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*Literacy
and
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The Thomas Jefferson Institute
for Public Policy

Virginia Economic Forecast
2006-07

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The Thomas Jefferson Institute for Public Policy is proud to present its seventh annual report on the economy of the United States and Virginia. It is part of the foundation's efforts to offer well-researched studies for our state leaders to assist them in better preparing for the future.

This year's annual *Virginia Economic Forecast* was again researched and written by Dr. Christine Chmura and her team of top economists at Chmura Economics & Analytics (CEA) headquartered in Richmond. Dr. Chmura founded CEA in 1999 after serving as Chief Economist at Crestar Bank (purchased by SunTrust) for 7 years. CEA has since grown into a leading member of its industry. Over forty years of experience is housed in this economic consulting firm specializing in quantitative research, traditional economics and workforce and economic development.

"*Virginia Economic Forecast: 2006 – 2007*" is made available to our state's elected leaders, business leaders, and the media in order to assist them in better understanding the economic reality facing our state. This year's edition, titled *Literacy and Economic Development*, demonstrates that the long-term economic health of the country and Virginia are dependent upon the education of all of their citizens. The *Economic Forecast* also points toward the expectations of continued national growth in the short-term. Cautions about the price of oil, however, are also reported as a risk to growth expectations.

Last year's *Virginia Economic Forecast* anticipated a general slowing in economic activity. In 2005, the real gross domestic product expanded at a 3.5% pace, compared with CEA's forecast of 3.4%. CEA's forecast last year called for consumer spending to slow to 3.3% growth, and it actually did slow to 3.5%. Residential investment, however, did grow more than forecast in 2005: 7.1% compared to a forecast of 2.9%. This discrepancy was partially tied to the unusual behavior of long-term interest rates in 2005, not increasing as typically occurs when the federal funds rate increases. At the state level, building permit activity was forecast to slow in Virginia to 0.1% growth in 2005, and it actually did slow to 0.4%.

We once again thank SunTrust for sponsoring this year's "*Virginia Economic Forecast: 2006 – 2007*." Nothing in this report should be construed as supporting or opposing any legislation. The opinions are those of the authors and not necessarily those of the Thomas Jefferson Institute, its Board of Directors, or SunTrust as the sponsor of this report.

Michael W. Thompson

Chairman and President

Thomas Jefferson Institute for Public Policy

May 2006



In the Nation...

✦ The economic expansion was steady from the fourth quarter of 2003 through the third quarter of 2005. The real gross domestic product (GDP) expanded in the range of 3.3% to 4.3%. This stability was broken in the fourth quarter of 2005 when the GDP expanded just 1.7%. The slowdown was an aberration, however. The economy quickly rebounded in the first quarter of 2006 with 4.8% GDP growth, according to advanced figures.¹

✦ Healthy economic activity is forecast for 2006 and 2007, but the pace of growth is not expected to exceed the 3.5% recorded in 2005. Although nonresidential investment is expected to increase in 2006, a slowdown in consumer spending and residential investment is anticipated. Real GDP is forecast to expand 3.5% in 2006 and 3.3% in 2007.

✦ Given the slightly slower real GDP expected in 2006, Chmura Economics & Analytics (CEA) expects the Federal Open Market Committee will not continue its pattern of consecutive increases to the federal funds rate throughout 2006. The May 10th increase in the federal funds rate to 5.0% is expected to be the last increase for this year. Although increases in oil prices over the last two years have pushed the consumer price index higher, core inflation has remained stable. Further energy price increases are a risk to the forecast, especially pertinent because of the potential instability of the Middle East.

Concerning Literacy...

✦ Literacy scores have been shown to be excellent predictors of economic activity, even outperforming measures based upon years of schooling.

✦ Examination of Virginia's counties and independent cities reveals a relationship even at that level of detail. On average, a ten-point increase in a region's literacy score was related to an increase of four percentage points in employment growth over a 14-year period.

✦ A family literacy program is one possible method for improving literacy scores. Such a strategy can improve adult literacy while investing in children's development as well.

In Virginia...

✦ Virginia's economy has continued to grow faster than the nation's. Employment in the state increased 2.2% for the year ending March 2006 compared with 1.6% growth in the nation. Virginia's unemployment rate was third-lowest among the fifty states in March of this year. The construction sector benefited from the housing boom and expanded employment 8.4% in the state. The high-paying professional and business services sector added over 21,000 jobs over the year ending March 2006, and education and health services expanded employment by over 14,000.

✦ In the metro areas, Charlottesville and Winchester had the fastest employment growth in the state for the year ending March 2006. Each ranked in the top 30 fastest growing metros in the nation for this period. Northern Virginia continued to post solid growth and accounted for 57% of all new jobs in the state for the year ending in March. Danville was the only metro to decline over this period as its manufacturing woes have continued. It is the sixth-slowest growing metro area in the county.

✦ Employment growth is forecast to continue in the state in 2006 and 2007, albeit at lower levels than posted in 2004 and 2005. Northern Virginia is expected to have the best growth through 2007. Building permit activity is forecast to expand in the state, but Northern Virginia and Hampton Roads are expected to see declines in both 2006 and 2007. Inflation-adjusted retail sales are forecast to grow 3.2% in 2006 and 3.3% in 2007, slower growth than seen in the preceding three years.

¹ Advance figures are the initial estimates of the GDP and its components that are subject to later revision.

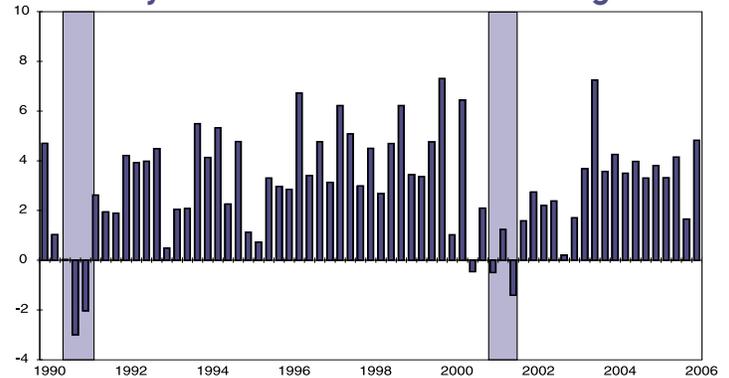
Consistent Growth in 2005

The national economy delivered a solid performance in 2005. Real gross domestic product (GDP) grew 3.5% for the year, slower than the 4.2% of 2004, but healthy nevertheless. The consistent pace of growth from the fourth quarter of 2003 to the third quarter of 2005 has been remarkable: GDP ranged from an annualized low of 3.3% (fourth quarter of 2004 and second quarter of 2005) to a high of 4.3% (first quarter of 2004). During this period, the economy has also demonstrated resilience in the face of rising energy prices, the disruption of Hurricane Katrina, and the cooling housing market. More recently, real GDP slowed to a 1.7% annualized pace in the fourth quarter of 2005 due to the sharp drop in durable goods sales. Yet, it rebounded strongly in the first quarter of 2006 when advanced real GDP grew at a 4.8% annualized rate, one of the best performances in the past two years.

