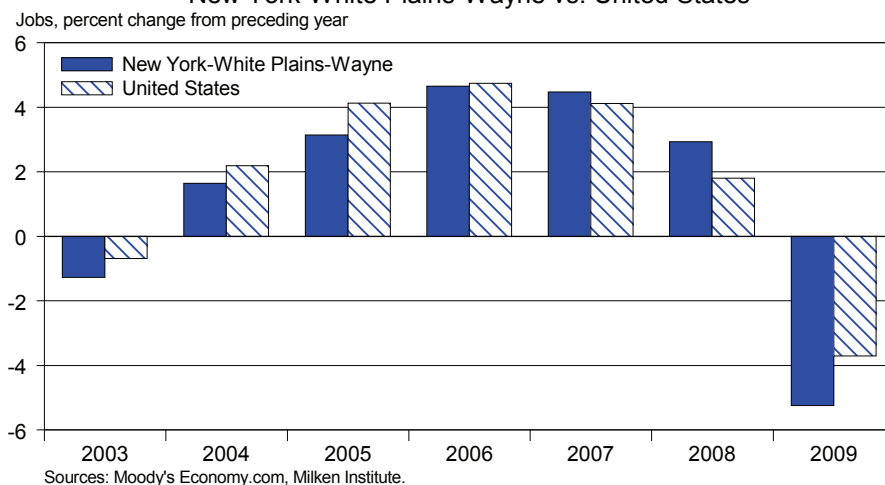
Although it edged down 10 places overall, **New York–White Plains–Wayne, New York–New Jersey**, held its position at fourth among the 10 largest cities. In a year where its most prominent industry, securities and investment trading, has been hit hard, New York has weathered the economic downturn better than most cities on this list. Employment has been recovering faster than most major cities, helped significantly by its largest banks receiving nearly half of all disbursed funds from the Troubled Asset Relief Program (TARP).<sup>58</sup>

However, despite the banks’ recovery, securities and investment trading has taken a significant hit, with securities, commodity contracts, and other financial investments and related activities declining by more than 9 percent over the past year. That sector lost more than 20,000 jobs, nearly offsetting the gain of 23,000 positions over the previous four years. The most significant year-over-year decline occurred in professional, scientific and technical services, a sector in which the New York metro had outperformed the nation in the previous two years. Although employment in the sector only declined by slightly more than 5 percent, this amounted to 22,000 lost jobs. Even New York has not been immune to the housing slowdown; specialty trade contractors shed more than 15,600 jobs in the past year, wiping out a gain of over 12,100 jobs during the previous four years.

Over the past five years, and last year, the metro’s largest job creator has been in the ambulatory health-care sector. That sector grew by more than 21 percent and 43,700 jobs in the five-year period. Despite its recent losses, professional, scientific, and technical services still netted over 37,300 jobs from 2004 to 2009. Educational services performed well in the past year, adding over 6,200 jobs, and in the past five years, adding 25,700 jobs.

The outlook for next year is anemic, given that much of the New York metro’s job growth occurred in the first four years of the five-year period we examined.

**Figure 17. Professional, scientific, and technical services**  
New York-White Plains-Wayne vs. United States

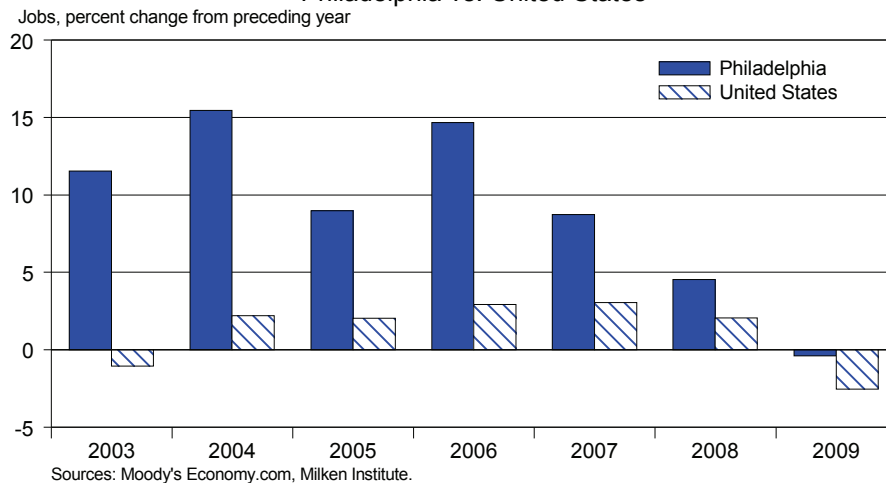


The past year has been better for **Philadelphia, Pennsylvania**, than for the country as a whole. Philadelphia and Washington, D.C., are the only two large metros to move up in the overall large city rankings. Philadelphia gained 13 places to 83rd overall and surpassed Phoenix to rank fifth among the 10 largest metros, while Washington took first in the largest city rankings versus third last year.

Corporate management continues to be a significant source of job creation for Philadelphia. From 2004 to 2009, the region netted over 11,270 jobs in the management of companies and enterprises. But growth stalled in 2009, and the sector lost 150 positions. Still, overall prospects appear solid. Another leader in job creation was social assistance, which added slightly more than 2,500 jobs in 2008-2009 and nearly 16,300 jobs in the five-year period, growing at a rate of more than 44 percent. On the down side, administrative and support services lost 9,000 jobs in the past year—the most job losses in any category. These losses wiped out the modest gains of the previous four years, for a net loss of 7,700 jobs in 2004-2009—the most job losses in any category for that period.

Philadelphia's outlook is in many ways more solid than other large metros', but recent signs of lethargy in a number of sectors suggest that, while the metro may continue to rise in next year's rankings, the ascent may come at a slower pace.<sup>59</sup>

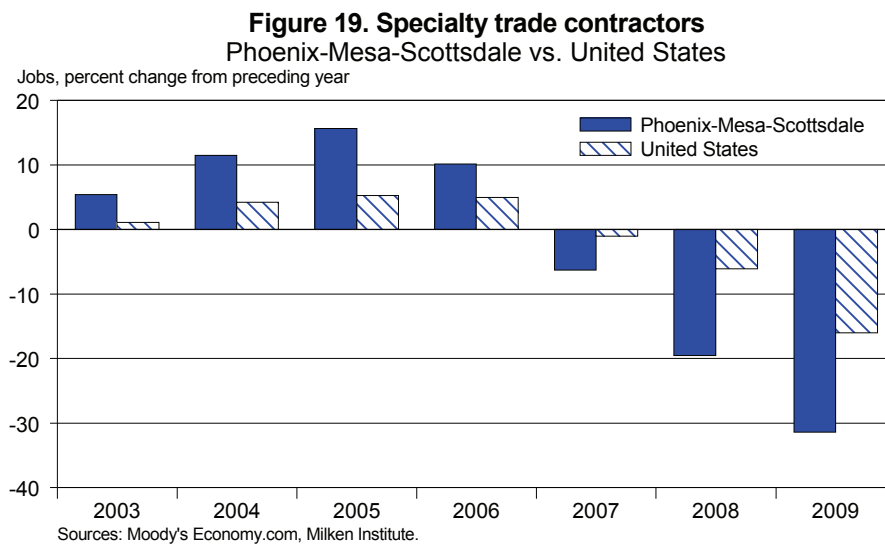
**Figure 18. Management of companies and enterprises**  
Philadelphia vs. United States



The slide in the rankings continues for **Phoenix–Mesa–Scottsdale, Arizona**, which fell 24 more places to 117th overall in 2010 after plunging 61 spots in the 2009 index. The housing and economic slumps continue to affect the metro, which was fourth overall as recently as 2007. Among the largest metros, Phoenix now sits in sixth place, having fallen behind Philadelphia.

