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The State of the Region: Hampton Roads 2016

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The State of the Region

HAMPTON ROADS 2016

CENTER FOR ECONOMIC ANALYSIS AND POLICY | STROME COLLEGE OF BUSINESS | OLD DOMINION UNIVERSITY

**VIRGINIA BEACH-NORFOLK-
NEWPORT NEWS, VA-NC
METROPOLITAN STATISTICAL AREA**



October 2016

Dear Reader:

This is Old Dominion University's 17th annual State of the Region report. While it represents the work of many people connected in various ways to the university, the report does not constitute an official viewpoint of Old Dominion, or its president, John R. Broderick. The report maintains the goal of stimulating thought and discussion that ultimately will make Hampton Roads an even better place to live. We are proud of our region's many successes, but realize that it is possible to improve our performance. In order to do so, we must have accurate information about "where we are" and a sound understanding of the policy options open to us.

The 2016 report is divided into seven parts:

Life in the Slower Lane: The Hampton Roads Economy: Our regional economy is on track in 2016 to record a "real" (after inflation) economic growth rate of only 1.20 percent – well below our 2.60 percent average economic growth rate over the past 30 years. We have yet to recover all of the jobs we lost in the Great Recession. The outlook for 2017 is not much better.

The Hotel Industry: The United States, Virginia and Hampton Roads: Since 2000, hotel revenue as a percentage of personal income has declined in Virginia and Hampton Roads. Declining federal spending is the primary reason.

Prisons and Prisoners: The Virginia Way and Alternatives: Virginia imprisons large numbers of people; this is expensive. Economic analysis suggests that we would save money if we did not imprison so many people, redefined what constitutes a felony and gave more attention to preparing prisoners for re-entry into society.

The Rise of Single Households: Why It Matters: Almost one-third of all households in Hampton Roads are "nonfamily," in the sense that they are not headed by two married individuals. More than 40 percent of all births now occur out of wedlock and the number of older single people has skyrocketed. Both public and private programs and policies have not kept pace with these developments and are in need of revision.

The Lesbian, Gay, Bisexual, Transgender and Queer Community in Hampton Roads: A 2012-2014 Gallup Poll reported that 4.4 percent of the population of Hampton Roads is LGBTQ in orientation. Available data suggest that LGBTQ women fare relatively better economically speaking than LGBTQ men. Norfolk and Virginia Beach are viewed as the region's friendliest cities for members of the LGBTQ community.

Will Robots Take Your Job? A Look at Virginia's Opportunities and Vulnerabilities: A recent study suggested that 47 percent of all jobs in the United States are at risk of being eliminated by automation. The jobs most vulnerable are those that involve repetitive tasks and relatively little judgment. Those holding these jobs can be replaced by robots or machines utilizing artificial intelligence.

Traffic Congestion in Hampton Roads: Myths and Realities: Sixty-five percent of job holders in Hampton Roads cross a city or county boundary when they go to work. Many encounter traffic congestion as they do so, but the level of this congestion has increased only modestly in recent years. Major road improvements seldom change this situation very much because drivers soon redistribute themselves in response to the improvements.

The Strome College of Business and Old Dominion University continue to provide support for this report. However, it would not appear without the vital backing of the private donors whose names appear below. They believe in Hampton Roads and the power of rational discussion to improve our circumstances, but are not responsible for the views expressed in the report.

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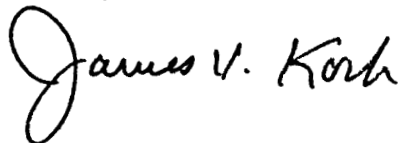
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The following individuals were instrumental in the writing, editing, design and dissemination of the report:

Vinod Agarwal	Chip Filer	Alice McAdory
Barbara Blake-Gonzalez	Tim Komarek	Robert McNab
Chris Colburn	Feng Lian	Janet Molinaro
Vicky Curtis	Sharon Lomax	Lisa Suhay
Steve Daniel	Wolfgang Mairinger	

All 17 of the State of the Region reports are available at www.stateoftheregionreport.com, www.odu.edu/forecasting and www.jamesvkoch.com. Interact with us on Twitter at SOR Hampton Roads @StateofRegion and on Facebook at facebook.com/stateoftheregion. If you have comments or suggestions, please direct them to James V. Koch at jkoch@odu.edu, or 757-683-3458. Individual copies may be purchased for \$25.

Sincerely,



James V. Koch

Board of Visitors Professor of Economics Emeritus
and President Emeritus

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Life In The Slower Lane: The Hampton Roads Economy



LIFE IN THE SLOWER LANE: THE HAMPTON ROADS ECONOMY

We've seen this movie before.

– William Ackman in The New York Times, Oct. 30, 2015

Have we seen this movie before? Perhaps, if the cinematic story line focused on the economy of Hampton Roads. With regard to our regional economy, 2016 turned out to be very much like 2015. Stagnant defense spending, modest improvements in the tourism and port sectors, slow growth in jobs and incomes, and continued gentle improvements in the housing market – together, these added up to an unimpressive economic performance for Hampton Roads in 2016.

In this chapter, we will assess our overall economic performance and focus on two of our regional “big three” economic pillars – defense spending and the port. We’ll also take a look at our gradually improving housing market. We will examine the third pillar, hotels and tourism, in the next chapter.



Regional Economic Growth

Our regional economy is on track in 2016 to record a “real” (after inflation) economic growth rate of 1.20 percent – well below our 2.60 percent average economic growth rate over the past 30 years (see Table 1 and Graph 1). This translates to total regional economic activity valued at \$96.27 billion.

While Hampton Roads would have the 60th-largest economy in the world if it were an independent nation, our relatively anemic economic growth when compared to similar metropolitan areas in the southern United States should be of concern. The challenge of fostering economic growth in Hampton Roads in the face of decelerating defense spending, slow growth in the private sector, and modest improvements in the housing market should be a major agenda item for decision makers in both the public and private sectors.

If we peruse Graph 1 a bit more, we can see that Hampton Roads grew faster than the nation during much of the last decade. Between 2001 and 2009, our gross regional product grew 26.6 percent – almost twice the 14.8 percent national rate of growth during the same time period. There is little mystery why this was so – rapid increases in defense spending. Decelerating defense spending is an important (though not the only) reason why our regional economic growth rate has declined.

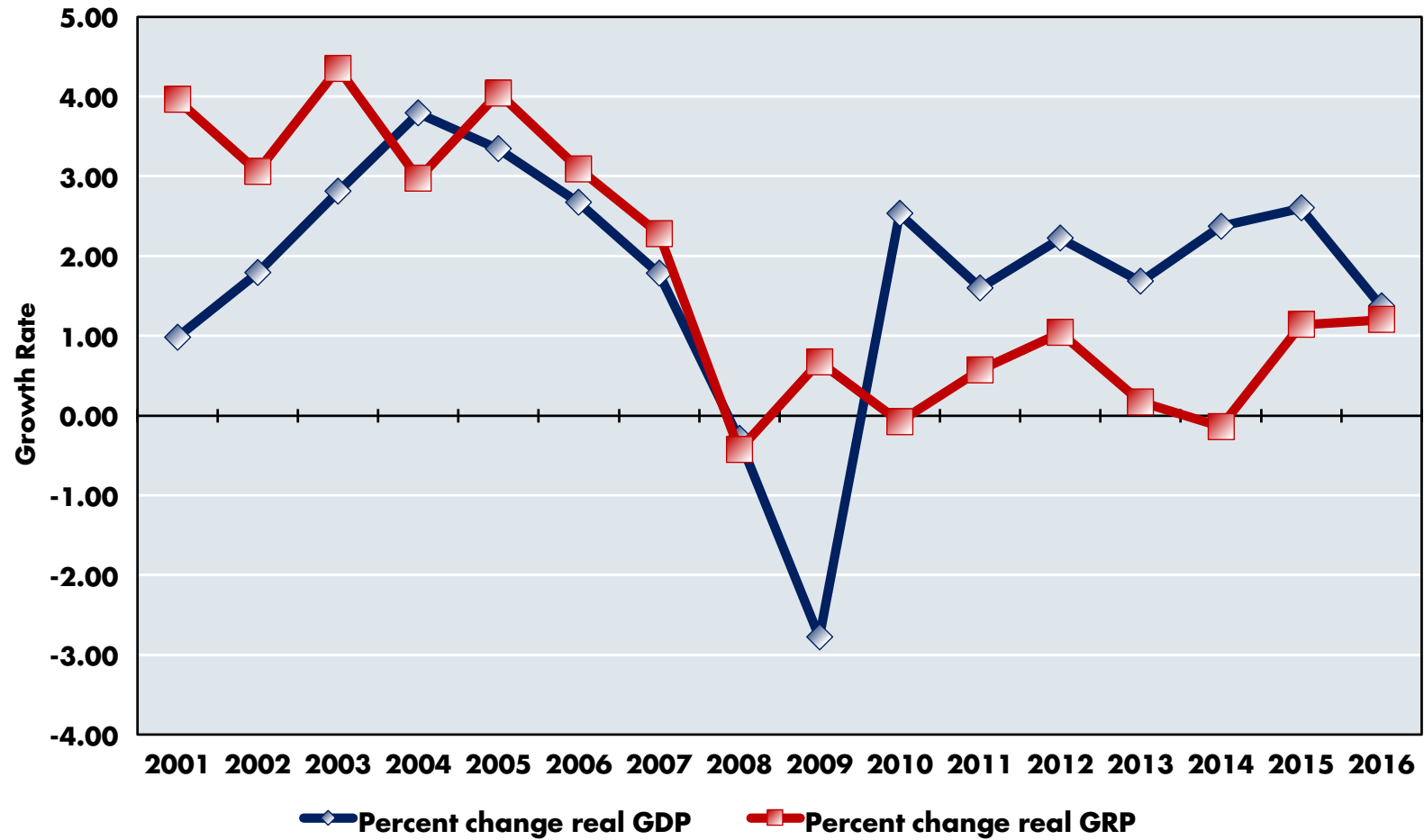
At the same time, Graph 1 discloses that our regional economic growth has been relatively stable in recent years. While we would prefer higher economic growth rates, there are some virtues associated with economic stability. Consistency reduces economic disasters, bankruptcies and unanticipated economic reverses.

YEAR	NOMINAL GRP BILLIONS OF \$	REAL GRP (2009=100) BILLIONS OF \$	REAL GRP GROWTH RATE PERCENTAGE
2001	\$54.04	\$67.46	3.96%
2002	\$57.37	\$69.52	3.06%
2003	\$61.73	\$72.55	4.35%
2004	\$65.40	\$74.70	2.97%
2005	\$70.44	\$77.72	4.04%
2006	\$74.95	\$80.12	3.09%
2007	\$78.94	\$81.94	2.28%
2008	\$80.18	\$81.59	-0.43%
2009	\$82.14	\$82.14	0.67%
2010	\$83.12	\$82.08	-0.08%
2011	\$84.66	\$82.55	0.57%
2012	\$87.36	\$83.41	1.04%
2013	\$89.05	\$83.55	0.17%
2014	\$90.77	\$83.43	-0.14%
2015	\$93.10	\$84.38	1.14%
2016	\$96.27	\$85.39	1.20%

Source: Old Dominion University Economic Forecasting Project
 Note: Data incorporate U.S. Department of Commerce personal income revisions through September 2015.
 Base year is 2009.

GRAPH 1

**REAL GROWTH RATES IN GROSS DOMESTIC PRODUCT (GDP) IN THE UNITED STATES AND
GROSS REGIONAL PRODUCT (GRP) IN HAMPTON ROADS, 2001-2016**



Sources: Table 1 and U.S. Department of Commerce

The Impact Of The Great Recession

National economic conditions are at least as important as defense spending in deciding the fate of our regional economy. The National Bureau of Economic Research (NBER) is tasked with determining when economic recessions begin and end. For the United States, the NBER says that what now is termed the Great Recession began in December 2007 and ended 18 months later in June 2009. However, even when the NBER says economic growth has resumed and a recession is over, economic conditions still may be mediocre, or even dismal.

In the Great Recession, for example, the country lost more than 8 million jobs and millions of Americans remained unemployed even after the NBER declared the Great Recession ended. Graph 2 drives this point home. It took 76 months (more than six years) for the U.S. economy to recover all of the jobs it shed during the Great Recession. Measured in terms of job losses and the duration of those job losses, this was indeed the worst economic recession our nation experienced since the Great Depression.

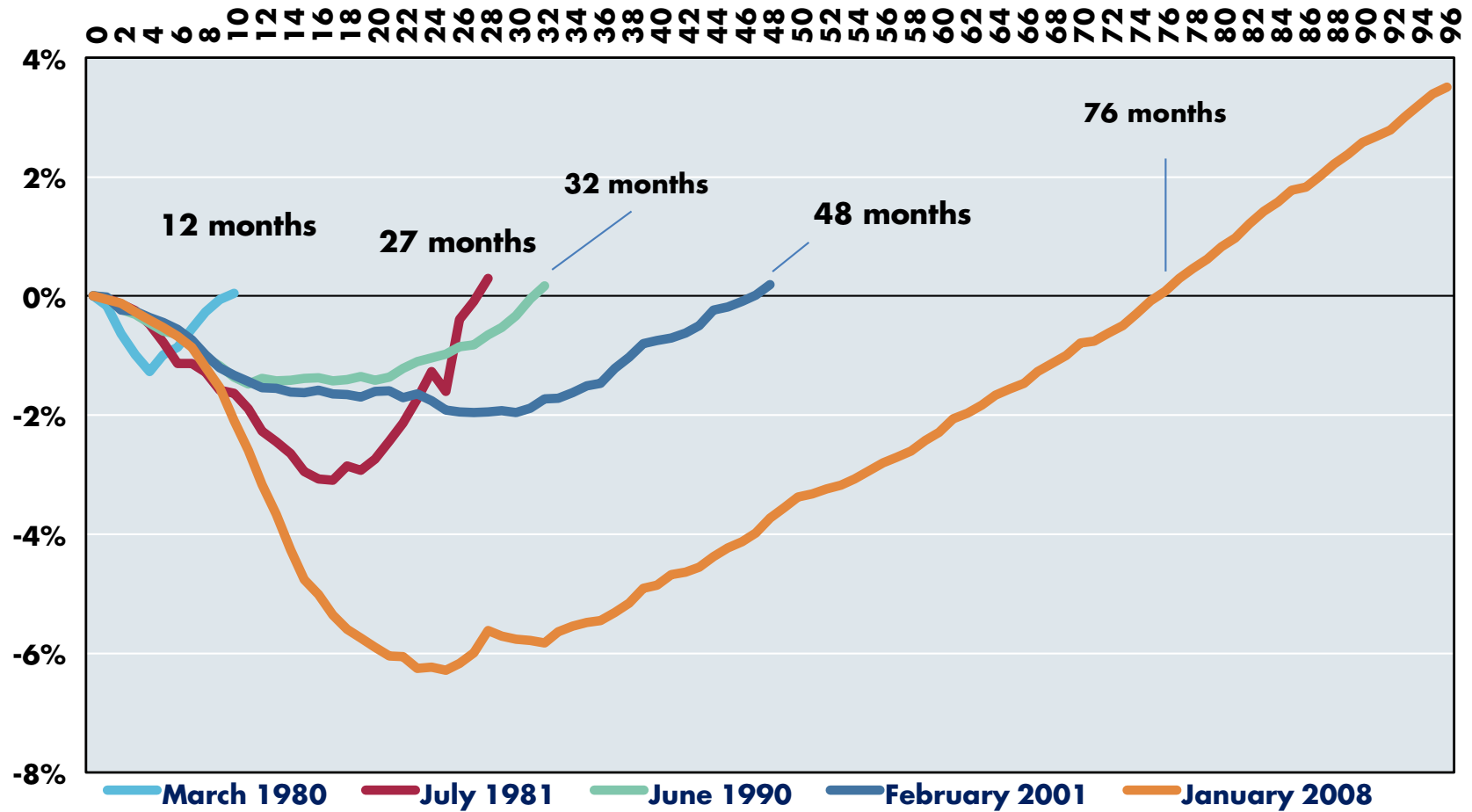
So also it was in Hampton Roads, where we lost more than 38,000 jobs from our previous peak level of employment in July 2007. The unfortunate truth is that we have yet to recover all of these jobs (see Graph 3). Mid-2016, our regional job total still was 1.68 percent below our 2007 pre-recession level. Graph 4 reveals that at the beginning of 2016, we still were about 10,000 jobs short of regaining all of the jobs we lost in the recession.

Job losses and gains in our region have not been spread proportionately across all occupations (see Graph 5). Health care and social assistance jobs continue to increase in number, recession or not, in Hampton Roads. Additional jobs also have appeared in the general areas of management of companies and enterprises, accommodation and food services, and professional, scientific and technical services. The big job losses in Hampton Roads over the past decade have occurred in construction, retail trade, information, wholesale trade and real estate.

Why was the Great Recession so devastating in terms of job losses in Hampton Roads? Stagnant defense spending is the major reason, but the growing use of labor-saving technologies by employers also appears to have had an impact. In addition, there may have been an increase in the number of structurally unemployed people in our region – there were jobs available, but those who were unemployed were not qualified to fill them.

GRAPH 2

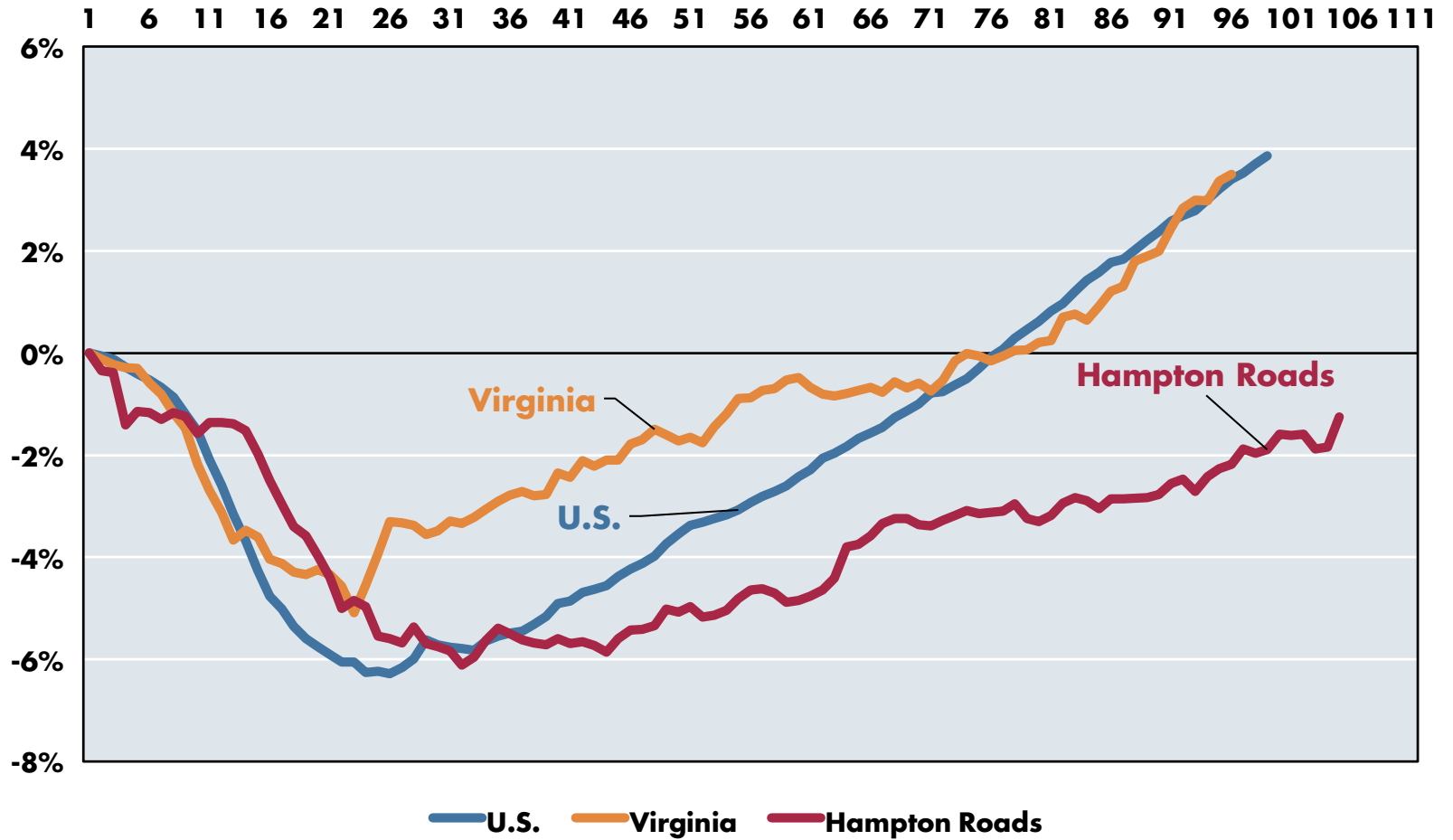
COMPARING THE GREAT RECESSION TO OTHERS: HOW MANY MONTHS IT TOOK THE UNITED STATES TO RECOVER ITS LOST JOBS



Sources: Bureau of Labor Statistics and the Old Dominion University Economic Forecasting Project

GRAPH 3

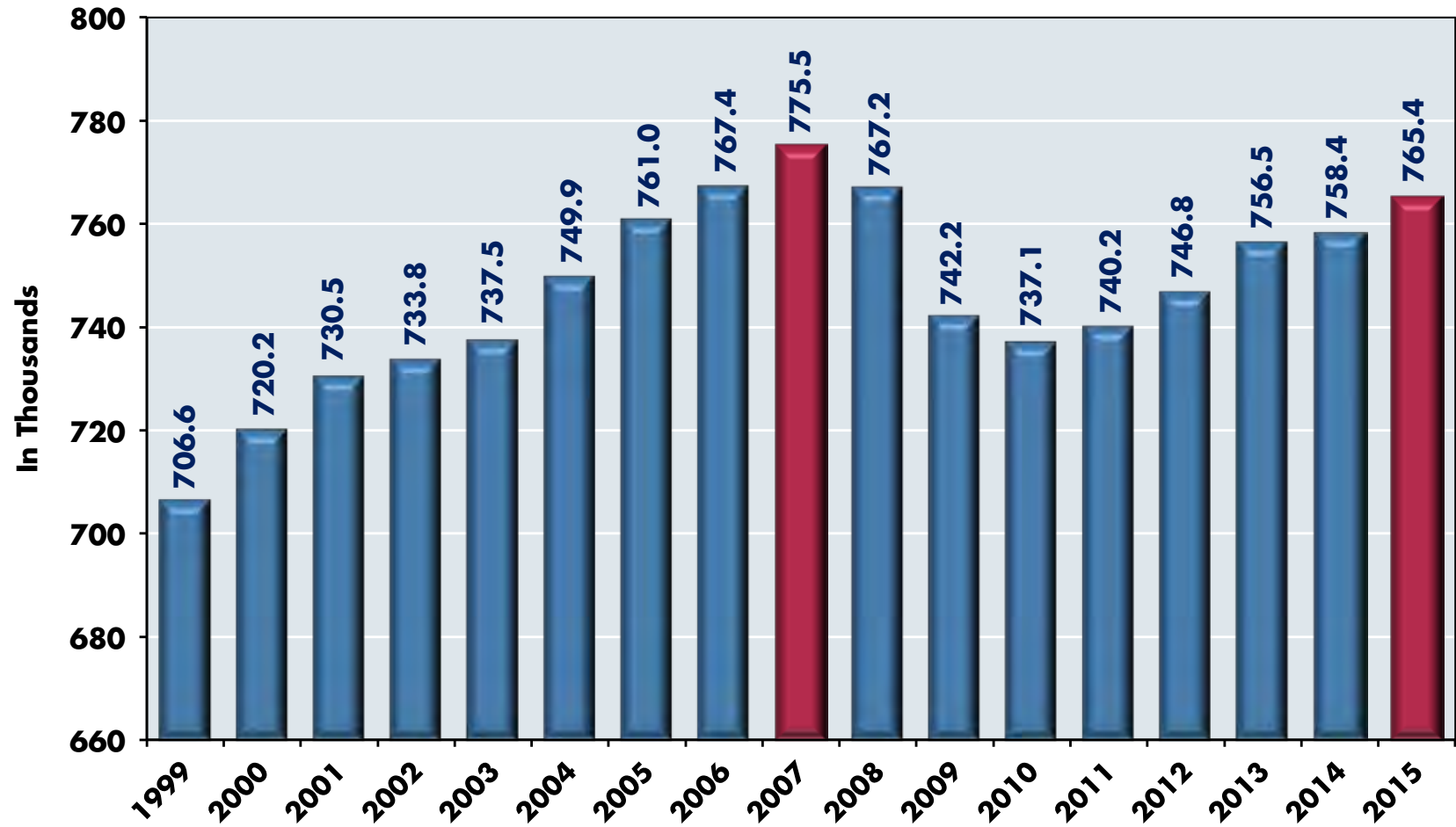
POST-RECESSION JOB RECOVERY IN HAMPTON ROADS, VIRGINIA AND THE UNITED STATES:
MEASURED BY TOTAL JOBS RESTORED, 2007-2016



Sources: Bureau of Labor Statistics and the Old Dominion University Economic Forecasting Project
Note: Data for Virginia and Hampton Roads are through March 2016.

GRAPH 4

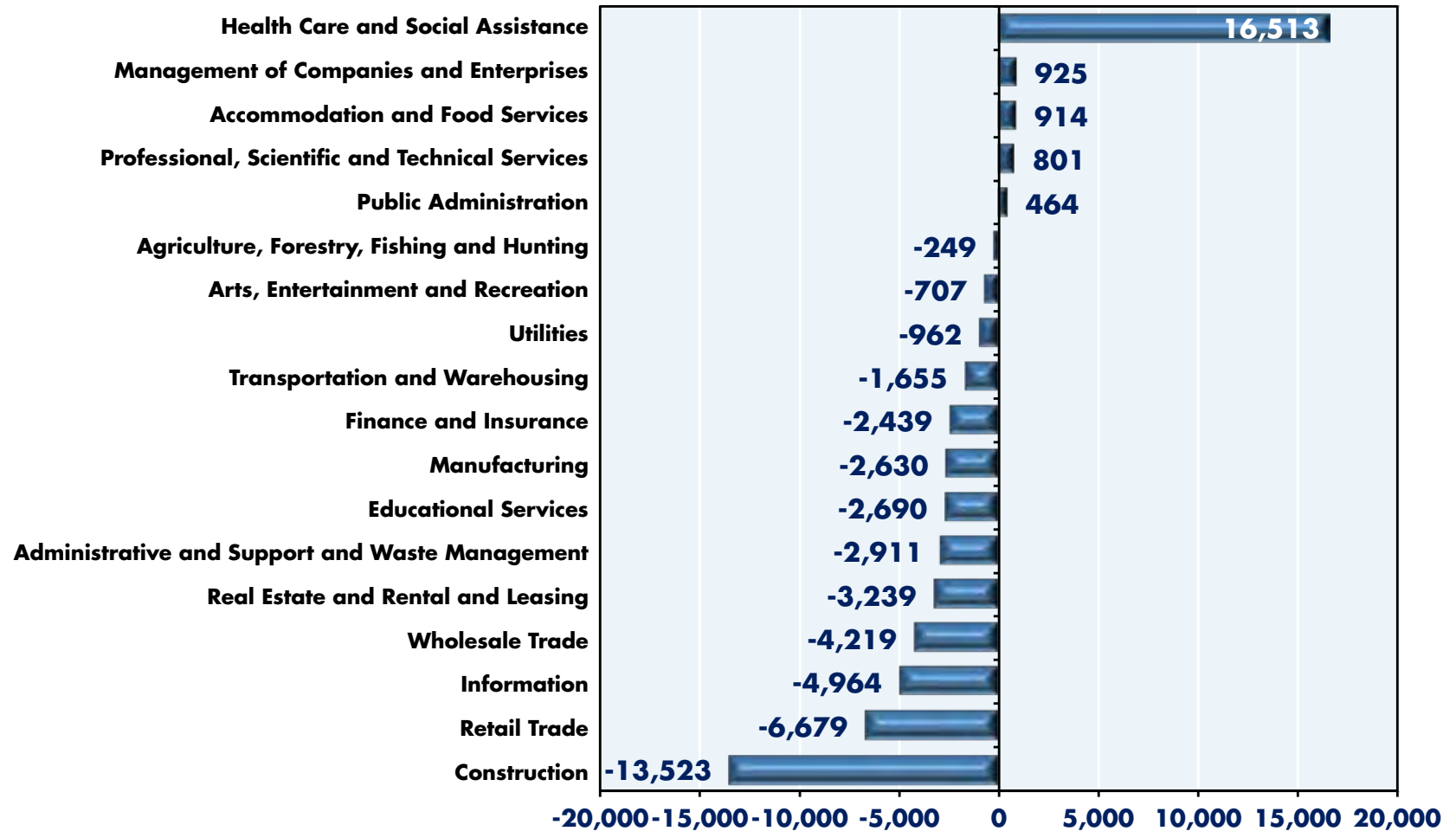
ANNUAL CIVILIAN EMPLOYMENT (JOBS) IN HAMPTON ROADS, 1999 TO 2015



Sources: U.S. Department of Labor CES data and the Old Dominion University Economic Forecasting Project (not seasonally adjusted)

GRAPH 5

CHANGES IN EMPLOYMENT BY OCCUPATIONAL SECTORS IN HAMPTON ROADS, 1ST QUARTER 2007 TO 1ST QUARTER 2015



Sources: Virginia Employment Commission: Covered Employment and Wages and the Old Dominion University Economic Forecasting Project
Note: All data are for the Virginia portion of the Virginia Beach/Norfolk/Newport News metropolitan area.

There is a bright spot associated with these job reallocations. With the major exception of the health care and social assistance area, the occupations in Hampton Roads that have been adding jobs also have tended to pay higher salaries than those formerly occupied by job losers (see Table 2). This change in the mix of jobs in our region is one of the reasons why the median (50th percentile) household income in Hampton Roads has continued to increase and actually expanded a bit faster than was true nationally between 2014 and 2015 (see Graph 6).

Some observers have been puzzled by the simultaneous presence of falling unemployment rates and tepid job growth in Hampton Roads. After all, how could our regional rate of unemployment fall five years in a row (see Graph 7) when our regional job creation engine almost stalled?

The major reason is that labor force participation rates in our region (and nationally) have declined. That is, many thousands of people have dropped out of the labor force. A complete discussion of the reasons for this is beyond the space available to us here, but economic evidence suggests that some individuals have become “discouraged workers” who have stopped looking for jobs because they don’t think they can find one; an aging population may have resulted in fewer people seeking work; a generous social safety net may provide some with disincentives to work; and, in some jurisdictions, it has become easier to claim disability and leave the labor force.

The prime age span for people to be in the labor force is 16-64. It is precisely people within this age group who have been leaving the labor force. Graph 8 presents data showing the percentage increase in the rate of those who declined to participate in the labor force among ages 16-64 in our region’s seven largest cities between 2009 and 2014. That is, these individuals neither are employed, nor are they looking for a job. **In Hampton, for example, between 2009 and 2014, the labor force participation rate of individuals ages 16-64 fell by 7 percent.**¹

Why are these numbers alarming? Because one way or another, society ends up devoting resources to support people of conventional working age who are not in the labor force (and in many cases, their families as well). This implies increased social safety net expenditures that result in higher taxes or stretched services of lower quality, expanded family contributions that draw away from

¹ www.headquarterseconomics.org/par.

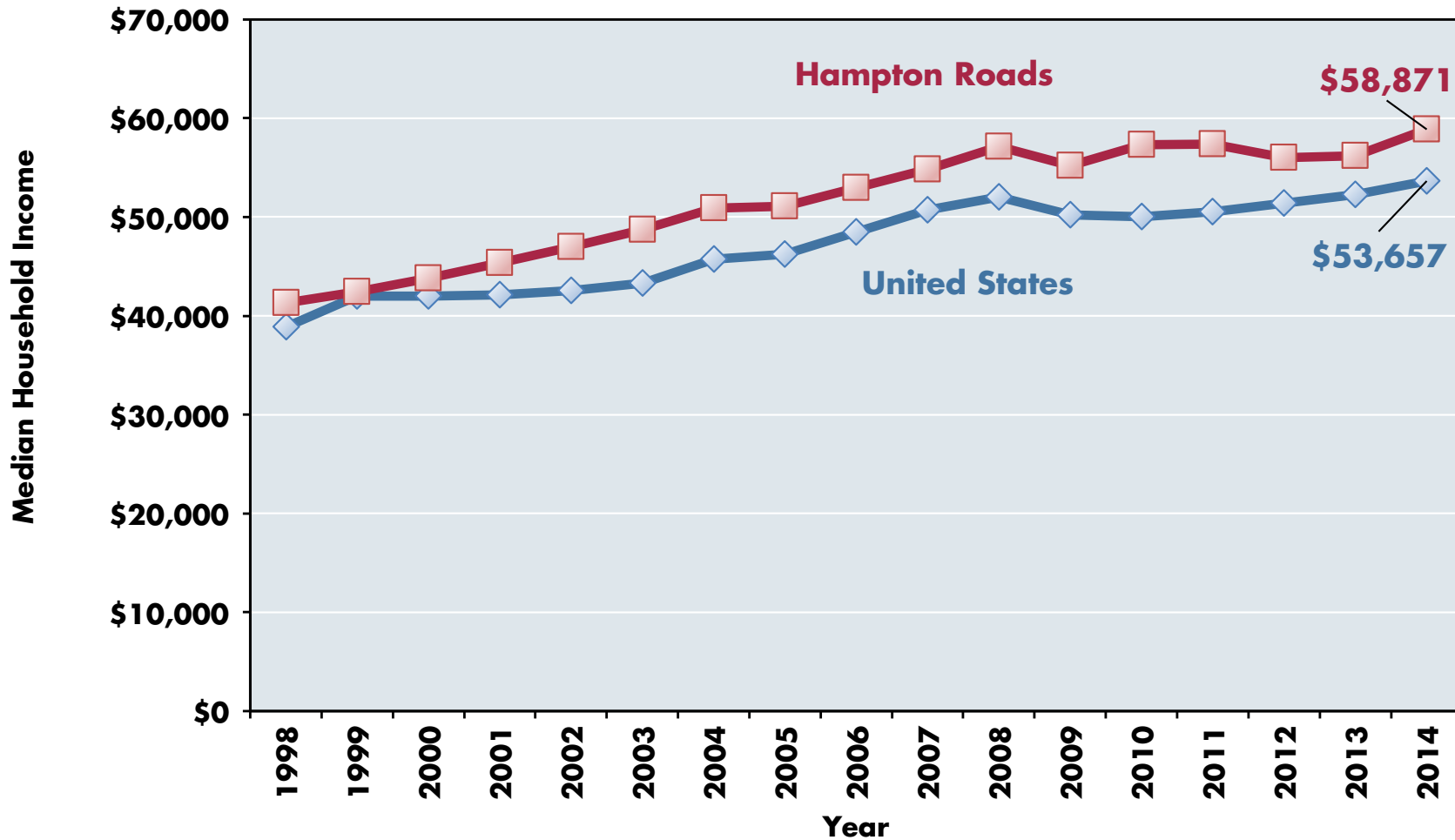
other family needs, additional illegal activity, etc. Whatever the reasons, it is easy to see that declining labor force participation rates should be a matter of concern.

TABLE 2 AVERAGE WEEKLY WAGES IN SELECTED INDUSTRIES IN HAMPTON ROADS, 2007 AND 2015			
Industry	1st Quarter 2007	1st Quarter 2015	Changes
Management of Companies and Enterprises	\$1,268	\$2,491	\$1,223 (96.5%)
Finance & Insurance	\$1,093	\$1,454	\$361 (33.0%)
Manufacturing	\$1,075	\$1,251	\$176 (16.4%)
Professional, Technical and Scientific Services	\$1,085	\$1,278	\$193 (17.8%)
Wholesale Trade	\$902	\$1,097	\$195 (21.6%)
Transportation & Warehousing	\$867	\$1,053	\$186 (21.5%)
Information	\$891	\$1,025	\$134 (15.0%)
Health Care & Social Assistance	\$716	\$864	\$148 (20.7%)
Construction	\$739	\$844	\$105 (14.2%)
Real Estate and Rental and Leasing	\$671	\$821	\$150 (22.4%)
Educational Services	\$681	\$769	\$88 (12.9%)
Retail Trade	\$428	\$468	\$40 (9.4%)
Accommodation & Food Services	\$258	\$301	\$43 (16.7%)

Sources: U.S. Department of Labor Quarterly Census of Employment and Wages for Virginia portion of the Hampton Roads area and the Old Dominion University Economic Forecasting Project

GRAPH 6

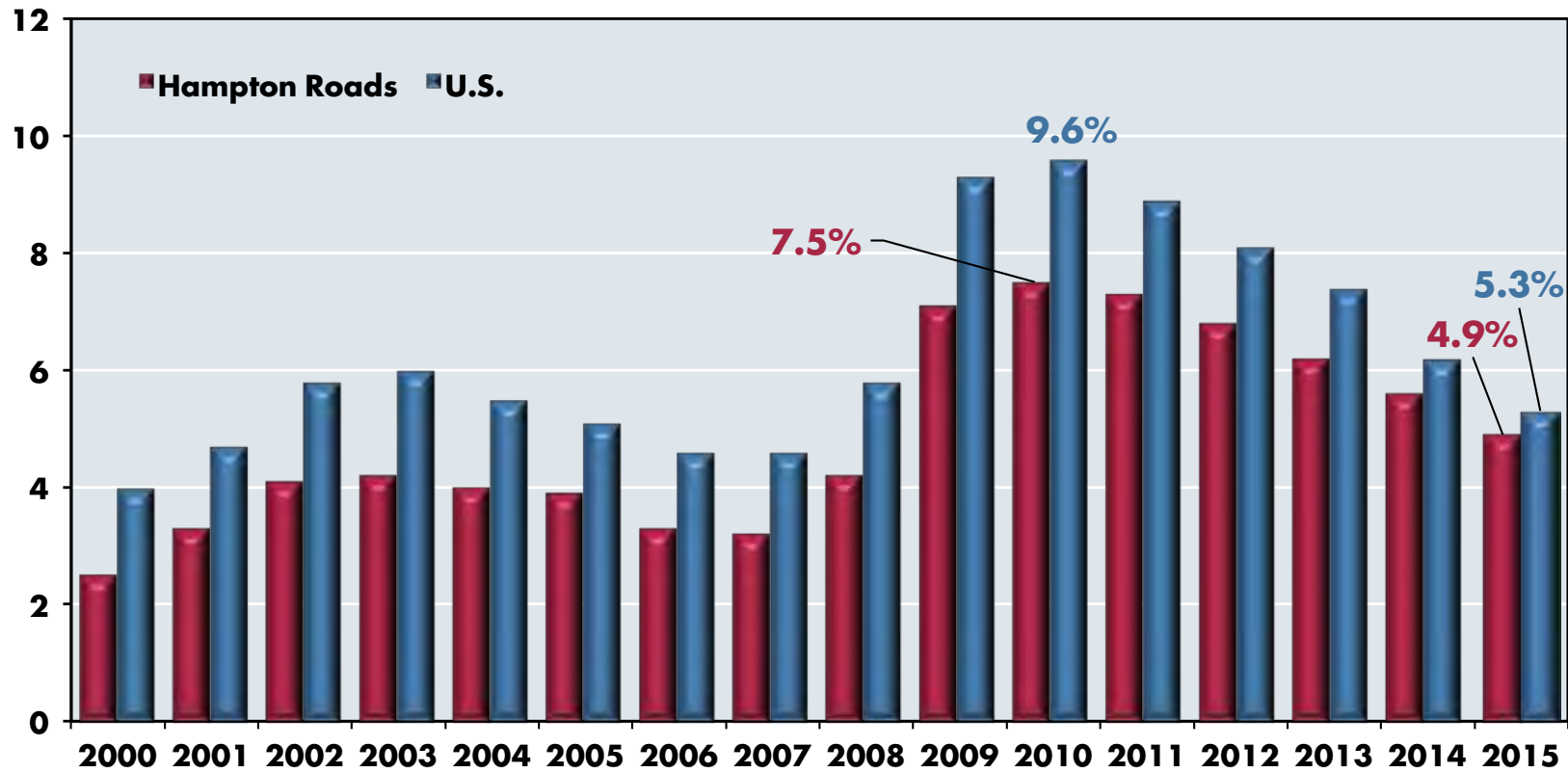
MEDIAN HOUSEHOLD INCOME IN HAMPTON ROADS AND THE UNITED STATES, 1998-2014



Source: www.census.gov/quickfacts (various years)

GRAPH 7

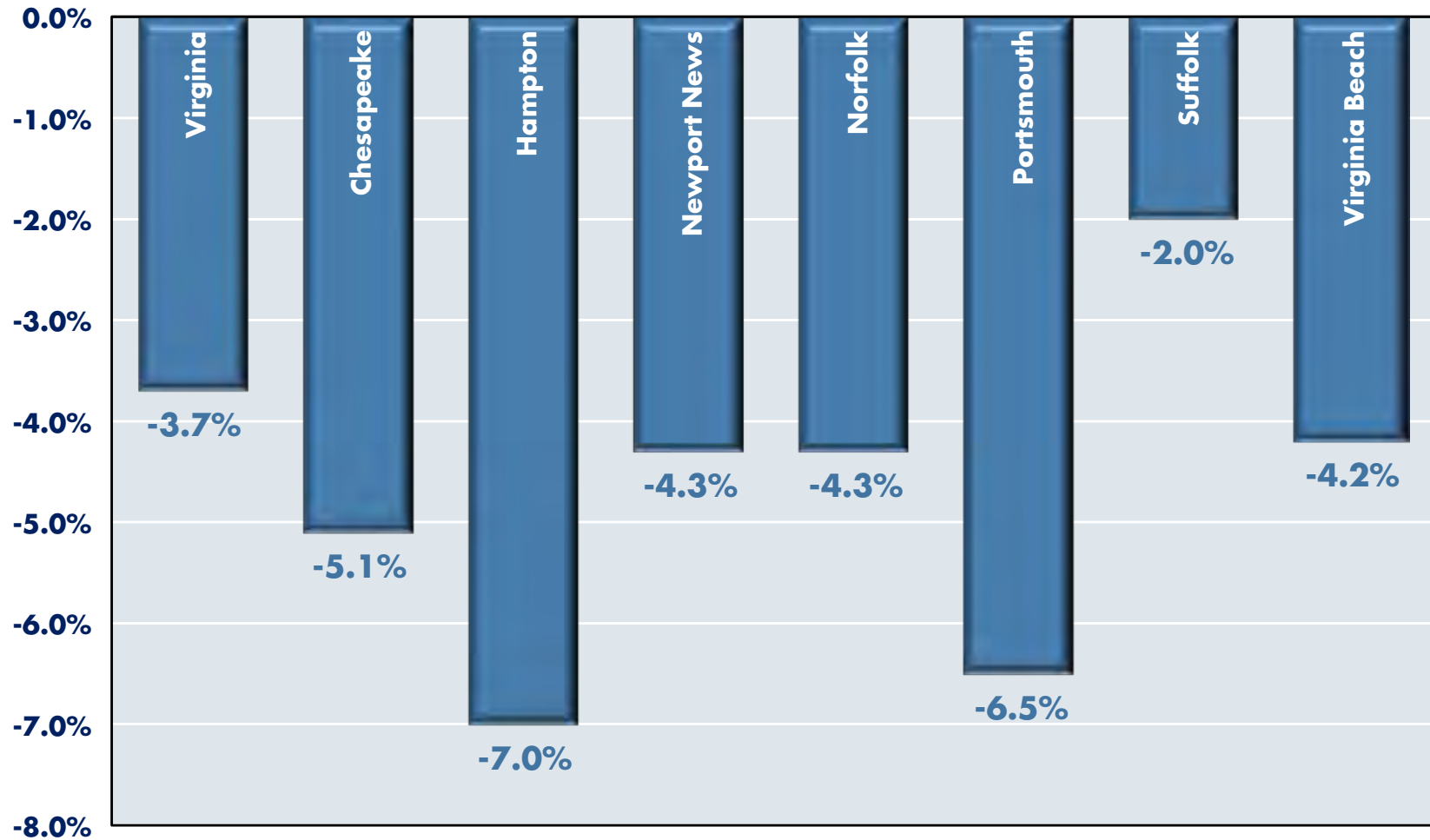
UNEMPLOYMENT RATES IN HAMPTON ROADS AND THE UNITED STATES, 2000 TO 2015



Sources: U.S. Department of Labor and the Old Dominion University Economic Forecasting Project (not seasonally adjusted)

GRAPH 8

ABSOLUTE PERCENTAGE DECLINE IN THE FULL-TIME LABOR FORCE PARTICIPATION RATES OF THOSE AGES 16 TO 64 IN THE LARGEST CITIES IN HAMPTON ROADS AND VIRGINIA, 2009-2014



Source: www.headwaterseconomics.org/tools/economic-profile-system

Defense Spending And Defense Employment

The 10,000-ton economic gorilla that simply cannot be banished to a corner in Hampton Roads is defense spending and employment. Yes, the national recession inflicted serious damage on our regional economy, but the recession is over and we continue to grow slowly. Why? One of the primary reasons is tepid defense spending.

Between 2000 and 2012, total Department of Defense (DOD) spending in Hampton Roads almost doubled and grew at an average rate of 5.8 percent per year. Things have been very different since then. DOD spending increased only 0.5 percent in 2012 and actually declined 4.8 percent during 2013. In 2016, DOD spending is on track to be 1.9 percent lower than its peak level in 2012 (see Graph 9).

How important has defense spending been to Hampton Roads? Graph 10 shows that defense spending accounted for 44.9 percent of the value of our region's gross output in 2011 and has declined in importance since then. Without question, defense spending was the primary economic engine of Hampton Roads in the first decade of this century. It is somewhat less important in 2016, when we forecast that only 38.9 percent of the value of our regional output will be due to defense spending.

Perhaps the most visible evidence of defense spending in Hampton Roads is Newport News Shipbuilding, which employs more than 20,000 people and constructs huge aircraft carriers and submarines. While physical assets such as these are impressive, it is actually defense *personnel expenditures* that truly energize defense spending in Hampton Roads. Expenditures upon the people who build and maintain ships, submarines and airplanes and the payments made to active-duty and civilian personnel provide the largest defense-oriented economic thrust to our regional economy.

Table 3 compares growth patterns in employment and *total employee compensation* in Hampton Roads for military, federal civilian and private-sector employees between 1991 and 2014. One can see that military

employment has shrunk continuously in Hampton Roads over the past quarter-century even while the total value of compensation paid to this smaller number of employees increased, especially between 2001 and 2010, when their compensation increased approximately 62 percent. Without question, this was the single most important contributor to our splendid regional economic growth during this time period.

Note that the number of federal civilian employees in Hampton Roads also has declined overall since 1991, even while the total compensation paid to this smaller cadre of employees nevertheless increased.