All of the major components of GDP grew at a slower pace in 2005 when compared with the previous year. Consumer spending, which makes up over 60% of total GDP, slowed slightly from a 3.9% gain in 2004 to 3.5% in 2005. Growth in private investment slowed more significantly, from 11.9% in 2004 to 6.1% in 2005. Within private investment, residential investment slowed from 10.3% in 2004 to 7.1% in 2005. Business investment in equipment and software continued to grow at a double-digit pace, indicating that businesses remain optimistic about future economic growth. Government spending growth dropped from 5.2% in 2004 to 2.3% in 2005, mainly because of a sharp slowdown in national defense spending from 7.0% growth to 2.6%.

Although Hurricane Katrina did not have a lasting negative impact on national growth, it caused a major disruption in the lives of millions of residents in the Gulf Coast states of

Real Gross Domestic Product Quarterly Annualized Percent Change²



Source: Bureau of Economic Analysis.

Louisiana, Mississippi, and Alabama. The majority of the economic loss occurred in the New Orleans area where total employment plummeted by 208,000—comparing post-Katrina employment in October 2005 to that from one year earlier. During the same period, the total employment of Alabama's gulf coast (Mobile region) rose by 2,000 while employment in Mississippi's coast region fell by 36,000.³

The national labor market added 2.1 million jobs over the 12 months ending March 2006. Nonfarm employment grew from 132.9 million in March 2005 to 135.0 million in March 2006. As usual, there were wide industry differences in job creation. Professional and business services had the largest employment increase over this period (+469,000 jobs). Other sectors with large gains included education and health services (+405,000); construction (+311,000); and transportation, trade, and utility (+278,000). Manufacturing shed 56,000 jobs and was the only sector to post a loss over this period. Labor market conditions improved over the last 12 months as the national unemployment rate continued to trend downward. The unemployment rate fell from 5.1% in March 2005 to 4.7% in March 2006—which tied for the lowest level since July 2001.

As the economic expansion continues to tap the underutilized resources in the economy and as oil prices continue to rise, the potential of accelerating inflation is becoming a concern. The price of crude oil rose from \$31.1 per barrel in 2003 to \$41.5 in 2004 and \$56.6 in 2005. In the first half of 2006, oil prices continued to rise and reached a high of \$75 in April. Fueled by high oil costs, the consumer price index (CPI) grew 3.7% in 2005 compared with 3.4% in 2004 and 1.9% in 2003. In contrast, core inflation, which excludes food and energy, increased a more subdued 2.1% in 2004 and 2005. The low core inflation rate suggests that

² Note: Recession periods are shaded in charts throughout the publication.

³ Source: <http://www.bls.gov/katrina/home.htm>

Unemployment Rate



Source: Bureau of Labor Statistics.

the high energy prices have not worked their way into consumption goods yet, as producers have presumably absorbed the high energy prices. However, if oil prices continue to rise, core inflation may see a more sizable rise.

The gradual cooling of the housing market toward the end of 2005 was a significant development in the national economy. That decline is expected to continue into 2006 because of decreased home affordability caused by rapidly rising home prices and moderately increasing mortgage rates. Housing starts in 2005 totaled 2.07 million units, up from 1.96 million in 2004 and 1.85 million in 2003. After reaching a high of 2.10 million units at an annualized rate (MUAR) in the third quarter of 2005, housing starts slowed to 2.04 MUAR in the fourth quarter. The sale of existing homes reached 7.18 MUAR in the third quarter of 2005, declined to 6.94 MUAR in the fourth quarter, and declined further to 6.80 MUAR in the first quarter of 2006. The sale of new homes reached 1.30 MUAR in the third quarter of 2005, fell to 1.28 MUAR in the fourth quarter, and declined further to 1.16 MUAR in the first quarter of 2006.

Monetary Policy

In 2005, the Federal Open Market Committee (FOMC) continued to raise interest rates by 25 basis points at each of its eight meetings. Three more tightenings occurred at the January, March, and May FOMC meetings in 2006, bringing the federal funds rate target to 5% at the close of the May 10th meeting.

The rationale for the rate increases has been shifted from stimulating economic growth in 2004 to containing possible

inflation. In its May 10th statement, the FOMC stated that “possible increases in resource utilization, in combination with elevated prices of energy and other commodities, have the potential to add to inflation pressures.” The market generally expects the FOMC to stop raising the federal funds rate target in 2006. This expectation is based on Federal Reserve Chairman Ben Bernanke’s testimony to Congress implying that the FOMC may pause its steady stream of short-term interest rate hikes in the near future.

As the federal funds rate has risen, the long-term interest rate (10-year Treasury yield) remained relatively low throughout 2005. As a result, mortgage rates did not increase sharply either, and remained low enough to support housing sales. Long-term rates did not rise as they typically do when the FOMC is tightening rates partially because the market believed inflation would remain contained and international capital continued to flow into U.S. Treasuries. In recent months, however, long-term rates inched higher as rising oil prices increased inflation expectations and the international flow of funds into U.S. Treasuries slowed.

The end of “the Greenspan Era” in 2005 is a notable development in monetary policy. Alan Greenspan retired after serving more than 18 years as the Federal Reserve Board Chairman. Ben Bernanke was selected to succeed him. The market expects no drastic policy shift as Bernanke, like Greenspan, is known for his tough stance on fighting inflation. Bernanke has stated that “maintaining continuity with the policies and policy strategies established during the Greenspan years” will be his first priority.⁴ In March 2006, which marked the first FOMC meeting with Bernanke as chairman, the Fed continued to raise interest rates as a sign of policy continuity. The next meeting, on May 10th, also resulted in a rate increase.

Economic Forecast

Chmura Economics & Analytics (CEA) forecasts that real GDP will grow 3.5% in 2006. Personal consumption expenditure is forecast to slow slightly from 2005 to a 2.9%

⁴http://money.cnn.com/2005/10/24/news/economy/fed_bernanke/index.htm

pace in 2006. Private investment is expected to increase 6.9% in 2006 and real estate investment is forecast to only grow 1.6%, as higher mortgage rates and home price appreciation reduce home affordability. However, high levels of plant and equipment utilization are expected to stimulate nonresidential investment which is forecast to grow 10.7% in 2006. Investment in equipment and software is expected to increase a robust 11.4%.

The economy is expected to slow further in 2007, and overall GDP is forecast to grow 3.3%. Slightly higher long-term interest rates are expected to dampen residential and business investment in 2007, while consumer spending continues at a pace just slightly below 3.0%.

In light of the slightly slower growth, CEA expects the FOMC to stop raising the federal funds rate target from the current 5%. In fact, a 25-basis point cut in the federal funds rate is expected near mid-2007 as signs of further slowing

become apparent. In the forecast for long-term treasuries,⁵ however, CEA assumes that inflation fears will push rates slightly higher.

The labor market is expected to continue to improve steadily throughout 2006. The unemployment rate is forecast to stay at 4.7% or lower. Toward the end of 2006 and in 2007, however, a slowing economy may pressure the unemployment rate to inch up again.