Specialty trade contractors shed nearly 29,500 jobs in 2009 and almost 33,400 over the five-year period as gains from 2005 and 2006 disappeared. Building construction saw a further loss of 8,000 jobs in 2009. Administrative and support services, which gained 14,300 jobs from 2004 to 2008, reversed course dramatically, losing 26,100 jobs in 2009.

Job growth in the Phoenix metro has outpaced the U.S. average in two sectors that have thrived nationally despite the recession: ambulatory health-care services and educational services. Health care, which gained 2,300 jobs over the past year, expanded even faster over the five-year period, growing by 33 percent and adding more than 22,700 jobs at a pace of nearly 5,000 a year in 2004–2008, before slowing in 2009. As the home of the University of Phoenix and other online educators, the metro has benefited from a gain of 2,500 education jobs in 2009—a leader in this category—and 10,100 jobs in the five-year period.

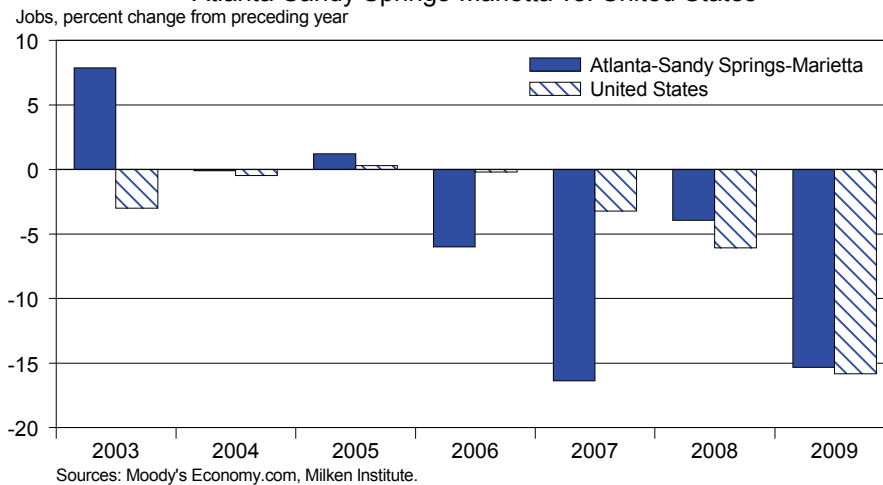


**Atlanta–Shady Springs–Marietta, Georgia**, remains one of the fastest-growing metros in the country, although the recent downturn has stalled the pace of job growth. The city's overall ranking dropped 20 places, from 106th to 126th, but it rose one spot to seventh among the 10 largest cities due to even steeper declines in the Riverside, California, metro.

Though the downturn has affected a number of sectors, Atlanta's previous gains can't quickly be erased. Professional, scientific and technical services lost 9,650 jobs in 2009 but still netted an impressive 19,700 jobs for 2004–2009. Local government shed over 1,900 jobs in 2009, but still gained a metro-leading 22,900 jobs for the five-year period. One sector that performed unusually well during the downturn was the category "religious, grantmaking, civic, professional, and similar organizations," which gained over 5,400 jobs in 2009, more than twice those gained in the second best sector, educational services.

Atlanta has benefited as a center of transportation and warehousing. Unlike the rest of the country, Atlanta's air transportation sector is growing, adding 440 jobs in 2009. In addition, a proposed bond issue to improve freight movement in the metro, which is already home to UPS, should improve matters further.<sup>60</sup> However, local manufacturing in transportation continues to decline, losing more than 7,090 jobs in 2004–2009—2,350 of them in the past year.

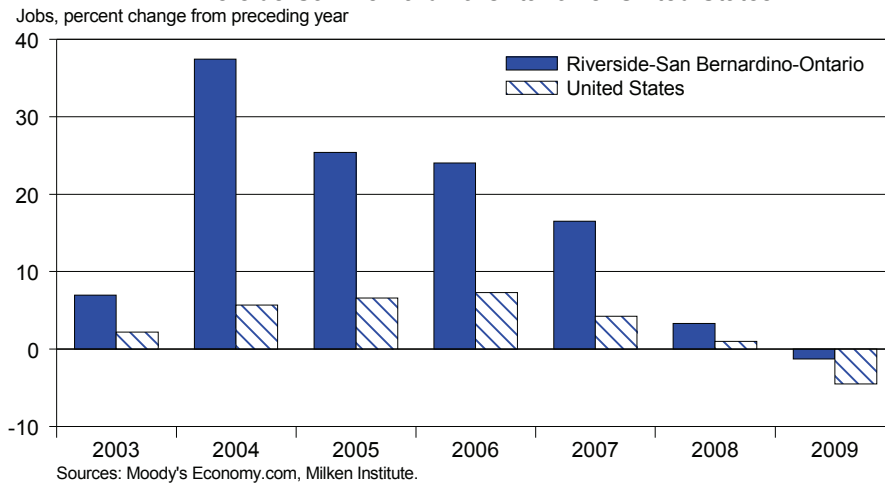
**Figure 20. Transportation equipment manufacturing**  
Atlanta-Sandy Springs-Marietta vs. United States



The downturn in homebuilding and the state economy weighed heavily on **Riverside–San Bernardino–Ontario, California**, which plunged 43 places to 146th overall, the largest decline among the 10 largest metros. It is hard to believe that as recently as 2007, Riverside ranked third among large metros; this year it ranks eighth. Employment in the specialty trade contractor sector, the largest part of the home construction industry, has plummeted more than 43 percent since 2004, shedding more than 35,800 jobs—16,500 of them in the past year. The ripple effect of the weak housing market is reflected in the fact that, of the 87 industrial sectors tracked in the index, just 13 added jobs in 2009, with educational services leading the pack at a mere 680 positions. Only telecommunications, ambulatory health-care services, the federal government, and hospitals managed to gain at least 500 jobs.