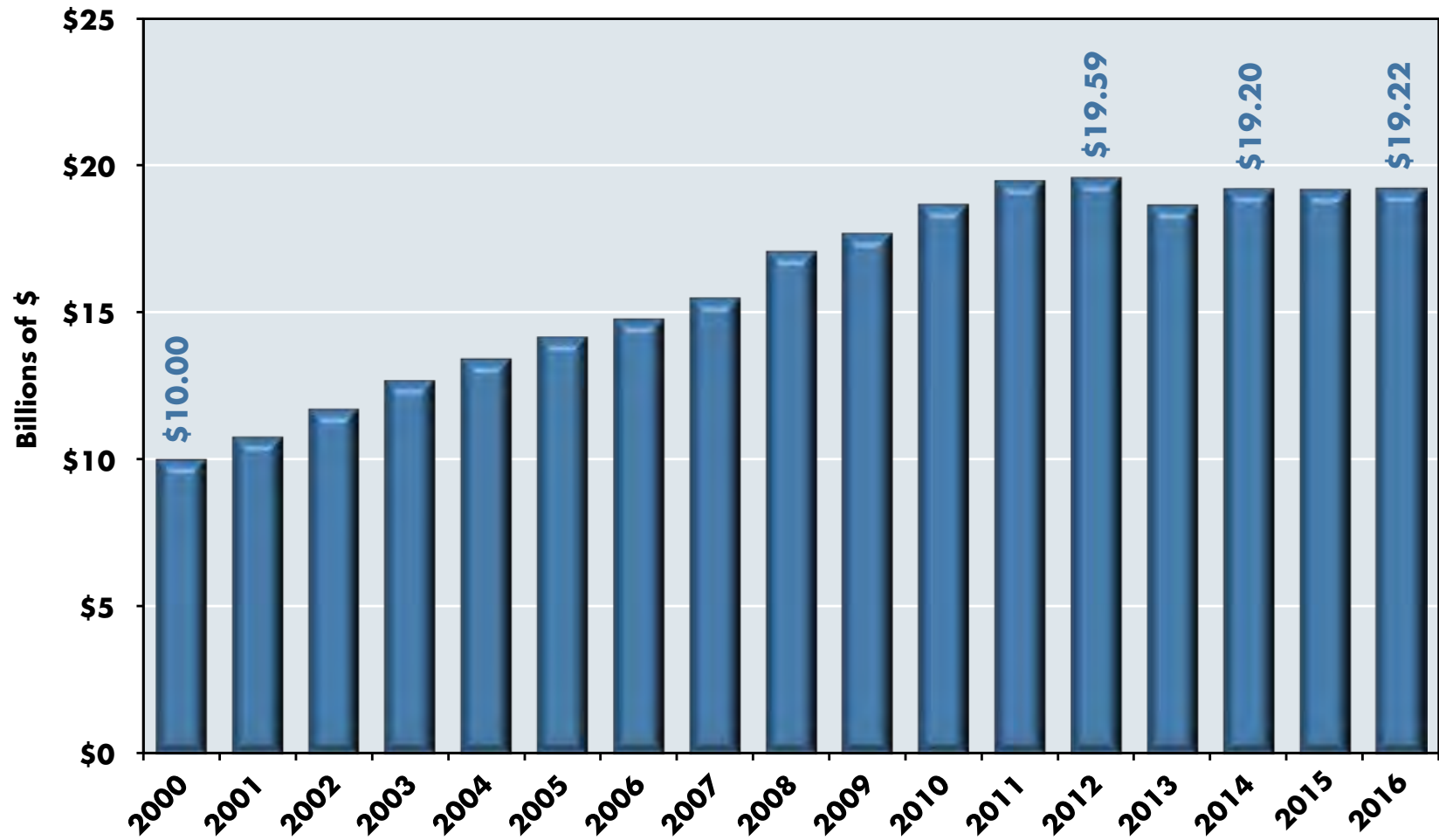
Meanwhile, private-sector employment in our region has grown since 1991 (though the Great Recession put a serious crimp in this growth). The total compensation paid our private-sector, nonfarm workers increased more than 50 percent between 2001 and 2014, well in excess of the 34 percent increase in the consumer price index over the same period. This means that the typical real, after-inflation compensation of a private-sector employee increased by an average of more than 1 percent annually.

The real compensation increases of many workers in our region again focus attention on a somewhat unusual employment situation – a period of slow total job growth nevertheless paired with a period of increased real employee compensation. Ordinarily, sluggish job growth translates into very slow wage and fringe benefit growth because employers do not feel the need to compete for labor. In recent years in our region, however, a change in the mix of jobs in the direction of higher-paid jobs has required employers to bid up the wage rates and fringe benefits they offer workers in the expanding occupations. Hence, the real compensation of these workers has been increasing.

It would be a mistake, however, to conclude that this rising compensation circumstance has applied to all employees, or even a majority of workers. Employees in retail trade, for example, on average experienced declining real incomes as did those involved in providing educational services. Even so, it is a positive development that the real compensation of many Hampton Roads employees has increased in recent years.

GRAPH 9

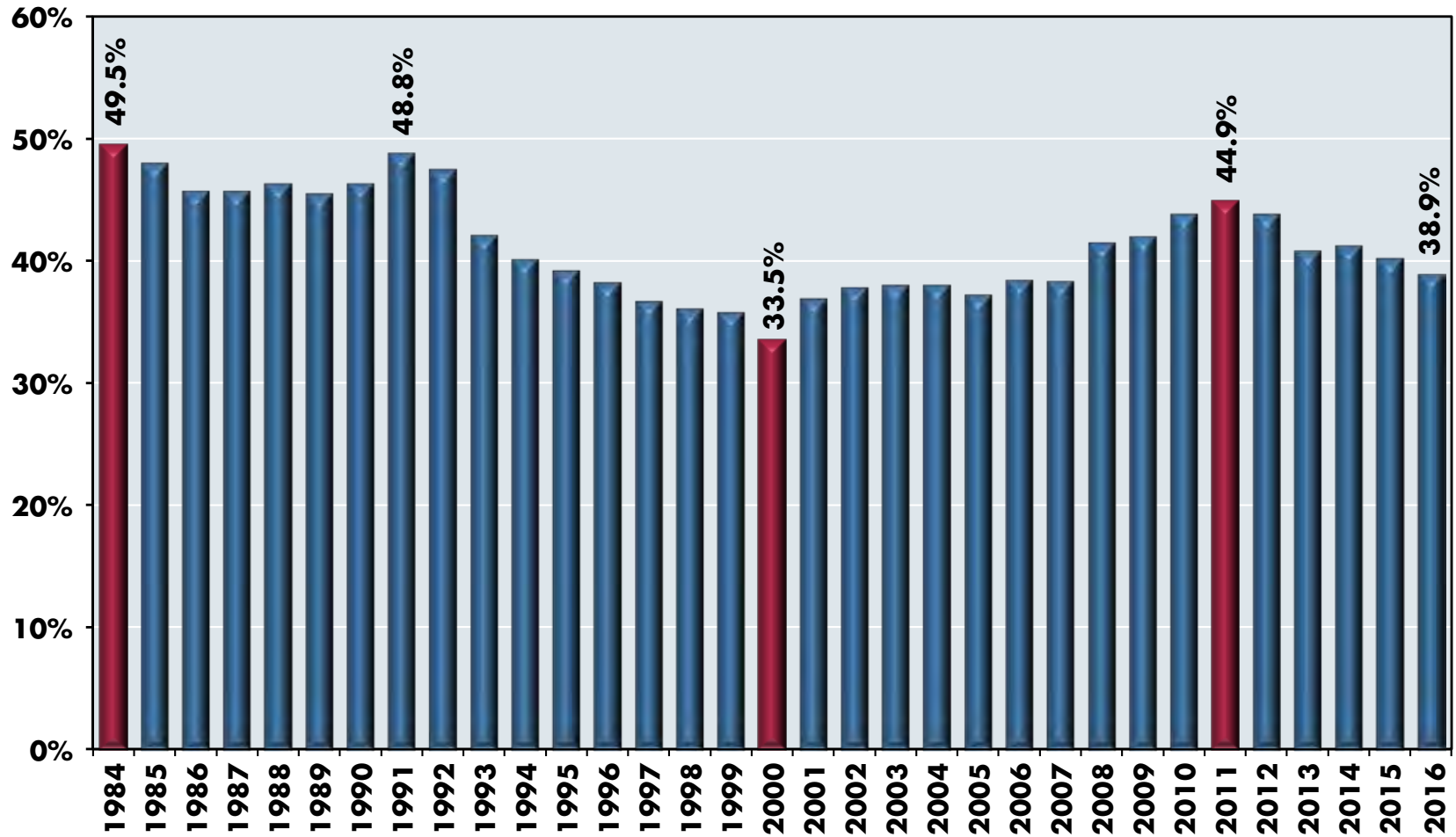
ESTIMATED DIRECT DOD SPENDING IN HAMPTON ROADS, 2000-2016



Sources: U.S. Department of Defense and the Old Dominion University Economic Forecasting Project (includes federal civilian and military personnel and procurement)

GRAPH 10

PERCENTAGE OF THE GROSS REGIONAL PRODUCT (GRP) OF HAMPTON ROADS
ATTRIBUTABLE TO DEPARTMENT OF DEFENSE SPENDING, 1984-2016



Sources: U.S. Department of Defense, U.S. Department of Commerce and the Old Dominion University Economic Forecasting Project

TABLE 3

GROWTH IN EMPLOYMENT AND TOTAL NOMINAL COMPENSATION (WAGES, SALARIES AND FRINGE BENEFITS) FOR MILITARY, FEDERAL CIVILIAN GOVERNMENT AND PRIVATE NONFARM SECTORS IN HAMPTON ROADS, 1991-2000, 2001-2010, 2010-2014 AND 2013-2014

	Percent Change 1991-2000	Percent Change 2001-2010	Percent Change 2010-2014	Percent Change 2013-2014
Military Employment	-21.30%	-13.60%	-10.00%	-0.80%
Military Compensation	5.90%	61.60%	-6.50%	0.70%
Federal Civilian Government Employment	-20.60%	13.30%	-0.60%	-1.70%
Federal Civilian Government Compensation	11.00%	68.60%	7.90%	3.40%
Private Nonfarm Employment	22.30%	5.30%	4.20%	0.80%
Private Nonfarm Compensation	69.30%	36.40%	12.70%	3.20%

Sources: U.S. Bureau of Economic Analysis (BEA) and the Old Dominion University Economic Forecasting Project
 Note: The BEA chooses to label compensation as earnings.

Decelerating Defense Spending

There is an unmistakable connection between our region's disappointing job growth and the deceleration of defense spending. The most important dynamic in this regard has been several rounds of federal government budget sequestration. Simply put, this involves Congress placing caps on federal spending in many areas, including defense.

Graph 11 provides a visual representation of the impact of federal government budget sequestration on "discretionary" defense spending, which conceptually includes all defense spending except expenditures on "temporary" overseas contingency operations in areas such as Afghanistan, Iraq and Syria. This fiscal story begins with the Budget Control Act of 2011, which mandated decreases in many kinds of federal spending, including defense spending. Since then, there have been three compromise budget bills that have restored some federal spending – that is, increased spending above the levels outlined in the Budget Control Act of 2011. Where defense spending is concerned, these restorations have restored spending in amounts that are represented by the areas labeled A, B and C in Graph 11. The area of budget deal C, for example, included \$25 billion of additional defense spending in FY 2016 and \$15 billion in FY 2017 – compared to what would have been true without sequestration relief.

Table 4 supplies actual defense spending numbers relating to sequestration. One can see that the legislated increase in defense spending between FY 2016 (which ended on Sept. 30, 2016) and FY 2017 is only \$3 billion. Will additional sequestration relief be provided? Probably, but such an outcome is by no means guaranteed and in any case would not fundamentally alter longer-term trends that are moving us toward a smaller active-duty military force and gradual reductions in maintenance and readiness levels. The reductions in maintenance and readiness reflect both limited funding and the relatively heavy recent use of assets and people in order to fulfill the defense commitments that the president and Congress have made. It is not clear that

this approach to defense funding and deployments can continue without degradation of performance.

It seems likely that the size of the active-duty military establishment in Hampton Roads will decline further over the next few years. As Graph 12 reveals, the number of active-duty military personnel stationed in Hampton Roads in 2014 already was more than 27,000 (or about 24 percent) below the most recent peak of 113,400 in 2003. Future reductions of active-duty personnel in Hampton Roads could be mitigated somewhat because scheduled reductions in the overall number of active-duty military personnel appear to focus more on the Army and Air Force establishments rather than the Navy.²

What are the longer-term influences that likely will have a negative influence upon the size of the naval military establishment in Hampton Roads?

- If the United States continues to pivot its military attention toward Asia, then the probability increases that our region will lose one aircraft carrier group to the Pacific Coast or Hawaii. However, there is increasing uncertainty about the ability of the United States to undertake such a pivot given the rise of ISIS, the re-emergence of Russia as a regional competitor and the uncertainty of allies such as Turkey. The impact of such a movement would be reduced by the necessity of all aircraft carriers being refueled and refitted in Hampton Roads.
- If the prices of new naval ships, airplanes and equipment continue to inflate at current rates, and significant budget relief is not forthcoming, the DOD will confront a harsh reality – it will be unable to afford the ships and airplanes it says it needs, and even replacing the current inventory of ships and airplanes will be challenging. This would translate to a decline in the number of ships and airplanes in our region and almost surely result in even fewer people being based here.

² The DOD plans to decrease the active-duty Army roster by 40,000 between 2015 and 2020, while the Navy complement will increase by 6,000 during the same period. www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/51050-2016_FYDP.pdf.

- The cost of fringe benefits provided to DOD employees (active-duty and civilian) has increased significantly in recent years. Even after some unpopular additional cost sharing by DOD employees, this cost exceeded \$45 billion in FY 2015.³ The rapid rate of growth of fringe benefits, especially those involving medical care, diminishes the expenditures that can be made for other defense purposes. Once again, the same dollar cannot be spent in two places.
- Some new defense assets require fewer personnel to operate because they increasingly rely upon technology rather than people. For example, the new 100,000-ton super carrier, USS Gerald R. Ford (CVN 78), will operate with a crew of 800 fewer personnel than older-generation aircraft carriers.⁴
- Some argue that future defense spending should emphasize Special Forces, cyber warfare and other nontraditional defense strategies rather than notably expensive assets such as aircraft carriers.⁵ This is not the appropriate venue to debate whether military tools such as aircraft carriers best fit the United States' defense needs in contested areas such as the South China Sea.

What we can observe is that a de-emphasis on aircraft carriers in favor of other defense approaches would seriously disadvantage Hampton Roads.

All things considered, the outlook for future defense spending in Hampton Roads is hardly sanguine. We now have experienced more than a half-decade of parsimonious or zero annual increases in defense spending in our region. Some optimism is required to predict a brighter future.

TABLE 4

ACTUAL AND ANTICIPATED DEFENSE SPENDING, FY 2010-FY 2021 (BILLIONS OF \$)

Defense Spending Caps												
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Budget Control Act of 2011	552	552	555	492	502	512	523	536	549	562	576	590
American Taxpayer Relief Act of 2012	552	552	555	518	498	512	523	536	549	562	576	590
Bipartisan Budget Act of 2013	552	552	555	518	520	521	523	536	549	562	576	590
Bipartisan Budget Act of 2015	552	552	555	518	520	521	548	551	549	562	576	590

Source: U.S. Department of Defense

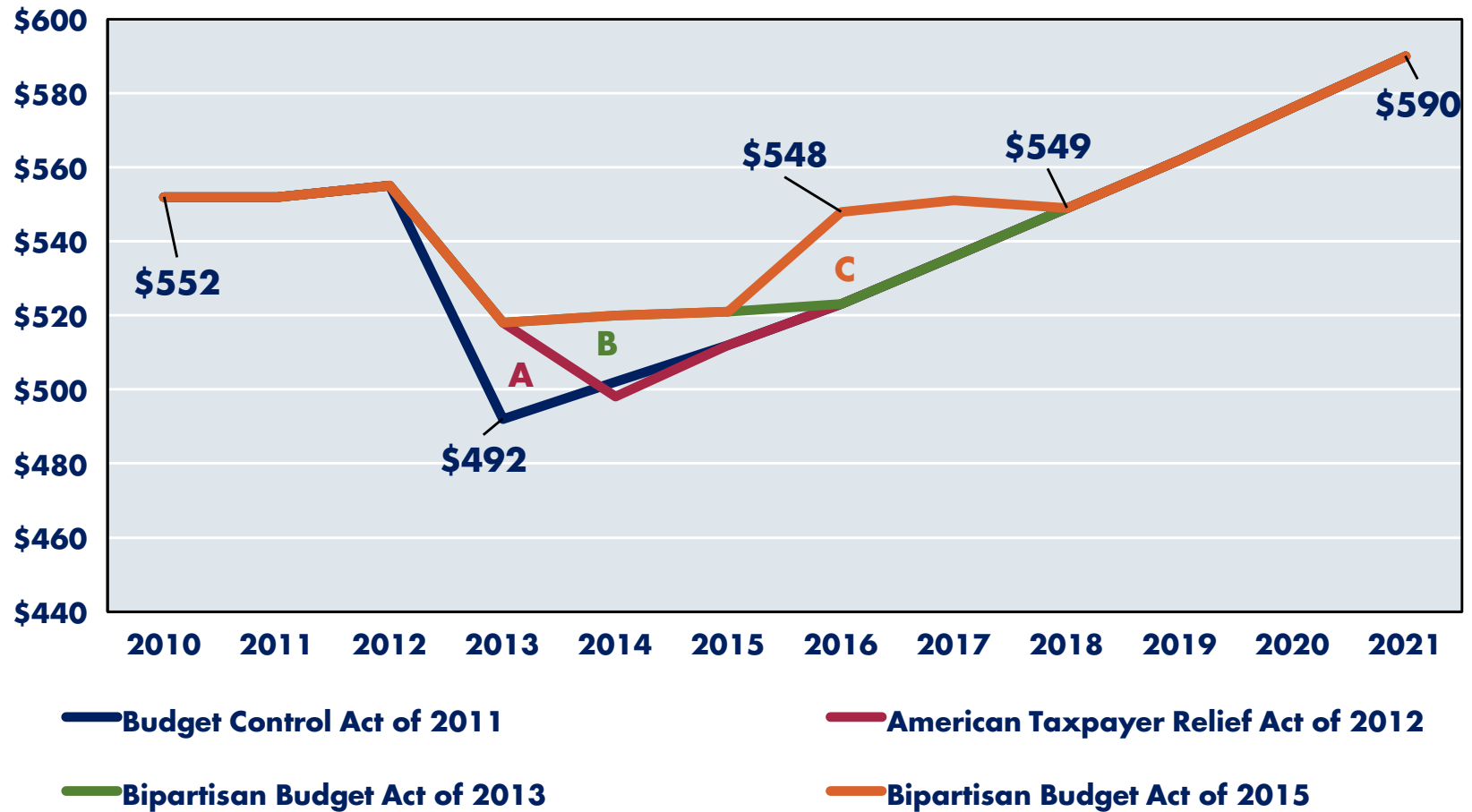
3 www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/51050-2016_FYDP.pdf.

4 Interview with Matt Mulherin, president of Newport News Shipbuilding, June 27, 2016.

5 See, for example, Jeremy Bender, "A New Chinese Anti-ship Ballistic Missile Is Bad News for U.S. Aircraft Carriers," www.businessinsider.com/chinas-growing-military-power-may-make-us-aircraft-carriers-obsolete-2015-10.

GRAPH 11

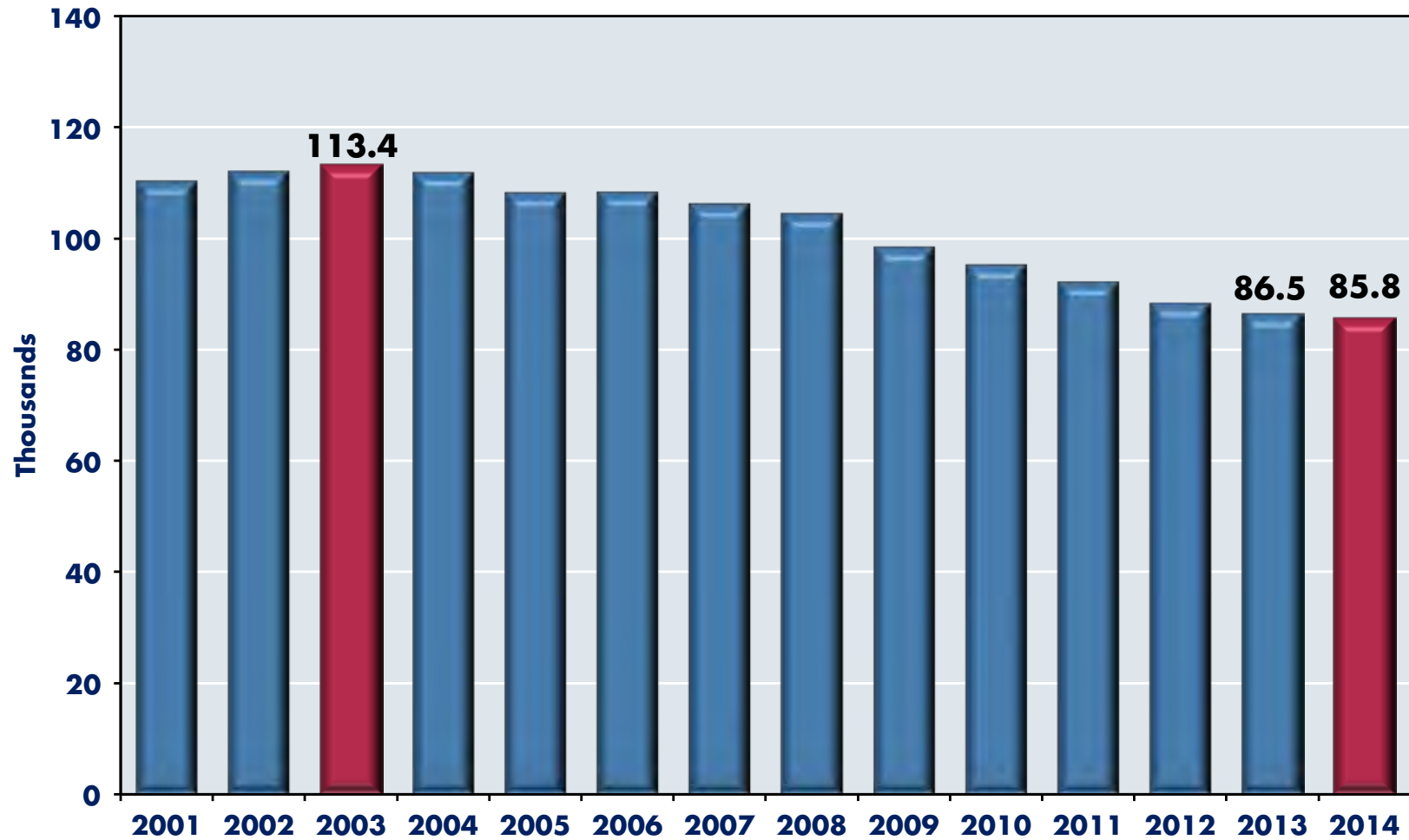
SEQUESTRATION AND DEFENSE SPENDING CAPS: FY 2010 TO FY 2021 (BILLIONS OF DOLLARS)



Source: Congressional Research Service: "Defense: FY 2017 Budget Request, Authorization, and Appropriations," April 12, 2016

GRAPH 12

MILITARY EMPLOYMENT IN HAMPTON ROADS, 2001-2014



Sources: Bureau of Economic Analysis and the Old Dominion University Economic Forecasting Project

The Port

Economic activity connected to the Port of Virginia long has been an important contributor to the region's economic well-being. Depending on who is doing the counting, the Port may directly and indirectly be responsible for up to 7 percent of the value of our region's economic activity.

The Great Recession adversely impacted the Port and the cargo flowing through it – whether measured by general tonnage or by 20-foot equivalent container units (TEUs). Already by 2009, general cargo tonnage and TEUs had declined by 16.4 percent and 18 percent, respectively, from their peak levels. The volume of general cargo and TEUs flowing through the Port increased every year, 2009 through 2015, with particularly large increases in tonnage occurring in 2012 (12.2 percent) and 2013 (7.5 percent). Nevertheless, it took the Port almost five years to recover the losses incurred during the Great Recession.

For those not familiar with the terms, we note that general cargo includes containers, autos, roll-on/roll-off (automobiles and farm and construction machinery), forest products and break-bulk cargo. Most people can identify a TEU by sight, but in reality the definition of a TEU is rather flexible. The most common notion of a TEU is a 20-foot-long metal box that can be easily transferred between ships, trains and trucks. But, the heights of these containers are far from being standardized and both 40-foot-long and 45-foot-long containers are considered to constitute the equivalent of 2 or 2.25 TEUs.

Old Dominion University's Economic Forecasting Project estimates that both general cargo tonnage and TEUs at our port will increase in 2016 (see Graphs 13 and 14 for data through 2015), but by rather modest rates because our port's 2015 numbers were inflated by now settled labor problems on the West Coast that diverted cargo from ports such as Los Angeles, Long Beach and Seattle to the East Coast.⁶

⁶ May over May, loaded incoming TEUs were down 5 percent at Savannah and 2.3 percent at the Port of Virginia. Loaded outgoing TEUs were up only 1 percent at Savannah and down 12 percent at the Port of Virginia. "Volume Declines at Top Three U.S. Southeast Ports," *Journal of Commerce* (June 17, 2016).

Over the past decade, the Port of Virginia has maintained a TEU market share of approximately 16-17 percent of the total TEUs handled by the four largest East Coast ports: New York/New Jersey, Savannah, the Port of Virginia and Charleston. It appears that in 2016 the Port of Virginia may regain the small bit of market share it lost between 2014 and 2015 (see Graph 15).

A note of concern relates to the increasing proportion of empty TEUs being sent out from the Port of Virginia. TEUs loaded with actual product increased by only 1.4 percent in 2015, while empty TEUs increased about 35 percent. The slow growth of loaded TEUs reflects a variety of factors – declining demand for U.S. exports, excess capacity among major ocean carriers, possible adverse reactions to congestion challenges at our Port, the expiration of contracts with shippers that involved attractive financial incentives, the M2 pact between Maersk and Mediterranean Shipping that diverted some Maersk traffic from Virginia to Baltimore, the absence of labor problems at other ports that had stimulated activity at the Port of Virginia in previous years, and the cooling of the Chinese economy.

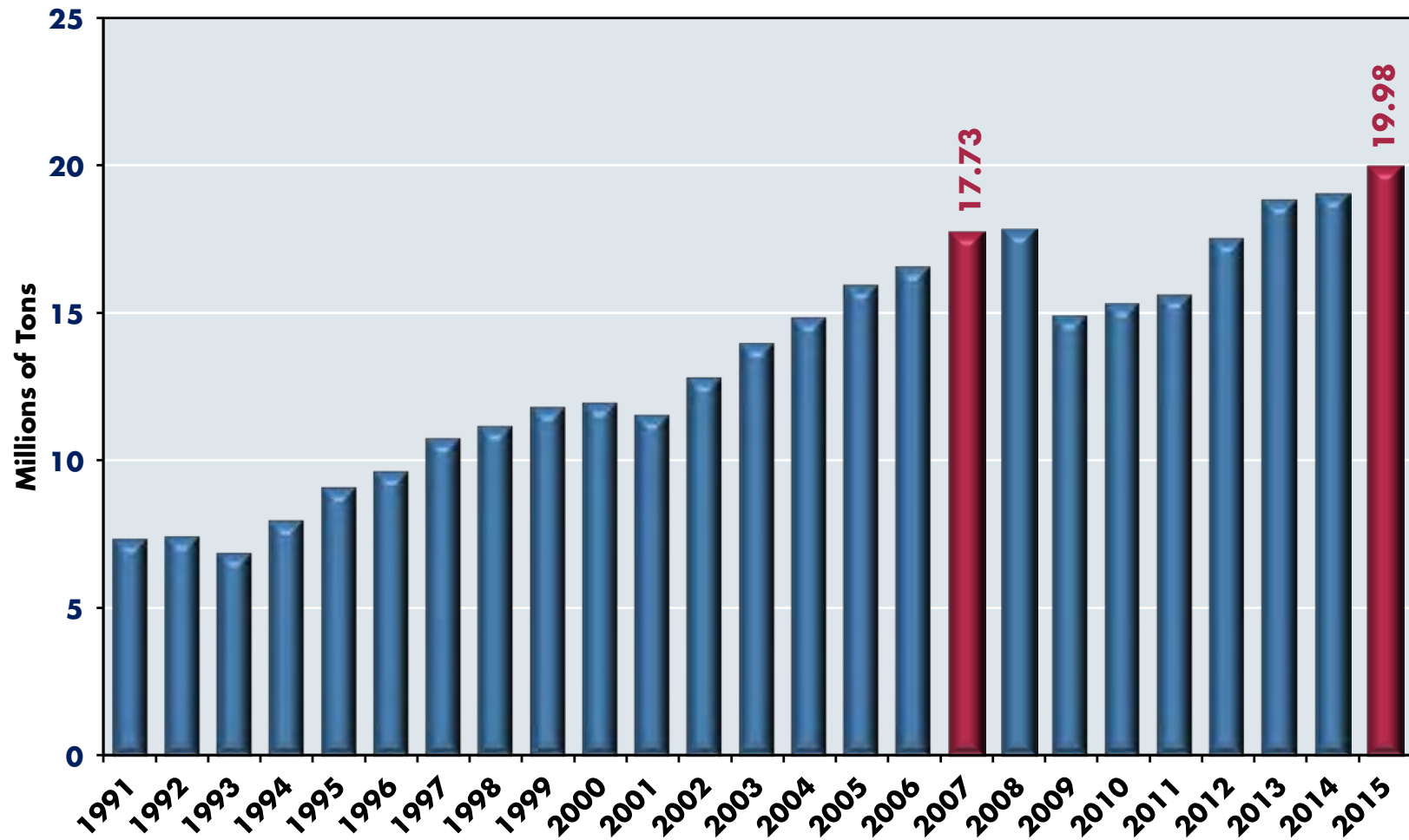
Against this, the proportion of shipments leaving the Port of Virginia to destinations inside the United States via rail increased from 31.9 percent in 2012 to 32.9 percent in 2015. This is good news because rail cargo tends to be discretionary cargo that might have been routed via a different port. It suggests that the Port is winning competitive battles with customers who are capable of using multiple ports to ship their products.

Two big international trade developments relating to the Port of Virginia have garnered considerable attention. The first is Brexit, the United Kingdom's departure from the European Union. At first glance, it appears that the United States has limited exposure to this situation. Only 13.49 percent of U.S. GDP is derived from exports, much less than the U.K.'s 27.84 percent, or Germany's stupendous 50.87 percent. Less than 8 percent of Virginia's gross state product is derived from exports. In addition, only 4 percent of U.S. exports go to the U.K. (though this is almost 6 percent in Virginia).⁷

⁷ www.census.gov/foreign-trade/statistics/state/data/va.html.

GRAPH 13

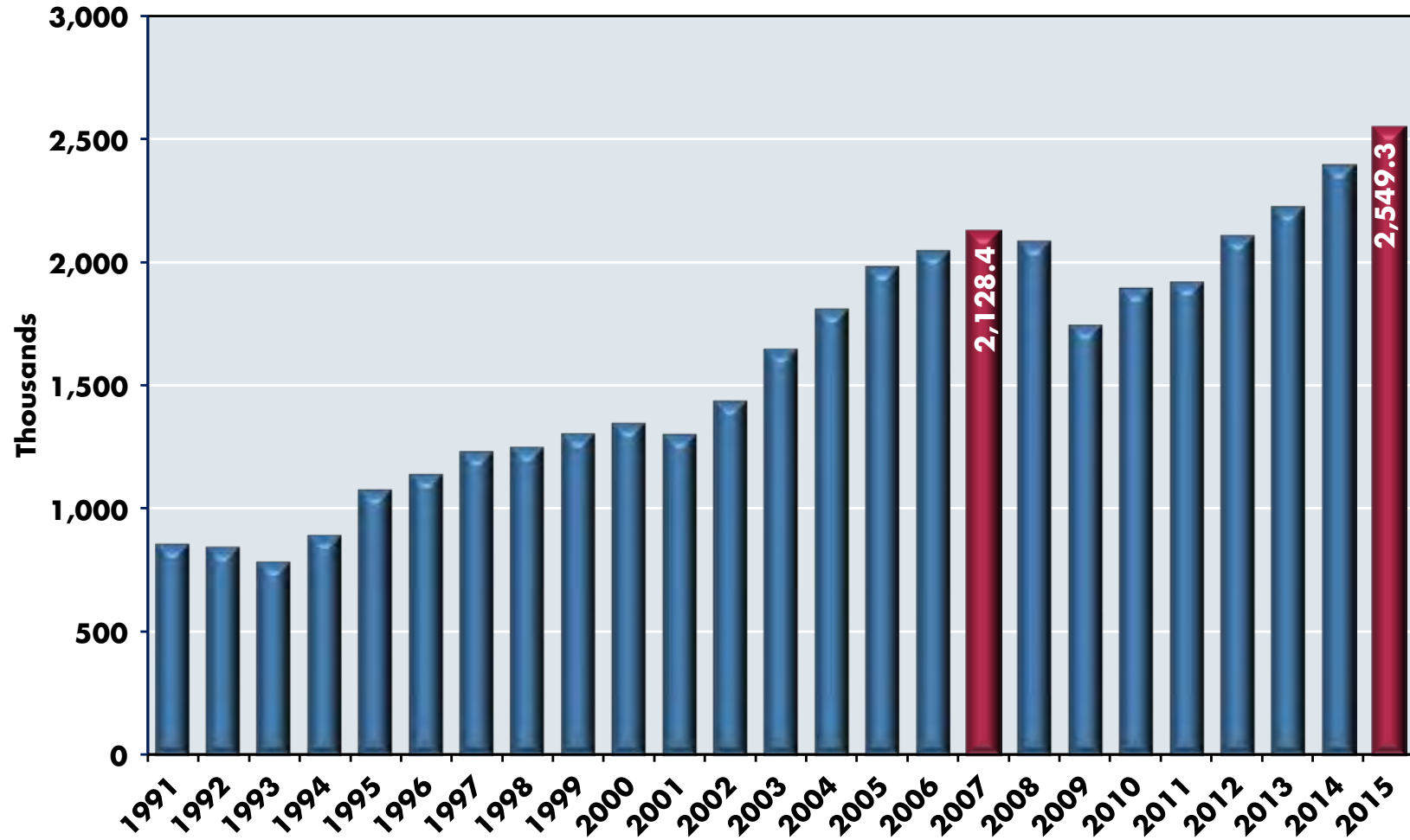
GENERAL CARGO TONNAGE AT THE PORT OF VIRGINIA, 1991-2015



Sources: Virginia Port Authority and the Old Dominion University Economic Forecasting Project

GRAPH 14

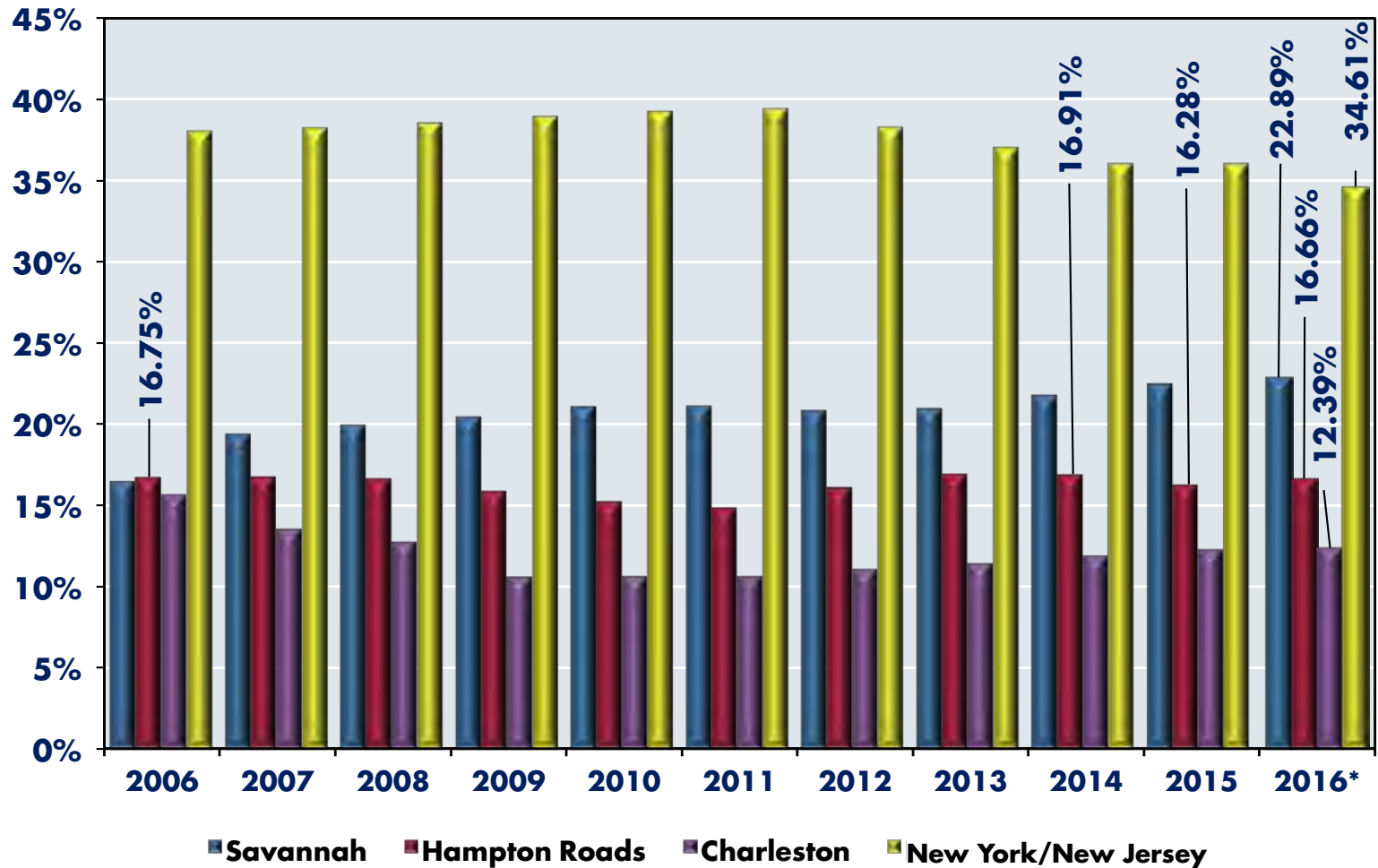
TWENTY-FOOT EQUIVALENT CONTAINER UNITS (TEUS) AT THE PORT OF VIRGINIA, 1991-2015



Sources: Virginia Port Authority and the Old Dominion University Economic Forecasting Project

GRAPH 15

EAST COAST-LOADED TEU MARKET SHARES OF MAJOR PORTS, 2006-2016



Sources: American Association of Port Authorities and the Old Dominion University Economic Forecasting Project
 Note: Market shares exclude TEUs for Philadelphia, Miami, Palm Beach and Port Everglades.
 *Data are through April 2016.

With respect to Brexit, greater potential dangers reside in the possibility of an international financial crisis that would send lethal ripples around the globe. Brexit is uncharted territory, but the 2008 recession should have taught us that financial runs can occur in unexpected ways. It will take time to determine the ultimate effects of Brexit and much will depend on the negotiations between the U.K. and other countries.

Another highly advertised (but surely overemphasized) international trade development was the opening of the “new,” improved Panama Canal on June 26, 2016. The expanded canal now can handle ships carrying up to 10,400 TEUs.⁸ The Port of Virginia already is capable of handling such large ships because of its enviable 50-foot draft. Our two major East Coast competitors – Savannah and New York/New Jersey – have limited capacity to handle such ships, though both are spending billions of dollars on dredging, raising bridges and other infrastructure improvements designed to remedy their deficiencies. For the next year or two, however, the Port of Virginia will retain its advantage with respect to large, deep-draft ships.

An important and expensive public policy question relates to whether our Port should be dredged to a depth of 55 feet – which may well be necessary to handle the 20,000-TEU ships that already are under construction and will begin to dominate the U.S.-Asia trade lanes. The answer to this question is not clear. Most of the ships that enter the Port of Virginia currently clearly are not giant vessels; however, the global trend is toward larger ships. Even in 2015, the Port reported that the average number of TEUs handled per ship was only 1,510, though this has grown more than 21 percent since 2011. Much more than additional dredging would be required in order to unload and service huge ships. A variety of potentially expensive adjustments at the Port, including multiple shifts of personnel, expedited truck and railroad handling to combat congestion, and new equipment and technology would be needed.

There is little doubt that the Commonwealth of Virginia should be planning for deep dredging of the Port of Virginia. Still, how quickly the dredging needs to occur is not yet obvious because currently there are many other potentially productive uses for funds in and around the Port. Indeed, the most recent

⁸ Note that the expanded Panama Canal will not be able to handle the large ships currently being constructed. Further, many large ships plying Asia/U.S. routes may opt to travel through the Suez Canal for cost and operational reasons.

General Assembly invested \$350 million in expanding capacity at the Norfolk International Terminal (NIT), the Port’s largest container-handling facility. The Port has many needs.

Moderate Recovery Continues In Regional Housing Markets

Make no mistake – these are not boom times in housing markets in Hampton Roads. Our overall regional housing market has continued to struggle relative to the national housing market. Nevertheless, by a variety of measures, economic conditions have improved dramatically in Hampton Roads housing markets since the Great Recession.

Initially, let’s focus on what has happened to the median sales prices of existing homes. Nationally, by the second quarter of 2016, median prices were only 4 percent below their 2005 level. **In Hampton Roads, median sales prices of existing homes have increased modestly since 2011 (see Table 5), but even by the second quarter of 2016, the \$203,000 median sales price remained 8.96 percent lower than its previous peak in the third quarter of 2007.**

On the supply side of the market, the size of the inventory of unsold homes on the market is an important measure of overall housing market conditions. Graph 16 illustrates that the inventory of homes on the market in our region has declined about one-quarter from its 2010 peak of 13,070. This metric is highly variable and very cyclical so it is not easy to say what the “normal” level is or should be. However, the average inventory of homes on the market over the past 22 years has been slightly more than 8,300. The current inventory remains substantially above that level.

Much the same pattern appears with respect to the average time a house spends on the market before it is sold. This stood at a mere 27 days in the halcyon days of 2004 (see Graph 17) and peaked at 102 days in 2011. By

May 2015, it had declined to 84 days. However, the average number of days on the market since 2000 has been only 68.

A potential housing market wild card, however, relates to the insertion of bank-owned homes (“REO”)⁹ and short sale homes into the regional housing inventory. In general, these two classes of homes are properties that have been foreclosed upon and/or repossessed by lenders, abandoned by their owners or simply never occupied at all. Short sale homes specifically refer to those that will be sold, or have been sold, for a price less than the value of the outstanding mortgage.

Together, bank-owned homes and short sale homes constitute “distressed” homes. When distressed homes are placed on the market, they typically sell for much lower prices than other homes and hence have a distinctly negative influence on overall home prices. It is as if a discount box store were to begin to sell recognizable, frequently purchased goods, such as computers and running shoes, for prices well below those advertised by conventional sellers. It drives down prices.

Graph 18 displays the *known* inventory of bank-owned and short sale homes in Hampton Roads. From a low point of 606 in June 2008, the known inventory of existing single-family bank-owned and short sale homes steadily rose to an estimated 3,224 homes in November 2010 – a more than five-fold increase. Since then, this inventory steadily declined to 1,311 in May 2016, but still is slightly more than two times the levels observed in June 2008.

Note that we have attached the adjective “known” to this inventory. One of the imponderables associated with this and other housing markets is how many additional distressed properties banks and others are holding, but have not yet fed into the market. If this number is substantial, then our housing market remains far from complete recovery. The problem is we do not know how many, though conversations with lenders suggest that they have yet to feed all of their distressed properties into the market.

⁹ REO is an abbreviation for real estate owned properties owned by lenders, for whatever reason.

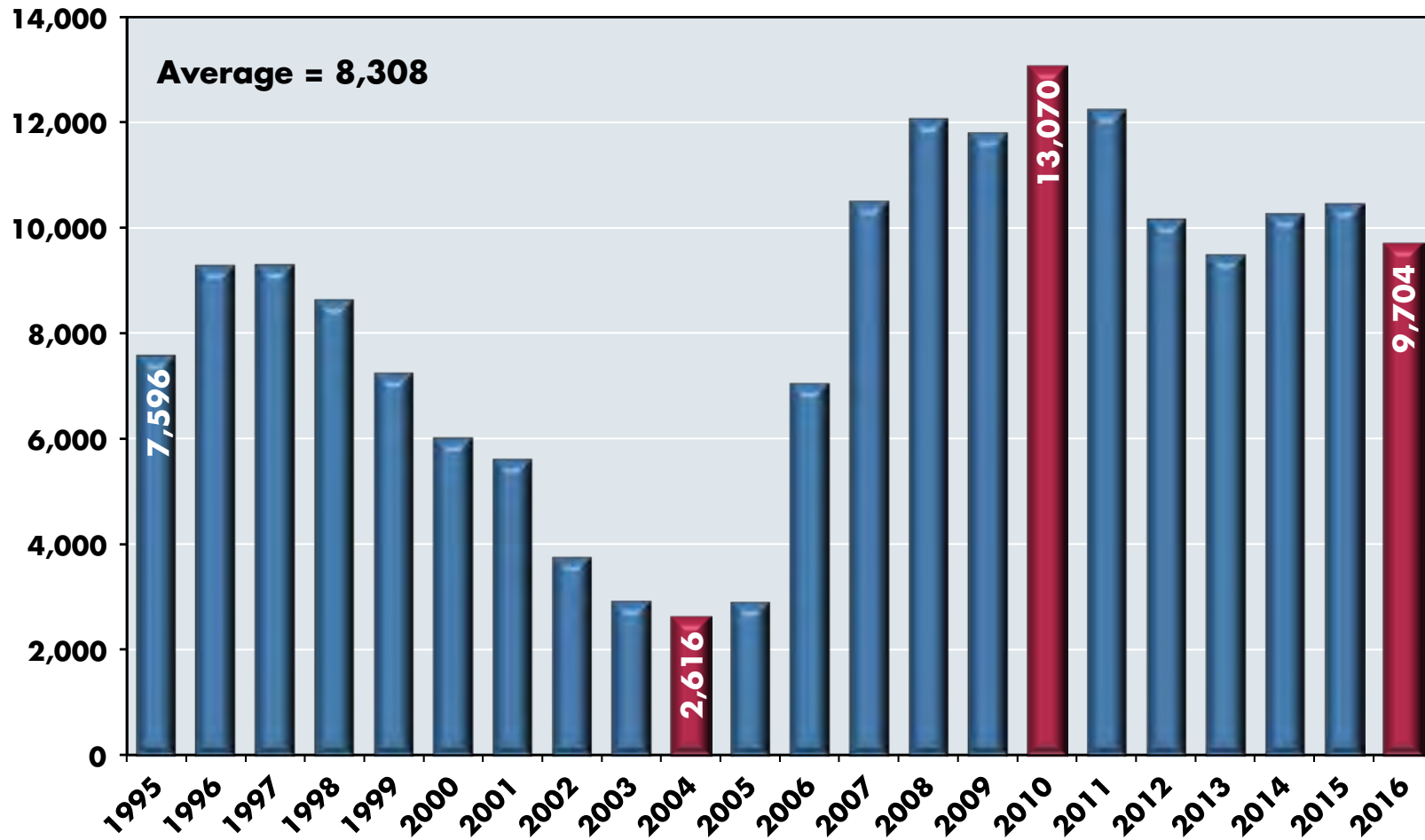
TABLE 5
MEDIAN SALES PRICES OF EXISTING HOMES: HAMPTON ROADS, 2002-2016*

Year	Median Price	Annual Percentage Change
2002	\$116,900	7.30%
2003	\$130,000	11.20%
2004	\$156,500	20.40%
2005	\$192,000	22.70%
2006	\$214,900	11.90%
2007	\$223,000	3.80%
2008	\$219,000	-1.80%
2009	\$207,000	-5.50%
2010	\$203,900	-1.50%
2011	\$180,000	-11.70%
2012	\$185,000	2.80%
2013	\$190,000	2.70%
2014	\$193,205	1.70%
2015	\$203,000	5.10%
2016*	\$203,000	+4.1%*

Sources: Real Estate Information Network Inc. and the Old Dominion University Economic Forecasting Project.
*Data for 2016 are through May 2016 and are compared to median price (\$195,000) through May 2015.