CEA's forecasts are based on the assumption that crude oil prices hover between \$65 and \$70 in 2006 and 2007, which assumes that the current confrontation with Iran on its nuclear program does not escalate to the level of military action. Due to the uncertainties in Iran and Iraq, the risk of this forecast is that those assumptions on oil prices can be conservative. Sustained high oil prices can reduce personal consumptions outside energy expenditure, raise inflation, and slow down the growth of the U.S. economy.

A sharp reduction in foreign investment in the U.S. Treasury market is another risk to the forecast. The reduced foreign investments would cause long-term interest rates to rise more than expected. The result would be a more dramatic decline in home sales.

National Forecast Summary

	Actual		Forecast		
	2004	2005	2006	2007	2008
	Percent Change				
Gross Domestic Product	4.2	3.5	3.5	3.3	3.2
Personal Consumption Expenditures	3.9	3.5	2.9	2.8	2.8
Gross Private Domestic Investment	11.9	6.1	6.9	1.4	0.8
Residential	10.3	7.1	1.6	-1.1	1.6
Nonresidential	9.4	8.6	10.7	5.8	3.8
E & S*	11.9	10.9	11.4	9.4	8.0
Government Expenditures	2.2	1.8	1.6	0.8	1.4
	Trade Deficit (Billions of Dollars)				
Net Exports, Goods & Services	-601.3	-633.1	-657.8	-609.8	-587.1
	Percent Change				
Consumer Price Index	2.7	3.4	3.5	2.3	1.8
	Yields (%)				
Federal Funds Rate	1.3	3.2	4.9	4.8	4.8
Prime Rate	4.3	6.2	7.9	7.8	7.8
10-Year Treasury	4.3	4.3	5.0	5.1	5.1
30-Year Fixed Mortgage	5.8	5.9	6.6	6.7	6.6

* Equipment & Software

Note: Yields reported as the average of the year.

Source: Chmura Economics & Analytics.

Literacy and Economic Development

The Virginia economy, like that of the United States, is transforming from one based on resources and manufacturing to one based on information, knowledge, and skills. Consequently, growing emphasis has been placed on the role of human capital—the skills and knowledge of the workforce. A study on literacy, human capital, and economic growth⁶ found that investment in human capital is three times as important to economic growth over the long run as investment in physical capital, such as machinery and equipment.

One of the best measures of human capital is the adult literacy score. Studies have consistently found that higher literacy scores are linked with economic growth. One study concluded that a country that focuses on promoting strong literacy skills throughout its population will be more successful in fostering

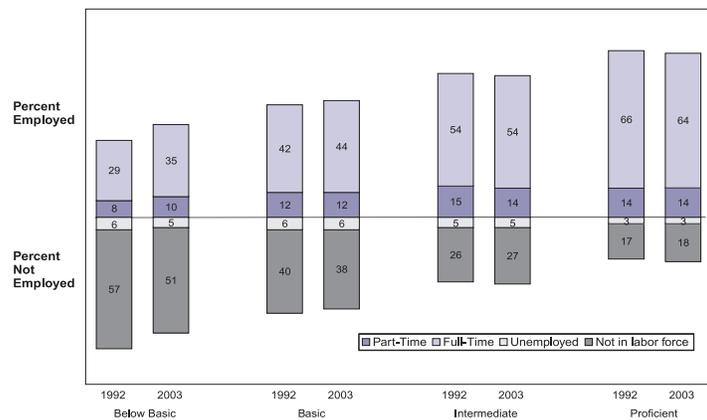
⁵ Long-term treasuries are those with 10- or 30-year periods.

⁶ "Literacy score, human capital and growth across fourteen OECD countries," by Serge Coulombe, Jean-Francois Tremblay, and Sylvie Marchand, Statistics Canada, June 2004.

growth and the well-being of its citizens.⁷

On the individual level, research has found that an increased literacy level is related to improvement in an individual's earnings and access to the labor market. For example, a study on literacy scores and earnings has found that a ten-point increase in a literacy score was related to raised earnings by 3%.⁸ Furthermore, individuals with higher literacy scores are more likely to be employed than individuals with lower scores. As the following chart shows, in 2003, only 35% of the adults below the basic literacy level were employed full-time compared with 54% of adults with an intermediate literacy level and 64% of adults with a proficient literacy level.⁹

Literacy Levels and Employment Status



Source: National Center for Education Statistics

While the benefits of literacy on economic development at the national level are clear, questions remain at the local levels in Virginia. Specifically: can increased literacy scores improve the earnings of Virginia's workers; are higher literacy scores associated with higher employment growth rates in Virginia's cities and counties; and what are the policy implications in literacy improvement?

The most reliable literacy data for the United States come from the National Adult Literacy Survey (NALS) conducted by the Educational Testing Service for the U.S. Department of Education. The first survey was conducted in 1992 and another was conducted in 2003. The summary results of the second survey were just released in late 2005. The drawback of the national survey is that it does not include adult literacy information at the county or city level. However, researchers have developed a methodology to estimate the county-level literacy data based on a set of demographic and education attainment data from the Census. The estimated

literacy score is called a synthetic literacy score,¹⁰ which is available for the majority of Virginia cities and counties based on the 1990 Census.¹¹ The county-level synthetic literacy score based on the 2003 National Adult Literacy Survey and 2000 Census has yet to be published.

The NALS tests individuals on three types of literacy. Prose literacy indicates the knowledge and skills needed to understand and use information from texts that include editorials, news stories, poems, and fiction. Document literacy indicates the knowledge and skills required to locate and use information contained in forms, schedules, tables, etc. Quantitative literacy means the knowledge and skills required to apply arithmetic operations, either alone or sequentially, using numbers embedded in print materials, etc.

For the 1992 NALS, literacy scores ranged from 0 to 500 and were classified into five levels. Projecting the results onto all adults in the United States, 21 to 23% of the population was in level one, with a score less than 226; 25 to 28% of the population was in level two, with a score between 226 and 275; 31 to 32% of the population was in level three, with a score between 276 and 325; 15 to 17% of the population was in level 4, scoring between 326 and 375; and 3 to 4% of the population was in level 5, scoring over 375.¹²

Based on the 1992 survey, the average literacy score of Virginia was 272, ranking it 32nd among 50 states. The states with the highest literacy scores were Utah (290), Alaska (289), and Colorado (289). Several southern states ranked lowest in terms of literacy score—Mississippi (249), Louisiana (254), Alabama (258), and Arkansas (260). In

⁷ Ibid.

⁸ "Literacy, Numeracy and Labor Market Outcomes in Canada," by David Green and Craig Riddell, Statistics Canada, 2001.

⁹ Please note that these employment percentages are based on the entire population, not just the workforce, and so include the retired and other non-workforce individuals.

¹⁰ "Synthetic Estimates for Literacy Proficiency for Small Census Areas," by Steven Redder of Portland State University, under a contract with the U.S. Department of Education, 1996.

¹¹ A reliable estimate was generated for places with at least 5,000 inhabitants age 16 and above, and a realized sample of at least 500 for the long-form survey of the 1990 Census. On average, 13% of the places did not have an estimate nationally. In Virginia, 16 counties and cities did not have an estimate of literacy score.

