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2018 National and Virginia Economic Forecast

Accelerating Growth, Increasing Risk

Professor Robert McNab

January 31, 2018
<table>
<thead>
<tr>
<th>Expansion</th>
<th>Duration In months</th>
<th>Annual Employment Growth</th>
<th>Annual Real GDP Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 1949 – July 1953</td>
<td>45</td>
<td>4.35%</td>
<td>6.14%</td>
</tr>
<tr>
<td>May 1954 – August 1957</td>
<td>39</td>
<td>2.51%</td>
<td>3.67%</td>
</tr>
<tr>
<td>April 1958 – April 1960</td>
<td>24</td>
<td>3.58%</td>
<td>4.86%</td>
</tr>
<tr>
<td>February 1961 – December 1969</td>
<td>106</td>
<td>3.23%</td>
<td>4.68%</td>
</tr>
<tr>
<td>November 1970 – November 1973</td>
<td>36</td>
<td>3.38%</td>
<td>4.60%</td>
</tr>
<tr>
<td>March 1975 – January 1980</td>
<td>58</td>
<td>3.52%</td>
<td>4.01%</td>
</tr>
<tr>
<td>December 1982 – July 1990</td>
<td>91</td>
<td>2.81%</td>
<td>3.81%</td>
</tr>
<tr>
<td>March 1991 – March 2001</td>
<td>120</td>
<td>2.01%</td>
<td>3.45%</td>
</tr>
<tr>
<td>November 2001 – December 2007</td>
<td>73</td>
<td>0.88%</td>
<td>2.66%</td>
</tr>
<tr>
<td>June 2009 – Present*</td>
<td>103</td>
<td>1.38%</td>
<td>2.14%</td>
</tr>
</tbody>
</table>

Growth in Real Gross Domestic Product
United States and Virginia, 2010 - 2017 Q4

Source: Bureau of Economic Analysis and Old Dominion University Economic Forecasting Project. Real GDP measured in chained 2009 dollars. U.S. Q4 and VA Q3 are advance estimates. VA Q4 is our forecast. Quarterly numbers are annualized rates of growth.
Total Nonfarm Employment
United States, January 2007 – December 2017

Thousands of Jobs

Source: Bureau of Economic Analysis and Old Dominion University Economic Forecasting Project. Seasonally adjusted data. Data for December 2017 are preliminary. Trough was February 2010.
Total Nonfarm Employment
Virginia, January 2007 - December 2017

Thousands of Jobs

Jan-07  Jul-07  Jan-08  Jul-08  Jan-09  Jul-09  Jan-10  Jul-10  Jan-11  Jul-11  Jan-12  Jul-12  Jan-13  Jul-13  Jan-14  Jul-14  Jan-15  Jul-15  Jan-16  Jul-16  Jan-17  Jul-17

Source: Bureau of Economic Analysis and Old Dominion University Economic Forecasting Project. Seasonally adjusted data. Data for December 2017 are preliminary. Trough is February 2010.
Monthly Job Growth From Pre-Recession Peak Employment
Virginia and the United States, 2008-2017

Source: Bureau of Labor Statistics and Old Dominion University Economic Forecasting Project. Peak employment for the United States was January 2008. Peak employment for Virginia was April 2008. Seasonally adjusted data through December 2017. December 2017 data are preliminary. Data measure the number of reported jobs by the Current Employment Statistics (CES) program.
Headline Unemployment Rate (U3)
Virginia and United States, January 2007 - December 2017

Source: Bureau of Labor Statistics and Old Dominion University Economic Forecasting Project. Seasonally adjusted unemployment rates. December 2017 data are preliminary.
Alternative Measure of the Unemployment Rate (U6)
Virginia and the United States, 2003-2017

Source: Bureau of Labor Statistics and Old Dominion University Economic Forecasting Project. U-6 measures total unemployed, plus all marginally attached workers, plus total employed part time for economic reasons, as a percent of the civilian labor force plus all marginally attached workers. State level data based on 4-quarter moving average. Annual averages are presented.
Month-to-Month Change in Labor Force
Virginia, December 2016 to December 2017

Source: Bureau of Labor Statistics and Old Dominion University Economic Forecasting Project. Local Area Unemployment Statistics. Seasonally adjusted data. December 2017 data are preliminary.
Month-to-Month Change in Employment
Virginia, December 2016 to December 2017

Source: Bureau of Labor Statistics and Old Dominion University Economic Forecasting Project. Local Area Unemployment Statistics. Seasonally adjusted data. December 2017 data are preliminary.
Civilian Labor Force Participation Rate
United States, January 1980 – December 2017