GRAPH 16

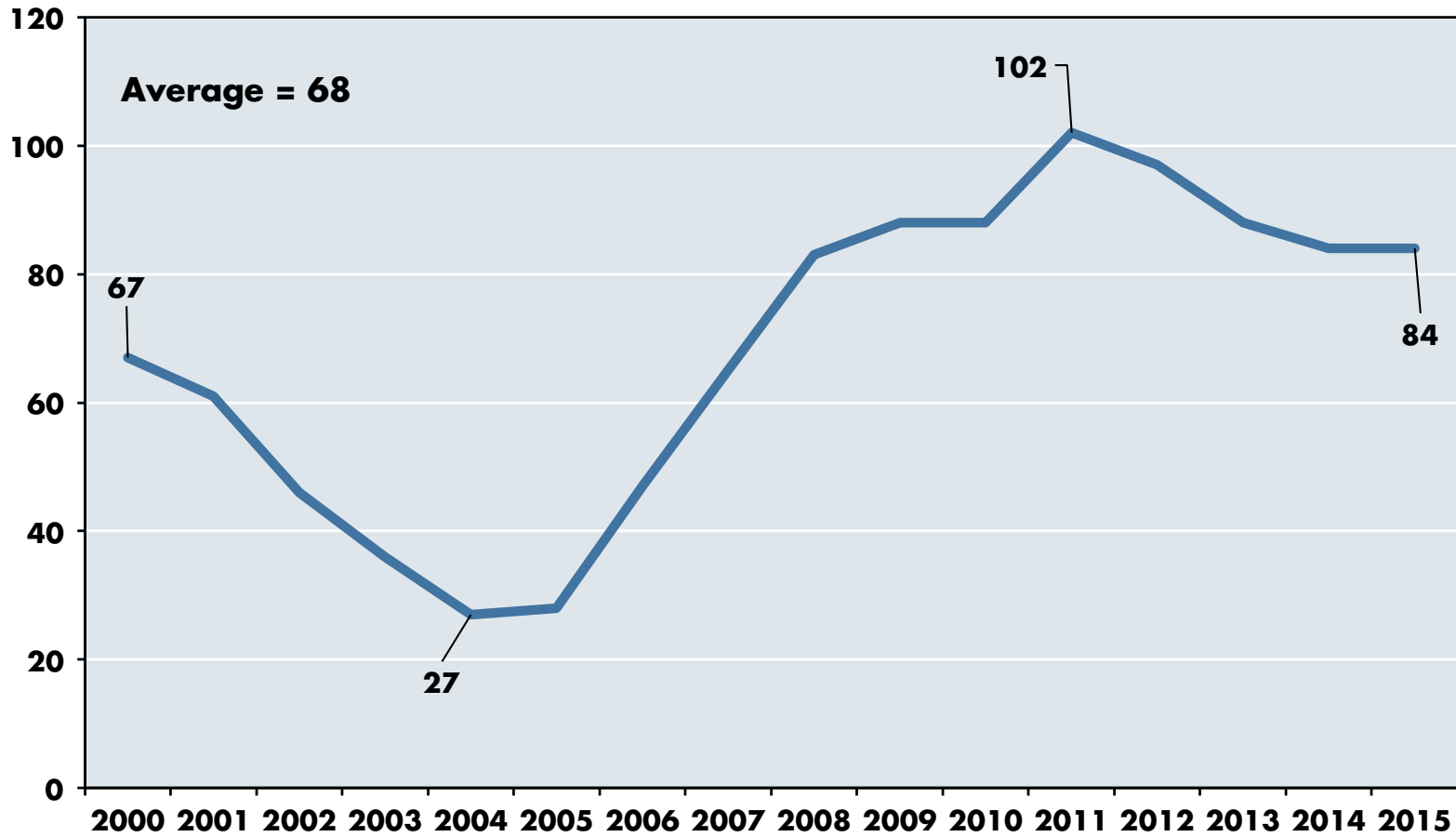
ESTIMATED INVENTORY OF HOMES ON THE MARKET IN HAMPTON ROADS, 1995-2016



Sources: Real Estate Information Network and the Old Dominion University Economic Forecasting Project
Note: Inventory is measured by active listings on May 31 of each year.

GRAPH 17

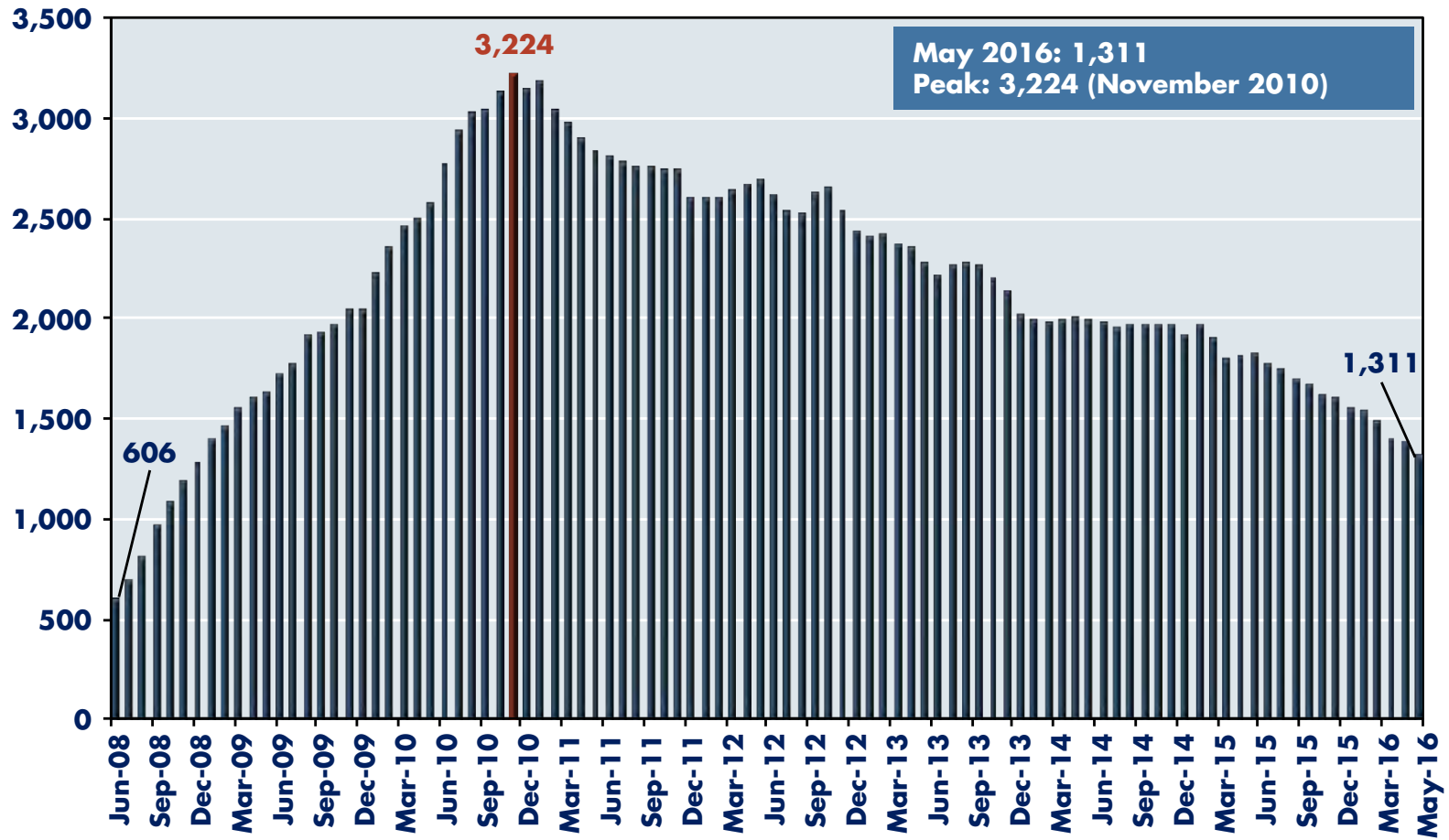
AVERAGE NUMBER OF DAYS A HOME IS ON THE MARKET PRIOR TO SALE IN HAMPTON ROADS, 2000-2015



Sources: Real Estate Information Network and the Old Dominion University Economic Forecasting Project
Note: Days on market are calculated from the date listed to the date under contract for existing homes sold.

GRAPH 18

ACTIVE LISTING OF DISTRESSED HOMES (REO AND SHORT SALES) IN HAMPTON ROADS, JUNE 2008-MAY 2016



Sources: Real Estate Information Network and the Old Dominion University Economic Forecasting Project

In any case, Table 6 reveals that distressed home sales as a percentage of all home sales have declined continuously since REO sales peaked at 26.6 percent in 2011 and short sales topped out at 9.8 percent in 2012. Even so, in 2016, we estimate that 16 to 18 percent of home sales will fall into the distressed category. This has a negative influence on home sale prices, and Table 7 demonstrates how much. Short sale prices were only 69.4 percent of non-distressed sale prices in 2016, while REO (bank-owned) sale prices were a dismal 53 percent of non-distressed prices in 2016.

Taking all into account, what does the future hold for the residential housing market in Hampton Roads? Several favorable influences are present. First, as has been noted, we do appear to be slowly working our way through the distressed housing inventory that has helped depress regional housing prices for almost a decade. Second, mortgage rates continue to be attractively low and housing is quite affordable in Hampton Roads – if one qualifies for a mortgage.

Table 8 compares the monthly principal, interest and tax payment a mortgage holder likely would make on a median-priced home in Hampton Roads to the median monthly rent that would be paid to occupy a similar property. This “renting versus owning” ratio in 2015 was 1.33 – telling us that renting was relatively more expensive than owning. The 1.33 ratio was substantially higher than a decade previous, though a reduction from 2013. **Simply put, owning a home now is relatively more attractive than renting in Hampton Roads, taking into account only the basic financial numbers associated with each.** Of course, this assumes that the hypothetical individual has the ability to obtain a mortgage; the ratio has relatively little meaning if one cannot do so.



TABLE 6

REO AND SHORT HOME SALES AS A PERCENTAGE OF ALL EXISTING HOME SALES: HAMPTON ROADS, 2006-2016

Year	All Sales	Short Sales	Percent Short Sales	REO Sales	Percent REO Sales
2006	22,405	3	<1%	56	<1%
2007	19,152	40	<1%	223	1.2%
2008	15,047	217	1.4%	833	5.5%
2009	15,849	598	3.8%	2,271	14.3%
2010	14,696	784	5.3%	3,021	20.6%
2011	15,817	1,127	7.1%	4,213	26.6%
2012	16,856	1,644	9.8%	3,337	19.8%
2013	18,791	1,769	9.4%	3,178	16.9%
2014	18,700	1,347	7.2%	2,744	14.7%
2015	20,592	1,230	6.0%	2,542	12.3%
2016	8,397	431	5.1%	1,028	12.2%

Sources: Real Estate Information Network and the Old Dominion University Economic Forecasting Project (data are through May 2016)

TABLE 7

THE IMPACT OF DISTRESSED HOME SALES ON HOME PRICES: HAMPTON ROADS, 2006-2016

Year	Non-Distressed Sales	Short Sales	Short Sales Price % Non-Distressed Price	REO Sales	REO Price % Non-Distressed Sales
2006	\$250,254	\$241,666	96.6	\$120,817	48.3
2007	\$261,723	\$237,897	90.9	\$163,421	62.4
2008	\$255,852	\$239,110	93.5	\$184,462	72.1
2009	\$243,902	\$239,913	98.4	\$164,229	67.3
2010	\$251,572	\$231,211	91.9	\$151,612	60.3
2011	\$236,358	\$212,967	90.1	\$135,304	57.3
2012	\$237,215	\$187,527	79.1	\$134,535	56.7
2013	\$245,344	\$180,001	73.4	\$131,644	53.7
2014	\$244,940	\$171,745	70.1	\$128,242	52.4
2015	\$251,941	\$174,577	69.3	\$130,959	52.0
2016*	\$246,296	\$170,876	69.4	\$130,438	53.0

Sources: Real Estate Information Network and the Old Dominion University Economic Forecasting Project. Information deemed reliable but not guaranteed. REOs represent bank-owned homes.
*Data are through May 2016.

TABLE 8

HOUSING AFFORDABILITY: THE RATIO OF MONTHLY RENT TO MONTHLY PRINCIPAL, INTEREST AND TAX PAYMENTS ON A MEDIAN-PRICED HOME IN HAMPTON ROADS, 2002-2015

Year	Median Monthly Rent for a Three-Bedroom House	PI&T Monthly for a Median-Priced Existing House	Ratio of Monthly Rent to PI&T
2002	911	861	1.06
2003	1,037	890	1.16
2004	1,044	1,073	0.97
2005	1,087	1,315	0.83
2006	1,118	1,533	0.73
2007	1,164	1,598	0.73
2008	1,247	1,507	0.83
2009	1,236	1,307	0.95
2010	1,277	1,233	1.04
2011	1,319	1,071	1.23
2012	1,454	1,015	1.43
2013	1,570	1,080	1.45
2014	1,562	1,118	1.40
2015	1,530	1,154	1.33

Sources: U.S. Department of Housing and Urban Development and the Old Dominion University Economic Forecasting Project

Notes: A real estate tax rate of 1 percent was assumed and also that the mortgage tax benefit received by homeowners compensates them for their insurance and maintenance expenditures. The prevailing 30-year average mortgage rate was used for each year.

Final Thoughts

Economic recovery continues in Hampton Roads, albeit at a relatively modest pace. A combination of the Great Recession and decelerating defense spending has caused our regional economic growth rate to trail the rates of the United States, the Commonwealth and most of Virginia's metropolitan areas. We have yet to recover all of the jobs we lost in the Great Recession.

Uncertainties loom on the horizon, and some of these (notably the possibility of an international economic slowdown and sluggish defense spending) are outside our control. Within our control, however, is a fundamental reorientation of how we approach both regional decision making and economic development.

Some pictures actually are worth a thousand words. Graph 19 tells us that employment in Hampton Roads is growing more slowly than in any comparable southeast United States metropolitan region. **Not surprisingly, our region suffers from net domestic out-migration as some residents leave Hampton Roads for other areas where jobs are more plentiful. Graph 20 illustrates this story. Only Chesapeake and Suffolk, among our seven largest cities, experienced positive average net domestic migration between 2000 and 2015. All other cities saw more people leaving and going to other states than entered from other states.**¹⁰

When we examine economic growth among comparable metropolitan areas, we observe that such growth in Hampton Roads lags that of the Charlotte, Charlottesville, Durham, Raleigh and Washington, D.C., metro areas. While growth in Hampton Roads is positive, these regions are growing much more quickly. Between 2007 and 2014, for example, real, price-adjusted gross regional product grew only 1.81 percent in Hampton Roads, but 17.74 percent in Raleigh, 4.18 percent in Richmond and 7.36 percent in Washington, D.C.¹¹

The old bromide that either we all hang together or we will all hang separately applies to Hampton Roads. An important part

of the solution to our economic doldrums involves cooperation and unified regional action. Still, one must ask, how mediocre must our economic performance be, and how long must this hold true, before we are willing to act decisively together in a regional fashion? "GO Virginia" (the Virginia Initiative for Growth and Opportunity) represents a step in the right direction, but must be matched over time by a unified agenda spanning many items and dramatically more funding.

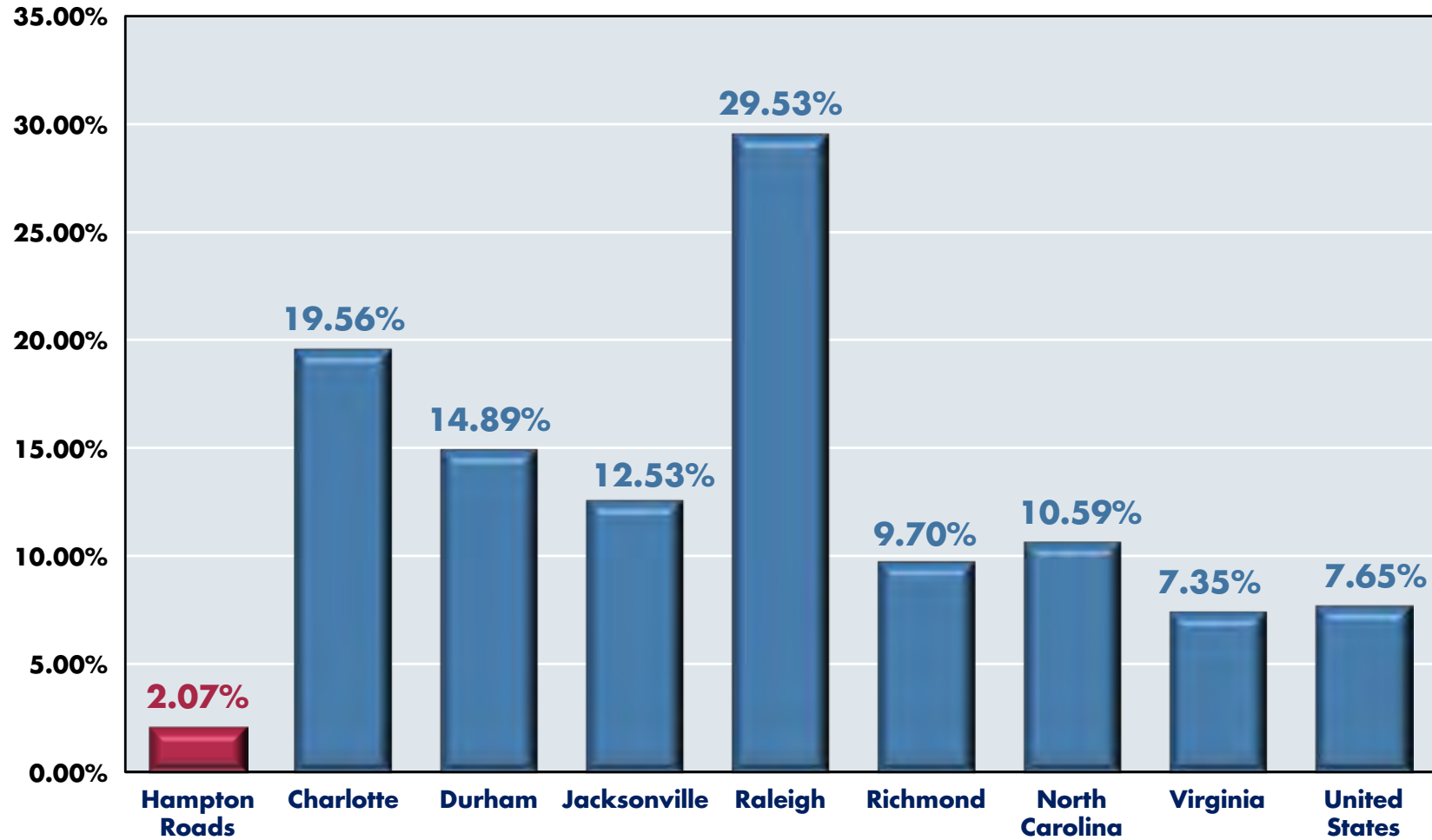


¹⁰ If the populations of the other cities grew between 2000 and 2015, it is because births exceeded deaths in those cities and also because of international migration into those cities.

¹¹ Bureau of Economic Analysis and the Old Dominion University Economic Forecasting Project.

GRAPH 19

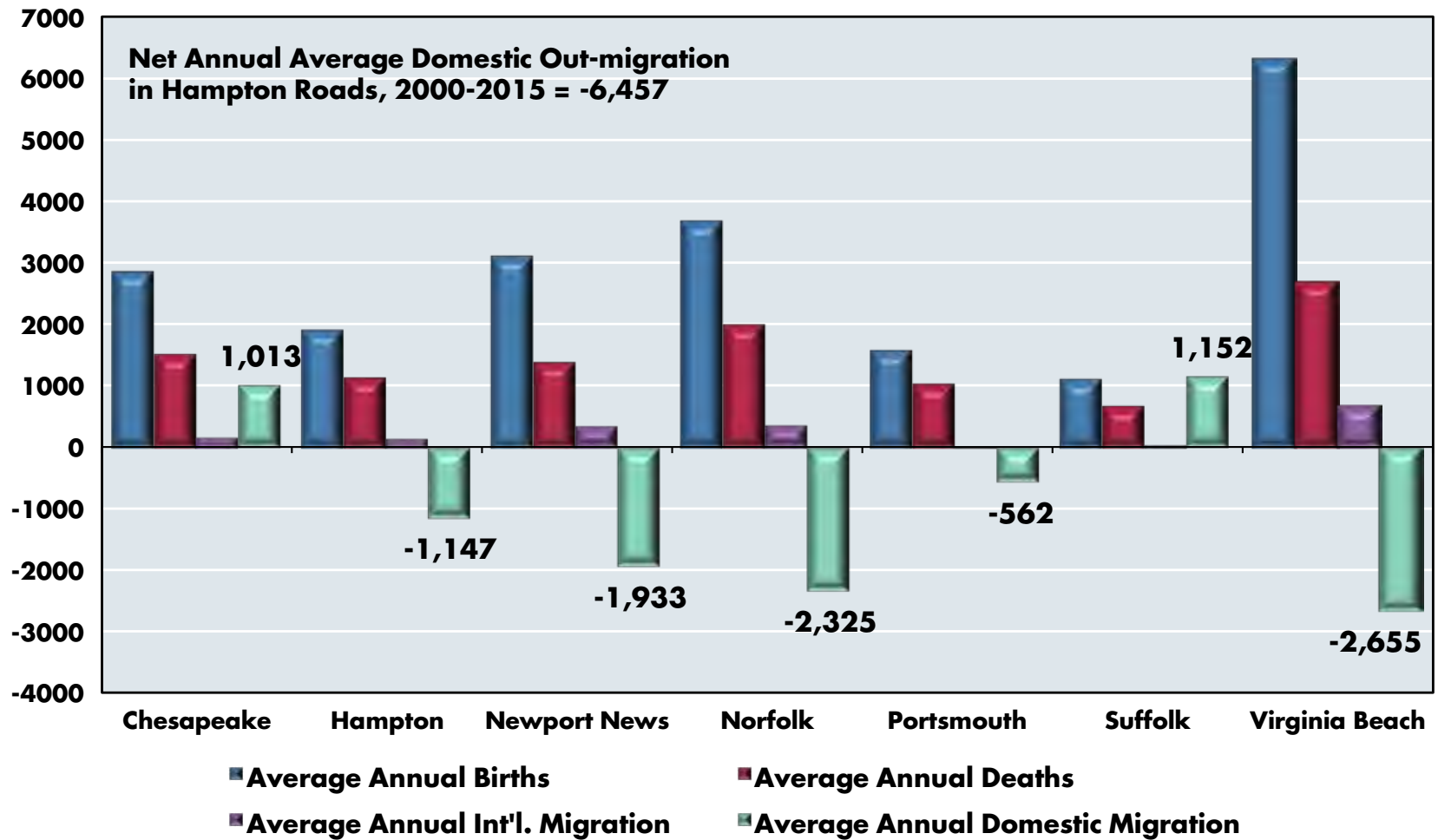
COMPARING JOB GROWTH IN HAMPTON ROADS TO SELECTED AREAS, 2004-2015



Sources: U.S. Department of Labor CES seasonally unadjusted data and the Old Dominion University Economic Forecasting Project

GRAPH 20

AVERAGE ANNUAL DOMESTIC OUT-MIGRATION FROM THE MAJOR CITIES OF HAMPTON ROADS, 2000-2015



Source: <http://headwaterseconomics.org/tools/economic-profile-system>

What should this agenda include? Based on the experience of other areas, the following items commend themselves for our consideration:

- **Make our best case for maintaining and even expanding defense spending in Hampton Roads, but incrementally diversify and learn not to depend upon it.**
- **Share and jointly provide public services across city and county lines.** Those new to this topic should consult the 2015 State of the Commonwealth Report (www.stateofthecommonwealth.com) to find a list of approximately 20 public services for which economies of scale are present and hence constitute strong candidates for sharing or merger. **We can save money and provide superior service if we are willing to ignore city and county boundaries as we supply public services. Our population already ignores these boundaries – almost 65 percent of all workers in Hampton Roads live in one city or county, but work in another.**
- **Focus on critical transportation needs.** Widening I-64 toward Richmond is vitally important if we wish to avoid being labeled the end of the longest cul-de-sac in the United States. Improving the High Rise Bridge and completing the Patriots Crossing are essential if we are to reduce congestion, enhance regional cohesiveness and serve a growing Port. Expanding The Tide can be part of a regional transportation package, but only if it extends to the locations in our area where the people actually live and work – Naval Base Norfolk, Old Dominion University and Norfolk International Airport. Light rail that extends solely from Eastern Virginia Medical School to the Virginia Beach Town Center is of limited use and will have minimal economic impact. Finally, the idea of a major regional airport south of the James River, serving Richmond and Hampton Roads, continues to be an idea that should be explored before our options disappear.
- **De-emphasize economic development ornaments** (read massively subsidized hotel and entertainment venues for which there is impressively little rigorous evidence that such investments pay off) and instead emphasize long-term factors that clearly do influence economic growth, especially the quality of K-12 schools and the quality of teachers in those schools.
- **Develop innovation districts designed to incubate startup firms and organizations** by providing them with space, equipment, high-speed internet connections, assistance in writing business plans, access to engineering advice and connections to angel investors. Fund the extension of these services to qualified small businesses throughout the region. Here is a plausible goal: provide funding for these efforts that is at least 10 percent of the amount currently being provided to highly subsidized private businesses that appear to have political clout. Anchor partner institutions, including major employers, universities and governmental units, must step forward and provide the resources necessary to make this happen. This will redound to their ultimate benefit. See Pittsburgh, St. Louis and San Diego for successful models.
- **Expand and exploit the “med/ed” sector consisting primarily of Eastern Virginia Medical School and Old Dominion University.** This is a sound choice for two reasons. First, both health care and STEM-related occupations such as engineering and computer science are growth areas that have expanded dramatically in size and importance for extended periods of time. Second, EVMS and ODU enable us to import resources from outside our region in the form of federal research grants and highly skilled personnel. Med/ed sectors are dynamic generators of attractive, well-paying jobs. Unfortunately, when one contrasts Hampton Roads to other roughly comparable metropolitan regions (Richmond, North Carolina’s Research Triangle, Charlotte, Baltimore), a highly visible way in which we differ is that our region has a much smaller med/ed sector and therefore we are missing a vital economic engine. We need conscientious, consistent investment in health care research, development and application by elected officials and donors in order to move our region to the first rank. This is not a strategy that will pay off immediately – but the evidence is strong that it will pay off (see the Research Triangle). Virginia Beach’s biotechnical initiative fits admirably within this framework.
- **Devote much more attention to on-the-job training and retraining activities** at the area’s community colleges and employers. More focus must be given to educating and training people for the jobs that actually are available and in supporting firms that provide internships, on-the-job training and apprenticeships. We need to be results-oriented in this

arena. The 2015 General Assembly took action to move “credentialing” programs to the fore. Let’s be the region that leads the way in this regard in Virginia.

- **Renew and expand the attention we give to retiring military personnel.** Each year, approximately 12,000 military personnel retire from bases in our region. These individuals are motivated, reliable and have strong work habits. Further, they often bring retirement income with them. Among other things, we need a single, one-stop shopping location in Hampton Roads where veterans, employers and educational institutions can connect and do necessary career-related business. Our current efforts are scattered among programs and institutions. We need a unified, coherent program designed to attract, retain, train and employ veterans.
- **Continue to invest in cultural and entertainment amenities, but diminish regional competition in this regard.** The quality of our cultural amenities, entertainment venues and spectator opportunities is important to us in many ways. The quality of those amenities can be enhanced if we can avoid the “every city must have one of everything” syndrome. Most notably, we would be well served by less cultural and facility competition between Norfolk and Virginia Beach and the Southside and the Peninsula. Let’s act regionally in order to realize economies of scale and increase the quality of our amenities.

With the med/ed exception, we have not presented a “pick the winners list” of firms or industries that should be favored above others. Why? Because those who attempt to pick winners do not boast very high rates of success. They often prove unable to anticipate future changes in supply and demand and frequently are influenced by political factors. Hence, we will be better served if we invest in those aspects of our environment that accumulated evidence tells us are clearly connected to long-term economic growth.

We must recognize that unless the next Google magically develops in our midst, economic development in Hampton Roads will be a long-term process. Eye-catching, but heavily subsidized facilities that shower benefits upon individual businesses are not irrelevant, but they distract us from the

ground truth of economic development reality, namely, that sustained economic growth requires highly developed human capital, intelligent investments in infrastructure and an environment that not only supports, but even applauds, startup businesses and entrepreneurs that have found profitable ways to meet human needs. No small agenda, this.

The Hotel Industry: The United States, Virginia And Hampton Roads



THE HOTEL INDUSTRY: THE UNITED STATES, VIRGINIA AND HAMPTON ROADS

Do not forget to show hospitality to strangers.
– Hebrews 12:2

This chapter presents a long-term, 25-year look at the economic performance of the hotel industry in Virginia and Hampton Roads.¹ How important is the hotel industry to us? The candid answer: not as important as it used to be. **Table 1 reports hotel room revenue as a percentage of total personal income in the United States, Virginia and Hampton Roads in selected years. It is evident that hotel room revenue as a share of personal income generally declined in all three geographic areas between 1991 and 2001.** However, the share of hotel room revenue to personal income bottomed out in the United States in 2009, but continued to fall in Virginia and Hampton Roads until 2013, when modest recovery began.

Is Airbnb.com responsible for some of this deterioration? Almost certainly (though data to demonstrate this are scarce). A July 2, 2016, examination of Airbnb’s offerings in Virginia Beach revealed that more than 300 properties were available for rent.² However, Table 1 also reveals that the relative decline in importance of the hotel industry began well before Airbnb was founded in 2008.

Why has the hotel industry fared so poorly in Virginia and Hampton Roads? The short answer is that the Great Recession of 2008 reduced the financial ability of people to travel and stay in hotels. This was compounded several years later by the federal government spending limits that were imposed by the congressional sequestration agreement (versions of which are still in effect). Both Virginia and Hampton Roads are notably dependent on federal spending, especially defense spending, and this has had a visibly negative influence on the hotel industry.

¹ Not included in our analysis are travelers staying in non-hotel accommodations such as campgrounds, time-shares and private vacation rentals, or those who stay with friends and relatives. Also not included are expenditures that travelers make at businesses, restaurants and places of entertainment.
² www.airbnb.com/s/Virginia-Beach--VA?s_tag=ZcJyHG2.

	U.S.	Virginia	Hampton Roads
1991	0.887	0.918	1.208
2001	0.871	0.881	1.127
2007	0.896	0.902	1.092
2009	0.765	0.819	0.987
2010	0.795	0.820	0.944
2013	0.867	0.762	0.883
2014	0.904	0.784	0.901
2015	0.930	0.807	N/A

Sources: Smith Travel Research Trend Report, May 2, 2016; Bureau of Economic Analysis; and the Center for Economic Analysis and Policy at Old Dominion University



Where did we obtain our data? We have three primary sources. Smith Travel Research (STR) data are used for hotel lodging revenue, demand and supply of hotel rooms, as well as associated measures of performance of the hotel industry. Data on personal income come from the Bureau of Economic Analysis of the U.S. Department of Commerce. Consumer price index (CPI) data come from the Bureau of Labor Statistics of the U.S. Department of Labor. When we convert nominal dollars to “real” dollars, we use 1982-84 as our base.

How Has The Hotel Industry Been Performing Nationally?

We will measure performance using three metrics: (1) total hotel revenue, (2) revenue per available room (REVPAR) and (3) occupancy rates.

(1) Total Hotel Room Revenues in the United States

- Hotel room revenues, unadjusted for inflation, more than tripled from \$44.9 billion in 1991 to \$142.5 billion in 2015, or 217 percent (see Graph 1). However, in real terms, adjusting for inflation, hotel revenues increased by only 82.5 percent during the 25 years.
- Nominal room revenue increased by an average of 4.7 percent per year during this time period, but real room revenue increased by only 2.4 percent per year; prices during this time period increased by an average of 2.2 percent per year.
- **The hotel industry was severely affected by the Great Recession. Real hotel revenue declined from a peak of \$51.85 billion in 2007 to \$43.09 billion in 2009. It took the industry another four years to recover these revenue losses.** Since then, things have improved noticeably: Real, inflation-adjusted hotel room revenues increased from \$52.3 billion in 2013 to \$60.15 billion in 2015 (14.9 percent).

(2) Revenue Per Available Room (REVPAR) in the United States

- Profitability is the best measure of the prosperity of a particular hotel or the hotel industry, but profitability data are not available for the market segments in which we are interested. Next best is the revenue earned by hotels per available room (REVPAR) because it is a measure that incorporates both supply and demand influences.

- REVPAR nationally increased from \$36.10 in 1991 to \$78.62 in 2015 – 117.8 percent. How much of this increase was due to general price inflation? All but 25.1 percent, which is what remains after deflating REVPAR by the CPI. This translates to a rather small increase of only 0.9 percent annually. During the Great Recession, real, inflation-adjusted REVPAR declined from \$31.64 in 2007 to a low of \$24.96 in 2009. It was not until 2015 that real REVPAR had risen to \$33.17 and surpassed its previous 2007 peak (see Graph 2).

(3) Hotel Occupancy Rates in the United States

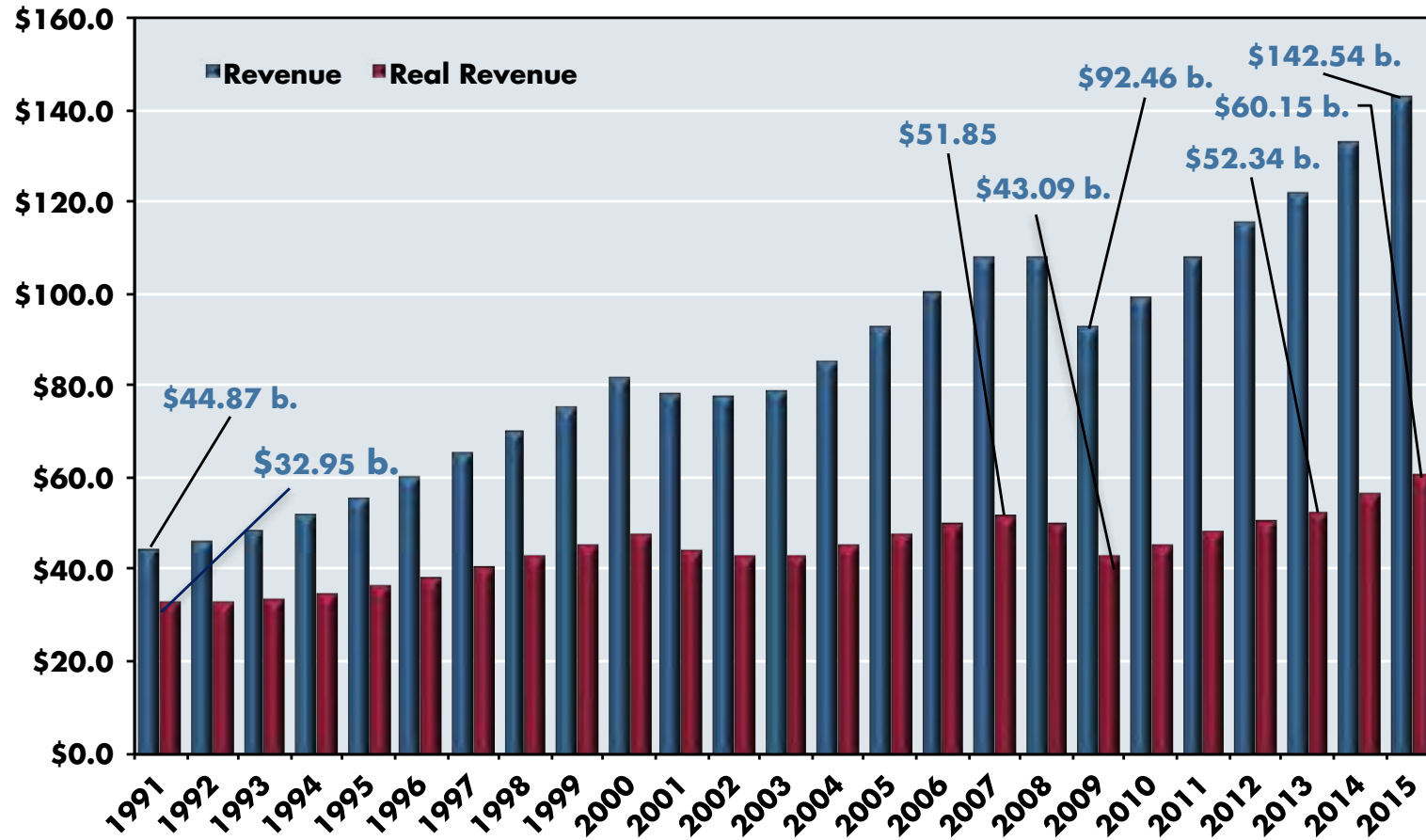
- The average occupancy rate for hotels in the United States approximated 62 percent between 1991 and 2015. However, occupancy rates declined substantially during the Great Recession – the occupancy rate fell from 63.2 percent in 2006 to only 54.6 percent in 2009. It was not until 2014 that occupancy rates exceeded their 2006 level. The good news for the hotel industry is that the 2015 occupancy rate reached an all-time high – 65.5 percent (see Graph 3).

NATIONAL HOTEL INDUSTRY DYNAMICS

- The Great Recession is the major reason for the decline in the performance of the industry between 2007 and 2009. Demand for hotel rooms began to recover in 2010 and has continued to increase steadily since then.
- The slackening of demand during the recession was compounded by a substantial increase in the supply of hotel rooms. Between 2006 and 2010, the supply of hotel rooms increased by 8.4 percent. Since then, the supply has been fairly stable, increasing by less than 1 percent each year between 2010 and 2014 and by only 1.1 percent in 2015 (see Graph 4).

GRAPH 1

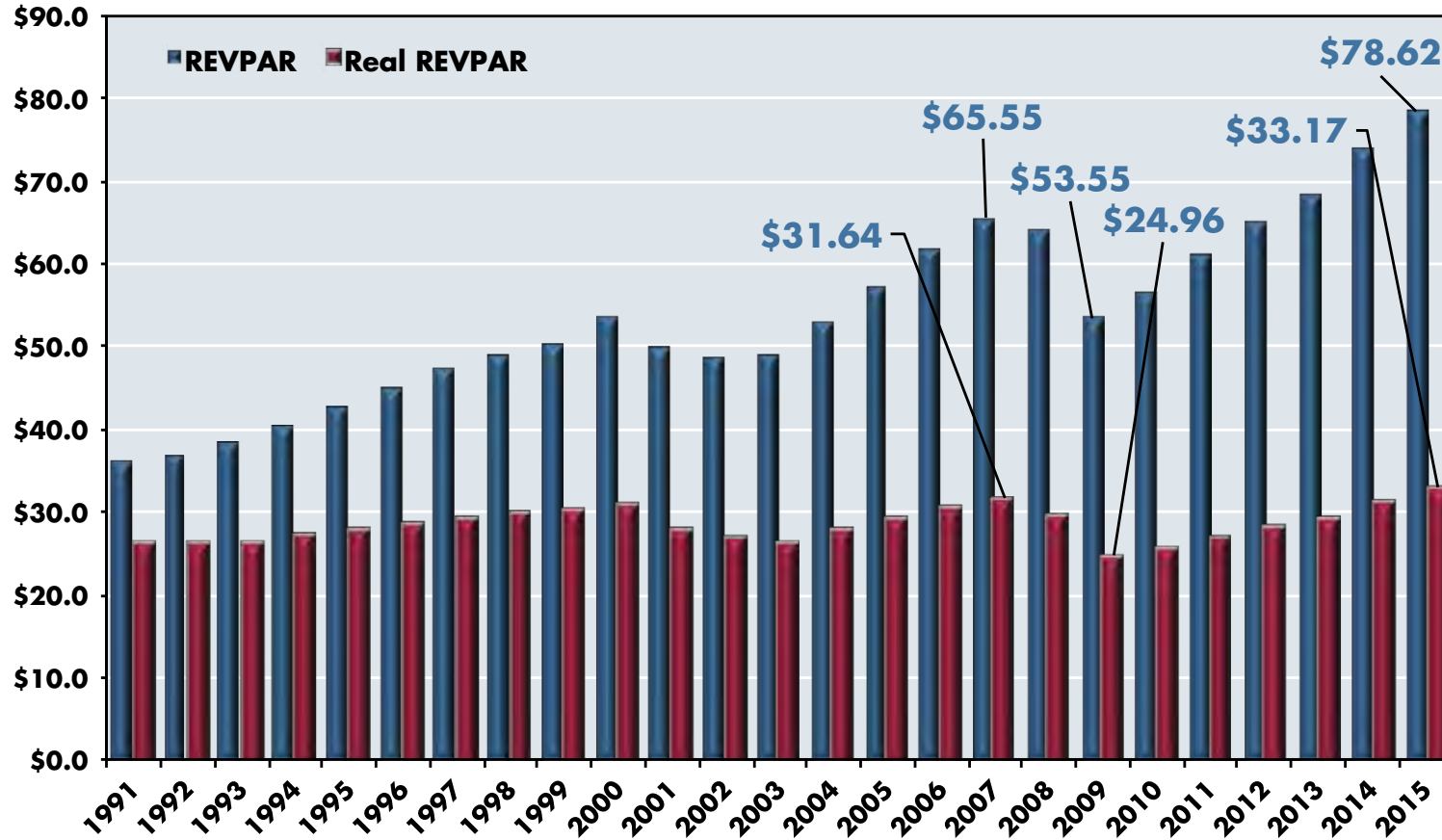
HOTEL REVENUE IN THE UNITED STATES, 1991-2015 (BILLIONS OF \$)



Sources: Smith Travel Research Trend Report, May 2, 2016; Bureau of Labor Statistics; and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 2

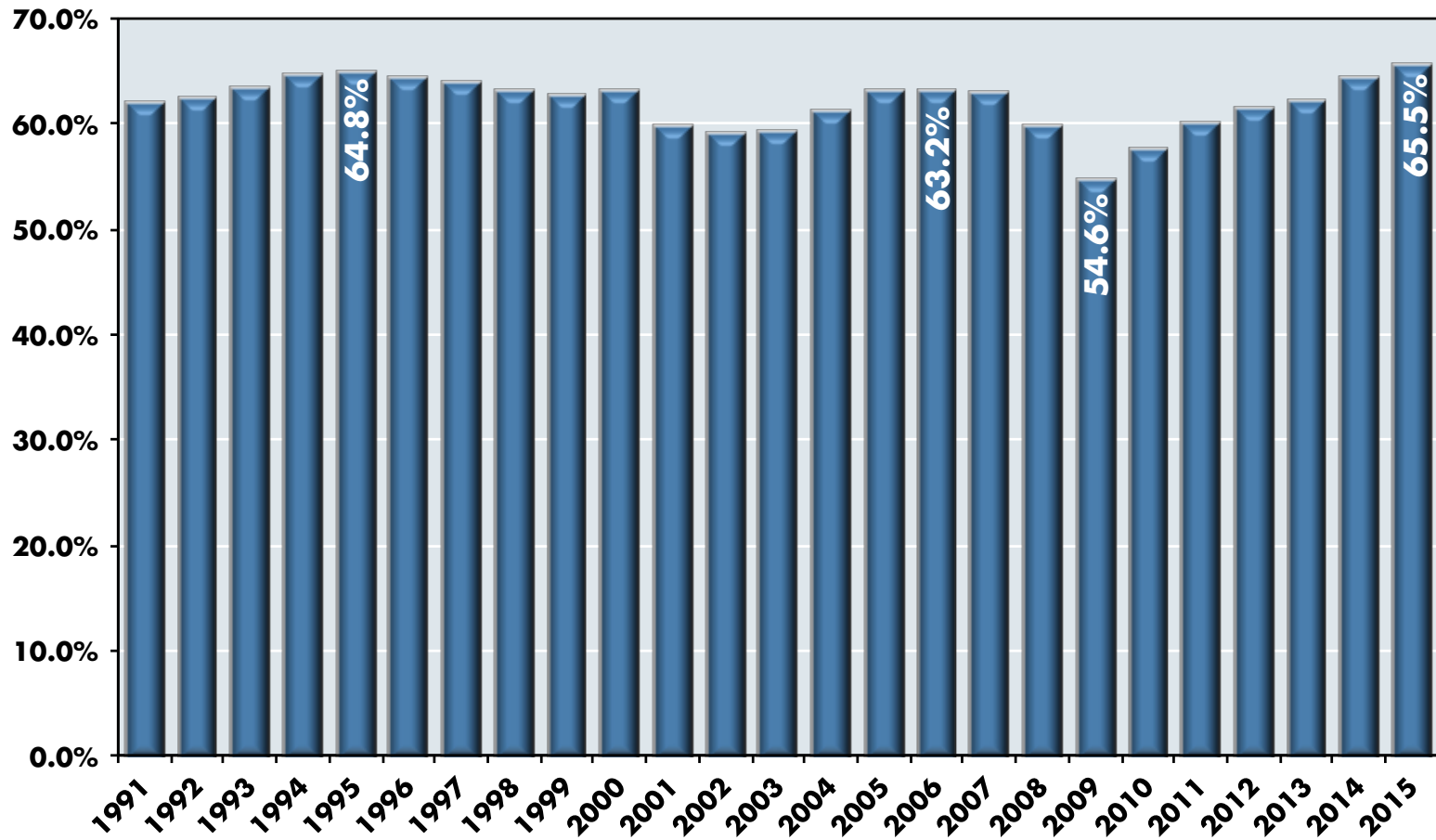
REVENUE PER AVAILABLE ROOM (REVPAR): UNITED STATES, 1991-2015



Sources: Smith Travel Research Trend Report, May 2, 2016; Bureau of Labor Statistics; and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 3

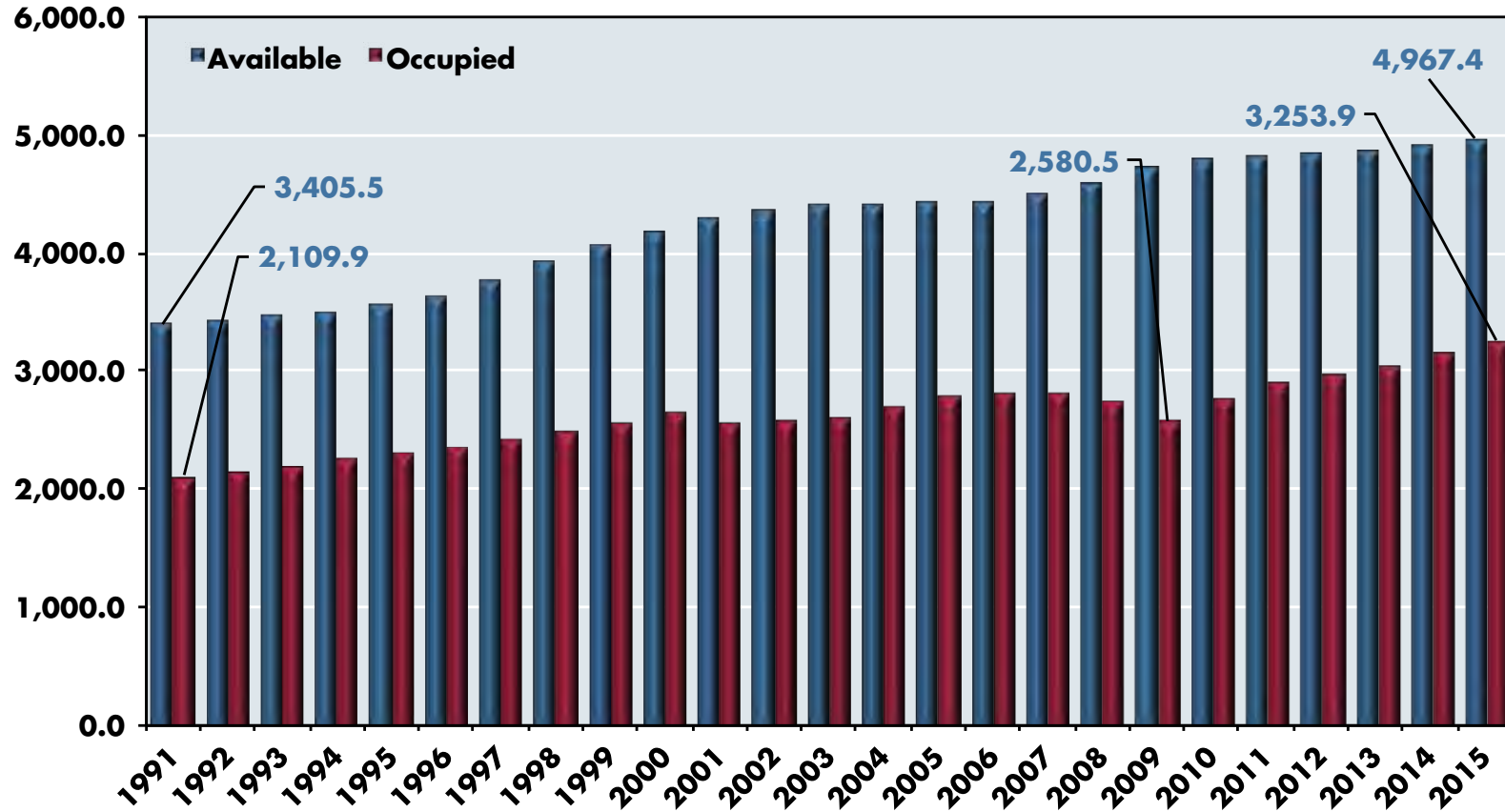
HOTEL OCCUPANCY RATES IN THE UNITED STATES, 1991-2015



Sources: Smith Travel Research Trend Report, May 2, 2016, and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 4

AVAILABLE HOTEL ROOMS AND ROOMS OCCUPIED IN THE UNITED STATES, 1991-2015



Sources: Smith Travel Research Trend Report, May 2, 2016, and the Center for Economic Analysis and Policy at Old Dominion University

How Has The Hotel Industry Been Performing In Virginia?