¹² In the 2003 survey, there were four literacy levels—Below Basic, Basic, Intermediate, and Proficient. There is not a direct conversion matrix from 1992's five levels to 2003's four levels, but level one and two in the 1992 survey correspond roughly to Below Basic and Basic level.

the mid-Atlantic region, where Virginia often competes for economic development projects, Virginia lagged only behind Maryland (274) and compared favorably with North Carolina (265), Georgia (263), and Pennsylvania (271).

In Virginia, the places with highest literacy scores were concentrated in the state's three largest metropolitan areas and in places with major colleges or universities. Fairfax County, Loudon County, Poquoson City, Fairfax City, and Prince William County belong to the first category, and Williamsburg City, Radford City, Albemarle County, Harrisonburg City, and Montgomery County belong to the second category. On the other end of the spectrum, based on 1992 results, localities with the lowest literacy scores were mostly rural counties, many from Southside Virginia.

Locations with High 1992 Literacy Scores

Fairfax County	298	Harrisonburg City	289
Williamsburg City	297	Arlington County	288
Poquoson City	294	Montgomery County	287
Loudoun County	292	James City County	286
Radford City	292	Virginia Beach City	286
Albemarle County	291	Stafford County	286
Fairfax City	290	Manassas City	285
Prince William County	290	Alexandria City	284
Chesterfield County	289	Roanoke County	284
York County	289	Henrico County	283

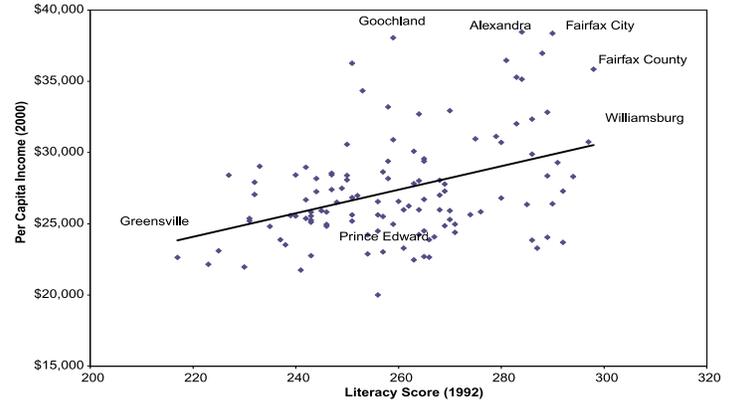
Locations with Low 1992 Literacy Scores

Westmoreland County	242	Northampton County	233
Mecklenburg County	242	Buchanan County	232
Accomack County	242	Nottoway County	232
Cumberland County	241	Charlotte County	231
Danville City	240	Halifax County	231
Amelia County	240	Buckingham County	230
Lee County	239	Petersburg City	227
Dickenson County	238	Brunswick County	225
Lunenburg County	237	Sussex County	223
Southampton County	235	Greensville County	217

Source: Portland State University.

In terms of the relationship between literacy and earnings, the following chart shows that a high literacy score in a Virginia location is associated with high per capita income.¹³ The analysis shows that for an increase of 10 points in the literacy score, the per-capita income of a locality improves by an average of \$860, an approximate 3.2% increase.¹⁴

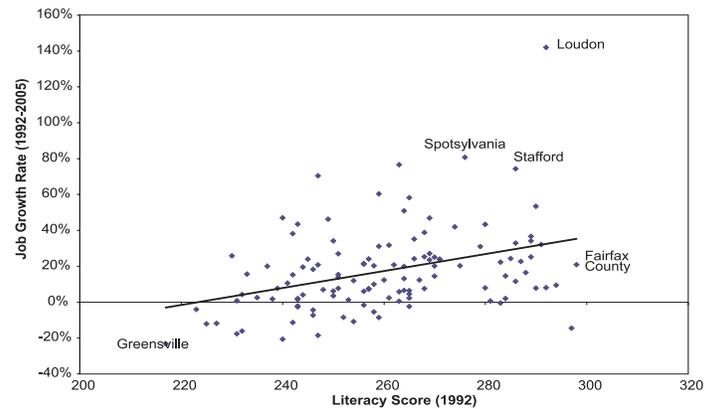
Virginia Literacy Scores and Per Capita Income (Cost of Living Adjusted)



Source: Portland State University, Bureau of Economic Analysis, and Chmura Economics & Analytics.

Not only are higher literacy scores associated with higher wages, but also with job creation. The second chart on this page shows the relationship between the literacy rates in 1992 and employment growth from 1992 to 2005. It is clear that Virginia locations with higher literacy scores generally experienced faster job growth in the measured timeframe. On average, every 10-point increase in literacy score was associated with job growth rates four percentage points higher. If a county grew the state average 20% in the past 14 years, for example, having a 1992 literacy score 10 points higher could have theoretically boosted the growth rate to 24%.

Virginia Literacy Scores and Job Growth (1992-2005)



Source: Portland State University and Virginia Employment Commission.

¹³ Per capita income has been adjusted by the Cost of Living Index to reflect the actual earnings.

¹⁴ This is consistent with the 3.0% wage improvement for 10 points of increased literacy score found in the Green and Riddell study.

There are several ways that higher literacy rates can boost job creation in a location. Employees with high literacy scores are usually more productive, and companies employing them are more likely to be in a better competitive position. As a result, those businesses can grow faster. In addition, locations with higher levels of literacy rates are also more appealing to expanding and relocating firms, which can bring more jobs to the region.

Though the benefits of literacy on economic development are well established, there are debates regarding how to improve a region's literacy level. Should funding be devoted to adult literacy or to improving childhood literacy? Focusing on adult literacy should have an immediate economic impact as those adults are already in the labor market. Improving their literacy skills can help them find jobs and improve their earnings. Focusing on childhood literacy will have long-term economic effects as the children will not make a direct contribution to the economy in the short term. The strategy of 'family literacy' combines the benefits of those two approaches. This strategy focuses on adult literacy while emphasizing parent's involvement in their children's education. While classes on literacy training are provided for adults, workshops are also provided to encourage the same adults to read to their children and to participate in the class work of their children.

Children usually acquire literacy and numeracy skills first at home. Studies have found that parents' literacy and children's literacy are often related.¹⁵ For example, parents who participate in family literacy programs are more likely to read books to their children, to take their children to the library, and to thus stimulate the academic performance of their children. By allocating training dollars to adults with an emphasis on their involvement with their children's

education, the same amount of money can potentially improve both adult and childhood literacy and improve the economic security of low-income families.

In Virginia, family literacy programs should focus on regions where literacy scores are low. It is estimated that 19% of adults in Virginia have a level one literacy score.¹⁶ Some regions are significantly below average, such as the City of Petersburg where over 40% of the adult population has a level one literacy score. Most such places are rural counties and places with a high concentration of minority and immigrant population. Funding allocated to each locality based on the number of residents with level one literacy scores should direct resources to where the funding is most needed.¹⁷

A successful family literacy program¹⁸ involves many agencies. Adult literacy education and training are traditionally operated by workforce development agencies and community colleges. Early childhood education falls under the authority of the Department of Education. The family literacy program will also involve English as a Second Language education in places with large immigrant populations. Coordination of different agencies is necessary to increase both adult and child literacy levels and to improve the income and job growth in Virginia.