- 1980: 77.9%
- 1986: 69.0%
- 1991: 63.7%
- 1999: 62.7%
- 2013: 51.5%
- 2017: 57.0%

Source: Bureau of Labor Statistics and Old Dominion University Economic Forecasting Project. Seasonally adjusted data.
Labor Force Participation Rate
Virginia, January 1976 to December 2017

Source: Bureau of Labor Statistics and Old Dominion University Economic Forecasting Project. Seasonally adjusted data.
Source: Office of Management and Budget and Old Dominion University Economic Forecasting Project. Federal deficits in nominal dollars.
Corporate Profits as Percent of GDP
United States, 1950-2017*

Source: Bureau of Economic Analysis and Old Dominion University Economic Forecasting Project. Corporate Profits After Tax Without Inventory Adjustment. 2017 is through the 3rd quarter.
Cyclically Adjusted Price/Earnings Ratio
Standard and Poor’s Composite Price Index
January 1881 – January 2018

Growth in Real Gross Domestic Product
Virginia and the United States, 2012-2018

Source: Bureau of Economic Analysis and Old Dominion University Economic Forecasting Project. Real GDP measured in chained 2009 dollars. 2017 US is an advance estimate. 2017 VA and 2018 are our forecasts.
<table>
<thead>
<tr>
<th></th>
<th>2017 Forecast</th>
<th>2017 Actual</th>
<th>2018 Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Real Gross Domestic Product</td>
<td>2.2%</td>
<td>2.3%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Civilian Job Growth</td>
<td>1.5%</td>
<td>1.2%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Unemployment Rate</td>
<td>4.7%</td>
<td>4.1%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Consumer Price Index</td>
<td>2.8%</td>
<td>2.2%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Core Consumer Price Index</td>
<td>2.4%</td>
<td>1.7%</td>
<td>2.2%</td>
</tr>
<tr>
<td>3-month Treasury Bill</td>
<td>1.3%</td>
<td>1.4%</td>
<td>2.0%</td>
</tr>
<tr>
<td>10-year Treasury Bill</td>
<td>3.2%</td>
<td>2.4%</td>
<td>3.2%</td>
</tr>
<tr>
<td>30-year Treasury Bill</td>
<td>--</td>
<td>2.8%</td>
<td>3.6%</td>
</tr>
<tr>
<td>30-year Conventional Mortgage</td>
<td>4.3%</td>
<td>4.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Federal Deficit</td>
<td>---</td>
<td>-$655 Billion</td>
<td>-$750 Billion</td>
</tr>
<tr>
<td>Virginia Real GDP*</td>
<td>1.5%</td>
<td>1.7%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Virginia Employment Growth</td>
<td>---</td>
<td>1.4%</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

Source: 2017 data reflects the annual rate of growth, last month, or day business day of 2017 where appropriate. 2017 VA GDP is an estimate based on the first 3 quarters. Data are rounded to nearest tenth.
Stagnant Growth, Improving Future?

Professor Vinod Agarwal

January 31, 2018
Annual Growth Rate in Real GDP
Hampton Roads and the United States

<table>
<thead>
<tr>
<th>Period</th>
<th>United States</th>
<th>Hampton Roads</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001 to 2009</td>
<td>1.62%</td>
<td>2.12%</td>
</tr>
<tr>
<td>2009 to 2015</td>
<td>2.17%</td>
<td>-0.04%</td>
</tr>
<tr>
<td>2015 to 2016</td>
<td>1.49%</td>
<td>-1.09%</td>
</tr>
<tr>
<td>2016 to 2017e</td>
<td>2.25%</td>
<td>0.80%</td>
</tr>
</tbody>
</table>

Source: Bureau of Economic Analysis and the Old Dominion University Economic Forecasting Project. Data on GDP incorporates latest BEA revisions in September 2017. US GDP is advance estimate while Hampton Roads GDP is our estimates.
Monthly Job Growth From Pre-Recession Peak Employment
Hampton Roads, Virginia and United States, 2008-2017

Source: Bureau of Labor Statistics and Old Dominion University Economic Forecasting Project. Peak employment for the United States was January 2008, Virginia was April 2008, and Hampton Roads was July 2007. Seasonally adjusted data through December 2017 (US and VA) and November 2017 (HR). Last month of data are preliminary. Data measure number of reported jobs.
Defense Spending in Hampton Roads
DoD Base Budget Cap, Request, and Appropriations Bills Fiscal Year 2018

Billions of Dollars

- DoD Budget Control Act Cap: $522
- POTUS Request: $574
- House Appropriations: $584
- Senate Appropriations: $581