(1) Total Hotel Room Revenues in Virginia

- **If total hotel room revenue is the criterion, then over the past 25 years, the performance of the hotel industry in Virginia has been poor compared to the nation as a whole.** Total hotel room revenue in the Commonwealth increased by 185 percent between 1991 and 2015, but this easily trailed the national increase of 217 percent. When adjusted for inflation, hotel room revenues increased by only 63.5 percent during the same period, once again trailing the national average of 82.5 percent.
- Even though real hotel room revenues increased from \$1.32 billion in 2013 to \$1.49 billion in 2015 (a 12.87 percent gain), they remain slightly lower than the \$1.50 billion peak in 2007 (see Graph 5).

(2) Revenue Per Available Room (REVPAR) in Virginia

- Over the last 25 years, nominal REVPAR in the Commonwealth increased from \$32.18 in 1991 to \$63.99 in 2015, or 98.9 percent. However, real, inflation-adjusted REVPAR increased by only 14.3 percent during the same period, or only 0.5 percent annually. Further, real REVPAR began to decline in 2007 and continued to fall through 2013. Real REVPAR did increase in 2014 and 2015, but remains well below its 2007 peak of \$29.86 (see Graph 6).

(3) Occupancy Rates in Virginia

- The occupancy rate of hotels in Virginia averaged approximately 61 percent between 1991 and 2015 — slightly below that of the nation. The Great Recession hammered Virginia hotels and by 2009 their average occupancy rate had fallen to only 54.5 percent. Since then, occupancy rates generally

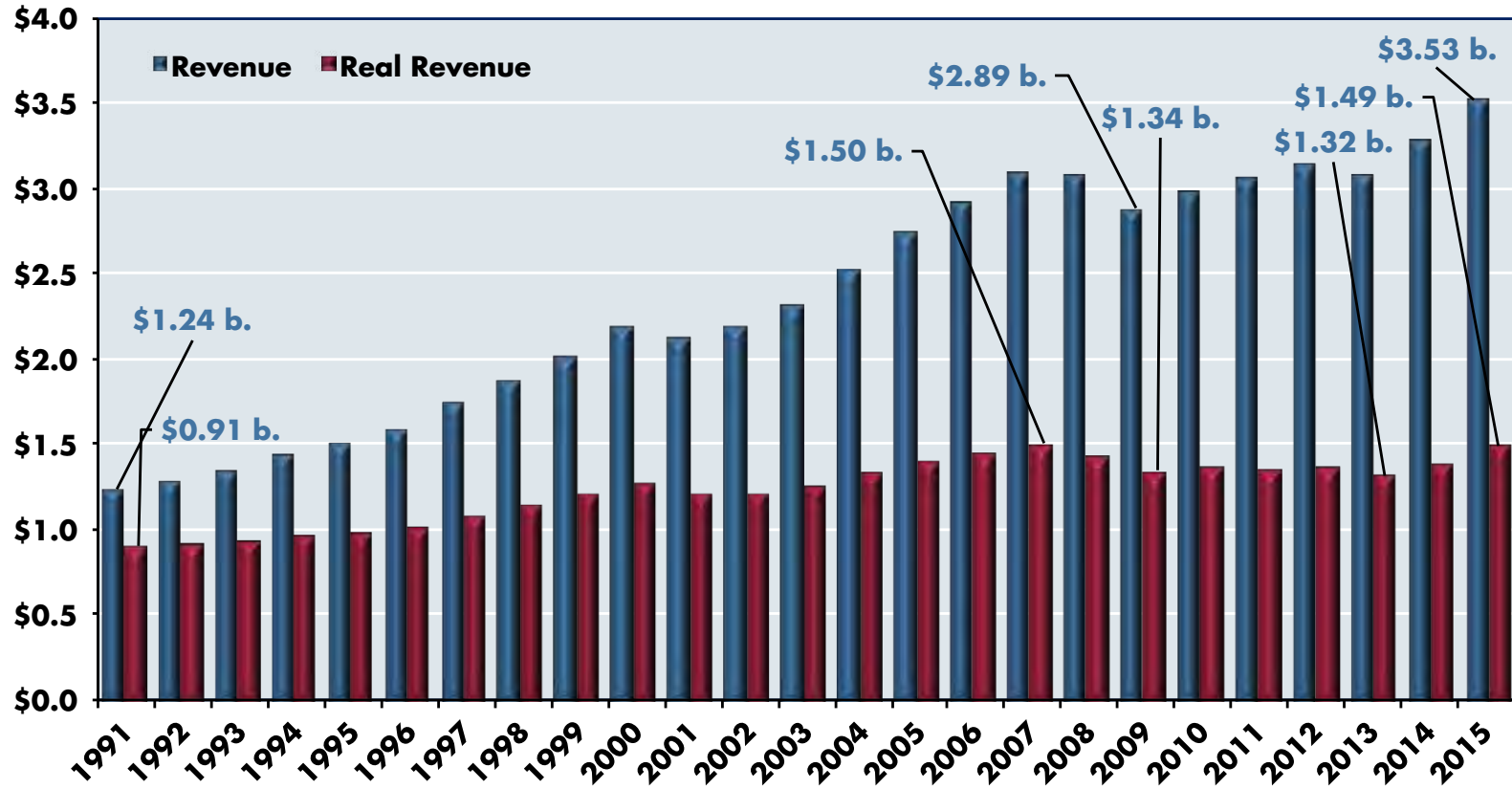
have trended upward. The 2015 rate was 61.6 percent — still below the highs of 62.61 percent in 2005 and 63.51 percent in 1994 (see Graph 7).

VIRGINIA HOTEL INDUSTRY DYNAMICS

- **There is little mystery attached to the causes of the underperformance of the hotel industry in Virginia in recent years. The combination of the Great Recession plus federal government budget sequestration constituted powerful blows from which the industry has yet to recover.**
- Further, as was true for the United States, a substantial increase in the supply of hotel rooms in Virginia put an additional damper on industry performance. Even while the demand for hotel rooms was declining between 2006 and 2010, the supply of hotel rooms was increasing by 11.4 percent. Since then, the supply of rooms in the Commonwealth has been fairly constant. By the end of 2015, the total supply of hotel rooms in Virginia actually was .05 percent below its 2010 level.
- The good news going forward for the Virginia hotel industry is that the hotel room supply/demand imbalance appears to be diminishing (see Graph 8). Nonetheless, happy days are not likely to return until federal spending in the Commonwealth, especially for defense, revives.

GRAPH 5

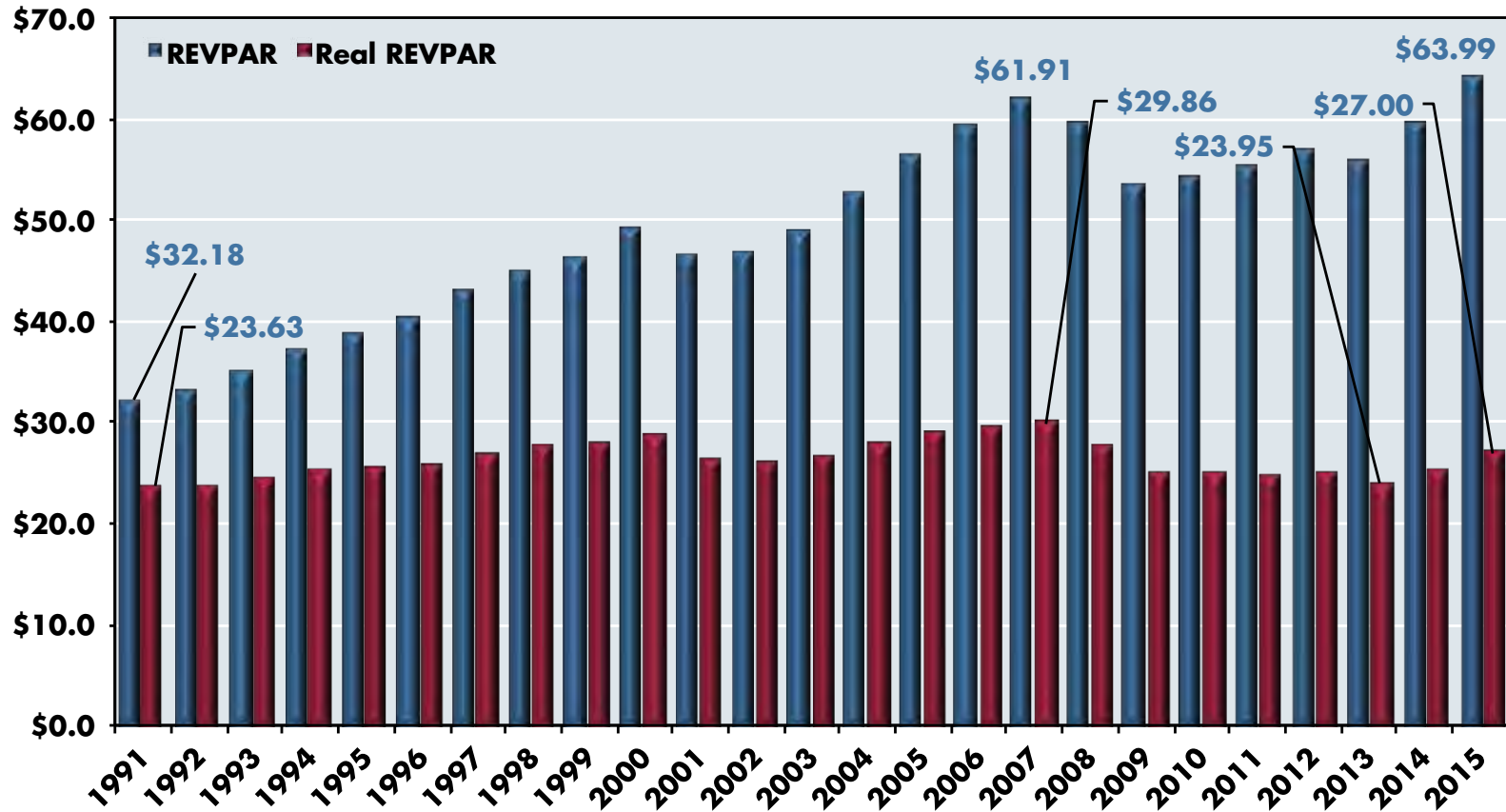
HOTEL REVENUE IN VIRGINIA, 1991-2015 (BILLIONS OF \$)



Sources: Smith Travel Research Trend Report, May 2, 2016; Bureau of Labor Statistics; and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 6

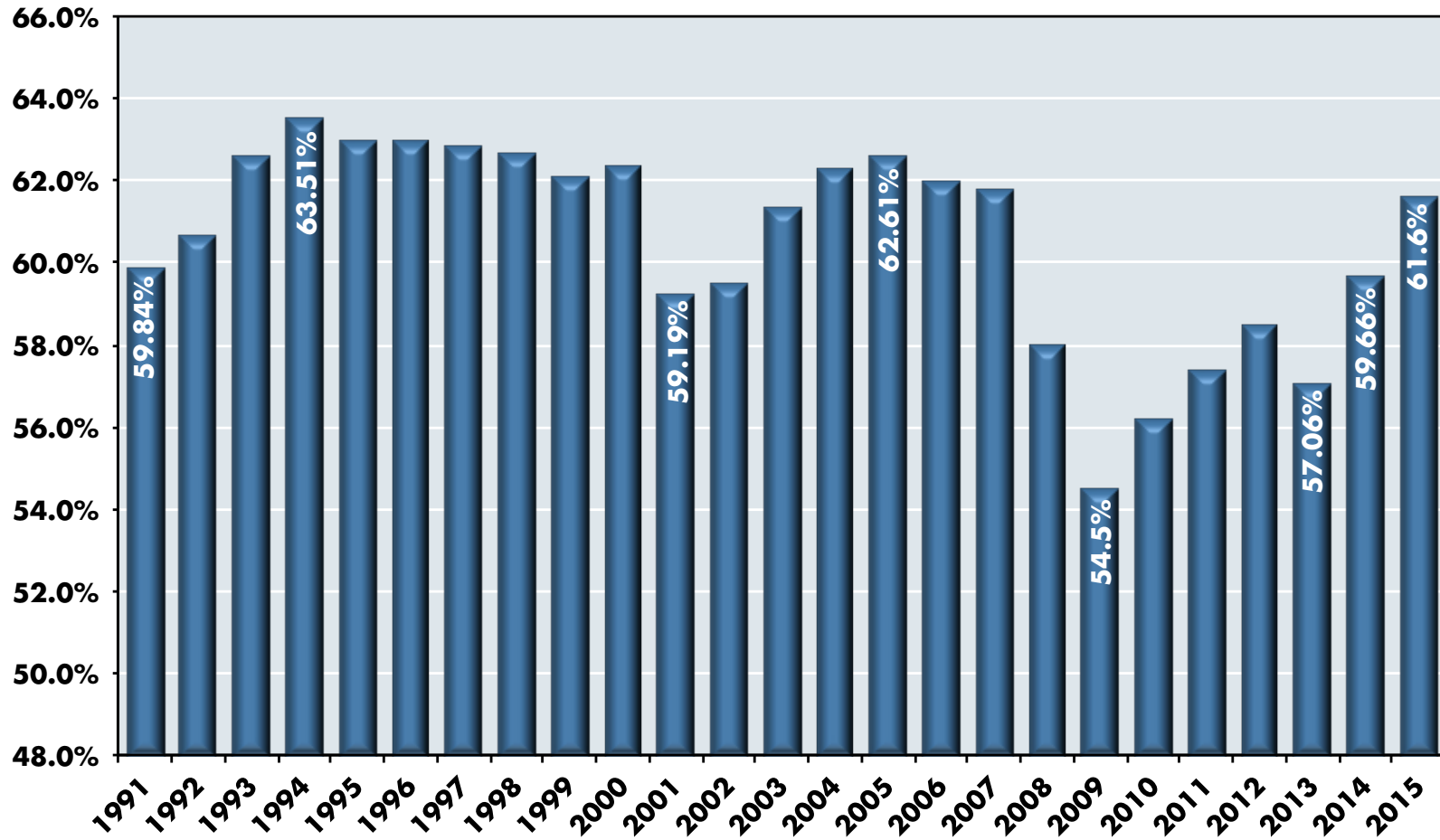
REVENUE PER AVAILABLE ROOM (REVPAR) IN VIRGINIA, 1991-2015



Sources: Smith Travel Research Trend Report, May 2, 2016; Bureau of Labor Statistics; and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 7

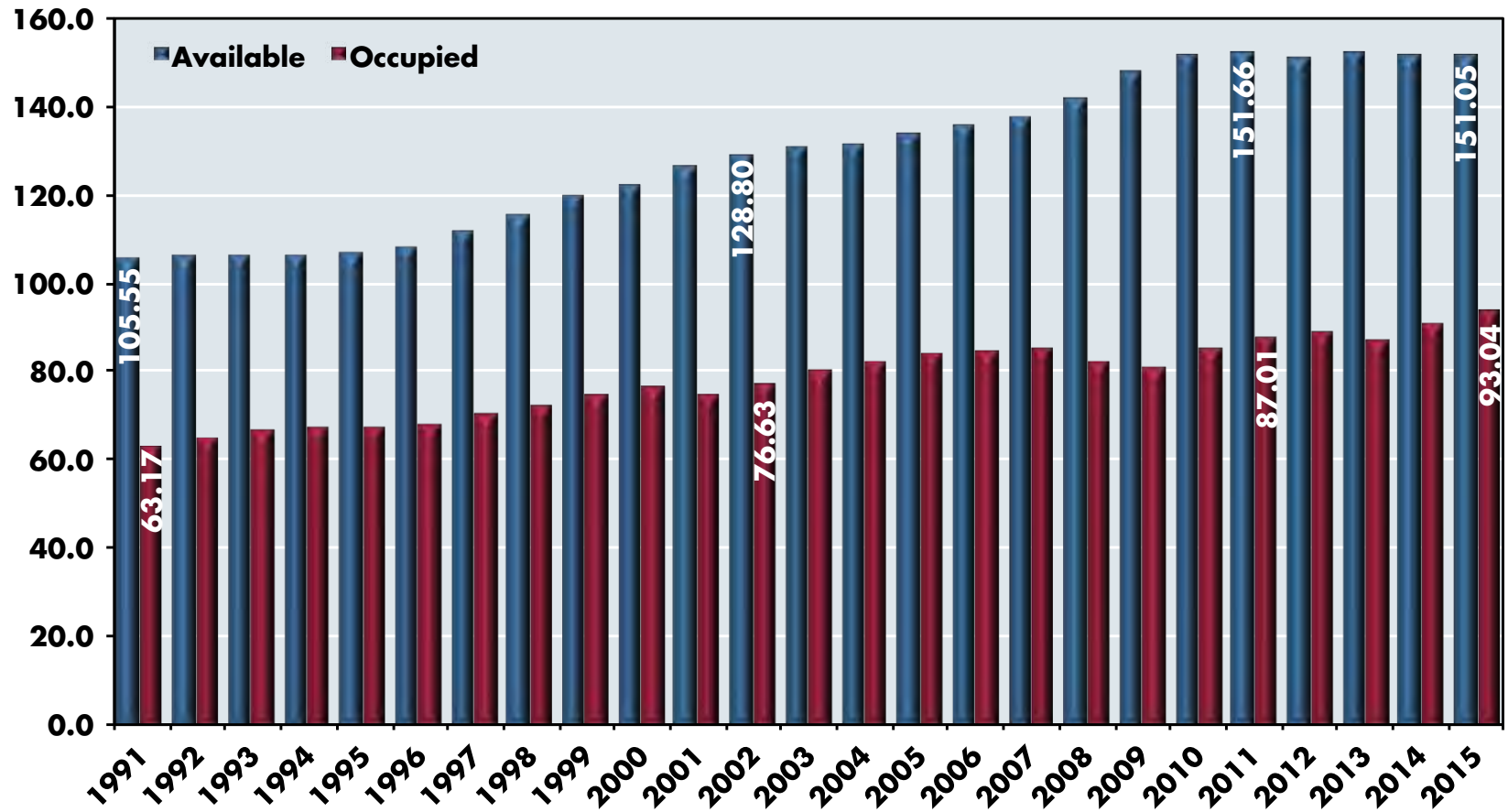
HOTEL OCCUPANCY RATES IN VIRGINIA, 1991-2015



Sources: Smith Travel Research Trend Report, May 2, 2016, and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 8

AVAILABLE HOTEL ROOMS AND ROOMS OCCUPIED IN VIRGINIA (000S), 1991-2015



Sources: Smith Travel Research Trend Report, May 2, 2016, and the Center for Economic Analysis and Policy at Old Dominion University

How Has The Hotel Industry Been Performing In Hampton Roads?

(1) Total Hotel Room Revenue in Hampton Roads

- If we once again use total hotel room revenue as our criterion, then the performance of the hotel industry in Hampton Roads must be categorized as even worse than that of Virginia during the last 25 years. True, nominal total hotel revenue increased from \$347.26 million in 1991 to \$744.07 million in 2015 (114.3 percent). Nevertheless, in real terms, total hotel room revenue increased by only 23.1 percent during the 25 years. Compare this to the nation's 82.5 percent increase and Virginia's 63.5 percent increase.
- **The Great Recession and federal financial sequestration constituted powerful blows to the hotel industry in Hampton Roads – ones from which the industry still has not rebounded.** Real hotel revenue declined from a peak in 2007 of \$344.12 million to \$289.69 million in 2011 – a momentous 15.8 percent decrease that illustrates the significant dependence of Hampton Roads on Department of Defense expenditures. Conditions have improved since then, but only marginally. For 2015, real total hotel revenue of \$314 million was still 8.8 percent below its 2007 level (see Graph 9).

(2) Revenue Per Available Room (REVPAR) in Hampton Roads

- The story is much the same for the critical REVPAR variable. Graph 10 reveals that nominal REVPAR has recovered from its recession low of \$44.83 in 2010; however, real REVPAR in 2015 was only \$22.75, barely above

its recession low and dramatically lower than its 2003 high of \$26.86. **In fact, over the past 25 years, real REVPAR in Hampton Roads increased only 0.2 percent annually, hardly the sign of a prosperous industry.**

(3) Occupancy Rates in Hampton Roads

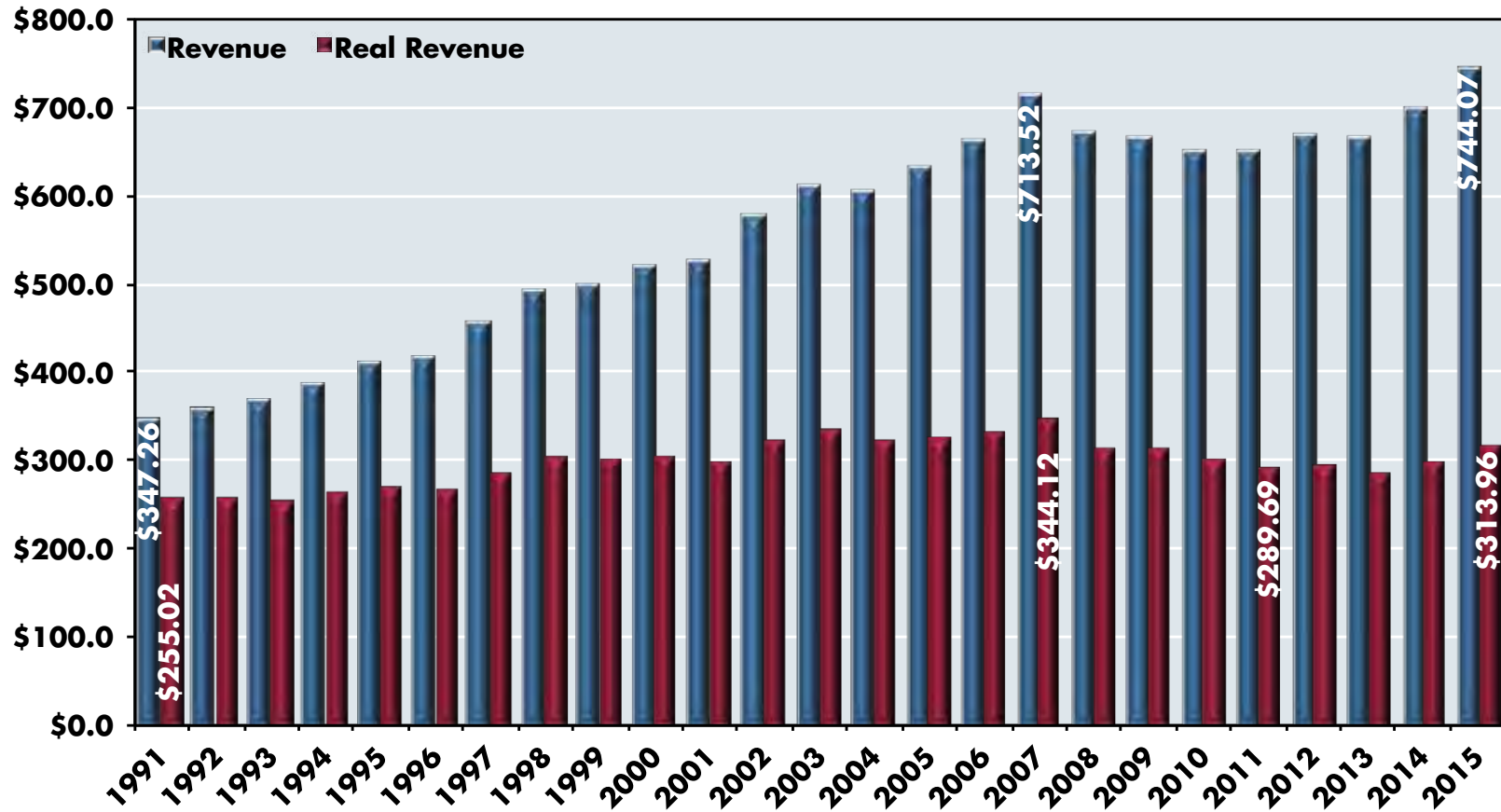
- The occupancy rate for hotels in Hampton Roads peaked in 2003 at 63.01 percent, reached its low at 52.25 percent in 2010 and then recovered to 57.06 percent in 2015 (see Graph 11). This occupancy rate, however, is well below Virginia's 61.6 percent and the national rate of 65.5 percent. Without question, these numbers provide visible evidence that all is not well in the hotel industry in Hampton Roads.
- There is a bit of light on the horizon, however. The number of hotel rooms being supplied by hoteliers in Hampton Roads has declined modestly every year since 2010 (see Graph 12). The supply/demand imbalance that led to poor REVPAR and occupancy numbers gradually is being addressed, and ultimately this augurs well for improved industry profitability.

HAMPTON ROADS HOTEL INDUSTRY DYNAMICS

- Hampton Roads is a microcosm of the Commonwealth and the nation in terms of the causes of its hotel industry distress. The Great Recession and torpid defense spending are the major culprits. Alas, recent economic growth numbers for Virginia have not been encouraging and congressional spending sequestration is likely to continue. This does not bode well for Hampton Roads. However, the region does appear to be working its way out of the supply/demand imbalance for hotel rooms, which reached its peak in the region in 2009 and 2010. If this trend continues, then it will improve both REVPAR and occupancy rates for hotel rooms in Hampton Roads.

GRAPH 9

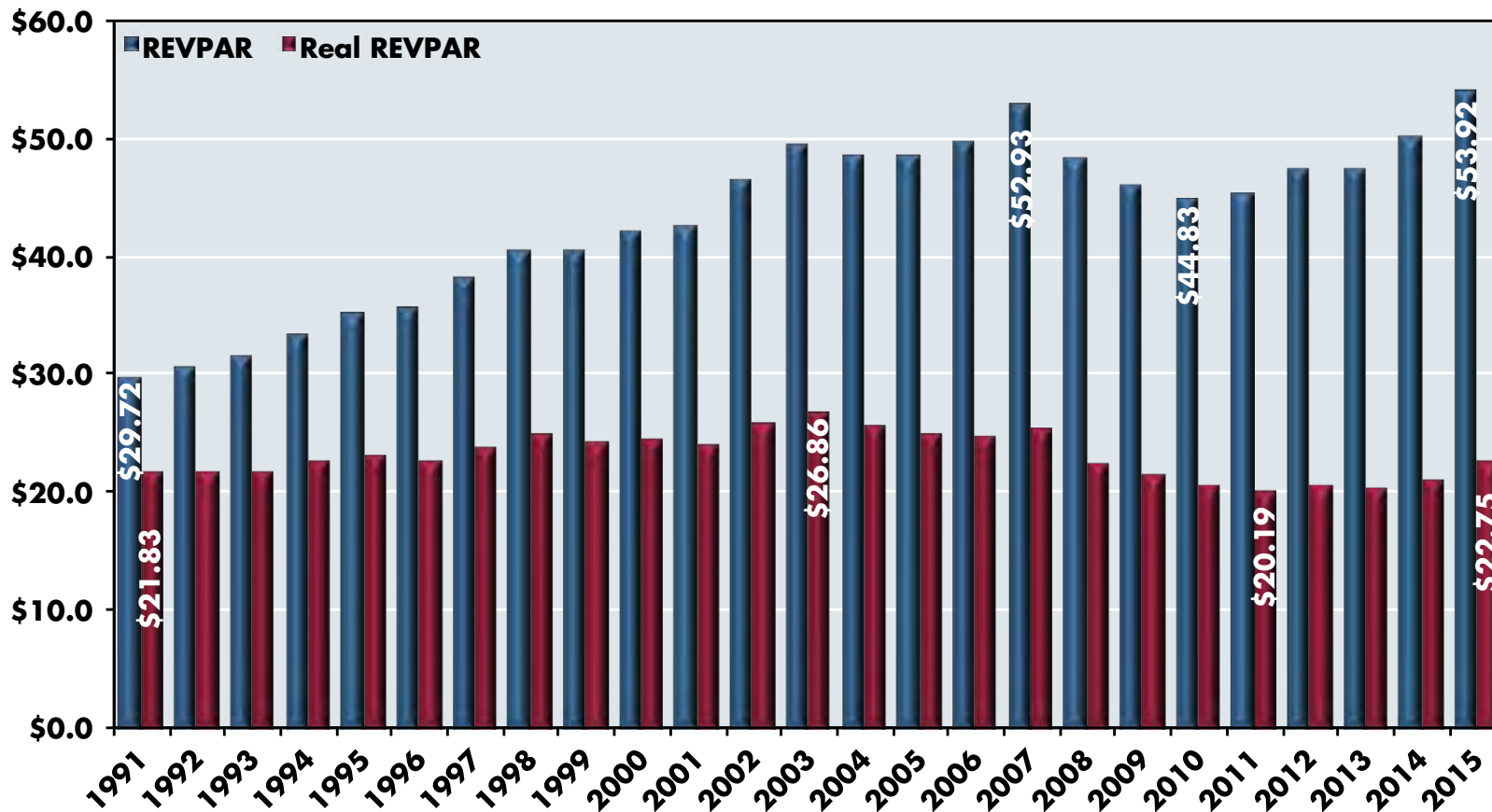
HOTEL REVENUE IN HAMPTON ROADS, 1991-2015 (MILLIONS OF \$)



Sources: Smith Travel Research Trend Report, May 2, 2016; Bureau of Labor Statistics; and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 10

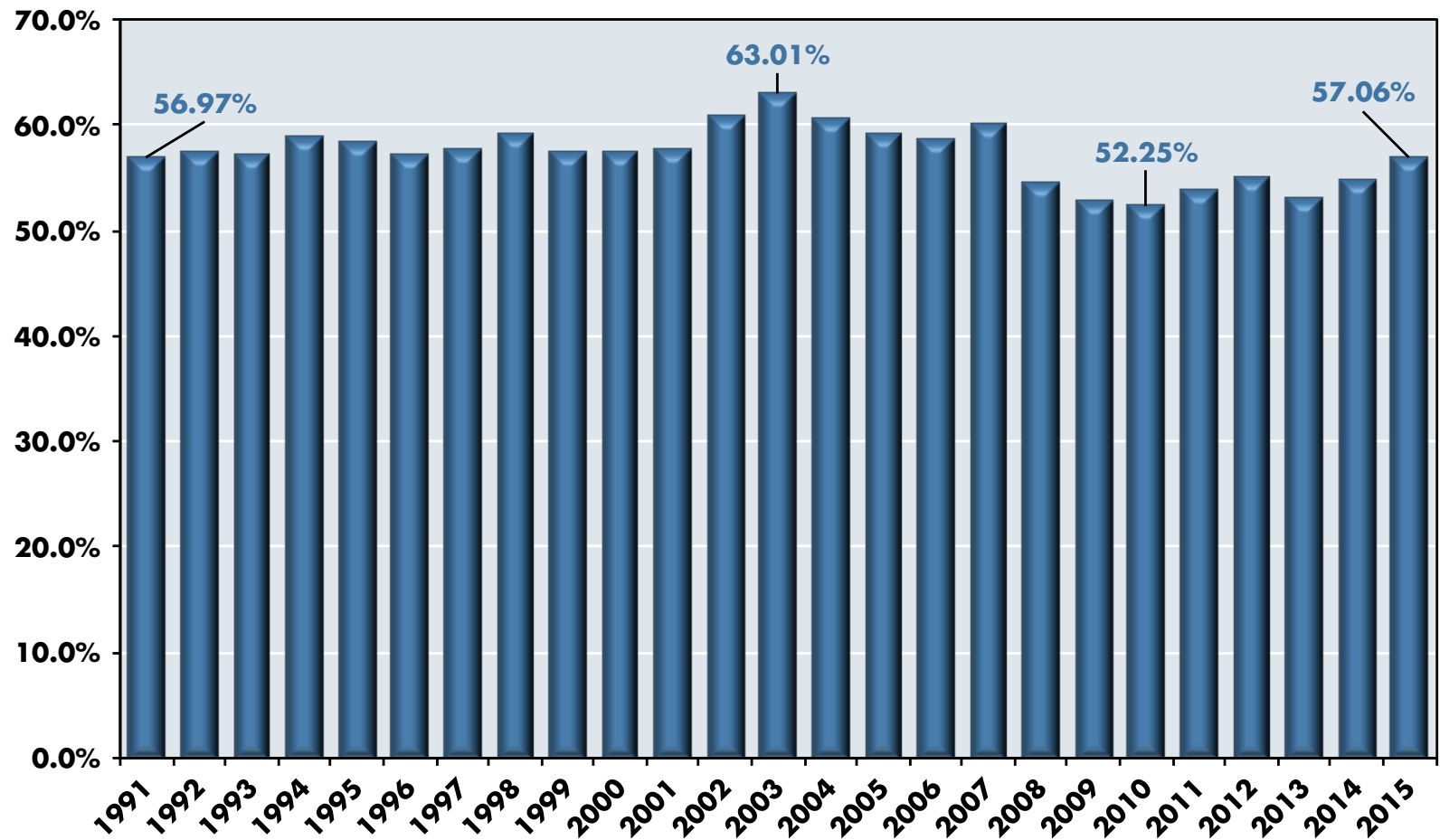
REVENUE PER AVAILABLE ROOM (REVPAR) IN HAMPTON ROADS, 1991-2015



Sources: Smith Travel Research Trend Report, May 2, 2016; Bureau of Labor Statistics; and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 11

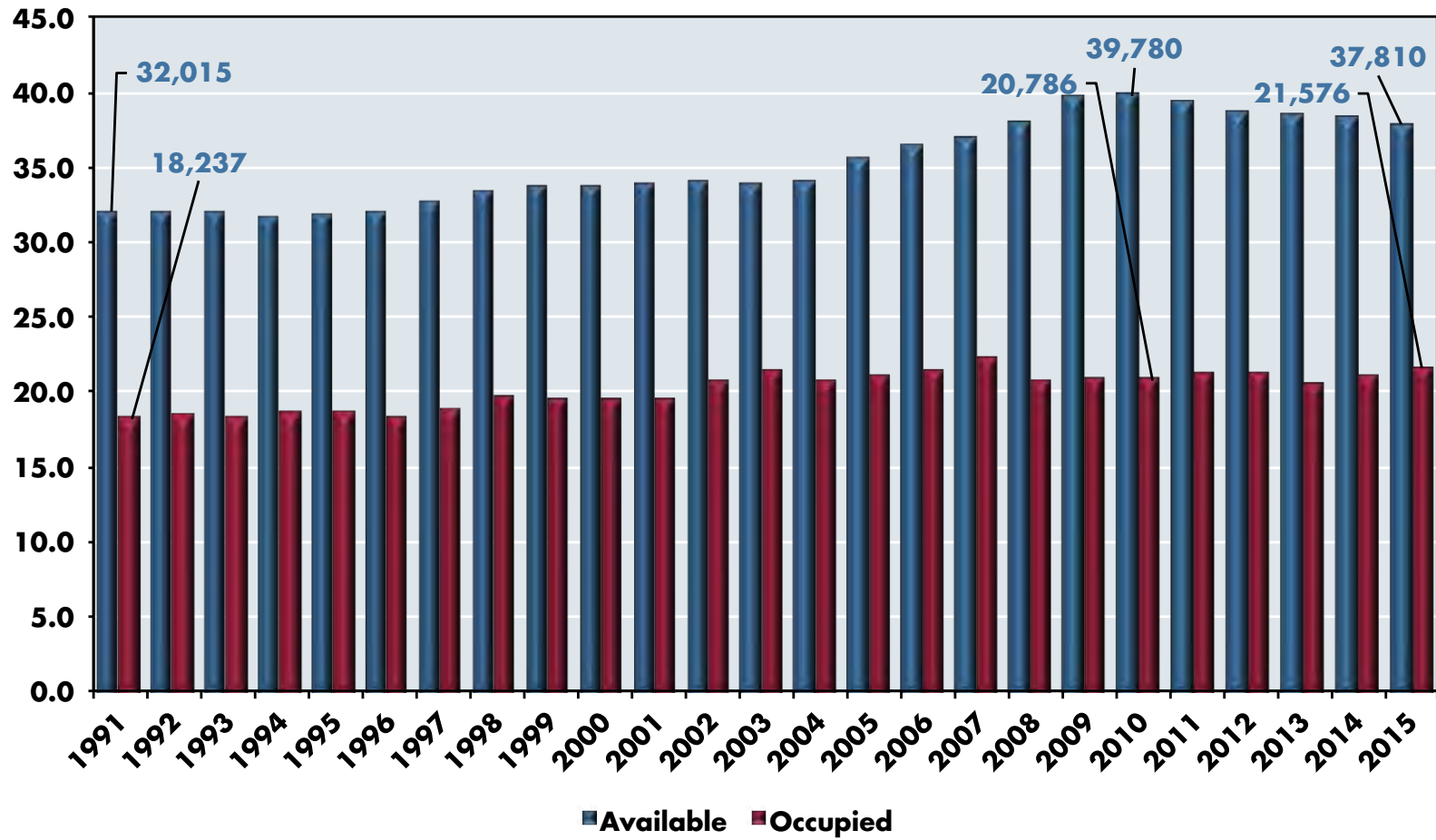
HOTEL OCCUPANCY RATES IN HAMPTON ROADS, 1991-2015



Sources: Smith Travel Research Trend Report, May 2, 2016, and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 12

AVAILABLE HOTEL ROOMS AND ROOMS OCCUPIED IN HAMPTON ROADS (000S), 1991-2015



Sources: Smith Travel Research Trend Report, May 2, 2016, and the Center for Economic Analysis and Policy at Old Dominion University

Hotel Performance In Submarkets Inside Hampton Roads

- Smith Travel Research divides the Hampton Roads market into five separate submarkets: Chesapeake/Suffolk, Newport News/Hampton, Norfolk/Portsmouth, Virginia Beach and Williamsburg, which includes the city of Williamsburg, James City County and York County and often is referred to as the Historic Triangle. Examination of total hotel room revenue data between 2000 and 2015 reveals that the Williamsburg and Norfolk/Portsmouth market segments have experienced declines in their relative shares of the total Hampton Roads market (see Graph 13). Williamsburg's market share declined from a healthy 30.6 percent in 2000 to only 19.5 percent in 2015. Norfolk/Portsmouth's market share declined more modestly, from 14.7 percent to 13.3 percent over the same period.
- Chesapeake/Suffolk, on the other hand, experienced the largest proportionate increase in market share, moving from 7.4 percent in 2000 to 12.7 percent in 2015. Also increasing its market share were Newport News/Hampton (13.2 percent to 15 percent) and Virginia Beach (34.1 percent to 39.4 percent). Given the large absolute size of the Virginia Beach hotel market, its increased market share easily translated into substantially larger hotel traffic and receipts in that city.
- Graph 14 discloses that Williamsburg (the Historic Triangle) has suffered a major decline in the demand for its hotel rooms. This resulted in a 9 percent decline in total hotel revenue from 2007 to 2015. The good news is that over the past three years, Williamsburg's total hotel revenue has rebounded smartly (see Graph 15) as the area has done some repositioning of its attractions and changed its advertising approach.
- Another submarket with observable challenges is Norfolk/Portsmouth, which has experienced a 17.9 percent decline in demand for its hotel rooms since 2003 (see Graph 16) and a 24.46 percent decline in real hotel room revenues (see Graph 17). In fact, in this submarket, real total hotel room revenues are lower in 2015 than they were 25 years ago in 1991. While Norfolk and Portsmouth have felt the financial sting of federal funding sequestration, reality is that the demand for hotel rooms in these cities already had begun to fall off in 2003.
- It will be interesting to see if The Main, the new 300-room upscale hotel and conference center scheduled to open in 2017 in downtown Norfolk, will succeed in attracting new guests who otherwise would not come to the city. Or, instead, will it simply reallocate existing guest demand among the incumbent downtown hotels, such as the Waterside Marriott and Sheraton Norfolk Waterside? The last time a major hotel development occurred in downtown Norfolk was in 1991 when the Waterside Marriott opened. The following things happened over the next three years: (1) the supply of hotel rooms in Norfolk/Portsmouth increased by about 100; (2) the actual number of rooms rented by guests stayed about the same; (3) nominal hotel room revenue increased slightly; and (4) real hotel room revenue declined slightly. A significant expansion of defense spending occurred in the first decade of this century after 9/11 and was fueled further by the Iraq and Afghanistan conflicts. This was the major reason that occupancy in this submarket surged upward (and peaked in 2003). Since then, however, the total number of rooms rented has fallen nearly every year and by 2015 was 5.2 percent below even the 1991 level (see Graph 16).
- Both the Newport News/Hampton and Chesapeake/Suffolk submarkets gained market share between 2000 and 2016. Nevertheless, their stories differ. As Graph 18 demonstrates, the number of available rooms in Newport News/Hampton declined in recent years while demand remained steady. Meanwhile, reflecting the energetic growth of the two constituent cities' economies, the Chesapeake/Suffolk submarket experienced a dramatic increase in its inventory of hotel rooms through 2010 (see Graph 19). Further, Chesapeake/Suffolk was unusual in that it also enjoyed a continuous increase in the demand for hotel rooms, even during the Great Recession. This bodes well for this submarket's future REVPAR.
- The revenue picture differs substantially between the two submarkets, however. As Graph 20 illustrates, real total hotel room revenue in Newport News/Hampton is still well below its 2007 high of \$53.47 and now is only

\$47.20. However, in Chesapeake/Suffolk, both total hotel room revenue and real hotel room revenue are at all-time highs (see Graph 21). The growth of the economies of Chesapeake and Suffolk has enabled hotels in those cities to overcome the drag of both the Great Recession and federal budget sequestration.

- The Virginia Beach hotel submarket initially appears to present a paradox. As we have seen, Virginia Beach’s regional share of hotel action (as measured by total hotel room revenues) grew by 5.3 percent between 2000 and 2015. This did not come about because the city had many more hotel rooms. While the supply of hotel rooms increased noticeably between 2000 and 2009, it actually has declined by about 300 rooms since then. The number of hotel rooms actually occupied in that city increased only modestly during the same time period and actually fell between 2012 and 2015 (see Graph 22). Stagnant demand and supply doesn’t sound like a recipe for increasing market share.
- What’s going on in Virginia Beach? The key is that city has changed the mix of its hotel rooms such that it now offers more upscale rooms that operate under the aegis of national franchises and are able to command higher prices.³ As Graph 23 reveals, total hotel room revenue in Virginia Beach has been increasing nicely (9.7 percent since 2013) even though the city actually has been supplying fewer hotel rooms. A recent study by the city of Virginia Beach, based on data reported to Smith Travel Research, indicated that franchised, upscale hotels not only charge higher rates, but also have higher occupancy rates than economy hotels. Table 2 presents some of those study results.

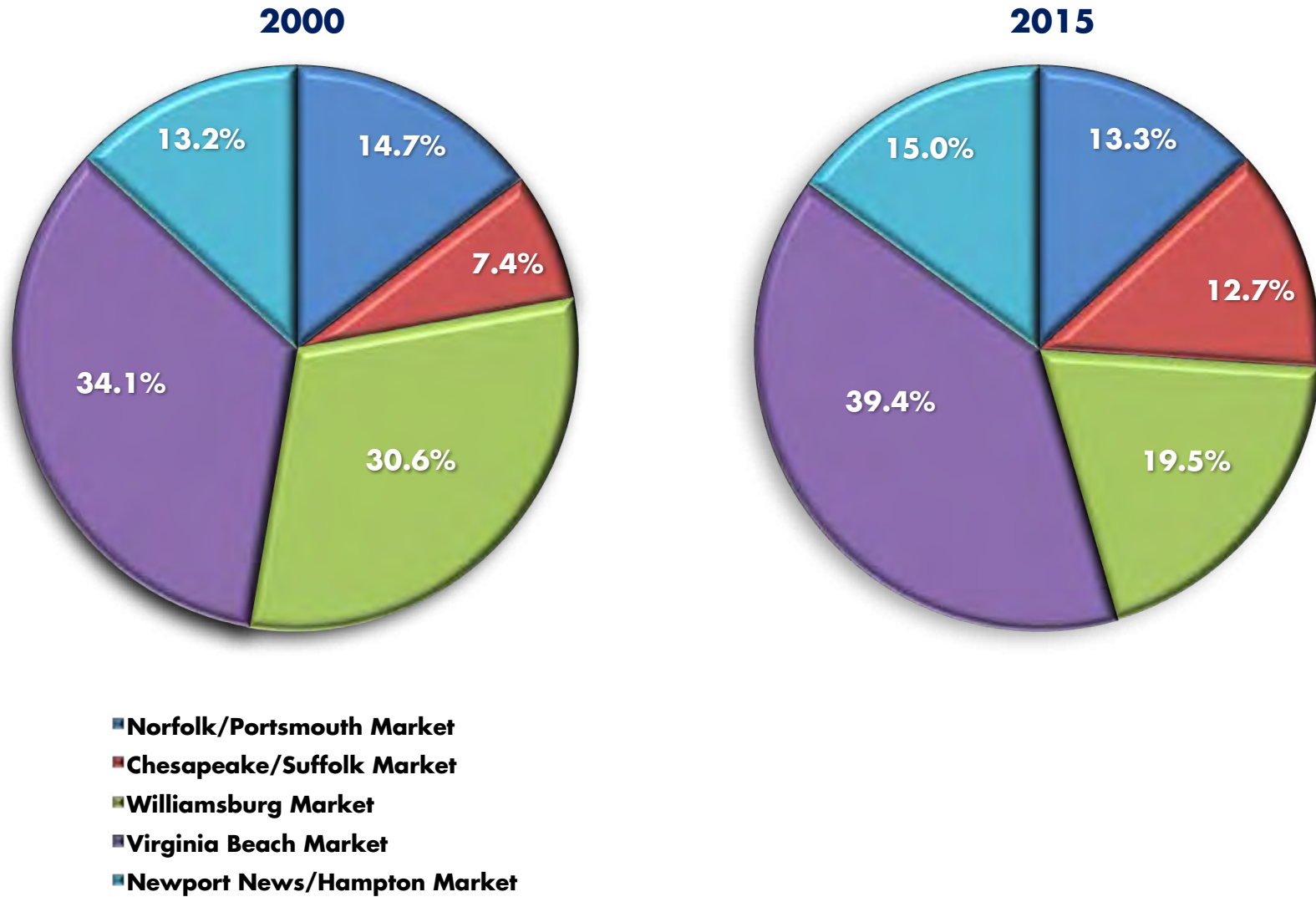
	2006	2014	Percentage Change
Supply of Upscale Rooms	2,365	3,019	+27.7%
Supply of Economy Rooms	2,698	2,661	-1.4%
Demand for Upscale Rooms	1,590	1,942	+22.1%
Demand for Economy Rooms	1,601	1,531	-4.3%
REVPAR at Upscale Hotels	\$83.5	\$93.0	+11.4%
REVPAR at Economy Hotels	\$37.9	\$40.2	+6.1%

Sources: 2014 Virginia Beach Hotel Supply & Demand Analysis, February 2016, and the Center for Economic Analysis and Policy at Old Dominion University

³ Smith Travel Research data show that the supply of hotel rooms designated as “upscale” (measured by high average daily rates) increased 27.7 percent between 2006 and 2014, while “economy” hotel rooms decreased in number by 1.4 percent. Further, the average occupancy rate at the upscale hotels was 65.1 percent compared to only 57.2 percent at economy hotels.