¹⁵ National Center for Family Literacy, 1997. *Even Start, An Effective Literacy Program Helps Families Grow Toward Independence.*

¹⁶ "Synthetic Estimates for Literacy Proficiency for Small Census Areas," by Steven Redder of Portland State University, under a contract with the U.S. Department of Education.

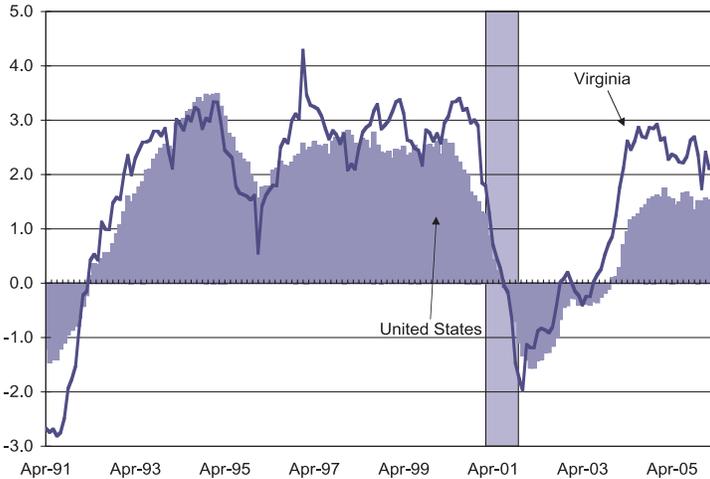
¹⁷ When 2003 synthetic literacy scores are available, funding may be distributed according to the number of adults with Below Basic literacy level.

¹⁸ Illinois, Kentucky, Pennsylvania, and Washington are four states whose literacy programs have been cited as successful. Summary descriptions of these programs can be found at <http://www.nga.org/cda/files/110802LITERACY.pdf>.

Virginia Economy

As the United States remains entrenched in an economic expansion, the Virginia economy continues to grow at a faster pace than the nation. Employment in Virginia expanded 2.2% for the year ending March 2006. State growth has exceeded the national pace since April 2003. Aided by solid employment gains, the unemployment rate in Virginia has trended downward over recent years and was the third-lowest among the fifty states in March 2006.

Employment Growth Percentage Change from a Year Ago



Source: Bureau of Labor Statistics.

Virginia's economy is expected to remain healthy over the next two years despite slowing from the pace of growth of 2005. After increasing 2.5% in 2005, employment is forecast to rise 2.1% in 2006 and 1.6% in 2007. Wages and salaries are projected to increase in all the metro areas and the state in the next two years. Growth in inflation-adjusted retail sales is expected to decelerate slightly in the coming years, while building permits are projected to accelerate.

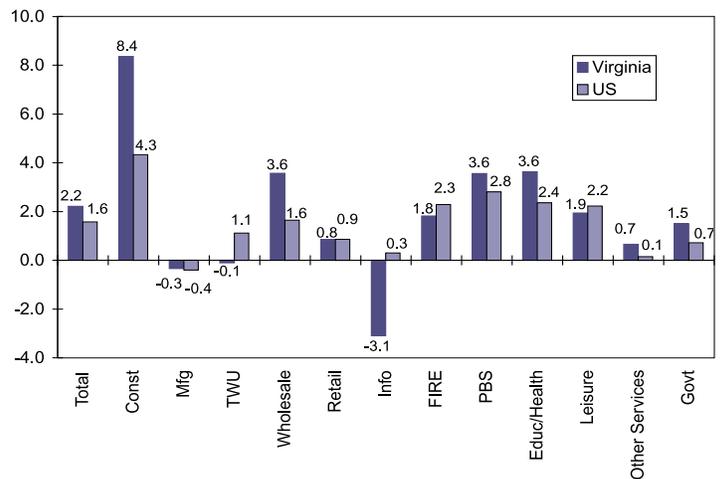
Recent Growth

Employment in Virginia continues to advance at a faster pace than in the nation. For the year ending March 2006, employment in the state increased 2.2% (+81,000 jobs)

compared with 1.6% nationally. Virginia was the 18th-fastest growing state during that 12-month period.

Over the 12 months ending March 2006, payrolls expanded in 9 of the 12 major industry sectors in the state. Sectors that shed jobs were information¹⁹ (-3.1%); manufacturing (-0.3%); and transportation, warehousing, and utilities (TWU) (-0.1%). Manufacturing also declined nationally over this period. The state declines in information and TWU can largely be linked to losses those sectors sustained in 2005 in Northern Virginia.

Employment Growth by Sector Percentage Change from a Year Ago



Source: Bureau of Labor Statistics.

A booming housing market led to rapid employment gains in Virginia's construction sector which experienced the fastest pace of employment growth (+8.4%) over the year ending March 2006. During this period, over 20,000 jobs were added in the construction sector. The professional and business services, wholesale trade, and education and health sectors also posted fast employment growth over the last twelve months, each expanding 3.6%. The state added 21,000 jobs in professional and business services, 14,000 jobs in education and health services, and over 4,000 jobs in wholesale trade. The employment gains in these four sectors accounted for nearly three-fourths of the net jobs added since the prior March.

As state employment grew at a solid pace in 2005, payrolls expanded in nearly every metropolitan area. Only Danville shed jobs over the year ending March 2006, contracting 1.8% (-800 jobs). In fact, Danville was the sixth-slowest

¹⁹ Information sector is not equivalent to information technology. The information sector includes broadcasting, publishing, telecommunications, internet services providers, data processing services, and more.

growing metropolitan area in the nation during March. Charlottesville (+5.5%) and Winchester (+4.8%) experienced rapid job gains over this period, both ranking in the top 30 among the nation's 367 metro areas for their pace of employment growth.

The Northern Virginia metro area also saw fast employment gains for the year ending March 2006, increasing payrolls 3.7%. During this period, Northern Virginia added nearly 46,000 jobs, accounting for 57% of the net gain in jobs in the state. Northern Virginia's construction sector expanded 6.6% and added over 5,900 jobs, while the professional and business services sector grew at a 6.0% pace and gained over 19,000 jobs.

Employment in several other metro areas grew at a faster pace than the state. Blacksburg (+4.5%), Roanoke (+2.9%), and Lynchburg (+2.7%) each experienced strong employment growth over the twelve months ending March 2006. Less rapid employment growth occurred in Richmond (+2.0%), Hampton Roads (+1.6%), Harrisonburg (+1.0%), and Bristol²⁰ (+0.8%).

Technology

As the national expansion continues, employment in high-tech industries in Virginia is once again growing faster than overall employment. For the year ending with the third quarter of 2005 (the latest data available), high-tech employment in Virginia advanced 3.8%, or by nearly 14,000 jobs, compared with 2.4% growth in total employment.

Many of the larger high-tech industries experienced solid employment growth during the last year. Over 11,000 jobs combined were added in management, scientific, and technical consulting services (+10.4%); architectural, engineering, and related services (+4.5%); and computer systems design and related services (+3.1%).