Many sectors that were significant job creators in 2004–2008 changed course in 2009. The downturn in international trade has affected the boom area of warehousing and storage, which lost 220 jobs last year after gaining nearly 8,000 in the previous four years. Administrative and support services, which added nearly 4,500 jobs in 2004–2008, lost over 6,600 jobs in 2009 as fiscal pressures and state budgetary problems affected their revenues. Even food services and drinking places, which created a leading 13,900 jobs in 2004–2008, lost over 5,000 jobs in 2009 as disposable income shrank. One piece of good news: While local home sales continue to stagnate, the foreclosure rate fell throughout 2010, suggesting the crisis is past its peak.<sup>61</sup>

**Figure 21. Warehousing and storage**  
Riverside-San Bernardino-Ontario vs. United States

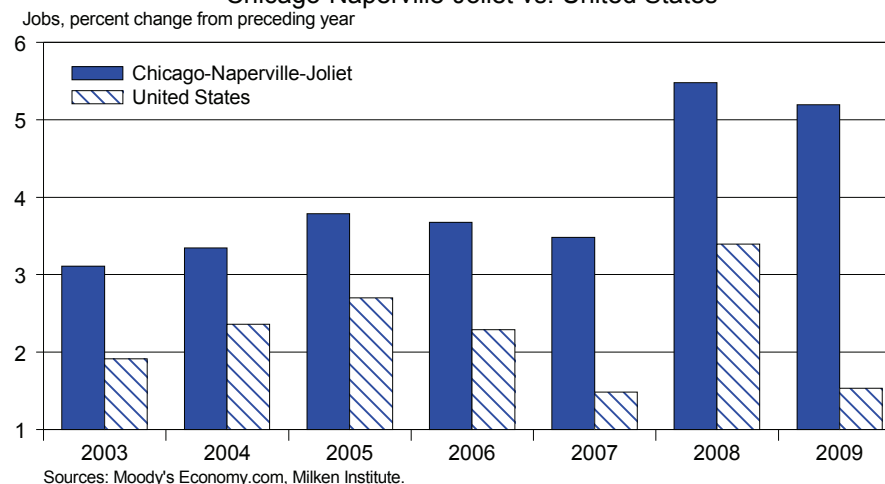


**Chicago–Naperville–Joliet, Illinois**, holding steady at 148th overall, jumped from 10th to ninth place among the biggest cities, largely because the Los Angeles area continued to slide. Chicago has been affected by the recession and housing downturn in a number of areas, which has helped push many suburbanites back into the city.

Reflecting the housing slump, more than 20,800 specialty trade contractor jobs were lost in 2009, second only to administrative and support services. That category lost more than 34,300 jobs last year, after gaining nearly 12,000 jobs from 2004 to 2008. Conversely, employment in education in the metro has outperformed the national average in the past five years, with over 21,600 jobs gained in 2004–2009, including 5,600 positions in the last year alone.

Over the past year, just five sectors added jobs, led by educational services, followed by ambulatory health-care services (4,340) and nursing and residential care (2,080). In Chicago, those three sectors accounted for 85 percent of the jobs created in the tracked sectors in 2009.

**Figure 22. Educational services**  
Chicago-Naperville-Joliet vs. United States

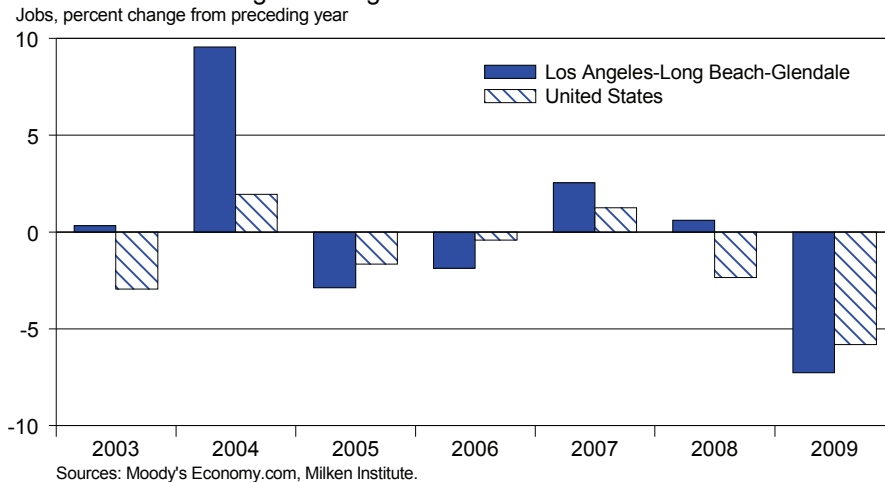


**Los Angeles–Long Beach–Glendale, California**, continued its slide from last year, falling 19 spots to 158th overall and to last place among the 10 largest metros. With an unemployment rate of 12.6 percent as of August 2010, Los Angeles County lost 37,400 non-farm jobs between June and July alone.<sup>62</sup> In the past year, the metro lost more than 31,000 jobs in administrative and support services—an eighth of the sector's total workforce—moving that sector into the lead for five-year job losses at over 28,000 lost jobs

Job growth in management of companies and enterprises continues to suffer in Los Angeles. Over the past five years, the sector lost more than 18,700 jobs, a 26 percent decline. One ongoing area of concern is motion picture and sound recording. The sector made gains in 2004, 2007, and 2008, after the writers' strike, but losses in 2009 outpaced the nation as a whole.

On the upside, educational services added 6,400 jobs in the past year and over 16,000 jobs during the five-year period. Although water transport gained just 1,500 jobs over the five-year period, that marks a dramatic 106 percent increase.

**Figure 23. Motion picture and sound recording industries**  
Los Angeles-Long Beach-Glendale vs. United States







## The Best-Performing Small Cities

In addition to ranking the 200 largest metro areas in the United States, we also have created a companion index of the best-performing small cities. The 2010 index is composed of 179 small metros, which is 55 more than the 2009 index. Due to budget cuts, the Bureau of Labor Statistics (BLS) was unable to gather data for the additional metros in the past year.

The big winners in the 2010 small cities index have at least one (or a combination) of these three assets: energy-related natural resources, a major university, and a military base. These metros avoided a housing bubble and the effects of its collapse, so their downturns were mild and short. Some benefited from the government stimulus package and the preceding private investment. It would be interesting to see how these metros fare next year as the stimulus winds down and defense spending and state budget cuts continue.

Unlike the 2009 small cities index that Texas clearly dominated with four metros in the top 10, the 2010 index was mixed. While College Station–Bryan and Tyler, Texas, were in the top 10, North Dakota grabbed the top two spots with Fargo followed by Bismarck (both made last year’s top 10). Las Cruces, New Mexico, is on the list for the second year in a row.

At the other end of the spectrum, many small cities in the upper Midwest, particularly those in Michigan and Wisconsin, did not fare well, placing in the bottom ranks.

**Table 6. Top 10 best-performing small cities**

Rank according to 2010 index\*

<b>Metropolitan statistical area (MSA)</b>	<b>2010 rank</b>	<b>2009 rank</b>
Fargo, ND-MN	1	10
Bismarck, ND	2	7
Jacksonville, NC	3	n.a.
College Station-Bryan, TX	4	14
Hinesville-Fort Stewart, GA	5	n.a.
Morgantown, WV	6	27
Tyler, TX	7	4
Las Cruces, NM	8	9
Iowa City, IA	9	22
Lawton, OK	10	n.a.