GRAPH 13

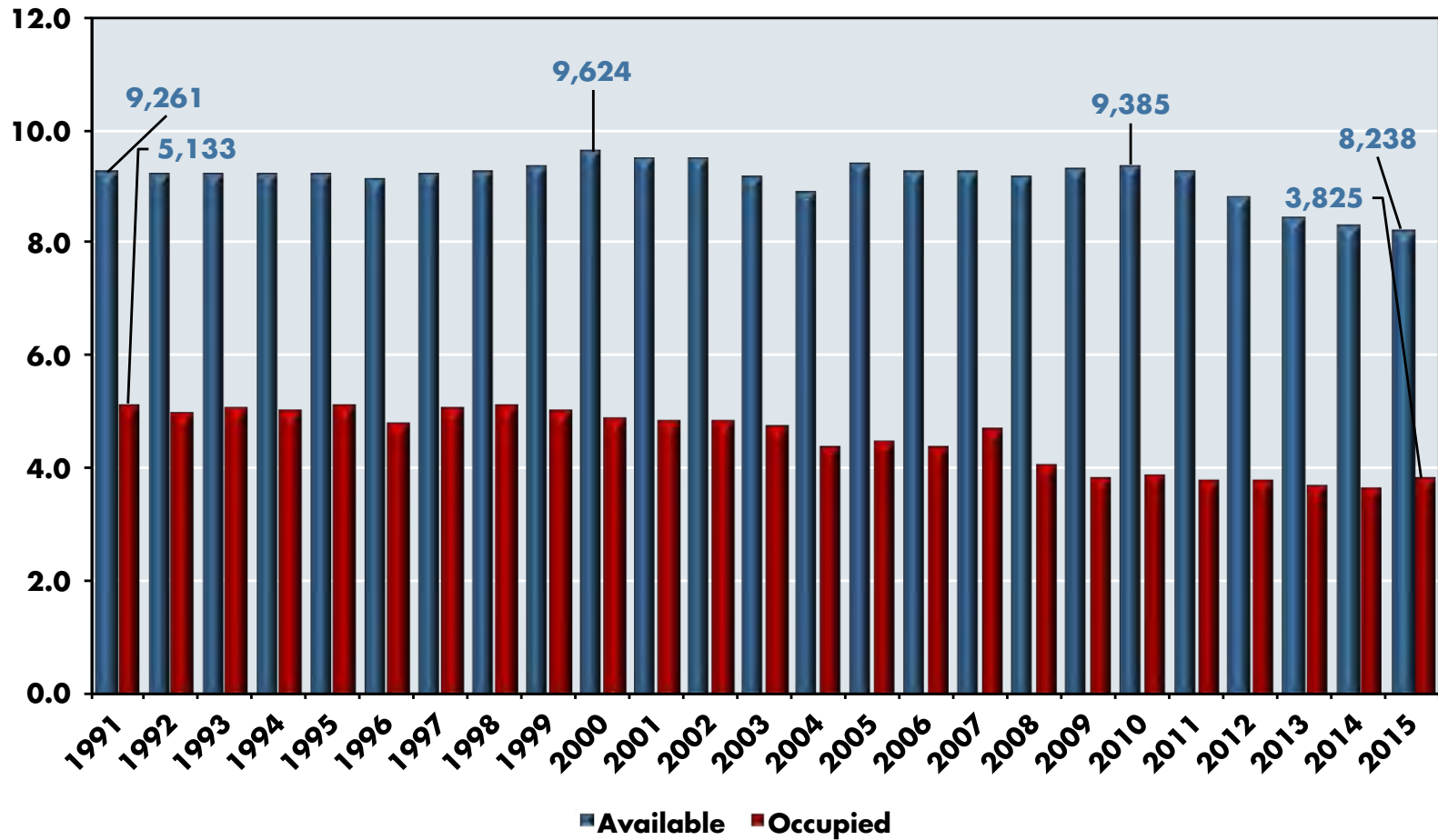
**ESTIMATED HOTEL INDUSTRY MARKET SHARES IN HAMPTON ROADS
(MEASURED BY HOTEL ROOM REVENUE, 2000 AND 2015)**



Sources: Smith Travel Research Trend Report, May 2, 2016, and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 14

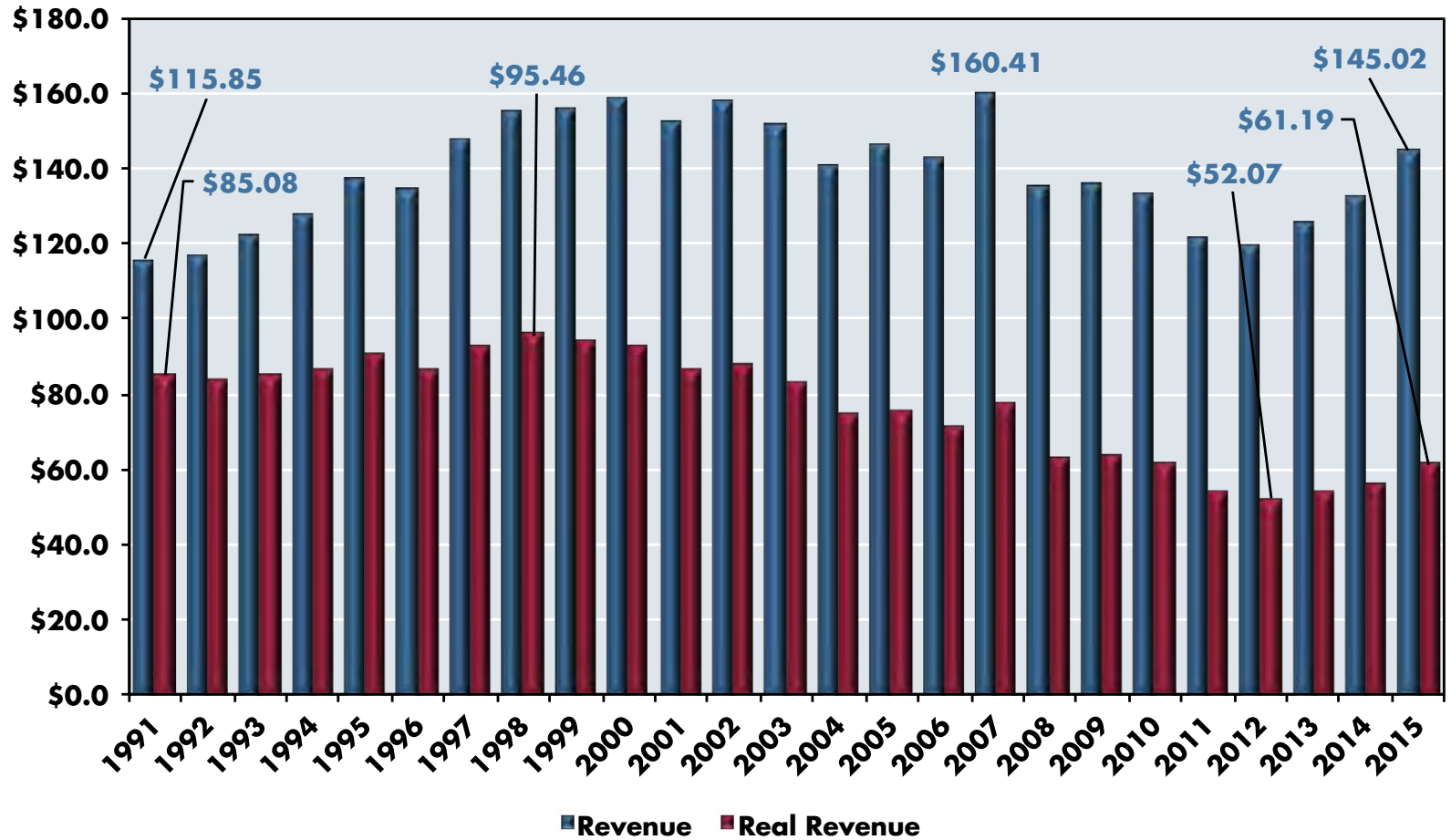
AVAILABLE HOTEL ROOMS AND ROOMS OCCUPIED IN WILLIAMSBURG, 1991-2015



Sources: Smith Travel Research Trend Report, May 2, 2016, and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 15

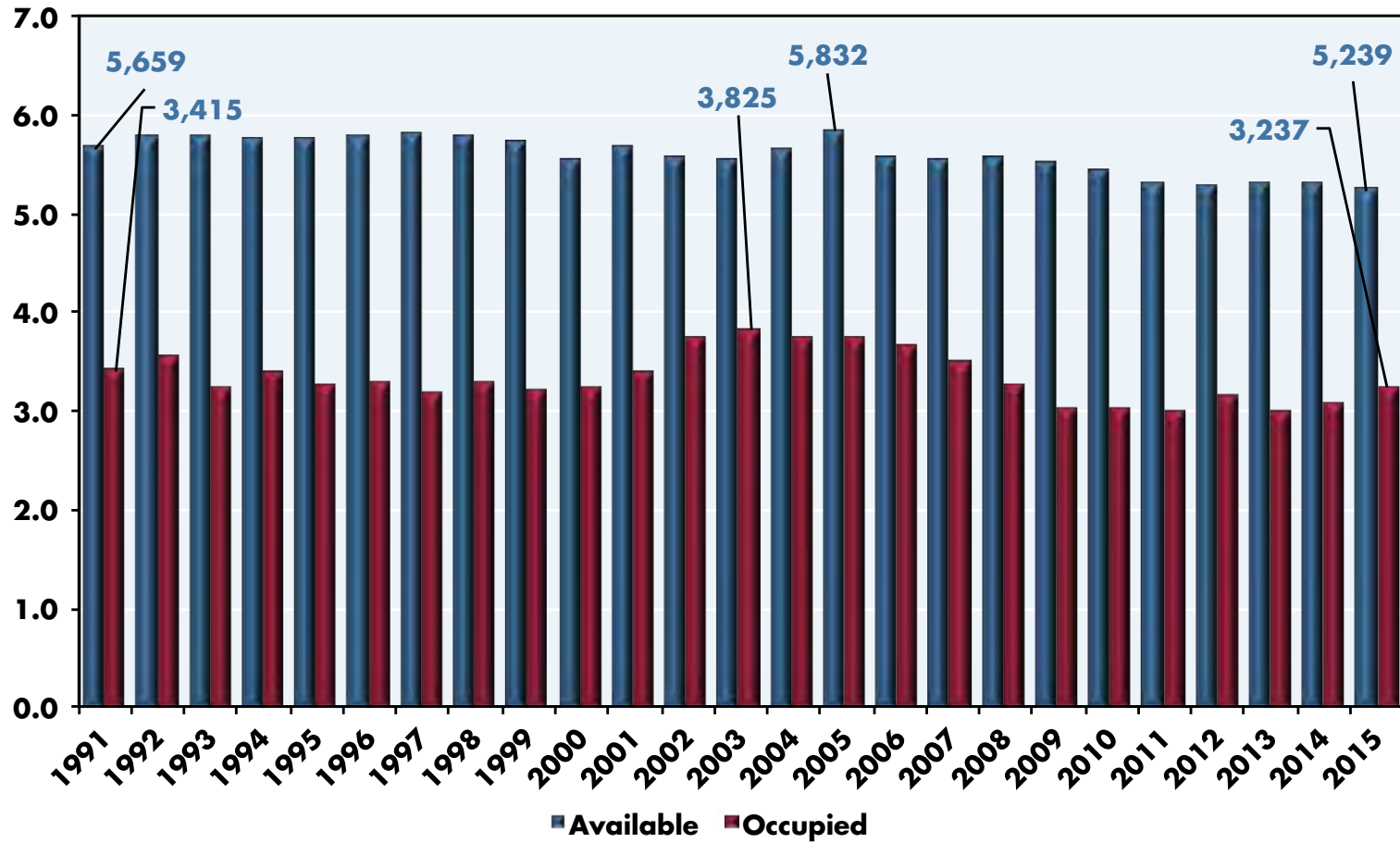
TOTAL HOTEL ROOM REVENUE IN WILLIAMSBURG, 1991-2015 (MILLIONS OF \$)



Sources: Smith Travel Research Trend Report, May 2, 2016; Bureau of Labor Statistics; and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 16

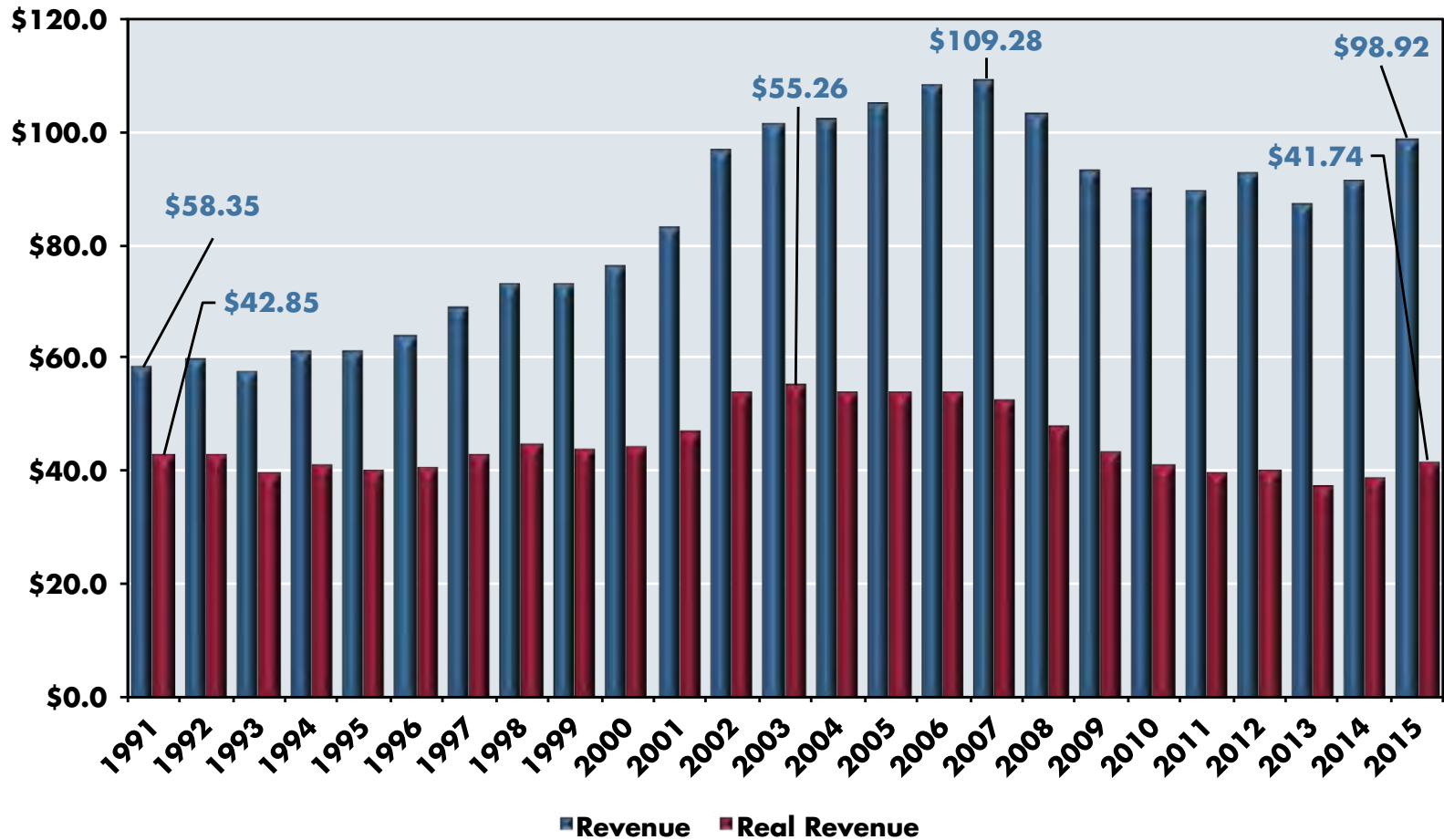
AVAILABLE HOTEL ROOMS AND ROOMS OCCUPIED IN NORFOLK/PORTSMOUTH (000S), 1991-2015



Sources: Smith Travel Research Trend Report, May 2, 2016, and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 17

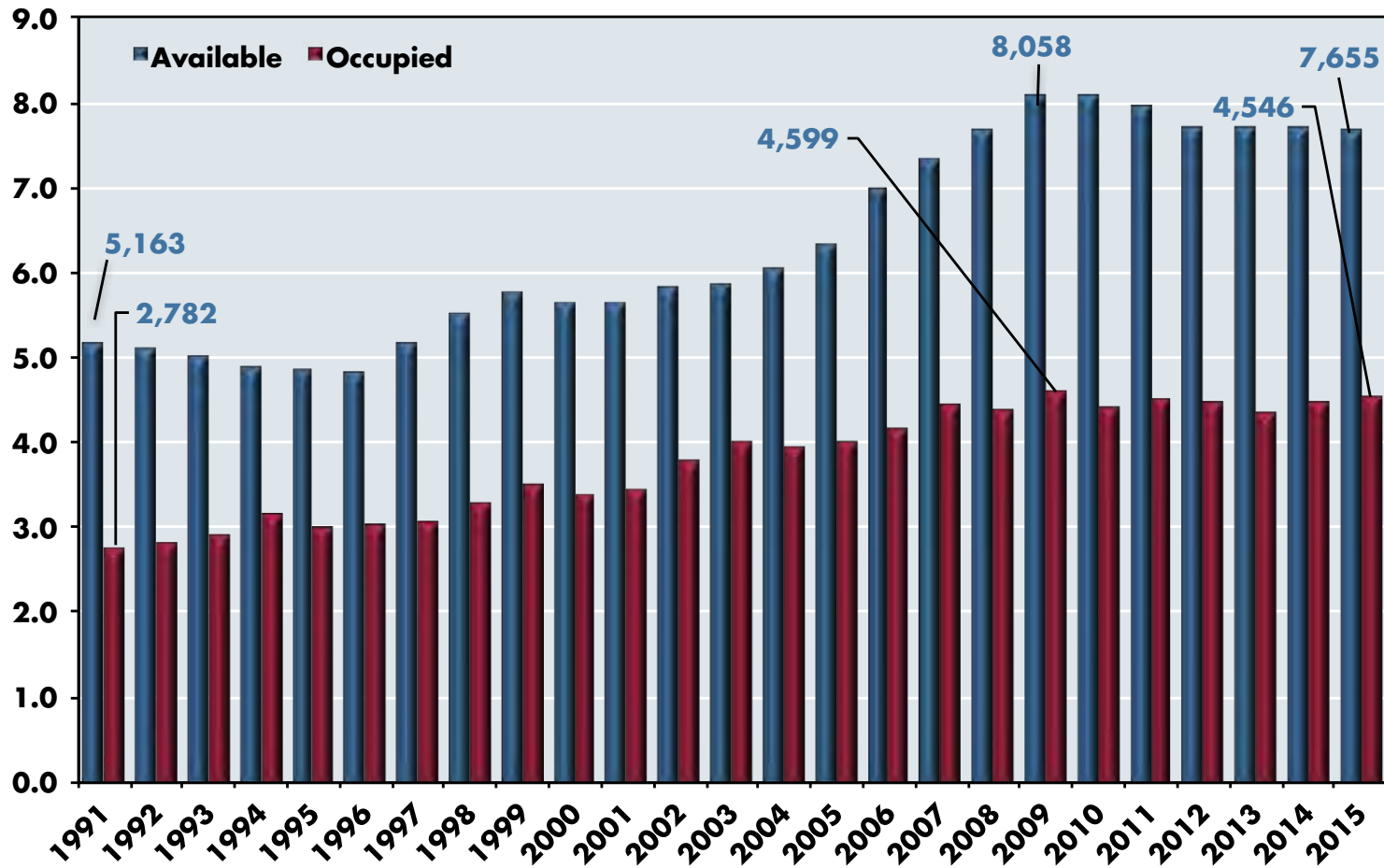
HOTEL ROOM REVENUE IN NORFOLK/PORTSMOUTH MARKET, 1991-2015 (MILLIONS OF \$)



Sources: Smith Travel Research Trend Report, May 2, 2016; Bureau of Labor Statistics; and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 18

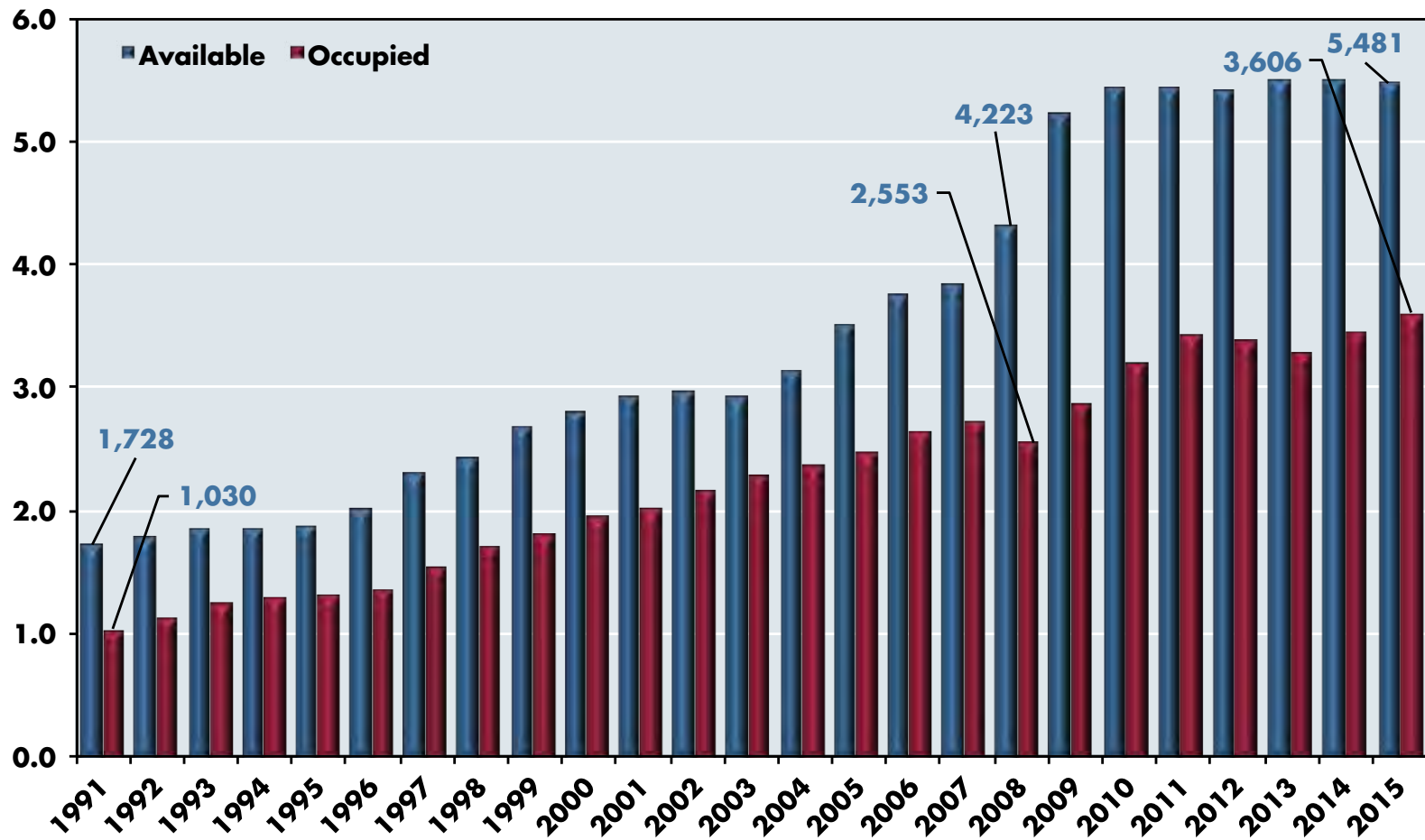
AVAILABLE HOTEL ROOMS AND ROOMS OCCUPIED IN NEWPORT NEWS/HAMPTON, 1991-2015



Sources: Smith Travel Research Trend Report, May 2, 2016, and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 19

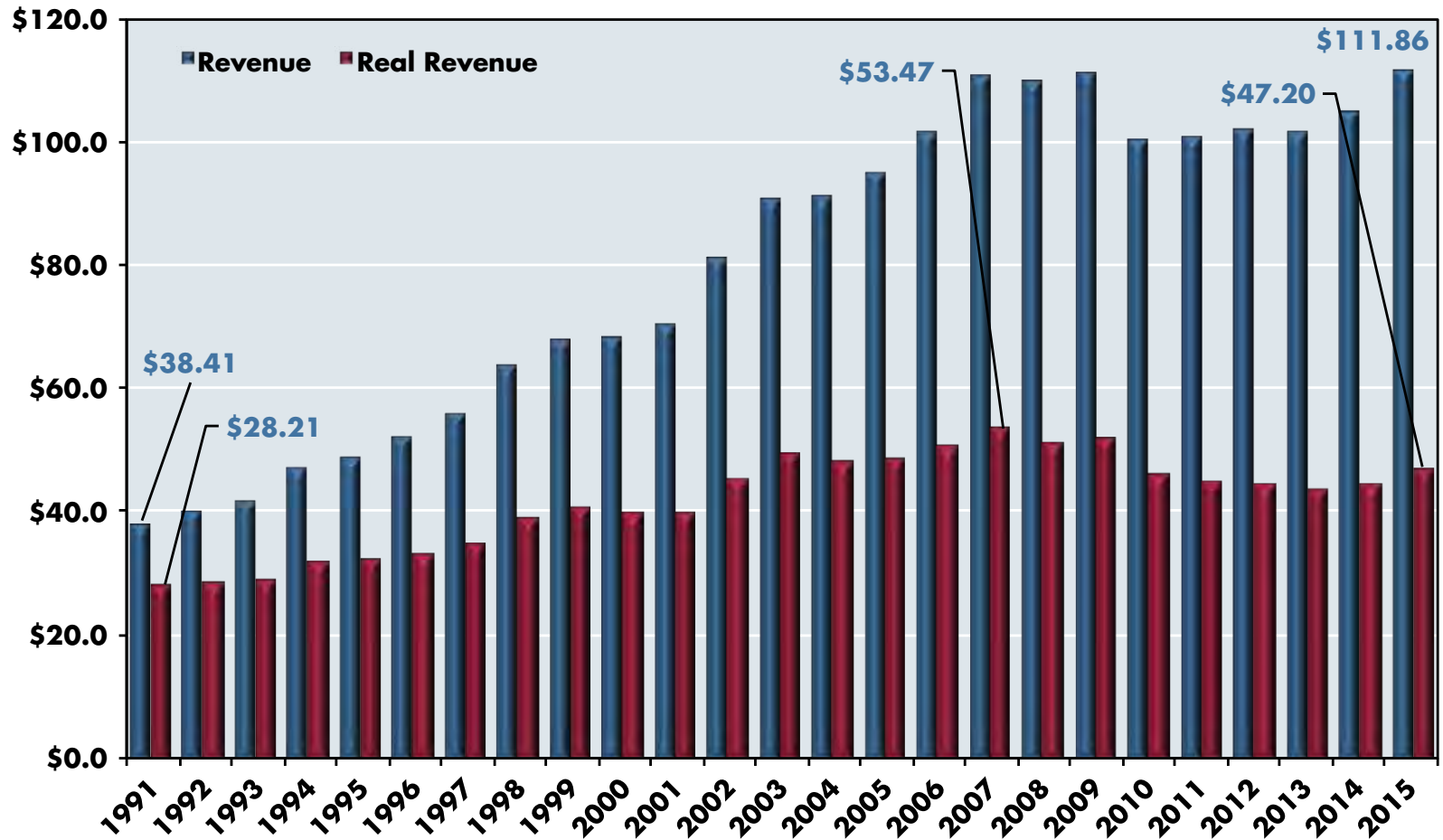
AVAILABLE HOTEL ROOMS AND ROOMS OCCUPIED IN CHESAPEAKE/SUFFOLK, 1991-2015



Sources: Smith Travel Research Trend Report, May 2, 2016, and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 20

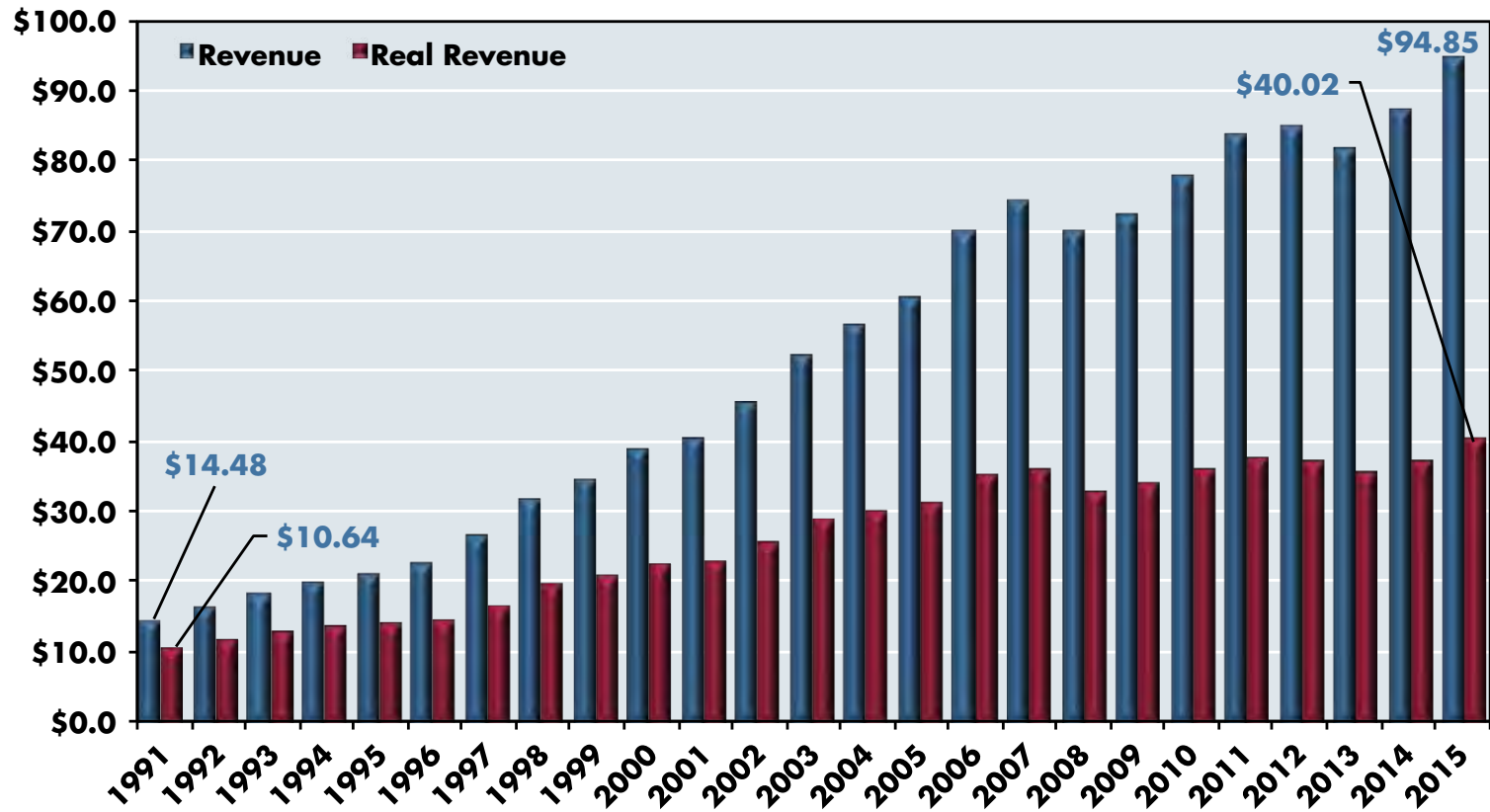
HOTEL ROOM REVENUE IN NEWPORT NEWS/HAMPTON, 1991-2015 (MILLIONS OF \$)



Sources: Smith Travel Research Trend Report, May 2, 2016; Bureau of Labor Statistics; and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 21

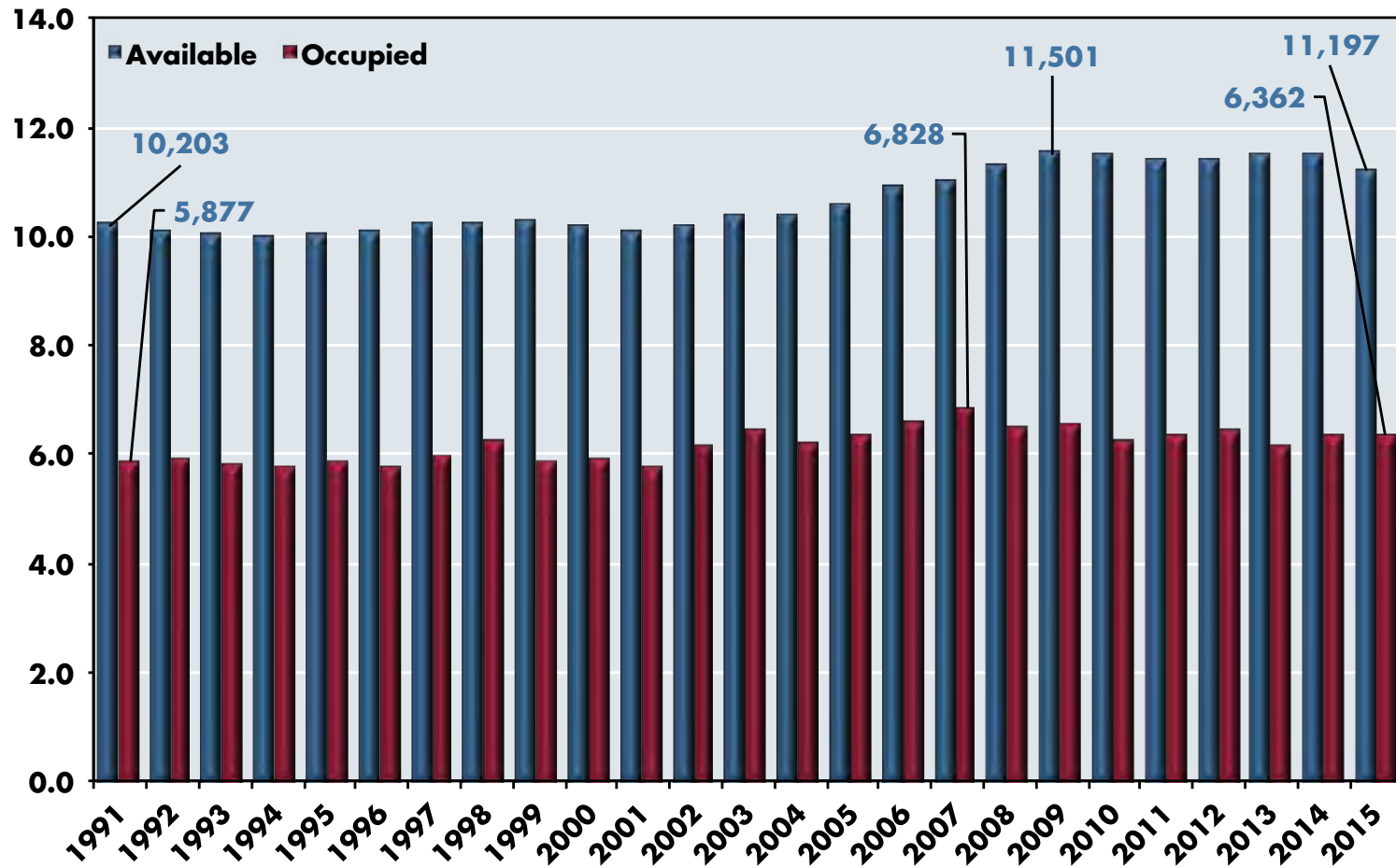
HOTEL ROOM REVENUE IN CHESAPEAKE/SUFFOLK, 1991-2015 (MILLIONS OF \$)



Sources: Smith Travel Research Trend Report, May 2, 2016; Bureau of Labor Statistics; and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 22

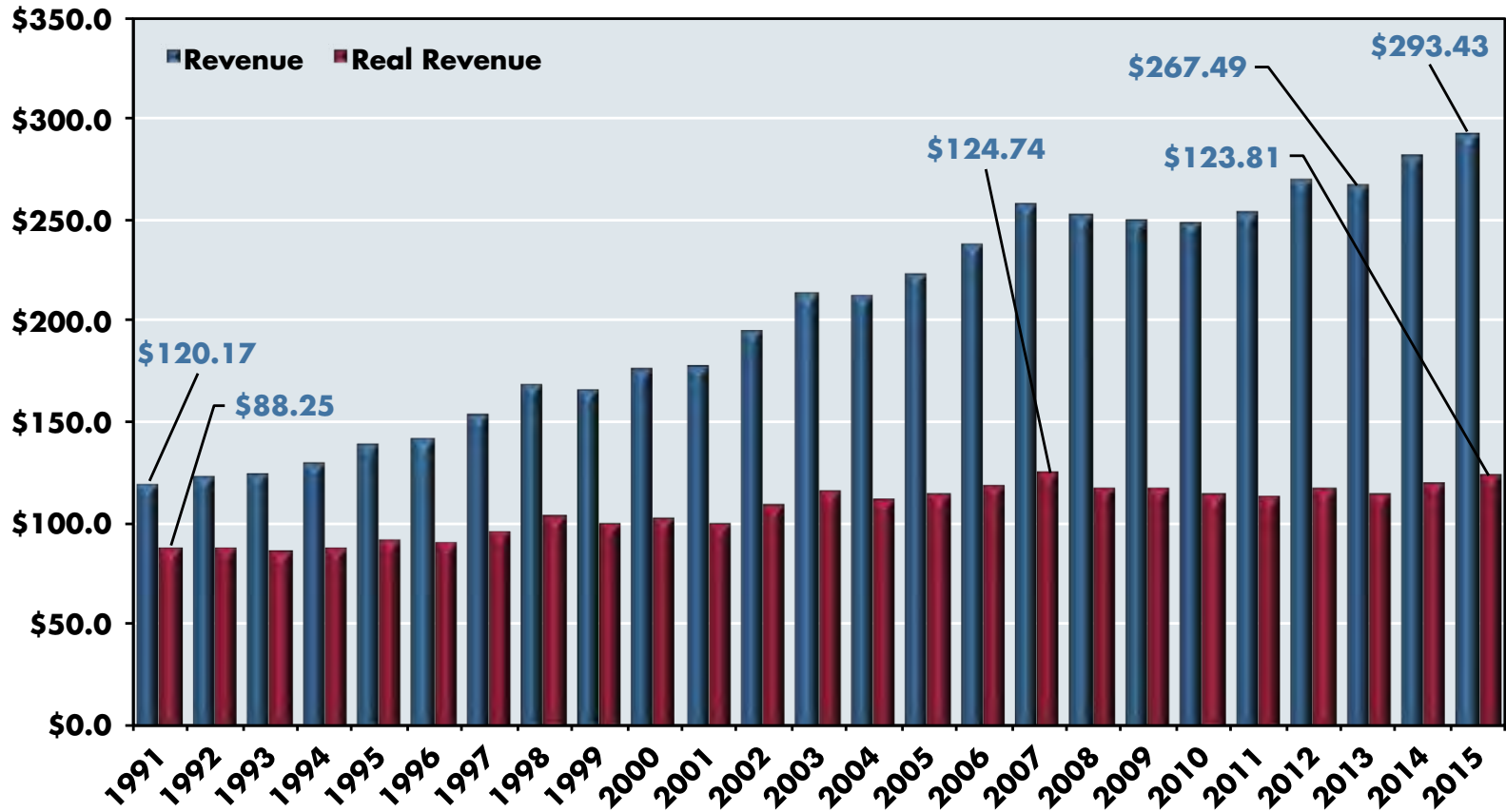
AVAILABLE HOTEL ROOMS AND ROOMS OCCUPIED IN VIRGINIA BEACH, 1991-2015



Sources: Smith Travel Research Trend Report, May 2, 2016, and the Center for Economic Analysis and Policy at Old Dominion University

GRAPH 23

HOTEL ROOM REVENUE IN VIRGINIA BEACH, 1991-2015 (MILLIONS OF \$)



Sources: Smith Travel Research Trend Report, May 2, 2016; Bureau of Labor Statistics; and the Center for Economic Analysis and Policy at Old Dominion University

REVPAR Comparisons

Other than profitability (for which data are not available), the single most telling statistical measure of the health of the hotel industry is REVPAR, revenue earned per available room. Table 3 reports REVPAR for the major hotel submarkets in Hampton Roads, Virginia and the United States in 2007 and 2015. **One cannot avoid concluding that the hotel industry in Hampton Roads did not perform as well as the industry did in Virginia, or the United States, during this time period. Indeed, every single submarket in Hampton Roads experienced negative real REVPAR growth between 2007 and 2015.**

This result is consistent with Table 1, where we reported that the hotel industry gradually has occupied a smaller and smaller proportion of the overall regional economy. Thus, in 1991, hotel room revenues accounted for 1.208 percent of total personal income in the region, but by 2014 this had fallen to .901 percent.

The hotel industry is a key indicator of the size of the tourism industry. The real, inflation-adjusted size of the hotel industry, as measured by real REVPAR, is the most important available measure of its prosperity. REVPAR has declined overall in the region and in every individual submarket within our region since 2007.

In fact, tourism as an economic sector in Hampton Roads also has declined in relative importance in recent years. This has been especially evident in Williamsburg/the Historic Triangle.

Can the hotel industry and the overall tourism sector recover their mojo and reverse their decline in relative importance? This does not seem likely to occur as long as federal financial sequestration restricts federal expenditures overall and defense expenditures in particular.

	2007	2015	Percent Change
USA	\$31.62	\$33.17	+4.9%
Virginia	\$29.86	\$27.00	-9.6%
Hampton Roads	\$25.53	\$22.72	-10.9%
Virginia Beach	\$31.17	\$30.29	-2.8%
Williamsburg	\$22.90	\$20.35	-11.1%
Newport News/Hampton	\$20.01	\$16.89	-15.6%
Norfolk/Portsmouth	\$26.07	\$21.83	-16.3%
Chesapeake/Suffolk	\$25.52	\$20.00	- 21.6%

Sources: Smith Travel Research Trend Report, May 2, 2016, and the Center for Economic Analysis and Policy at Old Dominion University (1982-84 is the base year for CPI-U)



Prisons And Prisoners: The Virginia Way And The Alternatives



PRISONS AND PRISONERS: THE VIRGINIA WAY AND THE ALTERNATIVES

They are the kinds of kids that are called "super predators." No conscience, no empathy. We can talk about why they ended up that way, but first we have to bring them to heel.

– Hillary Clinton, 1996

Over 700,000 prison inmates are released each year [and] they are perhaps the most disadvantaged group of job seekers [in the United States].

– Steven Raphael, "The New Scarlet Letter?" 2014

The United States spends \$80 billion annually imprisoning more people than any country in the world. Our incarceration rate of 698 per 100,000 citizens is higher than that of Cuba, nearly nine times more than that of Germany, six times higher than that of Canada and more than four times the rate of the United Kingdom (see Graph 1).

In 2015, the Commonwealth of Virginia spent \$1.13 billion operating state prisons that held more than 25,000 inmates. Almost 8,000 additional prisoners were held in local jails.¹

Most of those imprisoned in the United States (86 percent) are confined in prisons operated by individual states and local governments, and more are imprisoned for drug-related offenses than any other reason. However, the average amount of time that a newly committed prisoner spends behind bars is only slightly longer than two years. Thus, more than 700,000 individuals are released from prison each year.² Their re-entry into society often is difficult and a very high proportion of these individuals find themselves back in prison within a few years. A September 2015 study of recidivism of those released from prison by the Commonwealth of Virginia revealed that 54.7 percent were

rearrested within 36 months, while 23 percent were sent back to prison during the same period.³

In any case, currently an estimated 23 million convicted felons are living in the United States outside of prison.⁴ This suggests that more than 570,000 such individuals reside in Virginia.

Many prisons in the United States are operating near or above their rated capacity. In 2010, the prison populations of 30 states (not including Virginia) exceeded levels judged to be higher than their rated capacity. The Federal Bureau of Prisons also was operating at over 100 percent of its rated capacity.

Interestingly, despite rather rapid growth in the rate of incarceration per 100,000 citizens in Virginia between 1990 and 2010, the Commonwealth's

¹ Virginia Department of Corrections, Management Information Summary Annual Report, fiscal years 1990-2015, and Comprehensive Annual Financial Reports, Virginia Department of Accounts, 1990-2015.

² Danielle Kaeble et al., Correctional Populations in the U.S., 2014, Bureau of Justice Statistics, U.S. Department of Justice, December 2014.

³ Virginia Department of Corrections, "Recidivism at a Glance," September 2015.

⁴ Nicholas Eberstadt, "Why is the American government ignoring 23 million of its citizens?" The Washington Post (April 1, 2016), www.washingtonpost.com.

rate in 2014 still was about one-third below the national average and only about one-quarter that of national leader Georgia (see Graph 2). Currently, we imprison 2,330 men and 460 women per 100,000 citizens. Incarceration rates are highest in southern states and lowest in northeastern states.

Virginia's Evolving Approach

In 1994, at the urging of Republican Gov. George Allen, the Democratic-led Virginia General Assembly abolished parole for violent offenders. Sixteen other states have similar statutes that eliminate the possibility of discretionary parole for certain crimes. In addition, Virginia (along with 23 other states) has a habitual offenders law (often referred to as “three strikes and you’re out”), dictating that individuals convicted of a third violent felony, and who have been released from prison between convictions, will be sentenced to life in prison with a reduced or zero possibility of parole. There is a comparable federal “three strikes” statute, but in 2015 the U.S. Supreme Court ruled 8-1 that the “three strikes” law was unconstitutionally vague and could result in excessive prison terms unrelated to the facts of a particular case.⁵ This decision did not explicitly apply to existing state laws, for example, those in Virginia, but rendered them suspect. In any case, whether such state and federal laws effectively reduce crime remains a subject of debate.⁶

The guiding hypothesis behind such laws is easily understood: Society is thought to be better off when criminals no longer are on the street. A U.S. Department of Justice study tracked 404,638 prisoners in 30 states after their release from prison in 2005 and found that 67.8 percent were rearrested within three years and 76.6 percent within five years. Property offenders (burglary, larceny, theft, shoplifting, etc.) were the most likely to be rearrested – 82.1 percent within five years.⁷ Thus, the argument is straightforward: Removing such individuals from open society directly diminishes crime rates and increases citizen safety. Supporters point to significant reductions in crime

rates in most states and large metropolitan areas in recent years as evidence in favor.