While most high-tech sectors grew over the year ending with the third quarter of 2005, several high-tech industries shed jobs over the period. Among the sectors with rapid job loss were resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing (-14.5%) and computer and peripheral equipment manufacturing (-11.1%). (Note: sectors 5112, 5181, and 5417 had substantial job movement due in-part to the fact that some firms changed their North

Top 10 Private Employers, Third Quarter 2005

Greater than 7,000 Employees

1. Wal-Mart Associates
2. Northrop Grumman
3. Food Lion
4. Sentara Health System
5. INOVA Health System
6. Science Applications International Corp
7. Target
8. Booz Allen Hamilton Inc.
9. Capital One Service Inc.
10. Lowe's Home Centers Inc.

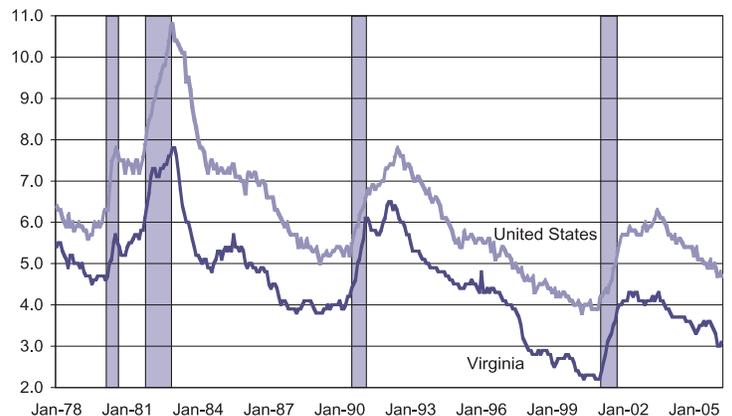
Source: Chmura Economics & Analytics and Virginia Employment Commission.

American Industrial Classification System [NAICS] codes, which causes employment to be categorized differently.)

Labor Market

Along with solid job growth, Virginia's low unemployment rate also points to a strong labor market. As of March 2006, the unemployment rate stood at 3.1% in Virginia, just 0.1 percentage point above the lowest rate since May 2001. Additionally, Virginia's unemployment rate for March was the third-lowest in the nation. By comparison, the national unemployment rate in March stood at a 4¹/₂-year low of 4.7%.

Unemployment Rate



Source: Bureau of Labor Statistics.

²⁰ The Bristol MSA includes portions of Tennessee.

High-Technology Growth in Virginia

NAICS	Industry	Employment				Wages and Salaries Thousands of Dollars*			
		2004-Q3	2005-Q3	Change	% Change	2004-Q3	2005-Q3	Change	% Change
Total Employment		3,501,534	3,587,190	85,656	2.4	34,542,505	38,083,736	3,541,231	10.3
Total High Technology		367,942	381,825	13,883	3.8	6,712,528	7,774,270	1,061,742	15.8
2111	Oil and Gas Extraction	174	224	50	28.8	2,525	3,226	701	27.8
3251	Basic Chemical Manufacturing	1,495	1,808	313	20.9	23,113	29,443	6,330	27.4
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	7,133	6,100	-1,033	-14.5	106,263	95,110	-11,153	-10.5
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	345	333	-12	-3.50	2,984	2,937	-47	-1.6
3254	Pharmaceutical and Medicine Manufacturing	3,857	3,597	-259	-6.7	57,034	62,230	5,195	9.1
3255	Paint, Coating, and Adhesive Manufacturing	854	835	-18	-2.1	10,981	10,918	-63	-0.6
3259	Other Chemical Product and Preparation Manufacturing	2,499	2,619	120	4.8	26,908	30,630	3,722	13.8
3333	Commercial and Service Industry Machinery Manufacturing	2,662	2,792	130	4.9	39,229	47,255	8,027	20.5
3341	Computer and Peripheral Equipment Manufacturing	1,853	1,647	-206	-11.1	19,606	19,506	-100	-0.5
3342	Communications Equipment Manufacturing	2,591	2,819	228	8.8	46,337	54,562	8,225	17.8
3343	Audio and Video Equipment Manufacturing	73	75	2	3.2	708	802	94	13.3
3344	Semiconductor and Other Electronic Component Manufacturing	5,360	6,008	648	12.1	69,541	87,484	17,943	25.8
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	5,725	5,928	203	3.5	86,640	99,802	13,162	15.2
3346	Manufacturing and Reproducing Magnetic and Optical Media	167	149	-17	-10.4	2,836	2,346	-490	-17.3
3353	Electrical Equipment Manufacturing	4,663	5,086	422	9.1	53,648	59,051	5,404	10.1
3364	Aerospace Product and Parts Manufacturing	1,742	1,846	104	6.0	22,372	26,840	4,468	20.0
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers	16,881	17,451	570	3.4	344,765	372,484	27,719	8.0
4236	Electrical and Electronic Goods Merchant Wholesalers	6,819	6,644	-175	-2.6	107,414	111,162	3,748	3.5
5112	Software Publishers	8,656	4,929	-3,727	-43.1	213,121	131,100	-82,020	-38.5
5161	Internet Publishing and Broadcasting	1,526	1,595	68	4.5	25,015	29,801	4,786	19.1
5171	Wired Telecommunications Carriers	24,955	25,800	845	3.4	507,709	808,423	300,713	59.2
5172	Wireless Telecommunications Carriers (except Satellite)	5,156	5,097	-59	-1.2	57,473	68,743	11,270	19.6
5173	Telecommunications Resellers	1,762	1,714	-48	-2.7	29,740	30,888	1,149	3.9
5174	Satellite Telecommunications	232	300	68	29.5	5,630	7,263	1,633	29.0
5179	Other Telecommunications	388	448	61	15.6	6,583	7,558	976	14.8
5181	Internet Service Providers and Web Search Portals	11,154	8,597	-2,557	-22.9	320,561	250,956	-69,605	-21.7
5182	Data Processing, Hosting, and Related Services	12,911	12,551	-360	-2.8	209,813	213,251	3,439	1.6
5413	Architectural, Engineering, and Related Services	66,535	69,525	2,991	4.5	1,056,554	1,226,741	170,187	16.1
5415	Computer Systems Design and Related Services	106,047	109,378	3,332	3.1	2,065,506	2,345,984	280,478	13.6
5416	Management, Scientific, and Technical Consulting Services	45,474	50,190	4,716	10.4	850,479	983,132	132,653	15.6
5417	Scientific Research and Development Services	18,255	25,738	7,483	41.0	341,442	554,642	213,200	62.4

* Includes some stock options that were exercised. Note: Data in this table include both private and government entities.

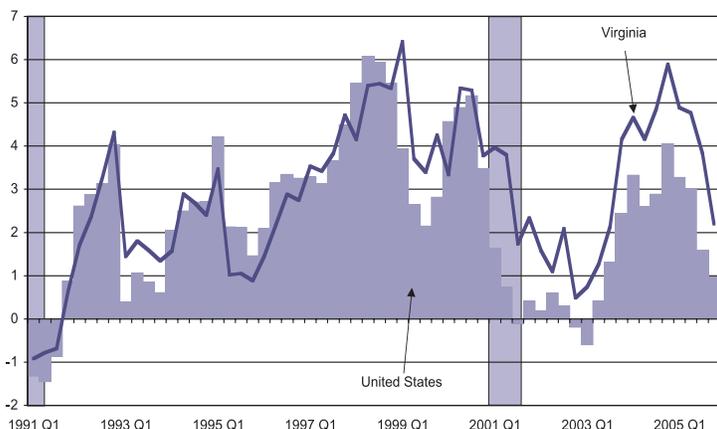
Source: Chmura Economics & Analytics and Virginia Employment Commission.