\*Among 179 small metros

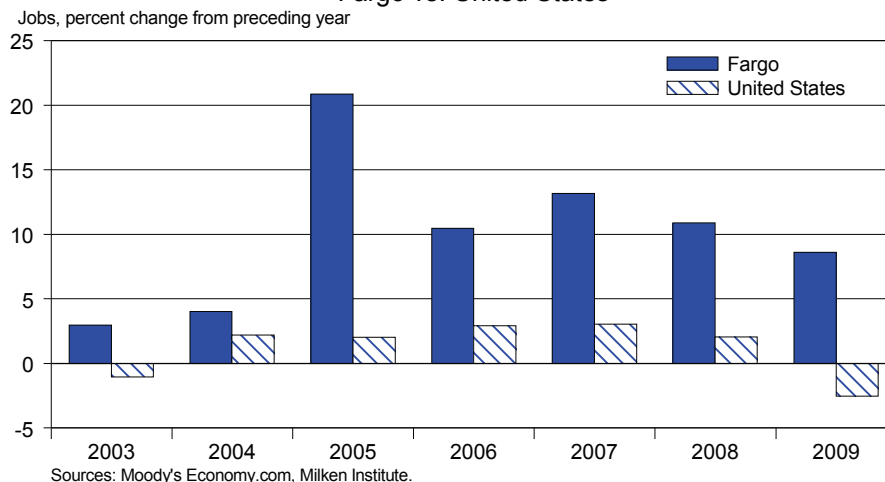
Source: Milken Institute.

**Fargo, North Dakota**, jumped nine spots to become the best-performing small metro in 2010. The metro experienced a very mild recession and a quick recovery. Unemployment was less than 4 percent, one of the lowest rates in the nation. Tight labor markets elsewhere resulted in new residents moving to the region.

Growing global demand for wheat, corn, soybeans, and other agricultural commodities has benefited the region in recent years and has increased local incomes. However, commodity prices were depressed in the past year due to the global downturn and higher yields. Besides agriculture, Fargo has a growing technology cluster that includes Microsoft, Navtech, and Aldevron, to name a few. The region has four higher education institutions to support the technology cluster, particularly the bioscience sector: North Dakota State University and Rasmussen College, as well as Minnesota State University and Concordia College in the neighboring city of Moorhead, Minnesota.

Fargo is seen as a business-friendly city, offering an R&D tax credit, biodiesel tax credit, and biomass, geothermal, solar, and wind energy credits. The metro has a diverse economy, with the traditional agricultural and manufacturing base plus a growing services sector. From 2004 to 2009, the management of companies sector added more than 1,200 jobs. In addition, the professional, scientific, and technical services sector added more than 1,000 positions.

**Figure 24. Management of companies and enterprises**  
Fargo vs. United States

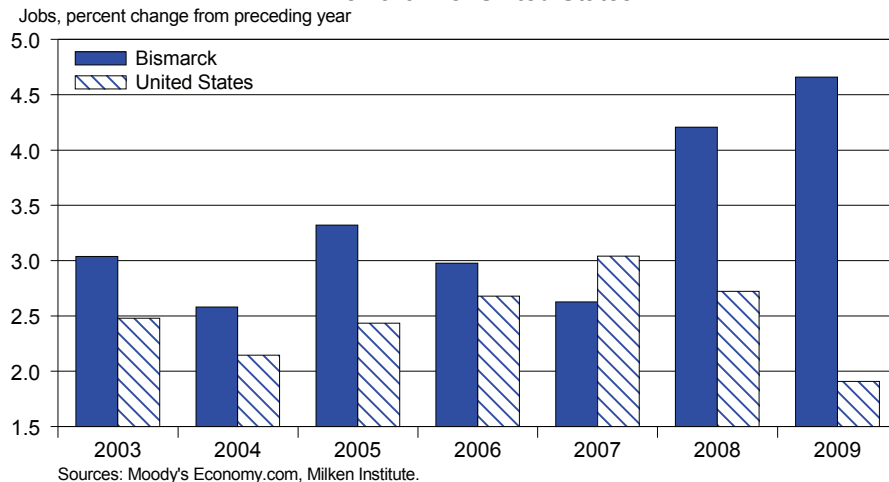


**Bismarck, North Dakota**, rose to second place from seventh among small cities. The energy-rich metro, which has large reserves of lignite coal, oil, and natural gas, is home to four lignite coal mines, which produce over 30 million tons annually.<sup>63</sup> The wind energy industry is expanding rapidly in North Dakota, and the state offers attractive tax incentives to those developers.<sup>64</sup> Agriculture is another important sector in Bismarck's economy, with wheat as the No. 1 crop and corn and soybean acreage on the rise. Commodity prices were depressed in the past year as supply increased due to better yields in other crop-producing countries and the recession's effects on global demand. However, drought has caused the Russian government to stop exporting wheat,<sup>65</sup> which could be good news for North Dakota and U.S. as a whole.

The Northern Plains Commerce Centre, which serves as an industrial, distribution, and technology park and has immediate access to land, rail, and air transportation, has expanded the region’s trade capacity. The park is home to a 100,000-square-foot manufacturing support facility for Bobcat Company.<sup>66</sup>

From 2008 to 2009, overall job growth was 1.3 percent. Unemployment was better than the national average at less than 4 percent.<sup>67</sup> The three leading job creators in the past year were state and local government, which expanded by 550 jobs; health and social assistance services with 450 positions; and professional, scientific, and technical services with 50 new jobs.

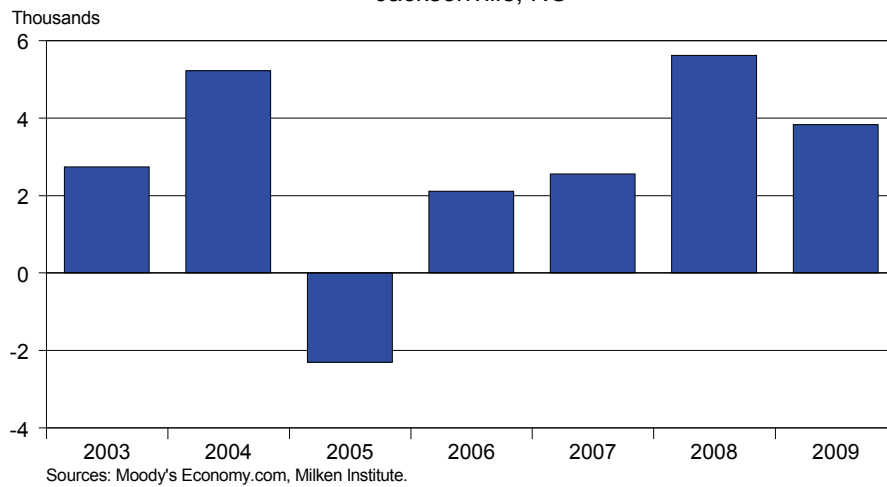
**Figure 25. Health-care and social assistance services**  
Bismarck vs. United States