Virtually nothing of calculable economic worth comes without a price being paid, however. The abolition of parole, the imposition of “three strikes” laws, reduced judicial discretion and longer sentences have increased the size of prison populations. Alas, operating prisons is expensive. In the Commonwealth’s FY 2015, \$2.7 billion was budgeted for public safety (7.6 percent of the overall expenditure budget, down from 10.76 percent in FY 1990). In FY 2015, the operation of prisons cost \$1.13 billion, or 41.8 percent of the total public safety budget.

Funds allocated to prisons compete with other state budget priorities, such as road and transportation projects, medical care and education. These spending categories have received fewer dollars because of the increase in expenditures on public safety and corrections.

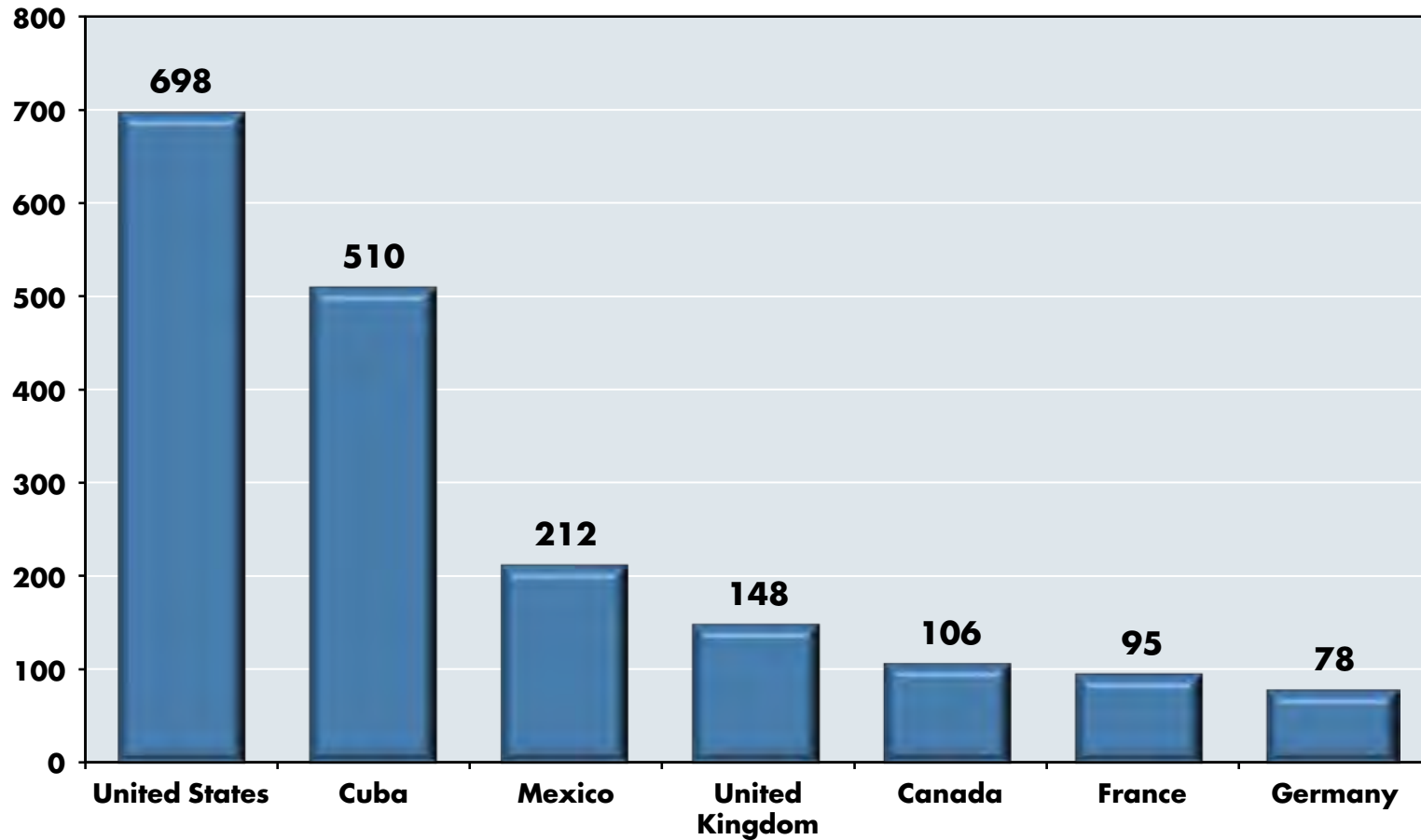
Even though prison expenditures have become a relatively less significant part of Virginia’s state budget in recent years, in absolute terms, those expenditures continue to rise. Until recently, the primary reason was the rising number of people imprisoned. Graph 3 reveals that in 2014, the Commonwealth had 37,544 individuals in its “supervised” prison population. “Supervised” includes those released from prison but on parole. Note, however, that this population tripled between 1980 and 1994, the year Gov. Allen took office, and since then has only increased – by a bit more than 40 percent. Thus, the notion that Allen and the General Assembly initiated a “get tough” regime with respect to crime in 1994 is only partially supported by the facts.

⁵ *Johnson v. United States* 576 U.S. ___, 2015.

⁶ See, among many, E.Y. Chen, “Impacts of Three Strikes and You’re Out on Crime Trends in California and Throughout the United States,” *Journal of Contemporary Criminal Justice*, 21 (June 2008), 345-70.

⁷ www.nij.gov/topics/corrections/recidivism/pages/welcome.aspx.

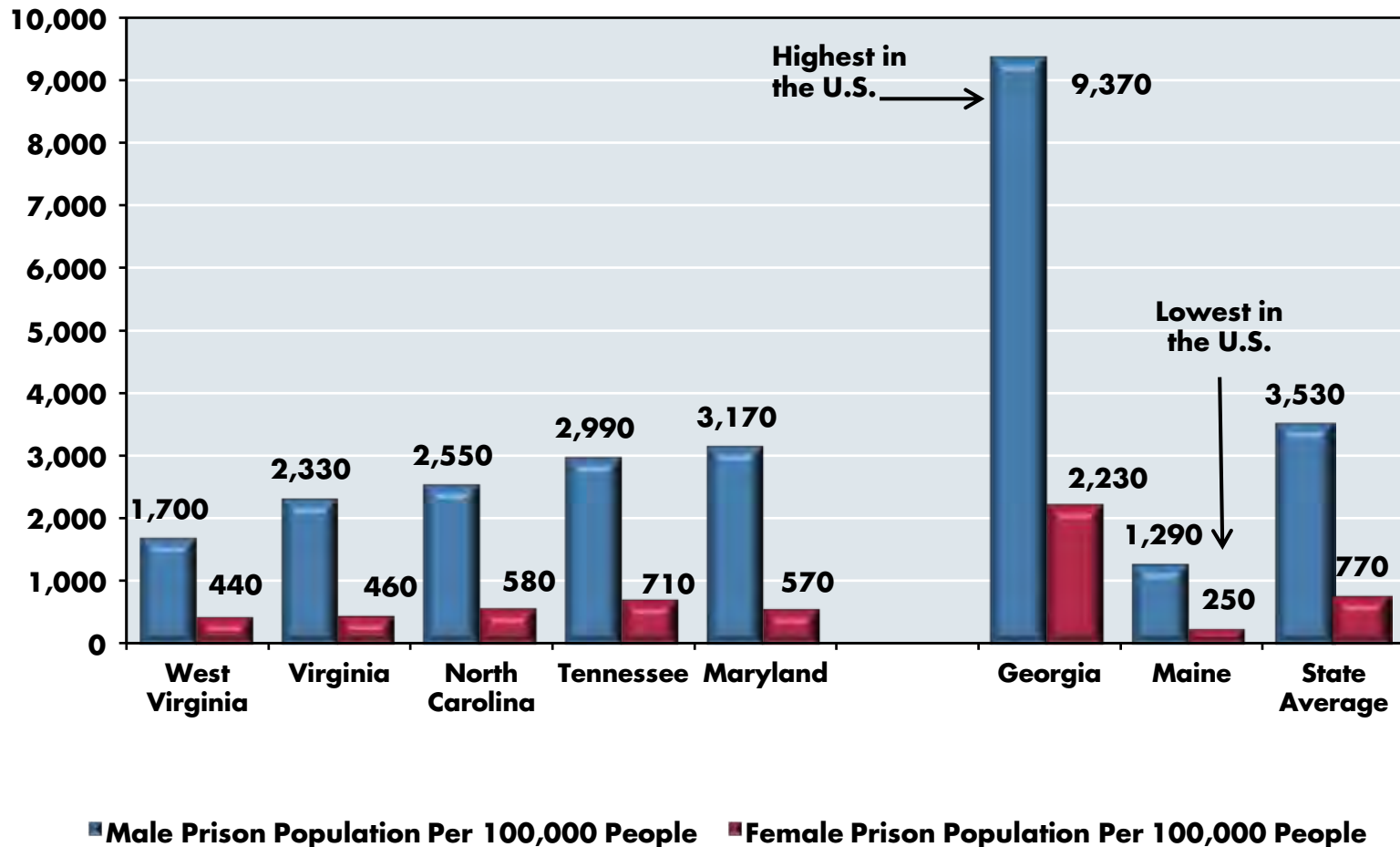
GRAPH 1
INTERNATIONAL IMPRISONMENT RATES, 2013



Source: Roy Walmsley, "World Prison Population List, 10th Edition," International Centre for Prison Studies, 2015

GRAPH 2

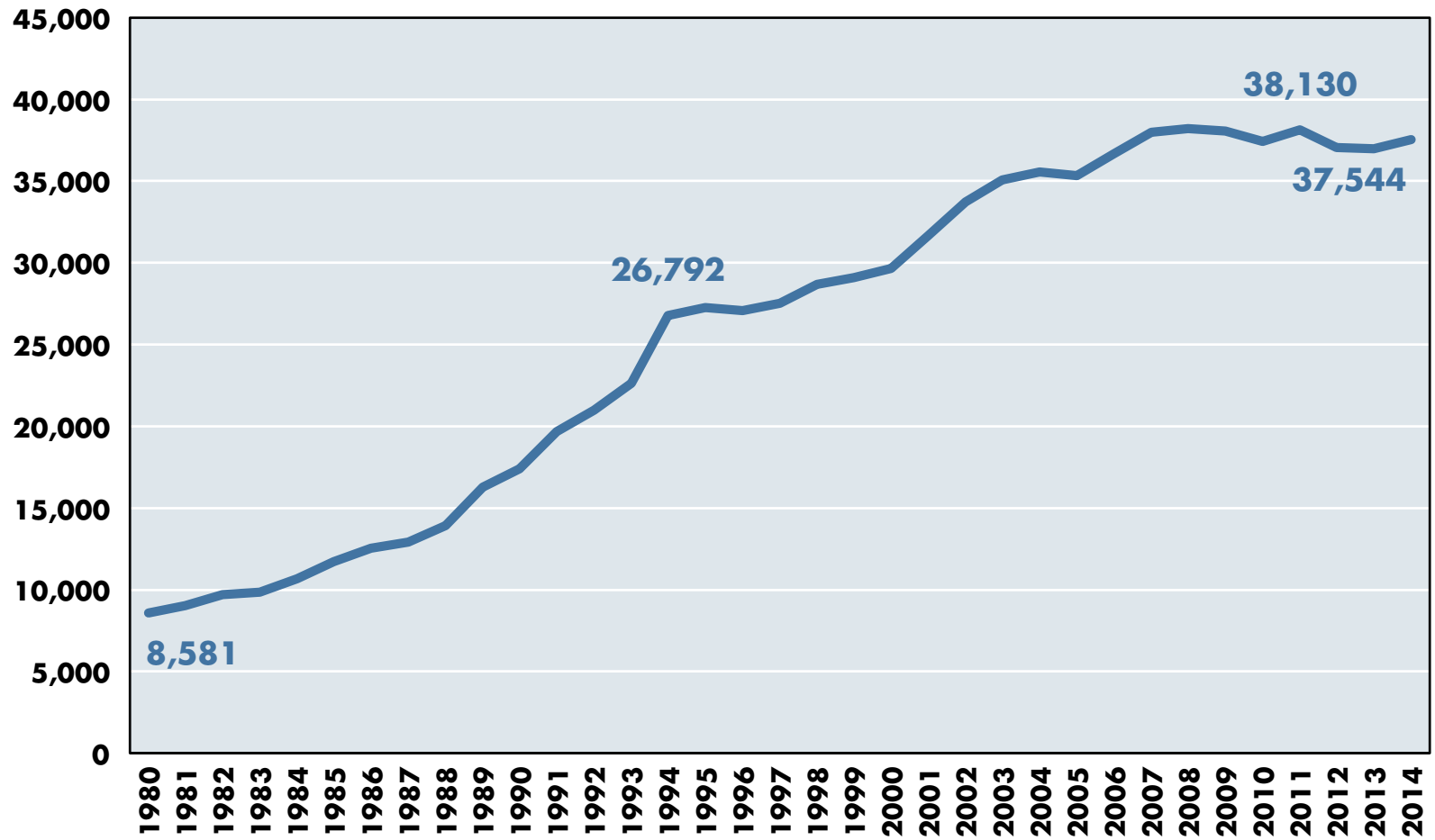
INCARCERATION RATES PER 100,000 CITIZENS: SELECTED STATES, 2014



Source: Danielle Kaeble et al., "Correctional Populations in the U.S., 2014," Bureau of Justice Statistics, U.S. Department of Justice, December 2014

GRAPH 3

SUPERVISED PRISON POPULATIONS IN VIRGINIA, 1980-2014



Source: Virginia Department of Corrections, Management Information Summary Annual Report, fiscal years 1990-2015. Note that "supervised" individuals include those who are on parole.

EXPENDITURES ON PRISON OPERATIONS

The increase in the prison population readily translated to higher expenditures (see Table 1). Nevertheless, as a proportion of overall state government expenditures, prison operating costs have declined, peaking at 3.79 percent in 2002 before dropping to 3.21 percent in 2015.

Further, in real terms, prison operational expenditures actually have declined in Virginia when viewed on a per capita basis. One can see in Graph 4 that in 1990, prison operations cost \$31,657 per inmate when expressed in 2015 prices. By 2015, real per capita operating costs had fallen to \$27,928. Indeed, even total expenditures on prison operations only increased by 3 percent between 2000 and 2010 after inflation was taken into account. By 2012, real, inflation-adjusted spending on prison operations in Virginia was almost identical to that in 2002. Once again, the perception that the Commonwealth's prisons have become a financial "black hole" is not really supported by the data.

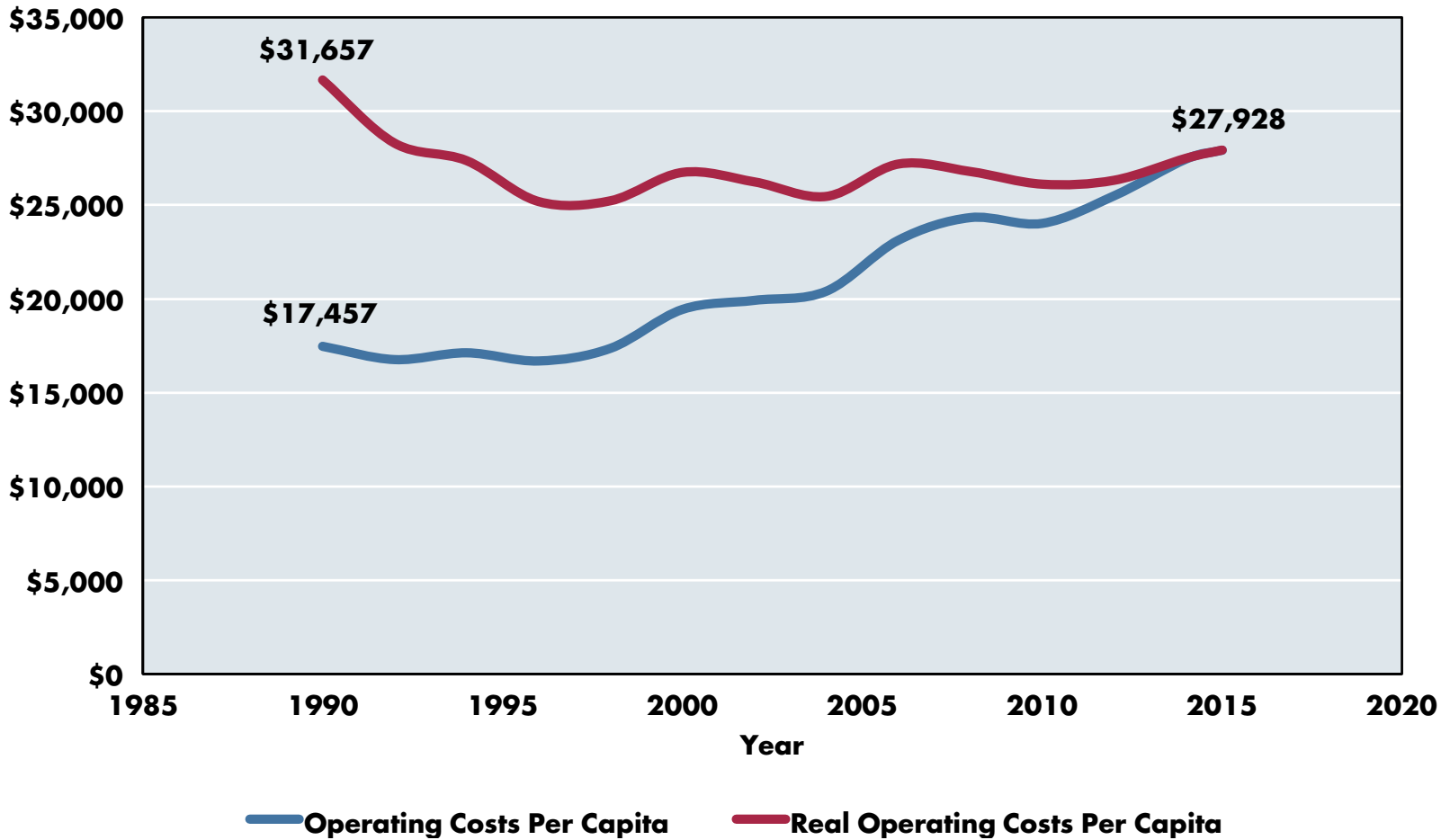
TABLE 1
CHANGES IN PRISON OPERATING COSTS IN VIRGINIA, 1990-2015

Year	Total Expenditures (Millions of \$)	Percent of Commonwealth Total Expenditures	Operating Costs Per Prisoner	Medical Costs Per Prisoner
1990	\$363.3	2.96%	\$17,457	NA
1993	\$397.3	2.82%	\$16,304	NA
1996	\$529.5	3.08%	\$16,676	NA
1999	\$688.2	3.29%	\$17,351	\$2,538 (14.6%)
2002	\$805.9	3.79%	\$19,913	\$3,028 (15.2%)
2005	\$859.32	3.63%	\$21,248	\$3,389 (16.0%)
2008	\$1,041.89	3.59%	\$24,332	\$4,393 (18.0%)
2011	\$1,022.42	3.19%	\$24,380	\$4,870 (20.0%)
2015	\$1,131.18	3.21%	\$27,928	\$5,749 (20.6%)

Sources: Virginia Department of Corrections, Management Information Summary Annual Report, fiscal years 1990-2015, and Comprehensive Annual Financial Reports, Virginia Department of Accounts, 1990-2015

GRAPH 4

MONEY AND REAL PRISON OPERATING COSTS PER CAPITA: VIRGINIA, 1990-2015



Source: Virginia Department of Corrections, Management Information Summary Annual Report, fiscal years 1990-2015

MEDICAL COSTS

New inmates at Virginia prisons often bring with them a variety of physical and mental problems. For many, because of their lifestyles – which may have included drug use – their physical condition often is less than optimal. Some exhibit conspicuous mental illness. One study⁸ found that 56 percent of the inmates in state prisons exhibit some sort of mental illness, while 53 percent suffer from drug dependence.⁹

In addition, the prisoner population itself gradually has been graying, not the least because early release and parole have become less possible for a wider range of prisoners. The aging of the prisoner population has resulted in more prisoners exhibiting documentable heart and respiratory system problems, diabetes, eyesight challenges, etc. Fully 41 percent of Virginia’s prisoners were 55 years or older in 2011 – much higher than the 25 percent national average.¹⁰ This differential appears to reflect relatively more rigorous parole policies in the Commonwealth.

The Code of Virginia §53.1 provides the possibility of geriatric parole for prisoners who are over 60 and have been in prison 10 years, or who are over 65 and have been in prison five years. However, a prisoner’s medical condition is not listed as one of the conditions that might support a geriatric parole.

Whatever the sources of the medical cost challenges, collectively they have become increasingly important programmatic and fiscal considerations for all states, including Virginia. Table 1 reveals that medical costs now account for more than 20 percent of prison operational costs in the Commonwealth.

The news gets worse. There is a federal prohibition on the use of Medicaid or Medicare funds to serve prisoners, and therefore Virginians must bear the great majority of the medical financial burden of handling the individuals we ultimately choose to lock up.

8 D.J. James and L.E. Glaze, “Mental Health Problems of Prison and Jail Inmates,” U.S. Department of Justice, September 2006.

9 Nevertheless, it is not abundantly clear whether these percentages represent actual increases relative to the past, or instead if they simply reflect more accurate reporting in recent years.

10 Pew Charitable Trust, State Prison Health Care Spending, 2014.

A Snapshot Of Prisons And Corrections In Virginia

VIRGINIA’S STATE PRISONS

The Department of Corrections in Virginia operates 27 prisons. Twenty-three of the prisons are located within 75 miles of the North Carolina/Tennessee borders. The most northerly prison is in Augusta County in the Shenandoah Valley, south of Harrisonburg. Figure 1 illustrates the southern, non-urban bias of Virginia in terms of where its prisons are located.

In 2015, the total number of inmates actually held in Virginia’s state prisons was 25,701, while another 7,779 state prisoners were being held in local jails. The state also operates 43 probation and parole centers that are more or less uniformly distributed across the state. Further, there are two federal prisons in Virginia.

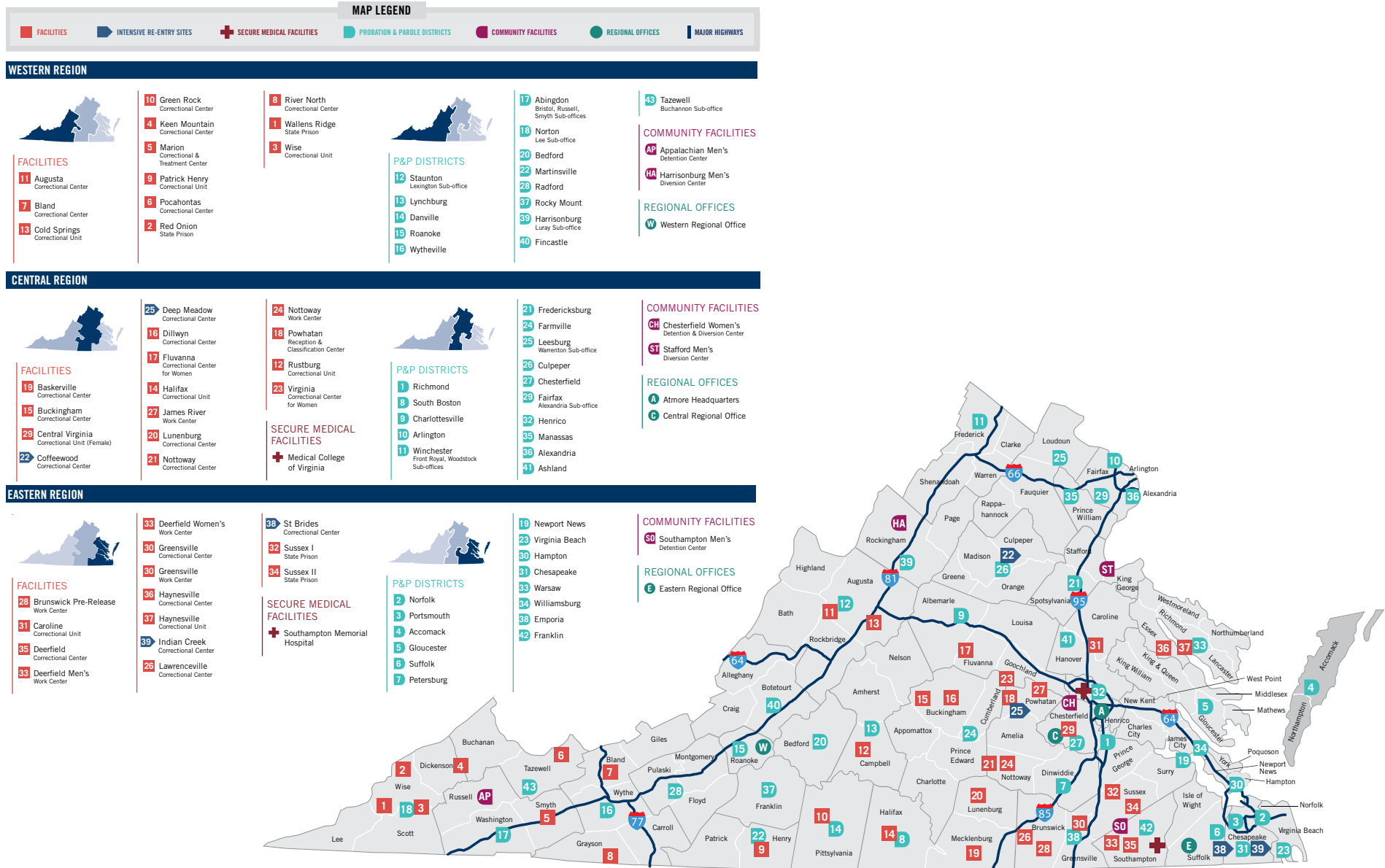
There is one privately operated prison in Virginia, the Lawrenceville Correctional Center, which held 1,570 prisoners in 2014. The Lawrenceville facility is operated by the GEO Group, an international corporation that manages prisons in the United States, the United Kingdom, Australia and South Africa. GEO Group operates under a contract with the Commonwealth of Virginia and typically houses long-term prisoners who have not exhibited significant behavior problems. The theory is that privately run prisons are more efficient than those operated directly by governments because they are more flexible, can more easily contract for goods and services, and can provide incentive pay to employees. Whether or not this is true, there has been little movement in Virginia toward creating more privately operated prisons.

The Department of Corrections also operates two secure medical facilities. One is located in Richmond at the VCU Medical Center and the other is at Southampton Memorial Hospital in Franklin.

The Virginia Department of Corrections imprisons all those convicted whose sentences exceed one year, but local jails may request that an inmate be retained in a local jail for family reasons or because of a work-release program.

FIGURE 1

LOCATIONS OF STATE PRISONS IN VIRGINIA



Source: Virginia Department of Corrections

WHO IS IMPRISONED IN VIRGINIA?

To be imprisoned, one first must be arrested. Far more young people, men and African-Americans are arrested than would be true if their arrest rates reflected their respective proportions of the Virginia population. Graph 5 reports the percentages of arrests made in Virginia of various segments of our population for Group A offenses (more serious incidents such as murder, rape, stolen property and fraud) and Group B offenses (relatively less serious incidents such as disorderly conduct and liquor violations). Individuals who identify as being white racially constitute about 70 percent of the Commonwealth's population, but comprise only 54.2 percent of the Group A arrest pool and 61 percent of the Group B arrest pool. African-Americans, who constitute 19.2 percent of Virginia's population, account for 44.7 percent of Group A arrests and 37.9 percent of Group B arrests. Men, who make up 49.2 percent of the state's population, nonetheless are responsible for 70.1 percent of Group A arrests and 74.1 percent of Group B arrests. Young people (ages 18-24) comprise about 10 percent of the Commonwealth's citizenry, but account for 35.6 percent of Group A arrests and 24.4 percent of Group B arrests.

Clearly, arrests are not uniformly distributed across the demographic characteristics of Virginia's population. Recent incidents in locations such as Ferguson, Mo., have called into question the fairness and equity of American law enforcement with respect to African-Americans. Do African-Americans, because of their distinctive economic and social characteristics, actually commit more crimes than other racial and ethnic groups, or are the police especially sensitive to their behavior and also more likely to decide to arrest them?

The evidence available strongly points to increased police focus on African-Americans in most communities and a greater tendency on the part of police to place African-Americans under arrest in circumstances that might lead to a discussion or a warning— but not the arrest—of a member of a different racial or ethnic group. By the same token, the economic circumstances and distinctive cultures of specific ethnic and racial communities could also play a role in generating behavior that potentially leads to arrest. Arrest rates of Asian-Americans, for example, typically trail their proportion of the population by a wide margin. It is an easy out to observe that the relationships among

race, gender, age, and police attention and arrests are complicated. Even so, it is true.

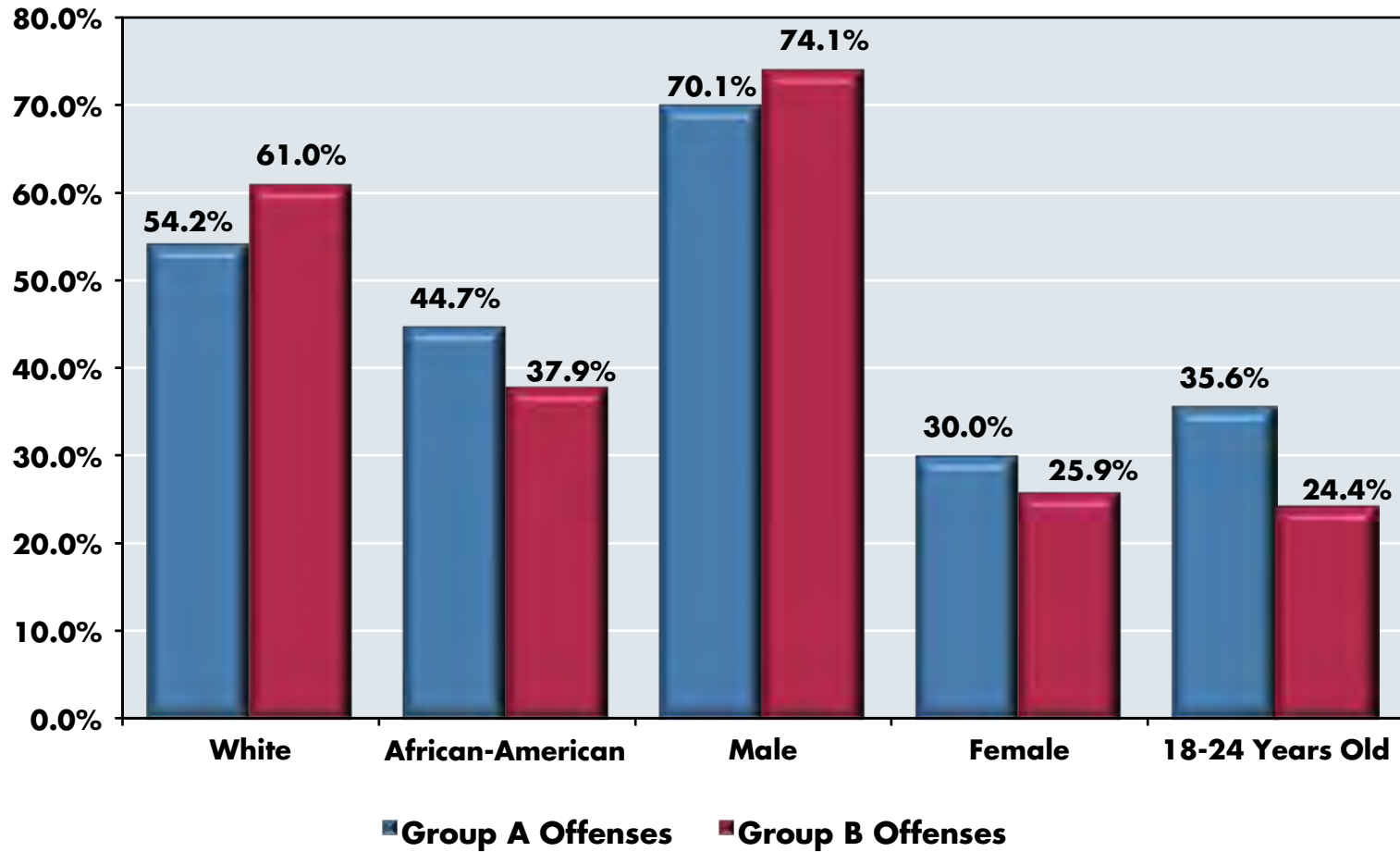
Regardless, arrests frequently lead to convictions. For 2012, the U.S. Department of Justice reported a 93 percent conviction rate (by plea or trial) for charged federal offenses.¹¹ The upshot is that arrests often lead to convictions, which in turn often lead to jail terms. Table 2 reports data relating to the characteristics of the inmates in our state prisons between 2004 and 2014. Virginia's prison population is predominantly male and African-American, though the percentage of African-American inmates declined 4.8 percent between 2004 and 2014. One also can readily detect the gradual aging of the inmate population.

Table 3 shows that with the exception of drug-related crimes, the ostensible reasons for the imprisonment of individuals in Virginia have remained rather stable over time. Offenses such as murder, rape, robbery, assault and burglary by no means have disappeared and have maintained their importance. Here, however, a caveat is in order. The offenses in Table 3 are categorized by the nature of a perpetrator's most serious crime and hence a murderer who also is a burglar is classified as a murderer rather than as a burglar. There is no double counting even though there may have been multiple offenses.

¹¹ <https://en.wikipedia.org/wiki>.

GRAPH 5

PROPORTION OF ARRESTS: THE IMPACT OF AGE, RACE AND GENDER FOR GROUP A AND B OFFENSES IN VIRGINIA, 2014



Source: Virginia Department of Corrections, "State Responsible Offender Population Trends," fiscal years 2004-2015

TABLE 2

CHARACTERISTICS OF VIRGINIA PRISON POPULATIONS OVER TIME

Characteristic	2004	2007	2011	2014
Percent Male	92.50%	92.30%	92.90%	92%
Percent White	34.90%	36.00%	36.20%	38.60%
Percent Black	63.20%	62.20%	60.70%	58.40%
Percent Hispanic	1.40%	1.60%	2.25%	2.10%
Age: 18-24	16.00%	13.70%	12.90%	10.50%
25-34	33.80%	33.70%	33.20%	32.50%
35-44	30.60%	30.10%	26.00%	26.50%
45-54	15.00%	16.20%	19.80%	20.20%
55-59	2.40%	3.50%	4.50%	5.50%
60-64	1.10%	1.50%	2.10%	2.80%
65+	0.87%	0.90%	1.40%	2.00%

Source: Virginia Department of Corrections, "State Responsible Offender Population Trends," fiscal years 2004-2015

TABLE 3

PERCENT OF PRISONERS IN VIRGINIA STATE PRISONS CATEGORIZED BY MAJOR OFFENSE

Offense	2004	2008	2012	2015
Murder/All Homicide	10.8%	10.9%	10.8%	10.9%
Rape/Sexual Assault	10.1%	10.3%	10.5%	10.5%
Robbery	14.9%	14.8%	16.7%	16.5%
Assault	9.8%	11.3%	10.8%	10.8%
Burglary	9.8%	8.7%	8.5%	8.7%
Larceny/Fraud	16.3%	15.3%	13.2%	13.4%
Drug Possession	NA	NA	6.4%	5.0%
Drug Sales	NA	NA	8.3%	10.5%
Heroin/Cocaine	11.4%	3.9%	NA	NA
Other Drugs	3.4%	11.4%	NA	NA

Source: Virginia Department of Corrections, Management Information Summary Annual Reports, for the fiscal years ending 2004, 2008, 2012 and 2015

The Decline Of Parole In Virginia

The introduction of the “you must serve out your sentence” and “three strikes and you’re out” laws, combined with reduced judicial latitude and mandatory minimum sentences, has resulted in a decline in the number of prisoners eligible for parole in Virginia. Between 2010 and 2014, that number fell by 6,146, representing a decline from 18 percent to 12 percent of the prison population.¹² Further, even when eligible, fewer paroles are being granted now. For example, in 2010, the Virginia Parole Board granted parole to 28 percent of the drug-convicted criminals that received a parole hearing. By 2014, approvals had declined to 17 percent.

Additionally, those who violate their parole conditions now are resentenced and end up spending increasingly lengthy subsequent terms in Virginia prisons. In 2010, the mean time served by parole violators was 96.9 months. By 2014, it had risen to 129.3 months.

Some parole violations are “technical” in that they occur when an individual breaks one of the rules outlined in his or her probation – for example, a failure to meet his or her parole officer, or skipping a drug test. In 2010, 14 percent of all parole violators sent back to prison were charged with technical violations. However, by 2014, this had risen to more than 30 percent.¹³ It appears that more rigorous standards have been applied in recent years.

¹² State Responsible Confined Offender Profile, FY2010-2014, Virginia Department of Corrections Statistical Analysis and Forecast Unit, July 2015, 3.

¹³ State Responsible Confined Offender Profile, 4 and 5.

Crime Rates And Incarceration

Crime rates are an obvious place where the proverbial rubber meets the road when one talks about theories of crime and punishment. If “taking criminals off the street” is a viable strategy, then (holding other things constant) one should observe declining crime rates when more convicted criminals are held inside prisons. By themselves, declining crime rates would not signal that such a strategy should be pursued unless one also took the costs of the strategy into account. Falling crime rates would, however, tell us whether potentially we might be on the right track.

The data in Table 4 inform us that crime rates in Virginia have been declining in every major category except for drug-related offenses. In some cases (aggravated assaults and burglaries), the declines have been dramatic.

A clear majority of drug-related offenses involve marijuana and typically result in misdemeanor charges rather than more serious felony charges. Meanwhile, cocaine arrests have declined, while those relating to heroin have increased.

Some law enforcement officials suggested to us that the rise in marijuana-related drug arrests reflected both increased marijuana use and the need of police to satisfy performance-based measures of their activities. “If they want to count arrests, we’ll give them what they want,” averred one policeman. In any case, the number of drug/narcotic offenses per 100,000 citizens rose by 13.4 percent between 2008 and 2013, even while many other crime rates were falling. More than 60 percent of drug arrests in 2014 were related to marijuana. The Virginia Department of Corrections reports that about 80 percent of inmates in its control have some relationship to substance abuse.¹⁴

Generally falling crime rates are, however, broadly consistent with what has become known as the “incapacitation” hypothesis – taking criminals off the street reduces crime rates. Even so, it is most important to note that the observed decline in crime rates instead could be due to a plethora of other factors, including changing demographics (such as a decline in the number

¹⁴ <https://vadoc.virginia.gov/offenders/institutions/institutions-overview.shtm>. Accessed April 22, 2016.

of young men ages 16-25), larger police presence, improved economic conditions, reduced racial and ethnic discrimination, increased use of antidepressant drugs, diminished levels of lead in water supplies and in the air, the declining profitability of certain crimes because of new technology, and the legalization of abortion, to name only a few of the possibilities that have received attention from reputable analysts.

Regardless of which of these reasons actually are important, **it seems likely that the law of diminishing returns applies to law enforcement and imprisonment. Arrests focused on the most serious crimes and habitual criminals likely will reduce crime rates; however, as the volume of arrests increases, less serious crimes receive more attention and less dangerous criminals are arrested. Hence, each incremental arrest generates a progressively smaller decline in crime rates. Steven Levitt of the University of Chicago, who in a 2004 study argued that higher incarceration rates were responsible for as much as one-third of the drop in crime rates in the 1990s,¹⁵ agrees that the law of diminishing returns likely applies and that “sharply declining marginal benefits of incarceration are a possibility.”¹⁶**

The evidence on this issue is mixed, with other researchers finding incarceration to be much less important a factor in terms of reducing crime rates. Further, there is other evidence that is discordant. For example, during the first half of this decade, incarceration rates did not change much nationally, but most crime rates continued to decline. Further, as Table 5 reveals, for Virginia, surrounding states and the United States, a positive correlation actually existed between changes in incarceration rates and changes in the crime rate between 2008 and 2013. Thus, rising incarceration rates have been associated with higher crime rates rather than lower crime rates.

Several states now are conducting what amounts to real-time experiments concerning the relationship between incarceration and crime rates. States ranging from California, New York and Michigan to Delaware, Nevada and

Utah have lowered their incarceration rates by a variety of means and have witnessed continued declines in their crime rates. They reduced incarceration by: (1) reclassifying crimes to reduce the possibility of jail time; (2) more extensive use of probation; (3) shorter sentences; (4) more lenient parole standards; and (5) enhanced post-parole work with former inmates in order to reacclimatize them to society and find them jobs.

It is fair that to say that the available reputable research concerning the determinants of crime rates does not point to a single cause for the declines we have observed.¹⁷ Even so, the consensus is that increased incarceration probably does not account for more than 10-15 percent of observed declines in these rates, according to most studies. Graph 6 summarizes what appears to be today's state of knowledge with respect to why crime rates have been declining. Note that the percentages are approximations and typically represent the averages of multiple studies.

AGE, GENDER, RACE AND IMPRISONMENT

To be imprisoned, one first must be arrested. As Graph 7 demonstrates, far more young people, men and African-Americans are arrested than would be true if their arrest rates reflected their respective proportions of the Virginia population.

¹⁵ Levitt has written extensively on the subject. A superb rendition of his views can be found in his article in the *Journal of Economic Perspectives*, 18(1), 2004.

¹⁶ Inimai M. Chettiar, “The Many Causes of America's Decline in Crime,” *Atlantic Magazine* (Feb. 11, 2015), www.theatlantic.com.

¹⁷ Chettiar's Feb. 11, 2015, *Atlantic Magazine* article is one of the best nontechnical expositions of the issues and the available evidence, even though it is an advocacy piece.

TABLE 4

ARREST RATES PER 100,000 CITIZENS FOR VARIOUS OFFENSES: VIRGINIA, 2003-2014

Offense	2003	2007	2011	2014
Murder/All Homicide	5.52	5.33	3.77	4.05
Rape/Sexual Assault	72.09	68.94	60.63	59.44
Robbery	89.03	100.37	67.32	51.80
Simple Assault	1175.22	1278.19	1229.47	1061.67
Aggravated Assault	150.86	144.25	109.19	113.66
Burglary	420.53	408.85	375.94	271.82
Larceny	2236.26	1921.63	1784.59	1578.30
Drug/Narcotics Offenses	495.82	619.66	625.57	673.57

Source: Crime in Virginia, 2014 and various other years

TABLE 5

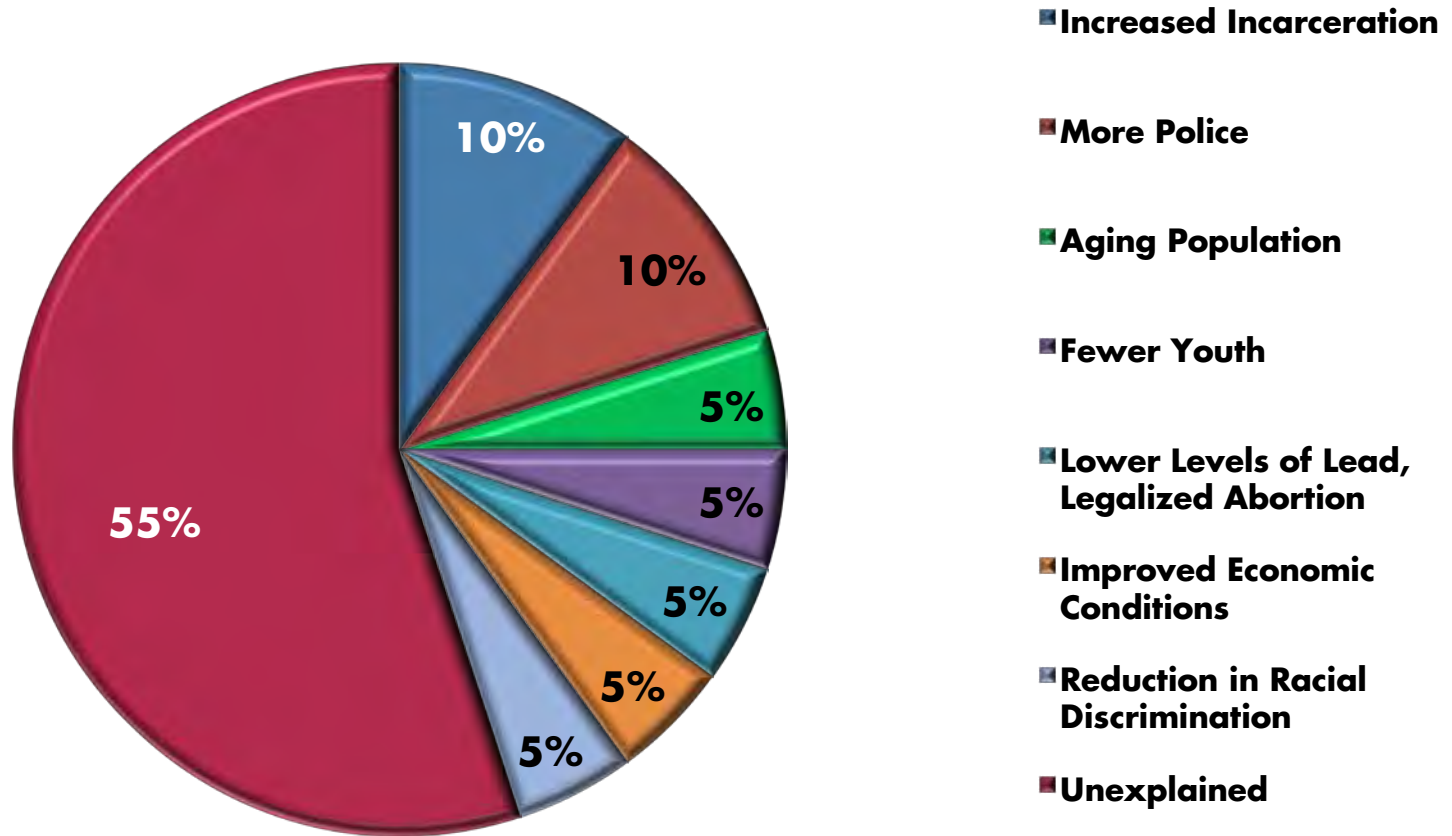
CHANGES IN CRIME RATES PER 100,000 CITIZENS AND IMPRISONMENT RATES: VIRGINIA, OTHER STATES AND THE UNITED STATES

	Virginia	North Carolina	Maryland	West Virginia	Kentucky	Pennsylvania	U.S. Average
Imprisonment Rate Per 100,000, 2013	446	356	353	367	464	391	478
Change in Imprisonment Rate, 2008-2013	-9%	-4%	-12%	-11%	-6%	0%	-6%
Crime Rate Per 100,000, 2013	2,262	3,470	3,137	2,404	2,573	2,396	3,099
Change in Crime Rate, 2008-2013	-19%	-23%	-24%	-14%	-14%	-15%	-16%

Source: "Most States Cut Imprisonment and Crime," Pew Charitable Trusts, Nov. 10, 2014

Note: The simple correlation between changes in the imprisonment rate and changes in the crime rate in this table between 2008 and 2013 is +.614 – not the result predicted by those who favor increased incarceration as a solution to crime. Because the incarceration/crime relationship is so complex, however, it would be wise not to overemphasize the importance of this limited result.