High-tech industries are industry sectors employing high percentages of technology-oriented occupations, especially research & development scientists and engineers. High-tech industries include firms from manufacturing, information, professional and business services, as well as other sectors.

Income

The strong employment growth in Virginia has been accompanied by relatively fast growth in total personal income. For the year ending with the fourth quarter of 2005, real personal income grew 2.2% in Virginia compared with 1.0% in the nation. Real personal income growth in Virginia has exceeded the U.S. average since the first quarter of 2000 because of the faster employment growth as well as the addition of well-paying jobs. Notably, the continued growth in high-tech jobs has contributed to the faster income growth in the state. For example, over the year ending with the third quarter of 2005, 3,332 jobs were created in the computer systems design and related services industry which pays an average annual salary of about \$86,000.

Real Personal Income Growth Percentage Change From A Year Ago



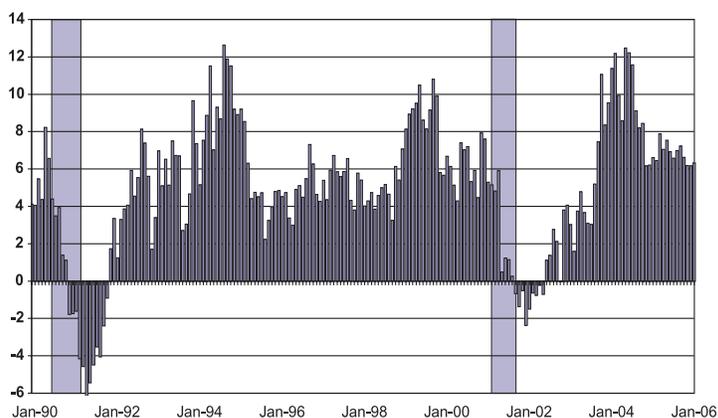
Source: Bureau of Economic Analysis and Bureau of Labor Statistics.

The proportion of income provided by net earnings changed little in the state and the nation in 2004 and 2005. Net earnings consist of wage and salary disbursements, other labor income, and proprietor's income. As of the fourth quarter of 2005, net earnings accounted for 73.9% of personal income in the state and 70.1% of personal income in the nation. The percentage of income due to transfer payments (social security, unemployment compensation, welfare, disability payments, etc.) likewise showed little movement in 2004 and 2005. Such a response is consistent with an economic expansion. Transfer payments accounted for 10.3% of personal income in the state and 14.7% in the nation as of the fourth quarter of 2005.

Retail Sales

Consumer spending in Virginia has remained fairly consistent over the last year. For the twelve months ending February 2006, retail sales in the state grew 6.3%. Retail sales growth has fallen from peak levels in mid-2004 but has not fallen below a 6.0% year-over-year pace since September 2003. At the regional level, Winchester (+11.8%) and Charlottesville (+10.9%) showed the fastest growth in retail sales over 2005.

Virginia Retail Sales Percentage Change From A Year Ago, 6-Month Moving Average



Source: Virginia Department of Taxation.

Although the pace of retail sales growth has been strong in recent years, it is expected to slow somewhat in coming years. Real retail sales in the state are forecast to advance 3.2% in 2006 and 3.3% in 2007 after increasing 4.0% in 2005.

Housing Market

After reaching record levels in 2005, the housing market is expected to cool somewhat in 2006. As in the nation, higher mortgage rates and home price appreciation have decreased home affordability. In late 2005, the rate for a 30-year conventional mortgage eclipsed 6.0% and in April 2006 stood around 6.5%. CEA expects mortgage rates to climb slightly higher and reach 6.7% in 2006.

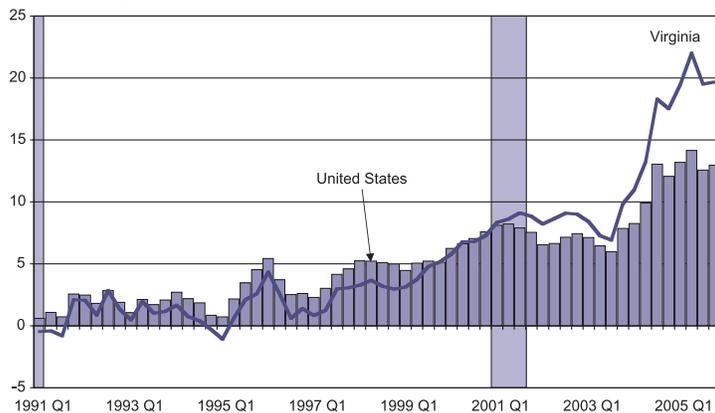
The housing market continued to set record levels for home sales and price appreciation during 2005. The Virginia Association of Realtors reported a 2.8% increase in new and existing home sales from 2004 to 2005. In 2005, 138,223 closed sales were reported compared with 134,403 in 2004.

After reaching record levels in Virginia and the United States earlier in 2005, home price appreciation has slowed a bit. For the year ending with the fourth quarter of 2005, home prices advanced 19.7% in Virginia and 13.0% in the nation according to the Office of Federal Housing Enterprise Oversight (OFHEO) house price index.²¹ Home prices in the

state had a record 22.0% annual gain in the second quarter of 2005.

Virginia's building permit activity reached record levels in mid-2005 and has since declined. Regardless, an increase in activity is projected in the next two years. Building permits grew 0.4% in 2005 and are forecast to increase 1.7% and 1.5% in 2006 and 2007 respectively.

Home Price Appreciation - OFHEO House Price Index, Percentage Change From A Year Ago



Source: Office of Federal Housing Enterprise Oversight.

Metro Areas

Employment is expected to increase in 10 of the state's 11 metropolitan areas in 2006 and 2007. The exception is Danville, where employment is forecast to contract 1.1% in 2006 and 0.3% in 2007. The region continues to suffer from the loss of manufacturing jobs, including payroll contractions at Dan River Inc., once the area's largest employer.

The fastest pace of employment growth is expected to be in Northern Virginia. The region's higher cost of living and mix of industries that demand highly-skilled workers contributes to its 8.2% expected wages and salary gains in 2006—also the fastest forecast growth rate in the state. After falling in 2005,

²¹ The OFHEO house price index is a weighted repeat sales index and therefore is a true measure of price appreciation as it is not affected by changes in the size or quality of homes sold.