**Jacksonville, North Carolina**, claimed the third spot on the 2010 small cities index. (Data for the prior year was unavailable so the city wasn’t ranked in 2009.) It was one of the fortunate metros to experience a very mild recession, largely because of BRAC-related expansion at Marine Corps Base Camp Lejeune. More than 12,000 soldiers and their families have moved to the region in recent years.<sup>68</sup> This robust population growth has kept demand healthy across a broad range of industries. Jacksonville is also home to Marine Corps Air Station New River along with several defense contractors that include Humphrey Mechanical. Both bases have a large economic impact, with Camp Lejeune contributing close to \$3 billion<sup>69</sup> and New River contributing roughly \$469 million to the local economy.<sup>70</sup> The troops’ presence provides steady demand for housing, helping the region avoid the housing bubble and bust.

In terms of job creation, federal, state and local government combined added 1,940 positions in 2004–2009. Accommodations and food services generated nearly 1,300 jobs in that same period. Jacksonville ranked fifth among small cities for wage and salary growth in 2007-2008.

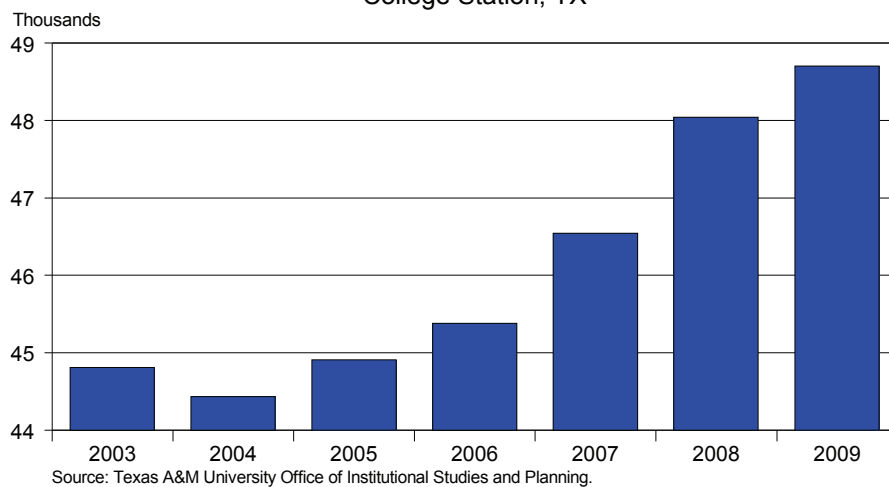
**Figure 26. Population growth**  
Jacksonville, NC



**College Station–Bryan, Texas**, jumped 10 spots to fourth place among small cities. Like many Texas metros, the region lacked a housing bubble and experienced a very shallow recession. Unemployment hovered around 6 percent in the past year—far better than nearly 10 percent for the nation as a whole—while overall employment grew by 1.8 percent.<sup>71</sup> Texas A&M University is the main economic flagship; enrollment grew to 48,700 students in the 2009-2010 school year, and staff hiring increased as well. This bodes well for retail and food services. The university also is home to the George Bush Presidential Library and Museum, which attracted more than 142,100 visitors in 2009.<sup>72</sup> College Station's location in the center of the Houston– Dallas/Fort Worth–Austin triangle puts it within 200 miles of 80 percent of Texas' population.

State and local government expanded their workforces by 2,030 between 2008 and 2009. Food services and drinking places created 380 jobs in that period.

**Figure 27. Texas A&M University student enrollment**  
College Station, TX



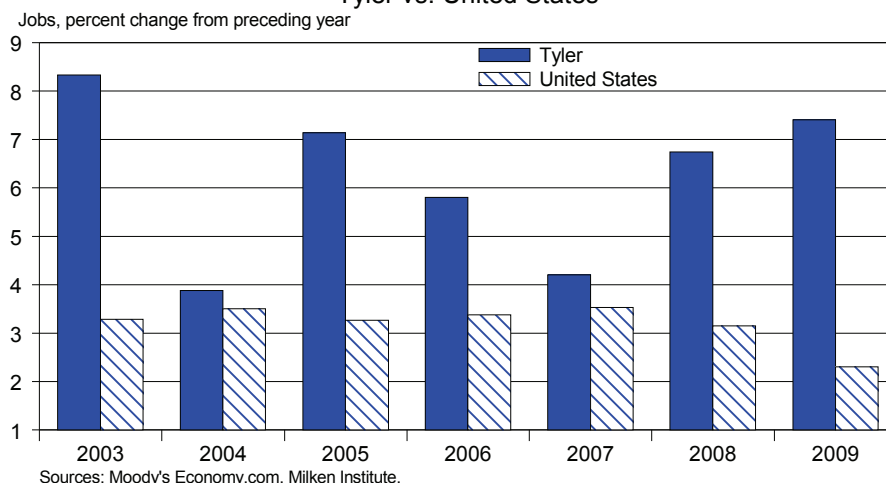
**Hinesville–Fort Stewart, Georgia**, captured fifth among small metros in 2010. (Data for the prior year was unavailable so the city wasn't ranked in 2009.) The metro is home to the Fort Stewart Army base and Hunter Army Airfield, employing more than 25,200 military personnel combined.<sup>73</sup> Investment in the metro and surrounding communities poured in when it was announced in late 2007 that a new brigade combat team of nearly 3,500 troops would be stationed at Fort Stewart, along with their families and other support personnel for a total of 10,000 new residents. The anticipated expansion brought new residential and nonresidential construction and infrastructure to accommodate the growing population. It resulted in employment growth of 5.5 percent between 2007 and 2008, and 0.6 percent the following year, a period when most places were shedding jobs. Bad news came in June 2009, when the Department of Defense rescinded plans for the new brigade.<sup>74</sup> The state's congressional delegates secured \$40 million in the 2010 defense appropriations bill to help offset some of the infrastructure costs incurred.<sup>75</sup>

The airfield supports a number of repair and maintenance shops. From 2008 to 2009, repair and maintenance services added 370 positions. The federal government created 280 jobs in the same period.

**Morgantown, West Virginia**, leaped 21 spots to land at sixth in the 2010 small cities index. The metro had a very mild recession, with unemployment at 5.1 percent in 2009, roughly half the national average. The metro's economy is anchored by West Virginia University and many health-care facilities and research centers. The university is scheduled to receive more than \$19 million in federal stimulus funding over the next two years, the majority of it going toward health research projects.<sup>76</sup> This will offset some of the cuts in state funding and losses in the university's endowment. State government was the dominant job creator, adding 1,277 positions in 2004–2009, while hospitals created 1,222 jobs.