Sources: Budget Control Act of 2011, FY 2018 Presidential Budget Request, U.S. House of Representatives and U.S. Senate
Estimated Direct DoD Spending
Hampton Roads, 2000 to 2017

Source: U.S. Department of Defense and the Old Dominion University Economic Forecasting Project. *Includes Federal Civilian and Military Personnel and Procurement. Data for 2016 are estimates and data for 2017 are forecasts.
### Estimated Average Compensation
#### Hampton Roads, Selected Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>2015</th>
<th>2016</th>
<th>Change in Compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Military</td>
<td>$91,561</td>
<td>$92,189</td>
<td>0.69%</td>
</tr>
<tr>
<td>Federal Civilian Govt. Employees</td>
<td>$107,322</td>
<td>$109,624</td>
<td>2.15%</td>
</tr>
<tr>
<td>State and Local Govt. Employees</td>
<td>$62,602</td>
<td>$64,164</td>
<td>2.49%</td>
</tr>
<tr>
<td>Private Nonfarm</td>
<td>$42,189</td>
<td>$41,751</td>
<td>-1.04%</td>
</tr>
</tbody>
</table>

**Source:** Bureau of Economic Analysis and Old Dominion University Economic Forecasting Project. Compensation includes wages, salaries, and benefits.
Where are the jobs?
Average Annual Civilian Jobs
Hampton Roads, 1999-2017

Thousands of Jobs

Source: U.S. Department of Labor CES data and the Old Dominion University Economic Forecasting Project. Not seasonally adjusted. Data will be revised in March 2018.
Change in Private Sector Employment
Selected Industries in Hampton Roads, 2007 Q1 to 2017 Q1

- Health Care and Social Assistance: +19
- Accommodation and Food: +4
- Transportation and Warehousing: +1
- Professional and Scientific: +1
- Management of Companies: +1
- Utilities: -1
- Finance and Insurance: -2
- Admin and Support: -3
- Real Estate: -4
- Information: -5
- Wholesale Trade: -5
- Retail Trade: -6
- Manufacturing: -7
- Construction: -11

Source: Virginia Employment Commission: Covered Employment and Wages by Private Ownership and the Old Dominion University Economic Forecasting Project.
Thousands of Individuals

Civilian Labor Force
Hampton Roads, 1999-2017

Source: U.S. Department of Labor LAUS data and the Old Dominion University Economic Forecasting Project. Not seasonally adjusted. Data will be revised in March/April 2018
Thousands of Individuals Employed
Hampton Roads, 1999 to 2017

Source: U.S. Department of Labor LAUS data and the Old Dominion University Economic Forecasting Project. Not seasonally adjusted. Data will be revised in March/April 2018.
Headline Unemployment Rate (U3)
Hampton Roads, Virginia, and United States
January 2007-December 2017*

Source: Bureau of Labor Statistics Seasonally adjusted data and the Old Dominion University Forecasting Project. Preliminary data: US and VA (Dec 17) and HR (Nov 17). Hampton Roads data only through November 2017.
Residential Housing is Looking Up
Existing and New Construction Home Sales
Hampton Roads, 2010-2017

Source: Real Estate Information Network and Old Dominion University Economic Forecasting Project. Information Deemed Reliable But not Guaranteed. Figures reported here represent only those properties that are listed through REIN by REIN members and may not represent all new construction activity in our region.
Distribution of New Construction Home Sales by Financing Type
Hampton Roads, 2000-2017

Source: Real Estate Information Network and Old Dominion University Economic Forecasting Project. Information Deemed Reliable But not Guaranteed.
Median Sales Price of Existing Homes
Hampton Roads, 2002-2017

Source: Real Estate Information Network and Old Dominion University Economic Forecasting Project. Information deemed reliable but not guaranteed. 2002-2007 = 91% increase. 2011-2017 is a 22% increase.
# Median Sale Price of Existing Residential Homes for Selected Cities in Hampton Roads: 2007 and 2017