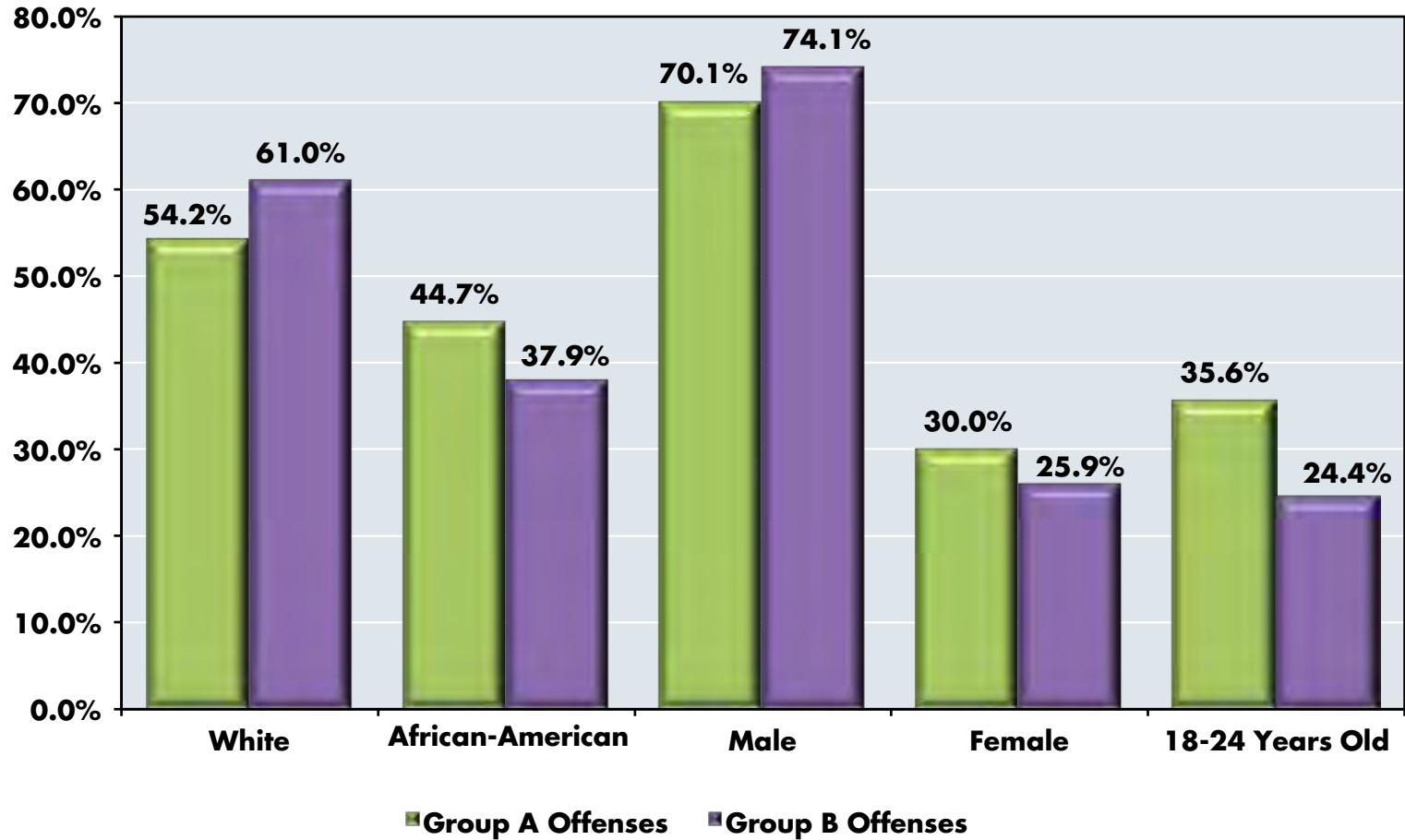
GRAPH 6
WHY CRIME RATES HAVE FALLEN



Source: "Crime in Virginia 2014"

GRAPH 7

PROPORTION OF ARRESTS: THE IMPACT OF AGE, RACE AND GENDER ON GROUP A AND B OFFENSES IN VIRGINIA, 2014



Source: "Crime in Virginia 2014"

When Inmates Finish Their Sentences Or Are Paroled

For better or worse, rehabilitated or not, 700,000 inmates annually either finish their sentences or are paroled back into society. Mountains of evidence nationally (and in Virginia) establish that this is a very difficult transition. Prison society and our open society are so different that one better educated than usual parolee told us, "It's like moving from a gulag in remotest Siberia to the White House."

Those released from prison often feel that the biblical mark of Cain is stamped on their foreheads and often are highly self-conscious and lack confidence. Especially if they are convicted felons, it is very difficult for them to find employment. Roughly one-half of those leaving prison do not find a job in the first year after their release. **One study found that 40 percent of employers in large urban areas would not hire a former inmate if they were aware of his or her history.**¹⁸ Nevertheless, post-release work is critical. The Missouri Department of Corrections found that 54 percent of released inmates who did not find full-time work after release returned to prison, while only 14 percent of those who found full-time work did so.¹⁹

Both the United States and Virginia suffer from falling labor force participation rates (LFPRs) – the proportion of the adult population that either is employed or actively seeking a job. While not the most important reason, one reason that LFPRs have been falling is that former prisoners, especially those who are convicted felons, drop out of the labor force because they cannot find employment. Thus, even though increased incarceration rates may reduce crime, the higher incarceration rates also generate some increased costs.

Nationally, an estimated 5.5 million felons who have returned to society from prison are not eligible to vote.²⁰ Nationally, one of every 13 African-

American adults is ineligible to vote because of a previous felony conviction, but in Virginia it has been reported to be an astonishing one in every five.²¹ During their terms, Virginia governors Mark Warner and Bob McDonnell took action to restore the voting rights of many felons. However, it was Gov. Terry McAuliffe who moved most boldly in this arena by restoring the voting and jury service rights of more than 200,000 Virginia felons by means of a sweeping executive order on April 22, 2016. His executive order was overturned by the Virginia Supreme Court on July 22, 2016, but The Washington Post (Laura Vozella, Aug. 22, 2016) reported that the governor subsequently utilized his autopen to sign individual orders to pardon more than 13,000 among the 200,000 felons.

McAuliffe asserted that Virginia was one of only 10 states that did not automatically restore voting rights when a felon completes his or her sentence, parole and probation. His executive order applied to all felons who have completed their sentences as well as their parole or probationary periods, regardless of the nature of their felony (Virginia has six classes of felonies that more or less reflect the seriousness of the offense). While applauded by many, the executive order had its critics because it did not differentiate between violent and nonviolent felons and did not take into account whether the felons in question had made restitution to their victims.

Beyond the right to vote, convicted felons cannot originate a mortgage loan for seven years after their conviction. In some cases (for example, those involving sex offenders), there are limitations in terms of the places where they can live or travel.

Table 6 summarizes the number of regulations constraining the employment of former prisoners in Virginia and several surrounding states that one recent study reported. Virginia's most common employment restrictions with respect to former inmates are found in education, child care, transportation and law enforcement. McAuliffe changed this dynamic somewhat when his executive order removed the requirement that former inmates reveal their previous imprisonment when they apply for certain state positions.

18 H.J. Holzer, *What Employers Want: Job Prospects for Less-Educated Workers*, New York, Russell Sage Foundation, 1996, p. 237.

19 www.stlreentry.org/news/26-out-of-prison-now-what-reentry-programs-help-those-returning-to-community-life.html.

20 Arian Campo-Flores, "Virginia Restores Voting Rights to Thousands of Felons," *The Wall Street Journal* (April 22, 2016), www.wsj.com.

21 Alan Suderman of The Associated Press in *The Virginian-Pilot*, www.pilotonline.com (April 23, 2016).

Every state must make sometimes-controversial trade-offs when it considers the post-release rights of former inmates. On the one hand, there is the understandable desire of many to be protected from individuals who have served prison terms. On the other hand, there are the substantial costs that society and families must bear when released inmates return to society and cannot find employment or fill certain jobs. It will suffice to note that Virginia, like several other states, has begun to change the balance between the two positions by restoring more rights to released inmates and by providing them with greater help when they return to society. There is some empirical support for this approach, as we will see below.

Job training and retraining programs often are advocated as a means to improve the employment situation of former inmates. Unfortunately, rates of success in such programs often are not high because many former inmates are poorly educated individuals who have acquired bad habits and lack social skills. Greater success often attaches to educational and training programs that occur inside prisons and prepare inmates before they leave prison.²²

The relevant point, however, is straightforward – once we put people in prison, it changes virtually every aspect of their future lives and seriously harms their subsequent employment prospects. Once again, even though there are visible benefits attached to higher incarceration rates, there also are costs that cannot be ignored.

Virginia is not a national leader in this regard, but has developed several interesting programs. The Department of Corrections has invested in new equipment for the agribusiness operations at the Deerfield, Greenville, James River and Pamunkey correctional facilities. These activities generated \$3.4 million of revenue in 2015. The department also has had success in training inmates for a variety of vocationally related post-release jobs. An interesting example involves a partnership with Johnson Controls to provide heating and air conditioning (HVAC) training.

TABLE 6

NUMBER OF REGULATIONS THAT RESTRICT EMPLOYMENT OPPORTUNITIES FOR FORMER INMATES

	Virginia	North Carolina	Maryland	West Virginia	Kentucky	Pennsylvania
Employment Restrictions	80	102	87	133	135	72
Occupational and Professional Licensing Restrictions	40	71	40	90	72	34
Business License and Property Rights Restrictions	55	40	36	42	22	43
Totals	127	120	70	143	141	119

Source: "Jobs After Jail, Ending the Prison to Poverty Pipeline," Alliance for a Just Society, February 2016, www.google.com/search?client=aff-maxthon-maxthon4&channel=t26&q=Jobs%20After%20Jail%20Ending%20the%20Prison%20to%20Poverty%20Pipeline%20Alliance%20for%20 (Note that totals are not the sum of the categories because restrictions may apply to more than one category.)

²² Lois M. Davis et al., *Evaluating the Effectiveness of Correctional Education: A Meta-Analysis of Programs That Provide Education to Incarcerated Adults*. Washington, D.C.: U.S. Department of Justice, 2013.

Public Policy Options: OK, Now What Should We Do?

Benefit-cost analysis is the tool most often used by economists when they want to estimate the effects of specific policy changes on the well-being of citizens. This usually involves comparing the incremental cost (“marginal cost”) of a policy change to its incremental benefit (“marginal benefit”). If the incremental benefit is greater than the incremental cost, then the policy change is desirable from an economic standpoint because it results in a net improvement in the welfare of the public. Of course, there might be other policy changes that are even more desirable that society would prefer, and so one must rank alternatives.

We have simulated a variety of public policy changes with respect to law enforcement and imprisonment: (1) lengthening sentences to keep convicted offenders off the street; (2) reclassifying crimes so that fewer crimes are considered to be felonies; and (3) granting early release of already imprisoned nonviolent offenders. Our results indicate that the cost of lengthening sentences nearly always exceed the benefits. Reclassifying crimes to reduce the frequency of felony charges is a winner – benefits easily exceed costs. The same is true for early release of nonviolent offenders. Benefits clearly exceed costs.

Readers interested in obtaining details concerning these simulation results should contact James V. Koch at jkoch@odu.edu or 757-683-3458.

Final Thoughts

Criminals destroy lives and impose huge costs on victimized citizens. Similarly, however, imprisonment also can impair the lives of those incarcerated and impose additional costs on society when inmates eventually are released. Further, it is expensive to imprison people.

Already in the 1980s, the Commonwealth of Virginia embarked on a “lock more people up and don’t let them out as soon” approach to criminal justice. Clearly, there are benefits generated by this approach (primarily from keeping criminals off the streets), but also costs that accrue and must be borne both by taxpayers and those incarcerated, as well as their families.

Our simulations suggest that the Commonwealth may well have tipped the scales excessively in recent years as it has increased the range of crimes that result in imprisonment, lengthened the sentences of those convicted and reduced their opportunities for parole. The well-known law of diminishing returns applies to most governmental activities and there is evidence that it has been in operation in recent years with respect to Virginia’s approach to law enforcement, sentencing, imprisonment and parole. Evidence suggests that, political poison or not, there may be more productive paths for Virginia to travel in the area of crime and punishment.

As Douglas Holtz-Eakin, who served on President George W. Bush’s Council of Economic Advisors, recently observed, we are in the midst of a “rare public-policy moment” in which both political parties agree that different policies concerning imprisonment could save taxpayers money, strengthen families, reduce unemployment and diminish poverty (The Economist magazine, April 30, 2016, p. 31). Virginia would be well advised to give due consideration to these opportunities.

The Rise Of Single-Earner Households In Virginia: Why It Matters



THE RISE OF SINGLE-EARNER HOUSEHOLDS IN VIRGINIA: WHY IT MATTERS

It is far better to be alone, than to be in bad company.
– George Washington

What once was typical – perhaps stereotypical – concerning American households no longer holds true. The family model epitomized by Ozzie and Harriet of television fame and their two children¹ certainly hasn't disappeared, but the two-parent family cum children has become less common. In 1940, 90 percent of U.S. households consisted of families that included two or more persons who were related to each other by virtue of birth, marriage or adoption. The vast majority of those families were married couples with children. However, by 2010, that household number had dropped to 66 percent.

In 2014, an estimated 117,707,000 households existed in the United States (Econmagic, 2016). Of these, 55 million were headed by unmarried adults, including more than 573,000 headed by same-sex individuals. Thus, 47 percent of all households now are headed by one or more single individuals and 27.41 percent by only one individual. These numbers should not come as a surprise because at least 107 million unmarried individuals now exist nationally. Single-person households have become the second-most common household type – behind married couples without children.² Table 1 summarizes these and related household data for the United States and Virginia.

¹ For trivia buffs, "The Adventures of Ozzie and Harriet" (starring the real-life Nelson family) aired on ABC-TV from 1952 to 1966. Ozzie and Harriet had two sons, David and Ricky. Ricky went on to achieve fame as a singer and actor.

² America's Families and Living Arrangements: 2014, Table A2. Source: <https://www.census.gov/hhes/families/data/cps2014A.html>. See also Rani Mola, "One in Four American Households Is One Person Living Alone," *The Wall Street Journal* (Aug. 12, 2014).



A Closer Look At Single-Person Households

Single-person households can usefully be divided into three categories: (1) post-high school and post-college young people who are out on their own; (2) single-parent households, typically headed by women; and (3) older, unmarried individuals, who now constitute 36 percent of all single households.³

We'll begin our analysis with a look at the institution of marriage, whose decline is responsible for a considerable proportion of the increase in single households. We'll see that significant differences exist in marriage rates across educational, racial, religious and economic lines. We'll also focus on a rapidly growing segment of single-person households – often young, post-high school Americans, but increasingly including more people who simply have decided to live on their own – as well as older, more mature individuals who may once have been married, but now are living on their own.

Not surprisingly, social policies that are framed in the context of Ozzie and Harriet types of family structures tend to favor those who live in such circumstances. The federal and Virginia income tax systems both contain numerous preferences that assign benefits to conventional families. These include exemptions for family members, reduced tax rates, subsidized mortgages, deductions for expenditures on education and the like. TurboTax, the largest vendor of tax preparation software, puts it simply: "Families can frequently save more on their taxes than a single person."⁴

TurboTax's advice may be wise, but the real world increasingly is not configured in the classic Ozzie and Harriet family fashion. Single women now outnumber married women in the United States and Great Britain. Households led by one or more single individuals have become much more common, and more than 40 percent of all new births in the United States now are associated with an unmarried mother. These changes have consequences, which we will explore.

³ Contrary to the expectations of some, this number actually has been declining because men are living longer and this has diminished the number of widows.

⁴ <https://turbotax.intuit.com/tax-tools/tax-tips/Family/Tax-Exemptions-and-Deductions-for-Families/INF12053.html>.

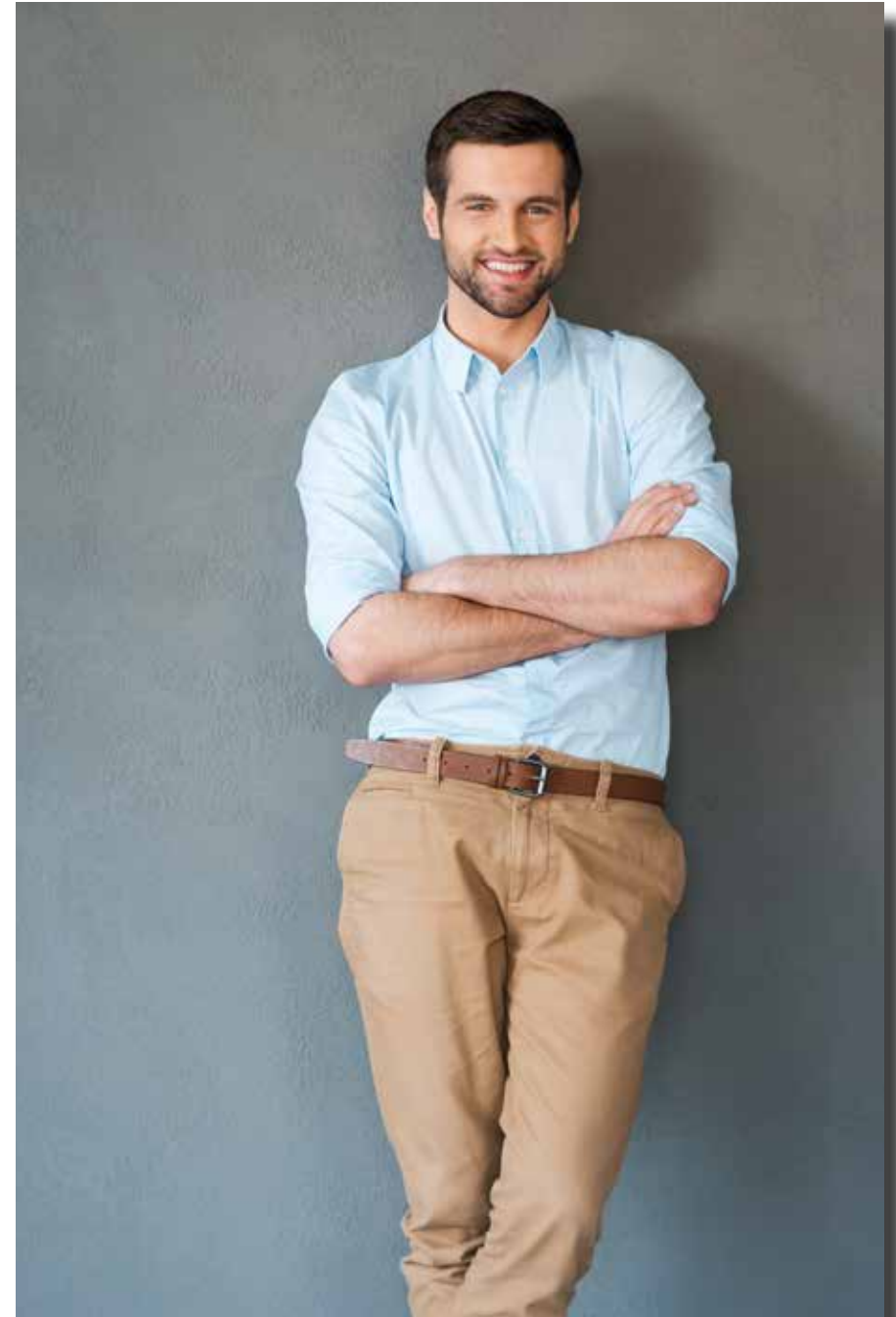


TABLE 1

UNITED STATES AND VIRGINIA HOUSEHOLDS, 2010-2014

HOUSEHOLDS BY TYPE	United States		Virginia	
	Estimate	Percent	Estimate	Percent
Total households	116,211,092	-	3,041,710	-
Family households	76,958,064	66.2%	2,047,106	67.3%
With own children under 18 years	33,917,911	29.2%	901,736	29.6%
Married-couple family	56,270,862	48.4%	1,542,174	50.7%
With own children under 18 years	22,823,632	19.6%	636,122	20.9%
Male householder, no wife present, family	5,543,754	4.8%	129,210	4.2%
With own children under 18 years	2,662,944	2.3%	60,515	2.0%
Female householder, no husband present, family	15,143,448	13.0%	375,722	12.4%
With own children under 18 years	8,431,335	7.3%	205,099	6.7%
Nonfamily households	39,253,028	33.8%	994,604	32.7%
Householder living alone	32,036,772	27.6%	806,539	26.5%
65 years and over	11,569,876	10.0%	277,453	9.1%
Households with one or more people under 18 years	37,895,810	32.6%	1,002,599	33.0%
Households with one or more people 65 years and over	30,294,116	26.1%	753,703	24.8%
Average household size	2.63	-	2.61	-
Average family size	3.23	-	3.16	-
RELATIONSHIP				
Population in households	306,058,480	-	7,943,875	-
Householder	116,211,092	38.0%	3,041,710	38.3%
Spouse	56,242,970	18.4%	1,542,172	19.4%
Child	93,459,419	30.5%	2,350,171	29.6%
Other relatives	22,147,046	7.2%	539,092	6.8%
Nonrelatives	17,997,953	5.9%	470,730	5.9%
Unmarried partner	6,958,557	2.3%	155,680	2.0%

TABLE 1

UNITED STATES AND VIRGINIA HOUSEHOLDS, 2010-2014

HOUSEHOLDS BY TYPE	United States		Virginia	
	Estimate	Percent	Estimate	Percent
MARITAL STATUS				
Males, 15 years and over	123,281,364	-	3,232,491	-
Never married	44,100,702	35.8%	1,117,524	34.6%
Now married, except separated	61,902,351	50.2%	1,690,501	52.3%
Separated	2,254,810	1.8%	70,983	2.2%
Widowed	3,166,898	2.6%	76,370	2.4%
Divorced	11,856,603	9.6%	277,113	8.6%
Females, 15 years and over	129,692,771	-	3,404,862	-
Never married	38,239,034	29.5%	971,569	28.5%
Now married, except separated	60,570,863	46.7%	1,654,929	48.6%
Separated	3,231,201	2.5%	94,983	2.8%
Widowed	11,878,014	9.2%	295,544	8.7%
Divorced	15,773,659	12.2%	387,837	11.4%

Source: U.S. Census 2010-2014 American Community Survey 5-Year Estimates, http://factfinder.census.gov/bkmk/table/1.0/en/ACS/14_5YR/S1101

Marriage Trends

Changing social attitudes, delayed marriage, elevated rates of cohabitation and widening marital divides between demographic groups have fueled a dramatic rise in the proportion of Americans who are single. According to the U.S. Census' America's Families and Living Arrangements survey, 45 percent of U.S. residents 18 and older were unmarried in 2014 – 53 percent of women and 47 percent of men. A 2014 Pew Research Center study noted that the number of American marriages fell from a high of 72 percent of all adults age 18 or older in 1960 to 50.5 percent in 2012. Only 20 percent of Americans now get married before the age of 30.⁵

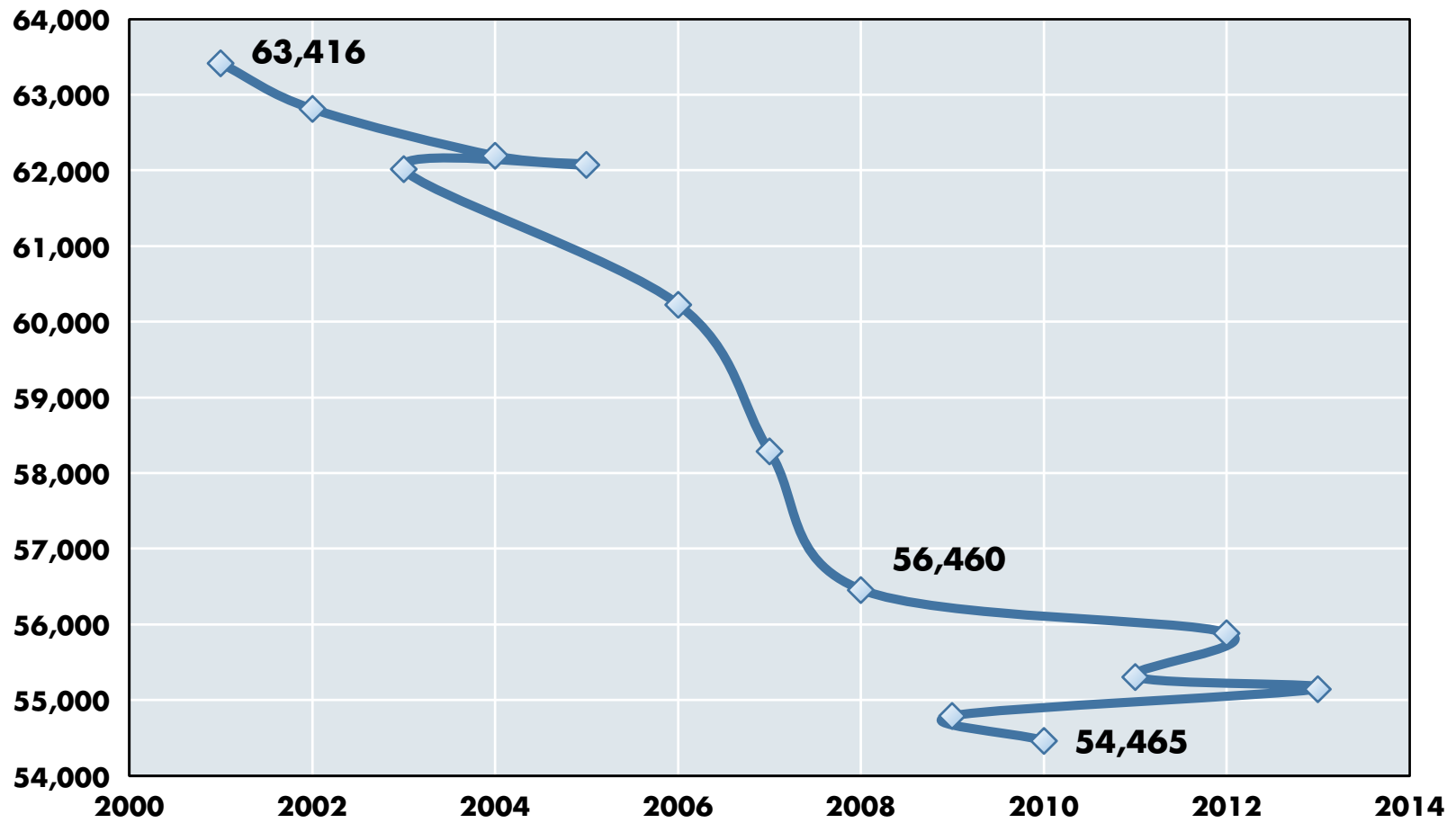
⁵ <http://www.pewresearch.org/fact-tank/2014/02/06/new-census-data-show-more-americans-are-tying-the-knot-but-mostly-its-the-college-educated>.

Simone de Beauvoir, the French writer, activist and feminist, once bemoaned that all women either were “married, or have been, or plan to be, or suffer from not being.”⁶ Things have changed. Graph 1 illustrates the decline in marriage rates in the Commonwealth of Virginia between 2001 and 2013. According to the 2014 America's Families and Living Arrangements survey, **unmarried women now outnumber married women in Virginia and the United States, and there are 88 unmarried men for every 100 unmarried women.** The median age of women at their first marriage is 27, while it is 29 for men.

⁶ *The Second Sex, Vols. I and II* (Paris: Gallimard, 1949).

GRAPH 1

TOTAL NUMBER OF RECORDED MARRIAGES: VIRGINIA, 2001-2013



Source: Virginia Department of Health, www.vdh.virginia.gov/healthstats/stats.htm

Couples in Virginia typically now wait longer to marry and are more likely to cohabit before they do marry. **According to the Pew Research Center's 2010 report, "The Decline of Marriage and Rise of New Families," 15 times the number of couples today live together outside of marriage than in 1960 and almost half of today's cohabiting households include children. In the first decade of this century, 88 percent of children fathered by men under age 20 were "nonmarital," that is, outside of marriage. Fully 41 percent of all births in 2010 were nonmarital (Centers for Disease Control and Prevention, 2015).**

According to the National Center for Health Statistics (2013), nearly half of women ages 15-44 have cohabited with a partner before marriage in households without children. In 2014, 39 percent of opposite-sex, unmarried-partner couples lived at the time with at least one biological child of either partner. Why are we observing these changes?

- An expanding number of women no longer feel either that they must be married, or that they will miss their chance to do so if they don't commit when young. Rebecca Traister's "All the Single Ladies" (Simon and Schuster, 2009) dissected this environment and its consequences.
- Among people 25 years or older, 40.6 percent of women have earned a college degree, whereas only 36 percent of men have done so (U.S. Census, "Women in the Labor Force," 2014). A large cadre of women now exists that is composed of women capable of forging independent economic paths in society.
- Elevated rates of unemployment among young men ages 16-24 have increased the fear of some that making a long-term financial commitment via marriage is one they will not be able to keep. For example, in February 2016, when the overall rate of unemployment was 4.9 percent, it was 10.1 percent for all individuals ages 16-24 and 13 percent for men in the same age group (Bureau of Labor Statistics, 2016).
- Though bad economic times may discourage marriage, simultaneously they may encourage couples to cohabit in hopes of reducing their expenses. The notion that two together can live less expensively than two separately long

has had legal acceptance and there is some empirical evidence in favor of it (Bureau of Labor Statistics, 2015).

- The increasing prevalence of divorce has elevated the concern of some about how potentially disruptive and expensive divorce can be. Approximately 40 percent of all first marriages end in divorce, 60 percent of second marriages, and 73 percent of third marriages. A divorce initially costs an average of \$15,500, but subsequent costs over the years frequently dwarf this number.⁷ The solution to avoiding these expenses? Don't get married.
- There has been increased social acceptance of what was once regarded as "living in sin." When a Vatican Council (this one in 2014) openly debates the theology and practicalities of this issue, it is a sign that times have changed, for better or worse. The social attitudes behind Nathaniel Hawthorne's "The Scarlet Letter" no longer guide substantial segments of American society.
- The feeling among some is that getting married in difficult economic times is irresponsible. The most persuasive evidence of this phenomenon is seen in countries after they have been defeated in a war and occupied (for example, Germany and Japan after World War II), but also is evident when countries dive into recession or economic depression.

⁷ See www.divorcestatistics.org for information on divorce frequency and www.nolo.com for information on the cost of divorce.

THE DISTINCTIVE SITUATIONS OF AFRICAN-AMERICANS

Despite an increase in cohabitation, many Virginians eventually marry. However, the rate at which they do so increasingly reflects factors of race, education, and religious and economic status. Low rates of marriage are a social consequence associated with low educational attainment. Marriage rates among the non-college educated population have fallen sharply in the last few decades among all demographic groups, but most severely among African-Americans. There is general agreement that the reasons for this include imbalances of the number of men and women available for marriage, high rates of unemployment for both men and women that deter marriage, pain from less than successful past relationships, fears of being abandoned, high rates of imprisonment for African-American men, and concerns about readiness for marriage. Table 2 presents the U.S. Census 2014 African-American demographic profile. One can see that large proportions of African-American men and women 15 years and older have never been married – 48 percent of women and 51.4 percent of men.

It is not easy to disentangle the separate impacts of race, education and class on marriage because, for example, African-Americans tend not to be as well educated as the typical Asian or white individual of the same age and gender, and educational attainment clearly affects marriage rates. Graph 2 shows the high school graduation gaps in Virginia that exist between Asian, white, African-American and Hispanic students.

POPULATION AND HOUSEHOLDS BY TYPE	
Total population	40,379,066
Male	47.7%
Female	52.3%
Households	14,334,528
Family households	61.6%
With own children under 18 years	30.0%
Married-couple family	27.0%
With own children under 18 years	11.1%
Female householder, no husband present, family	28.4%
With own children under 18 years	16.0%
Nonfamily households	38.4%
Male householder	17.4%
Living alone	14.6%
Not living alone	2.8%
Female householder	21.1%
Living alone	18.9%
Not living alone	2.2%
MARITAL STATUS	
Population 15 years and over	31,735,327
Now married, except separated	28.8%
Widowed	5.7%
Divorced	11.9%
Separated	4.0%
Never married	49.6%

TABLE 2

**AFRICAN-AMERICAN POPULATION PROFILE:
UNITED STATES, 2014**

POPULATION AND HOUSEHOLDS BY TYPE

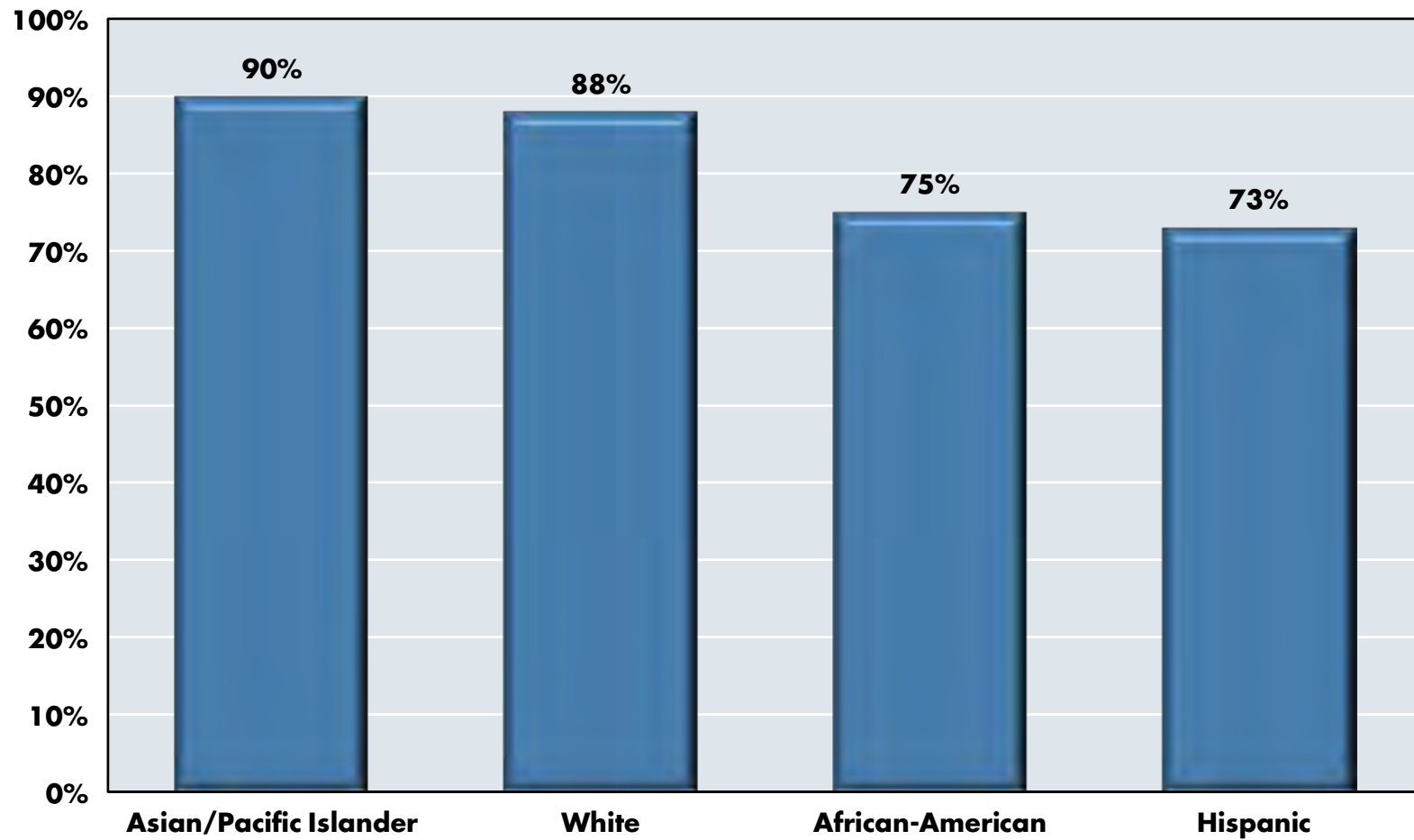
Male 15 years and over	14,880,533
Now married, except separated	32.4%
Widowed	2.6%
Divorced	10.2%
Separated	3.5%
Never married	51.4%
Female 15 years and over	16,854,794
Now married, except separated	25.7%
Widowed	8.4%
Divorced	13.4%
Separated	4.5%
Never married	48.0%
EDUCATIONAL ATTAINMENT	
Less than high school diploma	15.6%
High school graduate (includes equivalency)	31.6%
Some college or associate degree	33.1%
Bachelor's degree	12.4%
Graduate or professional degree	7.3%

Source: U.S. Census Bureau, 2014 American Community Survey 1-Year Estimates
*Respondents identified as black or African-American only.



GRAPH 2

STATE GRADUATION RATES BY RACE/ETHNICITY: PUBLIC HIGH SCHOOLS IN VIRGINIA, 2011-2012



Source: National Center for Education Statistics

THE EDUCATION/MARRIAGE LINK

The Pew Research Center reported in 2014 that 24 percent of men with a high school education had never married, as compared to 14 percent of men with advanced degrees. The National Center for Education Statistics (NCES) 2015 report titled “Disparities in Educational Outcomes Among Male Youth” noted that the percentage of males ages 25-29 who had completed a bachelor’s or higher degree was significantly higher for Asians (55 percent) and for whites (37 percent) than for those of two or more races (29 percent), blacks (17 percent) or Hispanics (13 percent). One might be tempted to say, “Well, that’s none of our business,” but these disparities partially drive many different adverse phenomena that range from underweight babies and stunted preschool development to higher unemployment rates and elevated risks of imprisonment. Either society recognizes and deals with these challenges when they arise, or we pay for them later.

Table 3 illustrates the differences in marriage demographics among women. Women with less than a high school education are not getting married. There also is a post-marriage effect. Regardless of race, women with lower levels of education are more likely to get divorced.⁸ Alas, divorce not only is an expensive proposition for those involved, but also frequently leads to one-parent homes, higher rates of unemployment, a much higher risk of living in poverty, lower educational attainment and a greater likelihood of both parents and children ending up in prison or the courts. It is an understandable, though unattractive, situation.

Characteristics	Percent of Married Couples
Age of Wife	
15 to 24 years	3%
25 to 34 years	17%
35 to 44 years	21%
45 to 54 years	24%
55 years and older	36%
Race/Ethnicity of Wife	
White alone, non-Hispanic	74%
Black alone, non-Hispanic	7%
Latina	12%
Other	7%
Education Level of Wife	
Less than high school	10%
High school graduate	29%
Some college	27%
Bachelor’s degree or more	34%
Source: Current Population Survey, U.S. Census Bureau	

A 2013 brouhaha at Princeton University focused on the statistical circumstances that confront many women, especially those who have earned college degrees. One-third of never-married women 25 or older have earned either a bachelor’s or an advanced degree, compared with only one-quarter of never-married men of the same age. In what was to become a famous letter to The Daily Princetonian, alumna Susan Patton sparked controversy when she advised Princeton women who wanted to marry to “find a husband on campus before you graduate.” She asserted that it is only during college when unmarried females will be around a high concentration of educated single males. She maintained that after college, “you will meet men who are your intellectual equal — just not that many of them.” Implicitly, she advised the women at Princeton to strike while the figurative iron was hot.

⁸ Jamie M. Lewis and Rose M. Kreider, Remarriage in the United States, Bureau of the Census, March 2015, www.census.gov/content/dam/Census/library/publications/2015/acs/acs-30.pdf.

THE PARADOX OF ASSORTATIVE MATING

Which brings us to a brief discussion of “assortative mating,” a term economists use to describe individuals who choose to marry someone who has achieved a level of educational attainment similar to their own. This phenomenon has important implications for social and economic mobility. Education is a strong predictor of future earnings. It also influences intergenerational mobility and usually opens paths to a wider set of alternatives and increased incomes. Nevertheless, if assortative mating results in college graduates marrying each other, then additional education likely will be an engine that causes income inequality to increase rather than decrease.

There is little mystery attached to this relationship. Households supported by the earnings of two college-educated individuals are much more likely to be economically prosperous, avoid divorce and unemployment, and subsequently raise stable families that boast high-achieving children who follow in their footsteps. Paradoxically, though higher education traditionally has been viewed as a vehicle for diminishing economic inequality, assortative mating acts to diminish or even reverse this outcome. When Ivy League graduates marry each other, the financial results differ from those we typically observe when two community college graduates marry each other. Because an Ivy League education (or even an education at a flagship state university) increasingly is not within the financial capabilities of many families unless they incur substantial debt, the current higher education system in the United States no longer can be counted upon to diminish economic inequality. Paradoxically, it may contribute further to it, especially where single-parent families with modest incomes are concerned.

SINGLE-PARENT HOUSEHOLDS HAVE TRIPLED IN NUMBER SINCE 1960

Even though birth rates for women ages 18-24 have reached historic lows in the United States, single-parent families have more than tripled as a share of American households since 1960. However, there are distinct differences between racial groups when it comes to marriage. The share of never-married adults has gone up for all major racial and ethnic groups,

including Hispanics and Asian-Americans in the United States, but as noted in Table 2, the number of never-married African-Americans has increased dramatically. Among black adults ages 25 and older, the share of those who never have been married quadrupled over the past half century – rising from 9 percent in 1960 to 36 percent in 2012.

Virginia as a state has the 10th-largest population of African-Americans in the United States – constituting 19.2 percent of the Commonwealth’s population. The median age at first marriage for black women Virginians is 30, the highest for all racial groups. According to the Pew Research Center’s Social & Demographic Trends project (2014), for every 51 employed, never-married young black men between the ages of 25 and 34, there are 100 never-married black women. The marriage market is not flooded with younger black men.

African-Americans were significantly more likely than whites to “place a high priority on a spouse or partner with a steady job.”⁹ Age, education and income are major factors in the stability of all marriages, but the evidence suggests those factors affect African-American couples more than others.

A significant proportion of young African-American women appear to have decided either that they wish to remain single, or that they must remain single. Hence, they have increased their focus on their own professional lives by pursuing education and a subsequent career. Several single African-American women to whom we spoke echoed these sentiments. *“I have spent many years working hard in my career to be successful. My profession is more important to me than marriage”* (the words of a 28-year-old African-American single woman in Richmond). Helping and perhaps even living with multigenerational family members often is cited as being more important than marriage. *“I know that my daughter needs me and I am willing to put her needs before my needs. I am not willing to sacrifice my time with her for any relationship right now,”* observed a single mother from Newport News.

Table 4 reveals which Virginia communities have the highest percentages of single-parent households. The communities with the highest single-parent rates

⁹ Wendy Wang and Kim Parker, Record Share of Americans Have Never Married: As Values, Economics and Gender Patterns Change. Washington, D.C.: Pew Research Center’s Social & Demographic Trends project, September 2014.

typically also exhibit among the lowest per capita and household incomes in the Commonwealth. The precursor to this status for a large proportion of single-parent households often was an unplanned, nonmarital birth. Marriage may be faltering in Virginia, but sex and procreation are not.

Table 5 reports the number of nonmarital births by Virginia location in 2014. There is an important and unavoidable connection between the data reported in Tables 4 and 5. For many Virginians, an unplanned, out-of-wedlock birth either is the beginning of their descent into poverty, or it firmly places an exclamation point on their already perilous economic situation.

Graph 3 provides further detail on the relationships among economic status, householder status and children. The median income of a woman householder without a spouse present was \$36,151 in 2014. A typical single black woman with children under 18, however, had a median income of only \$25,767. Being a single woman is not easy; being a single black woman with children dramatically raises the chance that such a household will live in poverty. Note that single-parent households headed by men have median incomes that are more than \$17,000 higher than those headed by women.

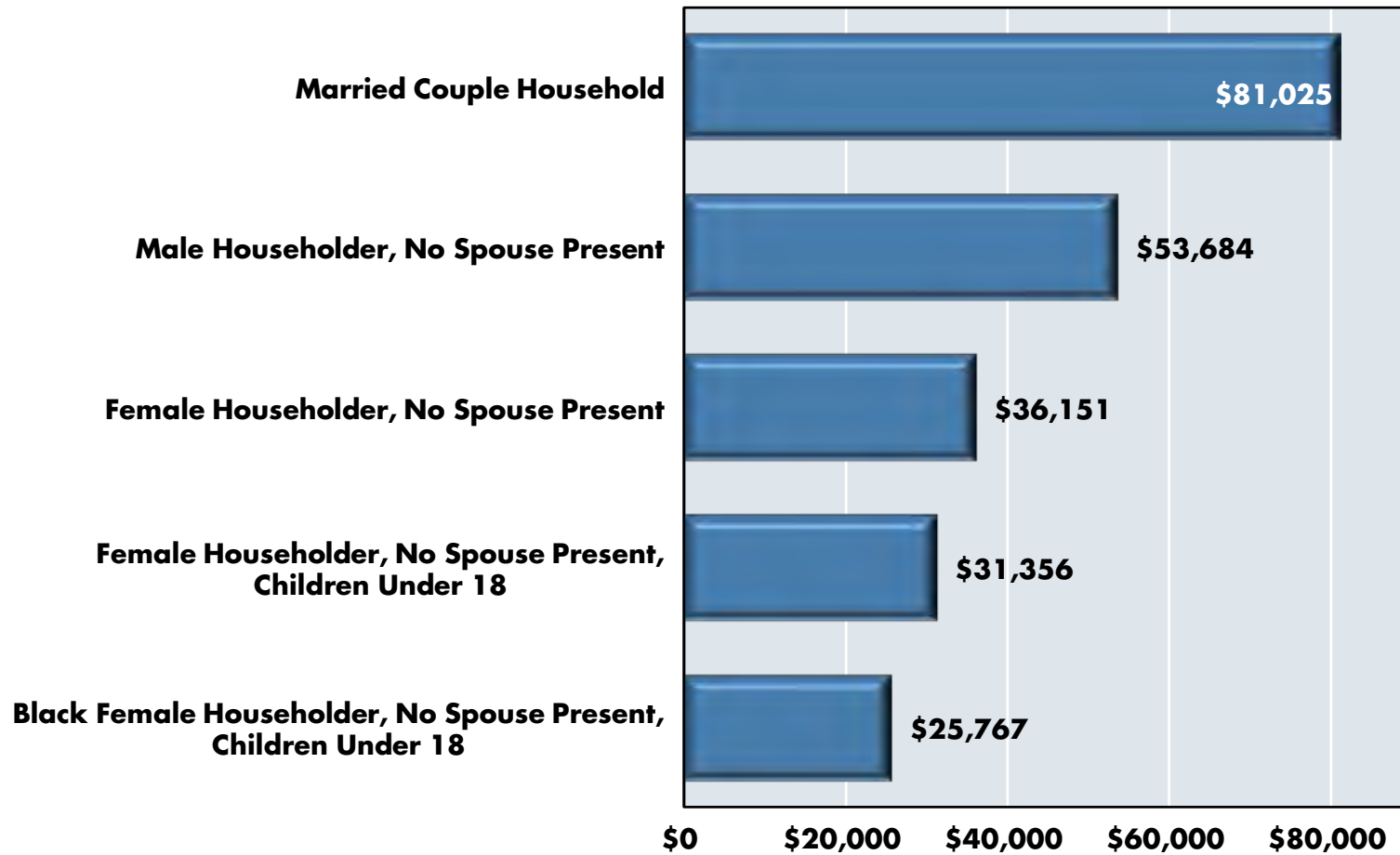
We cannot explore in detail the negative ramifications of these realities for the young people in those families and their future lives. It will suffice to note that such circumstances generate costs for society at large. These costs eventually come home to roost in the form of lower productivity, higher incidences of antisocial behavior, crime and substance abuse, and almost inevitably, the higher taxes that are required to deal with such. The proverbial free lunch does not exist in this environment.