**Tyler, Texas**, slid three spots to seventh on this year's index. Located in northeast Texas, it serves as a distribution hub for several major regional markets, with Dallas; Houston; Austin; Shreveport, Louisiana; Little Rock, Arkansas; Oklahoma City, and New Orleans all less than 500 miles away.<sup>77</sup> Tyler also has an emerging service industry that could potentially compete with Dallas and Houston because of Tyler's lower costs. Health care is the largest employer in the region, with 7,300 workers employed at the East Texas Medical Center and Trinity Mother Frances Hospital in 2009.<sup>78</sup> Together, ambulatory health-care services and hospital industries created 780 jobs, while management of companies added 140 new positions in 2008–2009. However, overall job growth fell 3.0 percent during the same period, and unemployment peaked at 8.3 percent in late 2009.<sup>79</sup>

**Figure 28. Ambulatory health-care services**  
Tyler vs. United States



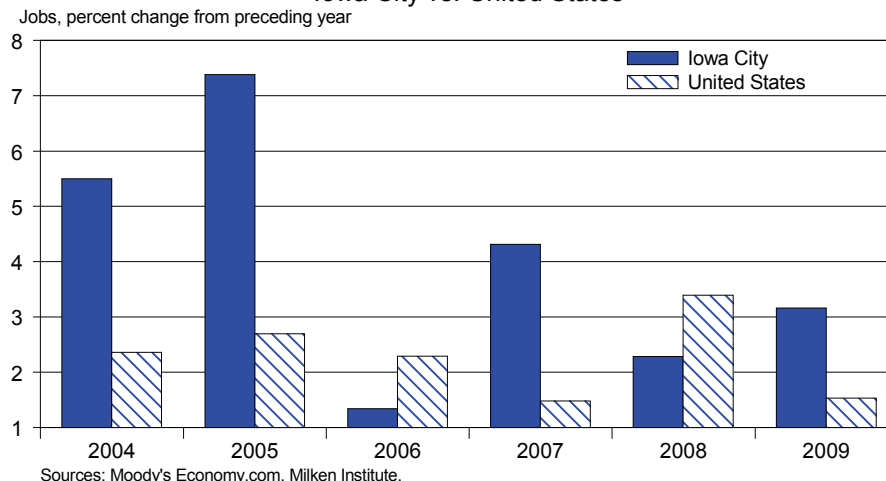
**Las Cruces, New Mexico**, in the southwest corner of the state, made its second consecutive appearance on the small cities list, improving one spot to land at eighth. New Mexico State University, White Sands Missile Range, and NASA's White Sands Test Facility continue to be the region's economic engines. Spaceport America, the world's first commercial spaceport, is being developed there with Virgin Galactic as the anchor tenant. A New Mexico State University economic impact study projected that within five years of operations, Spaceport America will employ 2,300 people with a payroll of \$300 million.<sup>80</sup> With the growing aerospace engineering program at NMSU, a growing number of aerospace firms, and the low cost of doing business, Las Cruces is poised to become a top location for aerospace and space-related technology R&D firms.

Professional, scientific and technical services created more than 1,000 jobs in 2004–2009, followed by ambulatory health-care services and social assistance, with 840 and 770 new positions, respectively. Its proximity to El Paso and position on the Rio Grande trade corridor gives it access to the consumer and business markets in border cities in Texas and Mexico. With its low cost of living and health-care services, Las Cruces is a growing destination for retirees, which is a positive sign for the housing sector.<sup>81</sup>

**Iowa City, Iowa**, vaulted into ninth on the small cities list from 22nd the previous year. The University of Iowa, the metro's largest employer, and the University of Iowa Hospital and Clinics employ a combined 35,000 people.<sup>82</sup> Unlike many metros, Iowa City did not experience a housing bubble, and its downturn was relatively mild. Unemployment, hovering at or below 5 percent, remains below the state and national average. Though state budget cuts posed a big concern to the university, that revenue is more than offset by \$53 million in federal stimulus money it is scheduled to receive for 141 projects. In addition, the university received \$430 million in research grants and contracts.<sup>83</sup> The funds would allow the university to increase hiring to accommodate the growing student enrollment and would have a positive economic impact to the region.

Chemical manufacturing was the biggest job creator, adding 570 jobs in 2008–2009. Health-care and social assistance services added 260 employees, and the federal government hired 300 workers that same year.

**Figure 29. Educational services**  
Iowa City vs. United States



**Lawton, Oklahoma**, captured 10th on the small cities index. (Data for the prior year was unavailable so the city wasn't ranked in 2009.) Lawton's economic anchor is the Army's Fort Sill, which employs about 22,000 people and has an annual economic impact of \$1.3 billion.<sup>84</sup> BRAC-related expansion in Fort Sill began in 2006 and should continue into next year when the 10,000 soldiers, families, and other government employees will complete their relocation from Fort Bliss, El Paso, Texas.<sup>85</sup> The surge in population bodes well for the housing and other consumer goods-related industries. The army has spent \$210 million constructing the new Air Defense Artillery School, which officially opened May 2010 at Fort Sill.<sup>86</sup> The second largest employer in Lawton is the Good Year Tire & Rubber Company, with 2,400 workers.<sup>87</sup> The metro also has a large workforce training program at the Great Plains Technology Center.

Lawton's recession was mild: Unemployment was 5.2 percent in 2009, far below the national average, and residents' personal income increased by 4.3 percent from 2008 to 2009. The biggest job creators in the past year were federal and local governments, which added 480 positions, and food services and drinking places with 150 jobs.













## Appendix

### Methodology: Determinants of economic growth and weight justification

The strength of local business clusters and the constant quest for innovation can explain much of the variation across regional economic growth patterns.<sup>88</sup> Metropolitan areas that regularly invest in human capital and provide the necessary infrastructure are better positioned for long-term growth.

Examining a region's innovation pipeline (i.e. ability to attract R&D funding, access to capital, entrepreneurial prowess, concentration of human capital, and workforce quality, etc.) can provide useful tools for projecting a metro's ability to compete in the 21st century. A rich innovation pipeline plays a pivotal role in a region's industrial development, commercialization, competitiveness, and ability to sustain long-term growth.<sup>89</sup> However, while analyzing these attributes is certainly one way to determine whether a metro is providing the necessary ingredients and infrastructure for long-term growth, it doesn't measure how successfully a metro has been at converting these assets into viable economic output.

Energy and real estate costs, taxes, and other regulatory burdens also play a key role in determining where businesses will seek to expand. While lower costs can be a competitive advantage, high-cost cities tend to offer benefits such as higher concentrations of human capital, greater access to markets, and more established infrastructure that caters to international commerce.<sup>90</sup> Nevertheless, if all other factors are equal, a company will generally choose to locate where business costs are lower and employees enjoy higher living standards. Several other factors can influence variations in regional economic growth. For instance, levels of educational attainment and the effects of "brain drain" tend to correlate with labor quality or lack thereof, which can ultimately impact the direction of future growth.<sup>91</sup>

The *Best-Performing Cities* index is solely an outcomes-based measure. It does not incorporate explicit input measures, such as business costs; housing and other cost-of-living components; and commute times, crime rates, or other quality-of-life measures. Static input measures, although important, are subject to large variations and can be highly subjective, making them less meaningful than more objective indicators of outcome.