<table>
<thead>
<tr>
<th>City</th>
<th>Median Price 2007</th>
<th>Median Price 2017</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chesapeake</td>
<td>$250,100</td>
<td>$245,000</td>
<td>-2.0%</td>
</tr>
<tr>
<td>Norfolk</td>
<td>$195,000</td>
<td>$183,500</td>
<td>-5.9%</td>
</tr>
<tr>
<td>Portsmouth</td>
<td>$165,500</td>
<td>$140,000</td>
<td>-15.4%</td>
</tr>
<tr>
<td>Suffolk**</td>
<td>$257,500</td>
<td>$240,000</td>
<td>-6.8%</td>
</tr>
<tr>
<td>Virginia Beach</td>
<td>$245,000</td>
<td>$247,500</td>
<td>+1.2%</td>
</tr>
<tr>
<td>Hampton</td>
<td>$180,000</td>
<td>$155,000</td>
<td>-13.9%</td>
</tr>
<tr>
<td>Newport News</td>
<td>$199,250</td>
<td>$170,000</td>
<td>-14.7%</td>
</tr>
<tr>
<td>Williamsburg*</td>
<td>$284,450</td>
<td>$283,000</td>
<td>-0.5%</td>
</tr>
<tr>
<td>Hampton Roads</td>
<td>$223,000</td>
<td>$219,000</td>
<td>-1.8%</td>
</tr>
</tbody>
</table>

* Williamsburg represents Williamsburg, James City County, York County and Gloucester County. ** Median price in Suffolk peaked in 2006 at $263,950.

Source: Real Estate Information Network and Old Dominion University Economic Forecasting Project. Information Deemed Reliable But not Guaranteed.
Short Sales and Bank-Owned Sales as Percent of Total Sales
Hampton Roads, 2006-2017

- Short Sales
- REO Sales
Hotel Industry
Hotel Revenue in Hampton Roads
2000-2017

Millions of Dollars

2000: $520.2
2002: $520.2
2004: $520.2
2006: $708.3
2008: $645.3
2010: $645.3
2012: $645.3
2014: $803.1
2016: $841.6

Source: STR Global and Old Dominion University Economic Forecasting Project.
Growth in Hotel Revenue and Revenue Per Available Room
United States, Virginia, and Hampton Roads, 2016-2017

- United States: Hotel Revenue 4.9%, Revenue per Available Room 3.0%
- Virginia: Hotel Revenue 3.9%, Revenue per Available Room 2.9%
- Hampton Roads: Hotel Revenue 4.8%, Revenue per Available Room 4.9%
Growth in Hotel Revenue
Hampton Roads, 2016 to 2017

- Hampton Roads: 4.80%
- Chesapeake/Suffolk: 5.81%
- Newport News/Hampton: 3.85%
- Norfolk/Portsmouth: 14.43%
- Virginia Beach: 4.15%
- Williamsburg Market: 0.16%

Source: STR Trend Report, January 17, 2018, and the Old Dominion University Economic Forecasting Project. Williamsburg Market includes James City County, York County, and City of Williamsburg.
Monthly Airbnb Revenue in Hampton Roads
2015-2017

Source: Aidna (2018) market data adjusted by Dragas Center for Economic Analysis and Policy. Excludes shared rooms
Port of Virginia: Growing rapidly
General Cargo Tonnage
Port of Virginia, 2000-2017

Millions of Tons

Source: Virginia Port Authority and Old Dominion University Economic Forecasting Project.
Twenty Foot Equivalent Container Units (TEUs)
Port of Virginia, 2000-2017

Source: Virginia Port Authority and Old Dominion University Economic Forecasting Project.
Average TEUs per Container Vessel Call
Port of Virginia, 2011-2017

Source: Virginia Port Authority and the Old Dominion University Economic Forecasting Project.
<table>
<thead>
<tr>
<th>Metric</th>
<th>2017 Forecast</th>
<th>2017 Actual</th>
<th>2018 Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hampton Roads Real Gross Domestic Product Initial Forecast</td>
<td>1.4%</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Hampton Roads Real Gross Domestic Product Mid-year revision</td>
<td>0.8%</td>
<td>--</td>
<td>1.2%</td>
</tr>
<tr>
<td>Civilian Job Growth</td>
<td>0.5%</td>
<td>-0.3%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Unemployment Rate</td>
<td>4.3%</td>
<td>4.3%</td>
<td>3.9%</td>
</tr>
<tr>
<td>Taxable Sales</td>
<td>2.6%</td>
<td>3.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Hotel Revenue</td>
<td>4.4%</td>
<td>4.8%</td>
<td>3.9%</td>
</tr>
<tr>
<td>General Cargo Tonnage</td>
<td>2.7%</td>
<td>5.3%</td>
<td>2.8%</td>
</tr>
<tr>
<td>One Unit Housing Permit Value</td>
<td>2.6%</td>
<td>8.5%</td>
<td>2.4%</td>
</tr>
</tbody>
</table>

Source: 2017 data reflects the annual rate of growth, last month, or day business day of 2017 where appropriate.
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We put it the economy into context so that you can better understand the numbers.
Questions?

Presentation slides will be available at: www.ceapodu.com

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Professor Robert McNab (rmcnab@odu.edu)

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