Virginia Forecast Summary: Most Likely Scenario

	Percentage Change From A Year Ago						Percentage Change From A Year Ago				
	2003	Actual 2004	2005	Forecast 2006	2007		2003	Actual 2004	2005	Forecast 2006	2007
Northern Virginia											
Total Nonagricultural Employment	1.1%	4.5%	3.7%	3.6%	3.5%						
Wages and Salaries*	5.0%	9.5%	9.4%	8.2%	7.6%						
Real Retail Sales	5.5%	7.9%	4.0%	4.3%	4.2%						
Building Permits	2.9%	-0.2%	-6.5%	-5.4%	-3.4%						
Hampton Roads											
Total Nonagricultural Employment	-1.0%	3.2%	1.1%	1.6%	1.3%						
Wages and Salaries*	4.9%	5.8%	5.9%	5.7%	5.5%						
Real Retail Sales	4.3%	6.0%	3.3%	2.9%	2.7%						
Building Permits	2.3%	-4.5%	0.8%	-1.0%	-0.6%						
Richmond											
Total Nonagricultural Employment	0.5%	2.6%	2.5%	2.1%	1.5%						
Wages and Salaries*	2.2%	7.6%	6.8%	6.0%	5.3%						
Real Retail Sales	4.1%	6.4%	4.1%	4.3%	2.9%						
Building Permits	-4.8%	5.5%	10.9%	5.3%	5.0%						
Roanoke											
Total Nonagricultural Employment	-3.1%	-0.5%	2.2%	1.8%	1.3%						
Wages and Salaries*	0.8%	4.7%	4.0%	4.5%	4.2%						
Real Retail Sales	3.4%	2.9%	2.6%	3.6%	2.6%						
Building Permits	4.1%	0.1%	-11.3%	4.5%	3.6%						
Lynchburg											
Total Nonagricultural Employment	0.3%	1.5%	3.6%	1.8%	1.6%						
Wages and Salaries*	1.4%	5.0%	6.0%	3.7%	2.4%						
Real Retail Sales	2.2%	5.0%	3.3%	6.1%	0.7%						
Building Permits	18.1%	-2.1%	29.0%	7.6%	4.2%						
Charlottesville											
Total Nonagricultural Employment	-0.1%	2.5%	3.9%	2.9%	2.5%						
Wages and Salaries*	3.8%	6.8%	8.3%	6.2%	6.0%						
Real Retail Sales	5.1%	3.4%	7.3%	5.5%	6.0%						
Building Permits	-12.4%	4.8%	1.1%	4.5%	3.5%						
Danville											
Total Nonagricultural Employment	-0.9%	-3.3%	-2.0%	-1.1%	-0.3%						
Wages and Salaries*	1.1%	1.2%	1.6%	1.6%	1.5%						
Real Retail Sales	-1.6%	1.4%	-0.8%	0.3%	0.4%						
Building Permits	-25.0%	10.0%	7.8%	0.6%	-2.5%						
Bristol											
Total Nonagricultural Employment	0.5%	-1.0%	1.3%	0.4%	0.3%						
Wages and Salaries*	5.8%	-1.5%	4.6%	3.3%	2.5%						
Real Retail Sales	1.7%	1.8%	-1.1%	1.1%	0.7%						
Building Permits	4.6%	13.3%	-12.9%	4.5%	-3.1%						

however, building permits activity in Northern Virginia is expected to continue to drop in 2006 and 2007.

Charlottesville and Winchester are currently the two fastest growing metro areas in the state based on employment. The pace of job gains in these two areas is expected to remain strong in 2006. Employment in Charlottesville is forecast to expand 2.9%, while Winchester employment is projected to increase 2.7%. Solid job additions are expected to help real retail sales increase at a fast pace in these two regions.

Employment in the Richmond metro area is expected to expand at the state average rate of 2.1% in 2006. Real retail sales and building permits in Richmond, however, are expected to increase at an above-average pace in 2006.

Although employment growth in Roanoke, Lynchburg, and Blacksburg is projected to be slower than in the state, each of these regions is forecast to show a solid 1.8% employment gain in 2006. The growth rates of real retail sales and building permits are expected to be higher than state average in each of these regions²² in 2006. Lynchburg, in fact, had state-best 29.0% building permit growth in 2005 and is expected to follow that with solid 7.6% growth in 2006.

The two remaining metro areas, Harrisonburg and Bristol, are forecast to see slightly slower rates of employment growth. Employment is anticipated to rise 1.5% in Harrisonburg and 0.4% in Bristol in 2006. Although employment growth in Harrisonburg is expected to be slower than in the state, building permits are expected to grow 15.3% in Harrisonburg, the fastest forecast pace of growth of the metro areas in 2006.



²² Building permits are not reported for the Blacksburg MSA and are thus excluded from this report.

Percentage Change From A Year Ago

	Actual		Forecast		
	2003	2004	2005	2006	2007
Blacksburg					
Total Nonagricultural Employment	2.6%	0.6%	3.5%	1.8%	0.6%
Wages and Salaries*	3.0%	5.2%	5.5%	5.9%	3.9%
Real Retail Sales	0.6%	1.5%	2.2%	3.2%	1.6%
Building Permits**	-14.4%	29.9%	N/A	N/A	N/A
Harrisonburg	2003	2004	2005	2006	2007
Total Nonagricultural Employment	2.4%	2.1%	0.5%	1.5%	1.0%
Wages and Salaries*	4.2%	3.4%	4.7%	4.2%	3.1%
Real Retail Sales	4.8%	9.1%	4.8%	4.2%	3.2%
Building Permits	-13.0%	51.8%	9.4%	15.3%	9.1%
Winchester	2003	2004	2005	2006	2007
Total Nonagricultural Employment	2.9%	3.3%	3.6%	2.7%	2.2%
Wages and Salaries*	3.2%	7.1%	7.6%	7.0%	6.6%
Real Retail Sales	5.1%	12.8%	11.6%	5.3%	6.0%
Building Permits	-3.2%	22.6%	22.4%	7.6%	8.5%
Non-MSAs	2003	2004	2005	2006	2007
Total Nonagricultural Employment	-1.4%	-2.8%	1.6%	-2.4%	-1.1%
Wages and Salaries*	1.5%	6.3%	6.6%	4.9%	3.4%
Real Retail Sales	2.4%	4.6%	4.4%	2.2%	2.2%
Building Permits	23.2%	17.5%	26.1%	10.4%	8.3%

Percentage Change From A Year Ago

	Actual		Forecast		
	2003	2004	2005	2006	2007
VA-Totals					
Total Nonagricultural Employment	0.1%	2.5%	2.5%	2.1%	1.6%
Wages and Salaries*	3.8%	7.6%	7.6%	6.8%	6.1%
Real Retail Sales	4.3%	6.4%	4.0%	3.2%	3.3%
Building Permits	1.4%	3.1%	0.4%	1.7%	1.5%

*Wages and salaries include some options that were exercised. Actual data are through 3rd quarter 2005. All reported series are seasonally adjusted.
 **Since 2005, Building Permits data are not reported for Blacksburg Metro.

Chmura Economics & Analytics (CEA) is a consulting firm that specializes in the areas of quantitative research, traditional economics, and workforce and economic development.

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CEA professional staff brings over forty years of experience in fields related to economics and regional analysis.

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“...a wise and frugal government, which shall restrain men from injuring one another, shall leave them otherwise free to regulate their own pursuits of industry and improvement, and shall not take from the mouth of labor the bread it has earned. This is the sum of good government, and this is necessary to close the circle of our felicities.”

—Thomas Jefferson, 1801

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