Outcome-based measures such as job growth can successfully measure how well metros capitalize on their existing assets. It is also a key determinant of community vitality. Other outcome-based measures include growth in wages and salaries and output. Wage and salary growth measures the quality of the jobs being created and sustained. Theoretically, a prospering region will raise wages and rents as its businesses tap into more human capital and available space.

Growth in technology output is another important element in determining the economic vibrancy of cities. In previous work conducted at the Milken Institute, multiple regression models were utilized to confirm the robustness of high-tech industries in determining the relative economic growth of metros.<sup>92</sup> The findings highlight technology's contribution to metros' long-term economic vitality. In addition, our research has shown that metros dedicated to growing their technology base and human capital are better positioned to overcome short-term shifts in the economy.

We have incorporated other measures to reflect the concentration and diversity of technology industries within the MSAs. High-tech location quotients (LQs, which measure the concentration of the technology industry in a particular metro relative to the national average) are included to indicate a metro's participation in the knowledge-based economy.<sup>93</sup> We also measure the number of specific high-tech industries (out of a possible 22) whose concentrations in an MSA are higher than the national average.

The current weight structure reflects the importance of job and wage growth in a metro's overall economic performance, while recognizing the contribution of high-tech activity in a metropolitan region. To what extent do these components explain variations in regional economic growth patterns? In this section we attempt to further validate the statistical significance of our existing weights by creating a model that explains key components of regional economic growth.

Using a pooled time series regression model, we incorporate variables indexed back to 1990 to ensure that we account for more recent and previous business cycles. In total, 379 observations comprised of metropolitan statistical areas and divisions are accounted for. The dependent variable consists of metro real GDP growth (indexed from 1990 to 2008). Our explanatory variables, as one might expect, resemble the inputs used to compile our *Best-Performing Cities* index. They are composed of employment growth (from 1990 to 2008), wage growth (indexed from 1990 to 2008), high-tech GDP growth (indexed from 1990 to 2008), high-tech GDP location quotient (1990), and the number of LQs greater than one (1990).

### **Model specification**

*GDP growth* = *f* (*Job growth*, *wage per employee growth*, *high-tech GDP growth*, *high-tech GDP LQ*, *high-tech diversity*)                      Model [1]

Not only is indexing the series back to 1990 critical in assessing a metro's long-term economic performance, but it also reflects a metro's ability to overcome business cycles. In many instances, metros will see high growth one year (stemming from a particular industry) and none the next. This phenomenon may leave metros vulnerable to cyclical corrections—another reason to use a pooled time series regression model based on series indexed to 1990.

Furthermore, this growth-based regression analysis will allow us to determine whether it is better to have several measures of high-tech diversity versus a few (at least statistically speaking). Similarly, testing against high-tech GDP LQ will help determine whether possessing a higher concentration of high-tech activity relative to the national average accelerated growth in output.

### *Regression Results*

A log-linear transformation of our model (as specified in Model 1) concludes that four of the five explanatory variables are statistically significant at the 1 percent level of significance. Of the four statistically significant variables, the sizes of the actual coefficients vary considerably. For instance, a 1 percent increase in job growth between 1990 and 2008 increases a metro's GDP by about 0.86 percent on average. Meanwhile, a 1 percent increase in per-employee wage growth

between 1990 and 2008 boosted a metro's GDP by about 0.44 percent on average. In this model, with real GDP as the dependent variable, high-tech output growth and high-tech GDP LQ, with coefficients of 0.11 and 0.06, respectively, had a lesser effect on overall GDP growth.

**Model 1: Dependent variable: 2008 real GDP index (1990 =100)**

Descriptive statistics

<i>Variables</i>	<i>Coefficients</i>	<i>Standard error</i>	<i>t stat</i>	<i>P value</i>
2008 job index (1990=100)	0.861	0.023	36.708	0.000
2008 real wages per emp index (1990=100)	0.438	0.038	11.680	0.000
2008 high-tech real GDP growth index (1990=100)	0.107	0.012	8.984	0.000
1990 high-tech GDP LQ	0.064	0.011	5.716	0.000
1990 high-tech diversity (# of high-tech industries w/LQ>1)	0.008	0.011	0.727	0.468
Intercept	-0.768	0.083	-9.235	0.000

In fact, the lower coefficient of high-tech real GDP growth suggests that, while statistically significant, it is actually representative of the differential gain on real GDP growth (holding all other factors constant). In other words, a reasonable portion of the impacts of technological growth on real GDP is already being captured by job growth. A recursive approach suggests that, on average, a 1 percent increase in high-tech real GDP would increase job growth by 0.23 percent (see Model 2). This supports the premise that growth in high-tech GDP creates a number of additional jobs in non-high-tech industries.<sup>94</sup>

**Model 2: Dependent variable: 2008 job index (1990 =100)**

Descriptive statistics

<i>Variables</i>	<i>Coefficients</i>	<i>Standard error</i>	<i>t Stat</i>	<i>P value</i>
2008 high-tech real GDP growth index (1990=100)	0.230	0.022	10.366	0.000
1990 high-tech GDP LQ	0.104	0.022	4.658	0.000
1990 high-tech diversity (# of high-tech industries w/LQ>1)	-0.097	0.023	-4.262	0.000
Intercept	1.649	0.055	29.976	0.000



Similarly, the lower co-efficient of high-tech GDP LQ in Model 1 reflects the differential gain in real GDP growth. As the results from Model 3 indicate below, a 1 percent increase in high-tech GDP LQ leads to an increase of 0.13 percent in wages per employee on average. In theory, a metro that produces a relatively higher concentration of high-tech output (or real GDP) would typically demand higher wages.

**Model 3: Dependent variable: 2008 wages per employee index (1990 =100)**

Descriptive statistics

<b>Variables</b>	<b>Coefficients</b>	<b>Standard Error</b>	<b>t Stat</b>	<b>P value</b>
1990 high-tech real GDP LQ	0.131	0.010	13.102	0.000
2008 high-tech real GDP growth index (1990=100)	0.090	0.014	6.449	0.000
Intercept	1.884	0.033	56.422	0.000

High-tech diversity (in Model 1) is the only explanatory variable not statistically significant at those levels. Part of this stems from the fact that most of this high-tech activity is already captured through high-tech GDP LQ.<sup>95</sup> Nevertheless, it would be difficult to rule out that high-tech diversity (the number of high-tech industries with LQs greater than one in 1990) did not significantly influence (or correlate with) future economic performance.

This lends support to the existing weight structure assigned when compiling our *Best Performing Cities* index (see table below). Holding all other factors constant, growth in jobs and wages tends to correlate to growth in a metro’s GDP. The larger weights (of 14.3 percent) associated with jobs and wage growth reflect the higher regression coefficients the model generates.

<b>Component</b>	<b>Weight</b>
Job growth (I=2004)	0.143
Job growth (I=2008)	0.143
Wage and salary growth (I=2003)	0.143
Wage and salary growth (I=2007)	0.143
Short-term job growth (Apr09-Apr10)	0.143
Relative high-tech GDP growth (I=2004)	0.071
Relative high-tech GDP growth (I=2008)	0.071
High-tech GDP location quotient	0.071
Number of high-tech industries with GDP LQ>1	0.071

Note: I refers to the beginning year of index.

Source: Milken Institute.

Knowledge-based economies tend to form where high-tech activity is growing, creating more incentives for businesses and entrepreneurs.<sup>96</sup> Our first model exhibits the importance of job and wage growth in metros' economic vitality, while accounting for the differential gain stemming from our high-tech components. As portrayed through our recursive approach in models 2 and 3, portions of high-tech activity and growth are already accounted for through job and wage growth. In attempting to capture such elements, four high-tech components are incorporated into the index. Based on the composition and results stemming from our regression analysis, it would seem reasonable to assign at least half the weight (or 7.1 percent) of job and wage growth categories to our high-tech components.

Finally, in our regression analysis we examine where the model consistently under-predicted or over-predicted actual metropolitan GDP growth. As expected, the model seemed to under-predict a number of high-growth areas, especially among the smaller cities. This broad list includes metros such as Odessa, Midland, and Longview, Texas; Raleigh-Cary, North Carolina; and Lafayette, Louisiana. Conversely, it over-predicted places like Santa Fe, New Mexico, Anchorage, Alaska, and San Jose-Sunnyvale-Santa Clara and San Francisco-San Mateo-Redwood City in California.

The computed R-squared suggests that the explanatory variables (in Model 1) explain approximately 88 percent of the growth dynamics with respect to metropolitan GDP. The Durbin-Watson statistic in our application of slightly above 2.0 also confirms that there are no signs of first-order autocorrelation, either positive or negative. That is, the error terms don't appear to be correlated, and the model appears to have been correctly specified. Incidentally, given the pooled nature of the regression, random re-ordering of the observations confirmed no signs of autocorrelation among error terms. Furthermore, our Durbin-Watson statistic rules out any reason to interpret that the ordering of the metros has any influence.

#### Model 1: Regression summary

<i>Measure</i>	<i>Value</i>
Multiple R squared	0.94
R squared	0.88
Adjusted R squared	0.87
Standard error	0.03
Observations	379
Durbin-Watson	2.03



## Endnotes

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4. The latest 12-month job performance calculates the percentage change from the same month in the previous year (e.g., the percentage change in jobs from April 2009 to April 2010). The percentage change is a measure of recent momentum, capturing which metropolitan areas have improved their performance in recent months. The annual growth rate measures the percentage change from calendar year 2008 to 2009. While annual growth rate does not indicate whether high growth was achieved or diminished in the first or latter half of the year, the 12-month growth rate captures that aspect. Employment, wages, and gross metro product data are compiled from various government agencies, including the Bureau of Labor Statistics (BLS), the Bureau of Economic Analysis (BEA), and the Census Bureau. More detailed coverage on individual sectors is derived from Moody's Economy.com.
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## About the Authors

**Ross C. DeVol** is executive director of economic research and as well as executive director of the Centers for Regional Economics, Health Economics and California at the Milken Institute. He oversees the Institute's research efforts on the dynamics of comparative national and regional growth performance. Since joining the Institute, DeVol has put his group in the national limelight with groundbreaking research on technology and its impact on regional and national economies. An expert on the new intangible economy and how regions can prepare themselves to compete in it, DeVol examines the effects of technology, research and development activities, international trade, human capital and labor-force skills training, entrepreneurship, early-stage financing, and quality-of-place issues on the geographic distribution of economic activity. He is ranked among the "Super Stars" of Think Tank Scholars by International Economy magazine.

**Armen Bedroussian** is a research economist with the Institute's Economic Research group. His research focuses on econometrics, statistical methods, and other modeling techniques. Before joining the Institute, he was an economics teaching assistant in micro- and macroeconomics at the University of California, Riverside. Bedroussian has co-authored numerous studies, including "The Impact of 9/11 on U.S. Metropolitan Economies," "Manufacturing Matters: California's Performance and Prospects," "Manufacturing 2.0: A More Prosperous California," "America's Biotech and Life Science Clusters: Biopharmaceutical Industry Contributions to U.S. and State Economies," "The Greater Philadelphia Life Sciences Cluster," and others. He co-authors the annual "Best-Performing Cities" index. Bedroussian received a bachelor's degree in applied mathematics and a master's degree in economics from UC Riverside.

**Kevin Klowden** is a managing economist at the Milken Institute, where he serves as director of the California Center. He specializes in the study of demographic and spatial factors (the distribution of resources, business locations, and movement of labor) and how these are influenced by public policy and in turn affect regional economies. Klowden was the lead author of "The Writers' Strike of 2007–2008: The Economic Impact of Digital Distribution," which analyzed the changing dynamics of the entertainment industry and measured the economic impact of the writers' work stoppage on the California economy. In addition to co-authoring reports such as "California's Highway Infrastructure: Traffic's Looming Cost" and "North America's High-Tech Economy," he coordinated the Institute's two-year Los Angeles Economy Project, seeking public-policy and private-sector solutions to challenges the region faces amid a growing unskilled labor pool. Klowden previously worked in the field of interactive electronic entertainment development and as an adjunct professor of geography at Santa Monica College. He served on the editorial board of *Millennium*, the international affairs journal of the London School of Economics, where he earned a master's degree in the politics of world economy. He earned a bachelor's degree in historical geography, as well as a master's in economic geography, from the University of Chicago.

**Candice Flor Hynek** is a senior research analyst with the Institute's Economic Research group, where she has contributed to such reports as "Jobs for America: Investments and Policies for Growth and Competitiveness" and "Manufacturing 2.0: A More Prosperous California." She was formerly associate economist of the LAEDC Kyser Center for Economic Research, where she worked for more than eight years, and specialized in the structure of leading industries in Southern California. She managed the Kyser Center's major economic reports and served as editor of the e-EDGE economic newsletter. The co-author of numerous reports, including "The Business of Sports in Los Angeles County" and "The Creative Economy of the Los Angeles Region," she has contributed U.S. economic outlook articles to several industry newsletters. Flor Hynek is an active member of the National Association for Business Economics (NABE) and was the 2008–2009 president of the Los Angeles Chapter of NABE. She received her bachelor's degree in business economics from California State University, Long Beach.



## MILKEN INSTITUTE

1250 Fourth Street • Santa Monica, CA 90401

Phone: 310.570.4600 • Fax: 310.570.4601

E-mail: [info@milkeninstitute.org](mailto:info@milkeninstitute.org)

[www.milkeninstitute.org](http://www.milkeninstitute.org)

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