Locality	Number of Single-Parent Households	Number of Households	Percent Single-Parent Households
Petersburg	4,630	6,619	70%
Hopewell	3,488	5,402	65%
Richmond	24,368	38,139	64%
Danville	5,567	9,176	61%
Emporia	758	1,246	61%
Martinsville	1,742	3,028	58%
Lancaster County	1,007	1,767	57%
Portsmouth	12,580	22,359	56%
Galax	844	1,546	55%
Roanoke	11,502	21,077	55%
Norfolk	25,821	49,788	52%
Franklin	1,053	2,090	50%

Source: U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates, <http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

GRAPH 3

MEDIAN INCOMES FOR VARIOUS TYPES OF HOUSEHOLDS: UNITED STATES, 2014



Source: U.S. Census, Income and Poverty in the U.S., 2014, www.census.gov/hhes/www/cpstables/032015/hhinc/hinc04_000.htm

TABLE 5

NUMBER OF NONMARITAL LIVE BIRTHS IN VIRGINIA, 2014

PLANNING DISTRICT AND CITY OR COUNTY	TOTAL RESIDENT NONMARITAL LIVE BIRTHS							
	NUMBER OF NONMARITAL BIRTHS				PERCENT			
	TOTAL	WHITE	BLACK	OTHER	TOTAL	WHITE	BLACK	OTHER
PLANNING DISTRICT 8	7,413	2,873	1,741	2,799	21.5	14.6	41.1	26.6
ARLINGTON COUNTY	492	206	89	197	15.5	9.5	41.4	24.7
FAIRFAX COUNTY	3,013	946	568	1,499	20.5	12.2	37.3	27.8
LOUDOUN COUNTY	789	344	116	329	15.6	11.3	32.0	20.0
PRINCE WILLIAM COUNTY	2,019	911	628	480	29.3	23.5	44.5	29.9
ALEXANDRIA	646	219	271	156	22.7	12.4	49.3	29.3
FAIRFAX	109	41	13	55	15.1	10.2	28.9	19.9
FALLS CHURCH	23	8	5	10	8.7	4.3	41.7	15.9
MANASSAS	316	194	51	71	41.5	40.5	46.8	40.8
MANASSAS PARK	6	4	-	2	28.6	30.8	-	33.3
PLANNING DISTRICT 20	6,069	2,000	3,528	541	38.0	22.3	66.7	31.4
ISLE OF WIGHT COUNTY	139	75	61	3	37.4	27.0	74.4	25.0
SOUTHAMPTON COUNTY	57	23	32	2	40.1	24.5	74.4	40.0
CHESAPEAKE	1,057	398	578	81	35.1	21.6	64.2	29.9
FRANKLIN	100	16	83	1	63.3	30.8	83.0	16.7
NORFOLK	1,657	349	1,157	151	45.8	22.0	71.4	36.6
PORTSMOUTH	822	171	624	27	55.7	29.5	75.7	37.0
SUFFOLK	401	109	286	6	36.7	18.0	64.9	12.5
VIRGINIA BEACH	1,836	859	707	270	30.2	22.0	55.2	30.2
PLANNING DISTRICT 15	4,907	1,726	2,741	440	39.7	24.1	72.6	30.7
CHARLES CITY COUNTY	36	8	22	6	57.1	26.7	81.5	100.0
CHESTERFIELD COUNTY	1,297	624	515	158	34.5	25.0	58.9	40.2

TABLE 5
NUMBER OF NONMARITAL LIVE BIRTHS IN VIRGINIA, 2014

PLANNING DISTRICT AND CITY OR COUNTY	TOTAL RESIDENT NONMARITAL LIVE BIRTHS							
	NUMBER OF NONMARITAL BIRTHS				PERCENT			
	TOTAL	WHITE	BLACK	OTHER	TOTAL	WHITE	BLACK	OTHER
GOOCHLAND COUNTY	58	38	20	-	31.4	24.1	83.3	-
HANOVER COUNTY	249	190	52	7	26.6	23.3	65.0	17.1
HENRICO COUNTY	1,394	512	775	107	34.3	22.9	68.3	15.4
NEW KENT COUNTY	61	37	18	6	31.8	22.8	78.3	85.7
POWHATAN COUNTY	61	50	9	2	25.8	22.8	75.0	40.0
RICHMOND	1,751	267	1,330	154	60.0	25.8	83.2	54.6
PLANNING DISTRICT 21	2,565	717	1,564	284	41.4	23.4	66.5	36.6
JAMES CITY COUNTY	200	91	69	40	27.4	17.4	61.1	43.5
YORK COUNTY	151	80	55	16	21.4	15.4	54.5	18.4
HAMPTON	817	204	551	62	46.3	27.9	64.5	34.1
NEWPORT NEWS	1,339	306	872	161	47.7	26.3	69.4	41.5
POQUOSON	24	23	1	-	24.7	25.8	100.0	-
WILLIAMSBURG	34	13	16	5	39.1	31.7	61.5	25.0

Source: Virginia Department of Health, Division of Health Statistics www.vdh.virginia.gov/healthstats/documents/2010/pdfs/NonMaritalBirths14.pdf

WHAT ABOUT CAMPAIGNS TO PROMOTE MARRIAGE?

Reality is that the current distribution of governmental tax incentives typically skews in favor of traditional Ozzie and Harriet types of families. For example, a husband and a wife who file a joint tax return usually pay lower taxes than if they each filed separate returns. Shouldn't incentives such as this promote marriage? Perhaps they do, but they are costly and have not been sufficient to reverse the societal trend away from marriage.

With respect to the promotion of marriage, we face difficult (and expensive) choices. Should we increase marriage incentives significantly, hoping that this will cause more couples to choose marriage, or instead turn our attention to

improving the lot of the burgeoning number of single-parent families? Where should we spend our dollars?

Economist Eduardo Porter and others have argued (New York Times, March 22, 2016) that marriage per se isn't the key to the economic progress of lower-income, single-adult families. Instead, what is important is to diminish or eliminate the impoverished state of such families. This involves improving their often-inadequate housing situations, enhancing their access to education and training, and supplying sex education and contraception options that will delay motherhood. The latter proposal recognizes that 6 out of 10 children born to single mothers under the age of 30 are unplanned (according to Brookings Institution economist Isabel Sawhill).¹⁰

¹⁰ Isabel V. Sawhill, *Generation Unbound* (Washington, D.C.: Brookings Institution, 2014).

Porter and others argue that the federal Healthy Marriage Initiative begun in 2001 has expended \$600 million on a variety of initiatives, but there is little to show for its efforts. While not quite ready to punt on the issue of increasing the rate of marriage, Porter, Sawhill and others believe that emphasis on increasing the rate of marriage actually does not really address the root causes of why single-parent families exist, or what we must do to improve their lot. Hence, they advocate programs that prospectively will improve the economic conditions of single-parent families rather than pro-marriage initiatives. This, they believe, is a cost-effective approach because it avoids numerous costs that governments, organizations and individuals must bear when single-parent families live in or close to poverty.

Young And Single

The Pew Research Center, relying upon U.S. Census data, reports that millennials – those young adult Americans ages 18-34 – now constitute the largest age group in the American workforce. This group numbers 75.4 million, surpassing the 74.9 million baby boomers ages 51-69. Millennials often are single and choose to delay marriage for a variety of reasons, including economics, education and personal preferences.

Today's younger generation exhibits much lower rates of marriage than their parents and grandparents. In 2013, only 1 in 10 young adult females (ages 18-34) lived with a spouse – down considerably from 1 in 4 in 1989. Economic times have been challenging for these individuals. **Their labor force participation rates (the percentage of these individuals who either are employed, or actively seeking a job) declined to only 65 percent in 2012. This means that an astonishing 35 percent of the individuals in this cohort neither were employed, nor looking for a job. Somehow, however, they have found a way to survive – variously cobbling together diverse combinations of living at home or with friends to reduce expenses; receiving unemployment compensation, disability and other entitlement payments; undertaking part-time and**

off-ledger employment; and getting involved with illegal activities.

In 2013, 58 percent of young adult men and 51 percent of young adult women ages 18-24 were living with their parents.

Scarce job opportunities and student educational debt have plagued this generation of single Americans. In 2012, 66 percent of all recent graduates of public colleges and 75 percent of all recent graduates of nonprofit independent colleges had student loan debt (Institute for College Access & Success, March 2014).

Virginians have not been immune from the student debt crisis. More than 1 million borrowers in the Commonwealth were estimated to owe more than \$30 billion in student loans in 2015. This has predictable consequences. They cannot afford to purchase automobiles, homes or major household items.

Nearly all of the millennials in Virginia with whom we spoke commented on the adverse impact that difficult labor markets were having upon their lives and personal choices. Consider a 27-year-old white male who chose to live at home initially after college because of what he reported to be a lack of suitable employment opportunities. After graduating from a Virginia public university in 2011, he worked part time for four years before finally securing a full-time position with benefits in 2015. *“After months and months of searching for a full-time job, I was depressed from being rejected over and over again. After graduating with a business degree and a concentration in finance, I would have never guessed that my national job market search would have been so grim. I was shocked by the number of mid-career and even senior-level people applying for the jobs that I was applying for. These positions advertised low salaries too. I was stuck in a part-time position for four years still searching all the while until it finally turned into a full-time job.”* This young man continues to stay with his baby boomer dad and helps pay a share of the monthly mortgage in addition to saving money to purchase his own home one day.

If you are a millennial who neither is employed, nor in education or training, then you are a “NEET.” NEETs constitute a major proportion of those who have dropped out of the labor force and in so doing reduced the labor force participation rate. There were 10.2 million NEETs ages 16-29 in the United States in 2015. There are more female than male NEETS, and two-thirds of all NEETS have a high school education or less. African-Americans and Hispanics comprise the largest share of this subgroup (see Table 6 for a complete breakdown), which has been increasing in relative size.



TABLE 6			
“NEETS” IN THE UNITED STATES, 2014			
Characteristics	Number (in 1000s)	Percent of All NEETS	Percent of Total Subgroup
Male	4,300	42.6%	14.4%
Female	5,900	57.4%	19.5%
16-19	2,200	21.7%	13.3%
20-24	3,800	37.6%	17.5%
25-29	4,200	40.7%	19.1%
Race/Ethnicity			
White	7,000	69.1%	15.8%
Black	2,000	19.7%	22.2%
Hispanic	2,500	24.5%	19.5%
Asian	500	5.0%	14.2%
Other	600	6.2%	20.9%
Education Level			
Less than High School	2,700	26.7%	-
High School Graduate	4,100	40.0%	-
Some College	1,700	16.9%	-
Associate Degree	500	5.1%	-
Bachelor’s Degree or More	1,100	11.2%	-

Source: Pew Research Center Analysis of the Bureau of Labor Statistics data, <http://pewrsr.ch/1PUPwJ4>

Aging Alone

Between 1915 and 2013, the proportion of single-person households in the United States jumped from 6 percent to 28 percent of all households. Women accounted for 54 percent of this group. The most rapidly growing segment of this population is individuals 65 or older, who now make up 36 percent of all single households. According to the Virginia Division for the Aging, the number of Virginians 85 and older will increase five times faster than the state's total population growth between now and 2025.

Interestingly, many of these more mature, unmarried Americans do not identify with the word "single" because they are widowed or have acquired partners.

Uncertain future economic prospects have contributed to rising retirement ages. This has resulted in rising proportions of more mature individuals remaining in the labor force. Graph 4 tells us even though labor force participation rates generally have been gradually declining for age groups of both genders, people 65 and older form an exception. Increasingly, one sees some of them in action behind the counters at fast food restaurants and big-box chain stores.

State and local governments that do not have mandatory retirement ages also are finding that their employees are delaying their retirements. Graph 5 illustrates this trend within the Commonwealth.

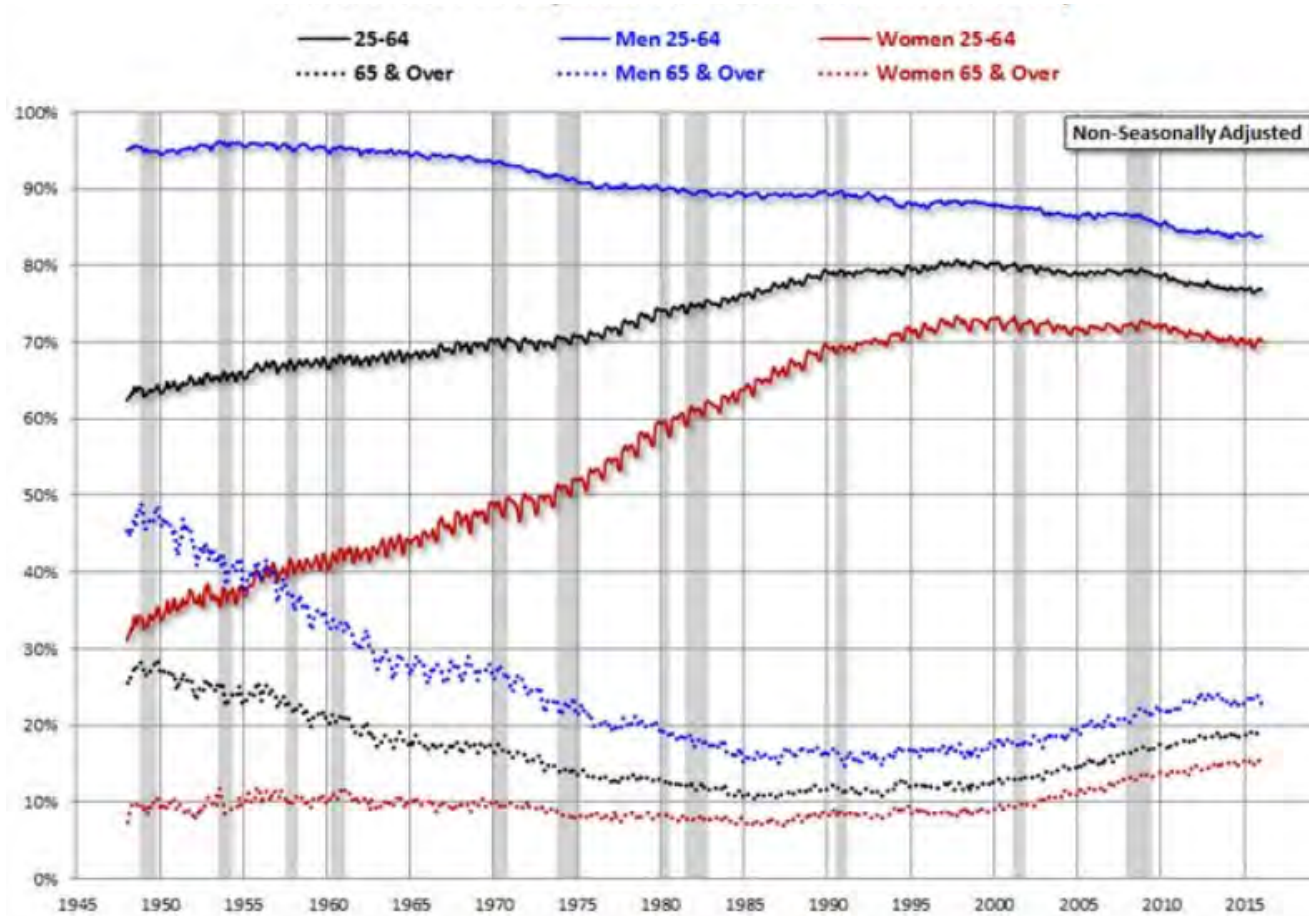
Why do seniors end up living alone? The reasons are wide-ranging and include increased rates of divorce, longer life spans and delayed marriages. Graphs 6 and 7 illustrate the marital status of American seniors (by gender) living alone in 2010. A century ago, more than 70 percent of the elderly lived with family members. Currently, fewer than 20 percent live with relatives. Improved health and financial status have made it feasible for older people without a spouse to live alone rather than with relatives or in assisted living. Almost three times as many women as men, however, now live alone because they are widowed. Quite simply, women live longer than men, making single men what one widow termed a "hot commodity" in many residences that cater to seniors.

One should not ignore the immense implications of these trends for Virginia. Increasing proportions of Virginians are becoming both old and single. One way or another, they must be cared for and supported by their families, charitable and religious organizations and the government. Almost inevitably, this implies that increasing proportions of Virginia state government expenditures are going to be expended on the (single) elderly. The nub of the economic challenges is this: A declining proportion of working-age Virginians will be asked to support their fellow retired citizens for increasingly long periods of time.



GRAPH 4

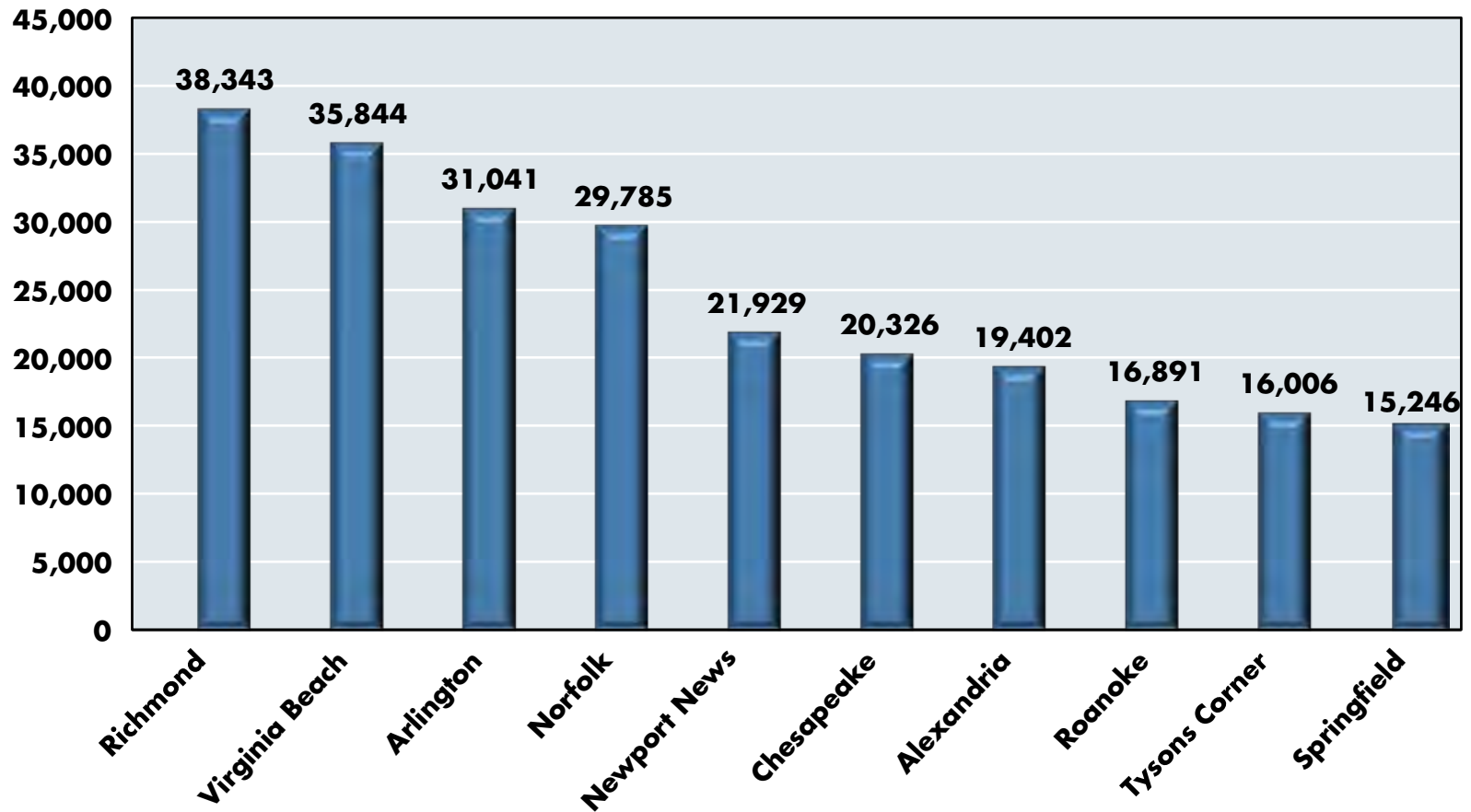
LABOR FORCE PARTICIPATION RATES FOR INDIVIDUALS OF VARIOUS AGES, 1945-2015 (RECESSIONS IN GRAY)



Source: www.short.com. With permission.

GRAPH 5

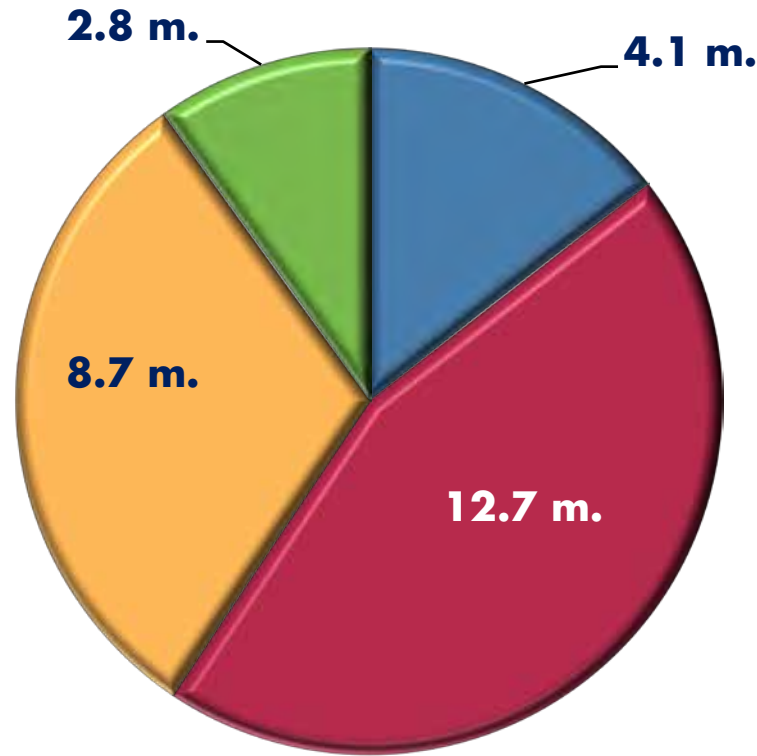
TOP 10 COMMUNITIES FOR VIRGINIA WORKERS WHO WERE 55 OR OLDER, 2014



Source: U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics Beginning of Quarter Employment, 2nd Quarter of 2002-2014), <http://onthemap.ces.census.gov>

GRAPH 6

NUMBER OF MALE SINGLES IN THE UNITED STATES OVER THE AGE OF 65 AND THEIR MARITAL STATUS, 2010 (IN MILLIONS)

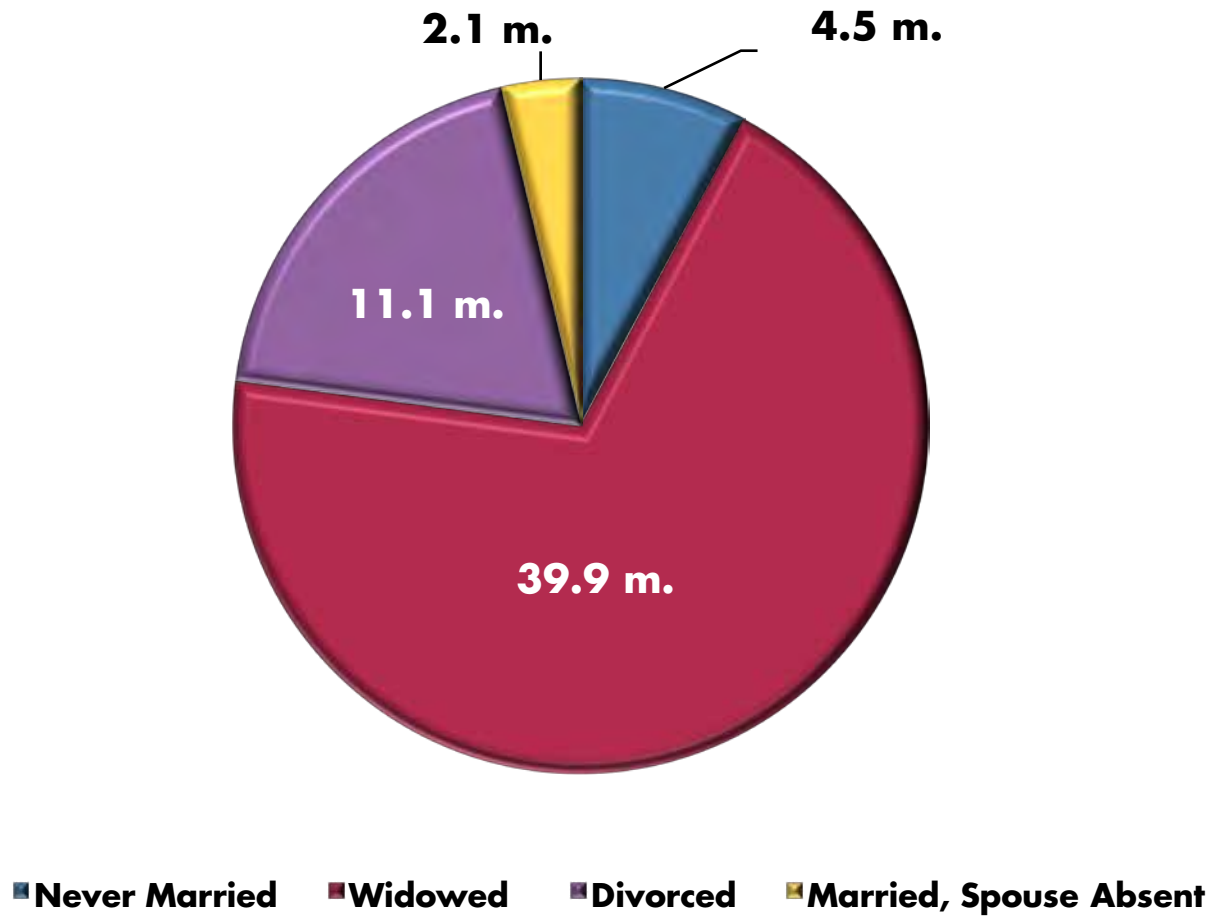


■ **Never Married** ■ **Widowed** ■ **Divorced** ■ **Married, Spouse Absent**

Source: U.S. Census Bureau, P23-212, 65+ in the United States: 2010, U.S. Government Printing Office, Washington, D.C., Report Issued June 2014, www.census.gov/content/dam/Census/library/publications/2014/demo/p23-212.pdf
*Married, Spouse Absent indicates that the male was in the household but the spouse was not, likely due to prolonged hospitalization, living with relatives, etc.

GRAPH 7

NUMBER OF FEMALE SINGLES IN THE UNITED STATES OVER THE AGE OF 65 AND THEIR MARITAL STATUS, 2010 (MILLIONS)



Source: U.S. Census Bureau, P23-212, 65+ in the United States: 2010, U.S. Government Printing Office, Washington, D.C., Report Issued June 2014, www.census.gov/content/dam/Census/library/publications/2014/demo/p23-212.pdf
*Married, Spouse Absent indicates that the female was in the household but the spouse was not, likely due to prolonged hospitalization, living with relatives, etc.

Final Thoughts

Because of the politically charged nature of immigration, the changing ethnic and racial composition of the U.S. population has gained more attention than the changing marital status of the same population. Nevertheless, the rapid growth of the proportion of single-individual households (or single-family households) in our population literally is demanding attention. For young adults and single-parent households, delayed marriage (or no marriage at all) has been a fact of life for several decades. Divorce has become increasingly common. Policies designed to encourage the formation of two-parent households have been less than successful.

At the other end of the spectrum, longer life spans have noticeably increased both the proportion of elderly people in our population and the proportion of single individuals as well.

Hence, we now live in what might be termed the “Age of the Single.” Many of our taxation and social policies have been developed with a conventional model in mind – the “Ozzie and Harriet” model with two heterosexual parents and children. Reality is that this paradigm no longer accurately depicts the diversity of household styles we observe today. If there is a moral to our story, it almost surely is that this situation is going to require significant changes in the policies of both the federal and state governments, along with those of private-sector and nonprofit agencies.



The Lesbian, Gay, Bisexual, Transgender And Queer Community In Hampton Roads



THE LESBIAN, GAY, BISEXUAL, TRANSGENDER AND QUEER COMMUNITY IN HAMPTON ROADS

Virginia's Hampton Roads region has long attracted diverse and mobile people . . .
– Charles H. Ford and Jeffery L. Littlejohn, “LGBT Hampton Roads: Images of Modern America”
(Arcadia Publishing, 2016)

LGBTQ is the abbreviation most often employed to represent people who are lesbian, gay, bisexual, transgender or queer/questioning in orientation. Recent judicial decisions, combined with changes in the law in many cities and states, have given LGBTQ populations and related issues a prominence they did not have even only a few years previous.

Our purpose in this chapter is neither to advocate nor to litigate LGBTQ issues. Instead, it is to focus on the economic and social impact and importance of the LGBTQ community. How big is this community in Hampton Roads and in Virginia? What are its major characteristics? How much income and spending power does the LGBTQ community have? Where is this community most prominent? What major issues do members of the LGBTQ community face that are not common to others?

The Size Of The LGBTQ Community In Hampton Roads

The Movement Advancement Project (MAP), a national think tank that focuses on LGBTQ issues, reports that approximately 2.9 percent or 183,545 adult Virginians have self-identified as lesbian, gay, bisexual, transgender or queer/questioning.¹ The National Center for Health Statistics surveyed more than

34,000 adults in the United States in 2013 and reported that 3.4 percent of respondents self-reported a sexual orientation other than “straight.” It seems likely, however, that self-identification processes result in an underestimation of the actual number of LGBTQ people in our population because of the reluctance of some to provide such personal information. MAP and others suggest that 5 percent may be a more accurate number. Michael Berlucchi, who is the president of Hampton Roads Pride, the primary regional LGBTQ advocacy organization, agrees. However, he believes that even the 5 percent estimate may be conservative. Whatever the percentage of LGBTQ individuals, the Williams Institute at UCLA’s School of Law reports that 18 percent of these individuals nationally are part of same-sex couples that are raising children.

Note that the U.S. Census directly collects very little data relating to LGBTQ populations, excepting the number of households that are headed by two individuals of the same sex. However, such households may or may not contain LGBTQ individuals. As a consequence, demographic and financial estimates concerning LGBTQ populations typically are drawn or inferred from other less rigorous and documentable sources.

¹ www.lgbtmap.org/equality_maps/profile_state/46.

Gallup Inc., the well-known public opinion poll organization, boasts the largest ongoing study of the LGBTQ population in the United States. Between 2012 and 2014, Gallup conducted more than 370,000 tracking interviews of LGBTQ people. Graph 1 reports **a portion of the results. Gallup ranked the Virginia Beach-Norfolk Metropolitan Statistical Area (MSA) 12th (at 4.4 percent of our population) on the list of the 50 largest U.S. metro areas in terms of the percentage of individuals who self-identify as LGBTQ.** Hampton Roads was followed by the Washington-Arlington-Alexandria MSA (ranked 25th at 4 percent) and Richmond (ranked 41st at 3.5 percent).²

The Gallup study provides other interesting information about LGBTQ populations. Graph 2 reveals significant differences in LGBTQ self-identification across racial and ethnic lines – with blacks being much more likely to self-identify as LGBTQ than whites. This flies in the face of the historic opposition of most black churches to LGBTQ identification and behavior. Marvin Ellison and Kelly Brown Douglas explored this phenomenon in detail in “Sexuality and the Sacred” (Westminster John Knox Press, 2010).

In 1948, renowned sex researcher Alfred Kinsey suggested that 10 percent of the male population was gay. The 2000 U.S. Census reported that homosexual couples constituted less than 1 percent of all American households. The National Gay and Lesbian Task Force estimates 3 to 8 percent of both sexes. A 2012 Gallup Poll reported that 3.8 percent of all individuals were LGBTQ. It seems likely that the actual percentage is higher than 3.4 percent or 3.8 percent because of the reluctance of some individuals to provide information about their sexual orientation to pollsters.

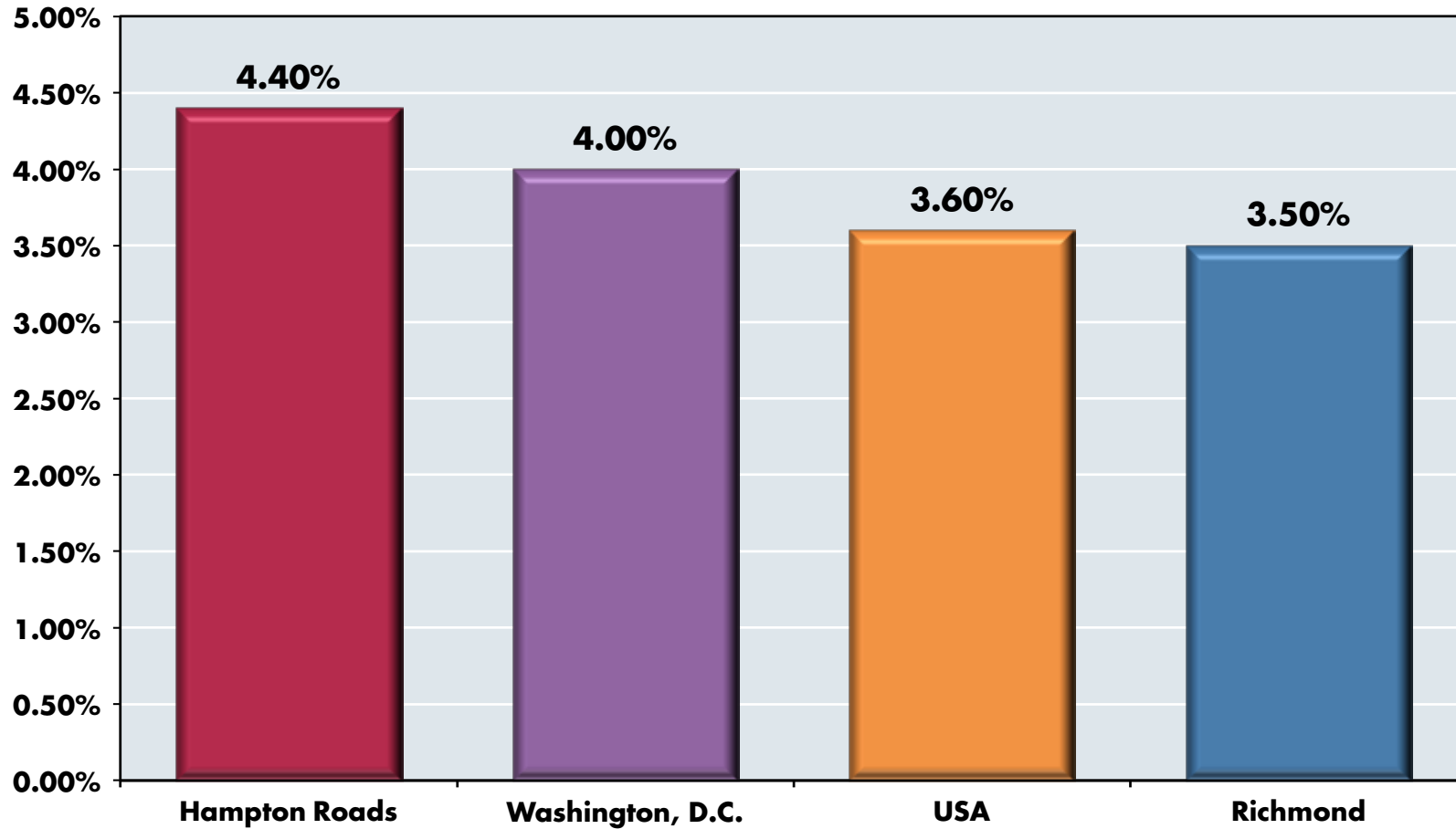
Additionally, as Graph 3 makes clear, the younger one is, the more likely he or she is to self-identify as LGBTQ. Indeed, individuals ages 18-29 are more than three times as likely to self-identify as LGBTQ than those 65 or older. This tendency is especially evident among women ages 18-29, where fully 8.3 percent of respondents indicated an LGBTQ sexual orientation.



² www.gallup.com/poll/158066/special-report-adults-identify-lgbt.aspx.

GRAPH 1

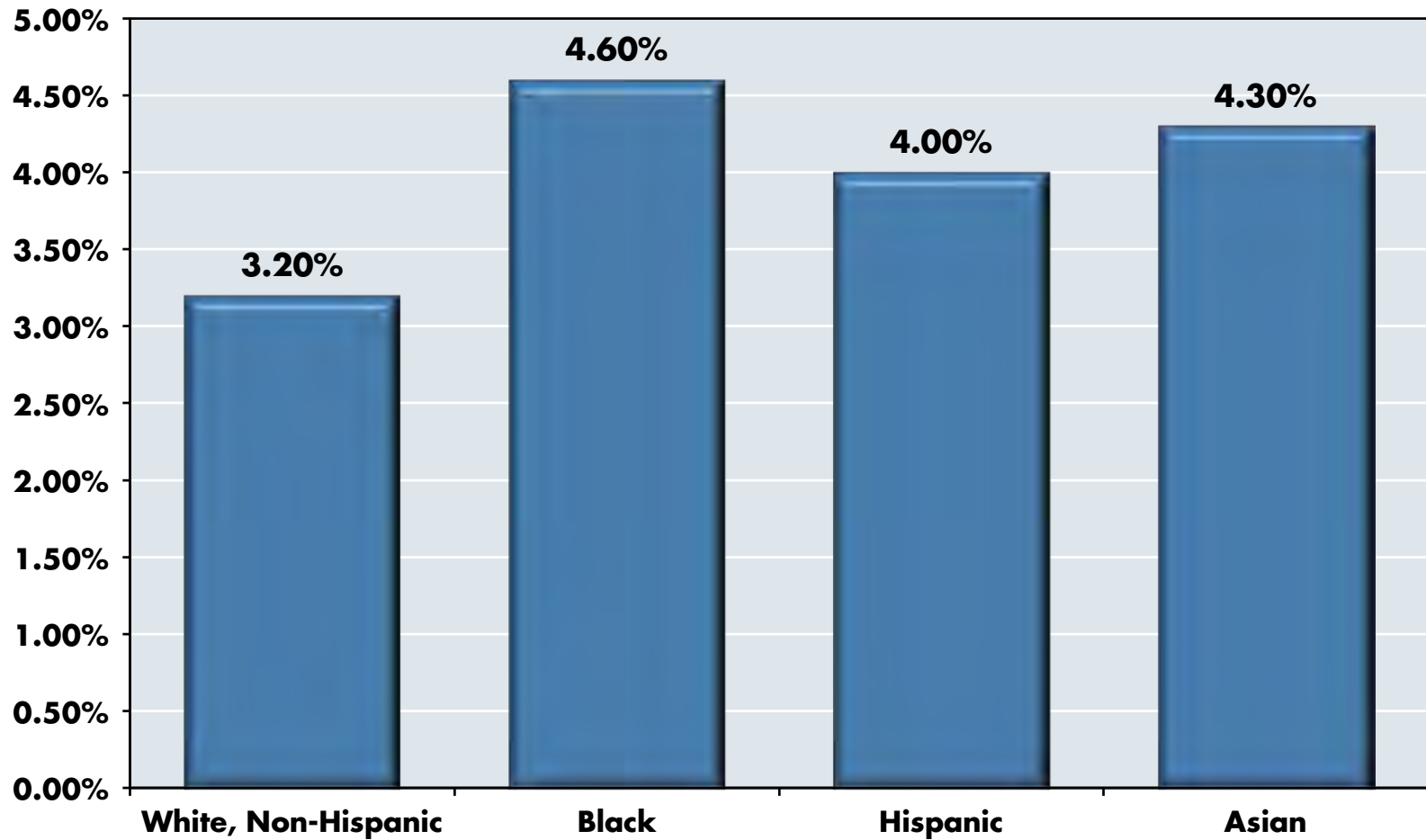
PERCENT OF LESBIAN, BISEXUAL, GAY AND TRANSGENDER INDIVIDUALS IN SELECTED AREAS, 2012-2014, ACCORDING TO GALLUP



Source: www.gallup.com/poll/182051/san-francisco-metro-area-ranks-highest-lgbt-percentage.aspx

GRAPH 2

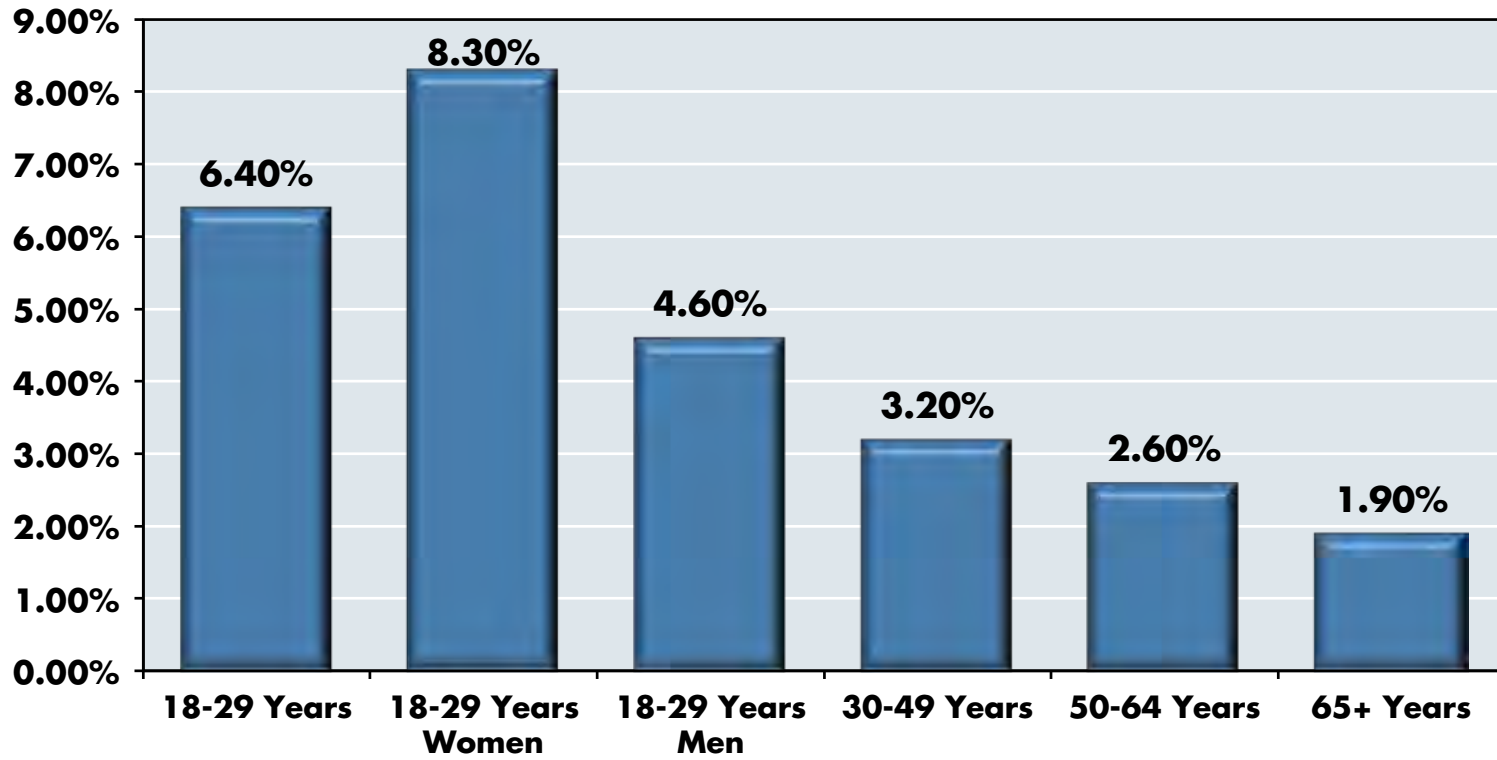
PERCENT OF INDIVIDUALS SELF-IDENTIFYING AS LGBTQ BY RACE/ETHNIC ORIGIN: GALLUP POLL, 2012



Source: "Special Report: 3.4% of U.S. Adults Identify as LGBT," www.gallup.com/poll/158066/special-report-adults-identify-lgbt.aspx

GRAPH 3

PERCENT OF INDIVIDUALS SELF-IDENTIFYING AS LGBTQ BY AGE: GALLUP POLL, 2012



Source: "Special Report: 3.4% of U.S. Adults Identify as LGBT," www.gallup.com/poll/158066/special-report-adults-identify-lgbt.aspx

Some Clarifying Notes On Definitions And Language

If we wish to focus on the LGBTQ community, then we need to sharpen our terminology. For those not familiar with this population, language can be a challenge.

Q: What is the difference between the LGBTQ, LGBT and other acronyms?

A: “Q” stands for “queer” or “questioning.” The word “queer,” once perceived to be highly offensive, has become acceptable terminology. “Queer” does have a long history as a slur, but has been brought back as an umbrella term for all sexualities and genders. Most LGBTQ individuals no longer object to the use of queer with reference to them, though like any word, it can be used in a fashion in which it is offensive.

The most inclusive acronym currently in use is LGBTQQIAAP (lesbian, gay, bisexual, transgender, queer, questioning, intersex, asexual, allies and pansexual) and even it omits some possibilities. Most people choose to draw the line where it is most expedient – with the cutoff occurring at “T,” and therefore LGBT is the most commonly used abbreviation.

Q: How appropriate is it to refer to someone’s “sexual preference”?

A: LGBTQ individuals and organizations are not fond of the term “sexual preference” because it suggests that LGBTQ status is chosen by individuals rather than a result of their genetic disposition. Hence, they prefer “sexual orientation” or “orientation.” This interpretation invites discussions about relative importance of nature vs. nurture, but clearly reflects a consensus within the LGBTQ community.

Q: Which is the correct term: “gay marriage” or “same-sex marriage”?

A: In the LGBTQ community, neither term is considered correct. For those who identify as LGBTQ, marriage is simply marriage, regardless of what categories government clerks and courts may opt to use.

Q: What about the word “homosexual”?

A: For many within the LGBTQ community, the word “homosexual” constitutes a form of “hate speech.” This reflects the origin of the word, which emanated from clinical diagnoses of gay, lesbian and bisexual people. Those diagnoses concluded that LGBTQ individuals were suffering from a curable psychiatric illness rather than exhibiting an orientation with which they were born.

Q: What about the term “gay”?

A: “Gay” is an adjective that is used as shorthand for LGBTQ individuals, though transgender people often are excluded when the term gay is utilized. And while many lesbians identify as gay, the term lesbian(s) is correctly used more narrowly to refer to a lesbian woman or a group of women who identify as gay.

Q: Is there a “gay lifestyle”?

A: The term “gay lifestyle” meets with very little favor inside the LGBTQ community because it often is used to stigmatize gay people and usually focuses on their sex lives rather than taking a broader view. Similarly, the LGBTQ community frowns upon describing one of its members as “admittedly gay” because this suggests prior deception, or a sense of shame.

Q: What about the term “transgender”? When should one signify or identify gender when talking about LGBTQ individuals?

A: The gender transition story of Caitlyn Jenner became national news in 2015 and often was presented sympathetically. The question of who can use public bathrooms and under what circumstances has been the subject of controversy in North Carolina, and Mississippi has adopted legislation that would appear to allow business operators to deny service to LGBTQ individuals if they are so minded. Regardless, it is fair to observe that members of the transgender community believe they are too often the recipients of scorn and misunderstanding. The LGBTQ community prefers to speak of “transition” between genders in such cases because this usage diminishes the focus on medical surgeries as a means to facilitate gender transition. Many transgender people either do not undertake or cannot undergo such surgery. An older related term, “transvestite,” is out of favor in the LGBTQ community because it often is used pejoratively. The LGBTQ community strongly prefers that individuals who self-identify as a certain gender should be referred to using pronouns consistent with that gender.

Economic Status

Do LGBTQ individuals earn more or less than straight individuals? It depends on whom one wishes to believe. Those who report that LGBTQ people earn more than straight people include Experian Marketing Services, U.S. News & World Report magazine, Prudential Insurance and Business Insider, a business, celebrity and technology news website. The quality of the empirical evidence these sources rely upon, however, is questionable.

Arrayed on the other side of this issue is a range of academic studies, including one by the Center for American Progress. Also, *The Atlantic Magazine* went so far as to title its 2014 article exploring this issue “The Myth of Affluence.” This is language that is replicated in a 2015 *New Labor Forum* article, which concludes that a high proportion of LGBTQ individuals are economically vulnerable.

M.V. Lee Badgett (1995) of the Williams Institute at UCLA concluded that gay and bisexual men earned between 11 and 27 percent less than their comparable heterosexual counterparts, though there was no statistically significant difference when lesbian women’s incomes were compared to straight women’s incomes. Badgett’s 2001 book, *“Money, Myths, and Change: The Economic Lives of Lesbians and Gay Men”* (University of Chicago Press, 2001), made the case that members of the LGBTQ community typically earn less than comparable straight individuals.

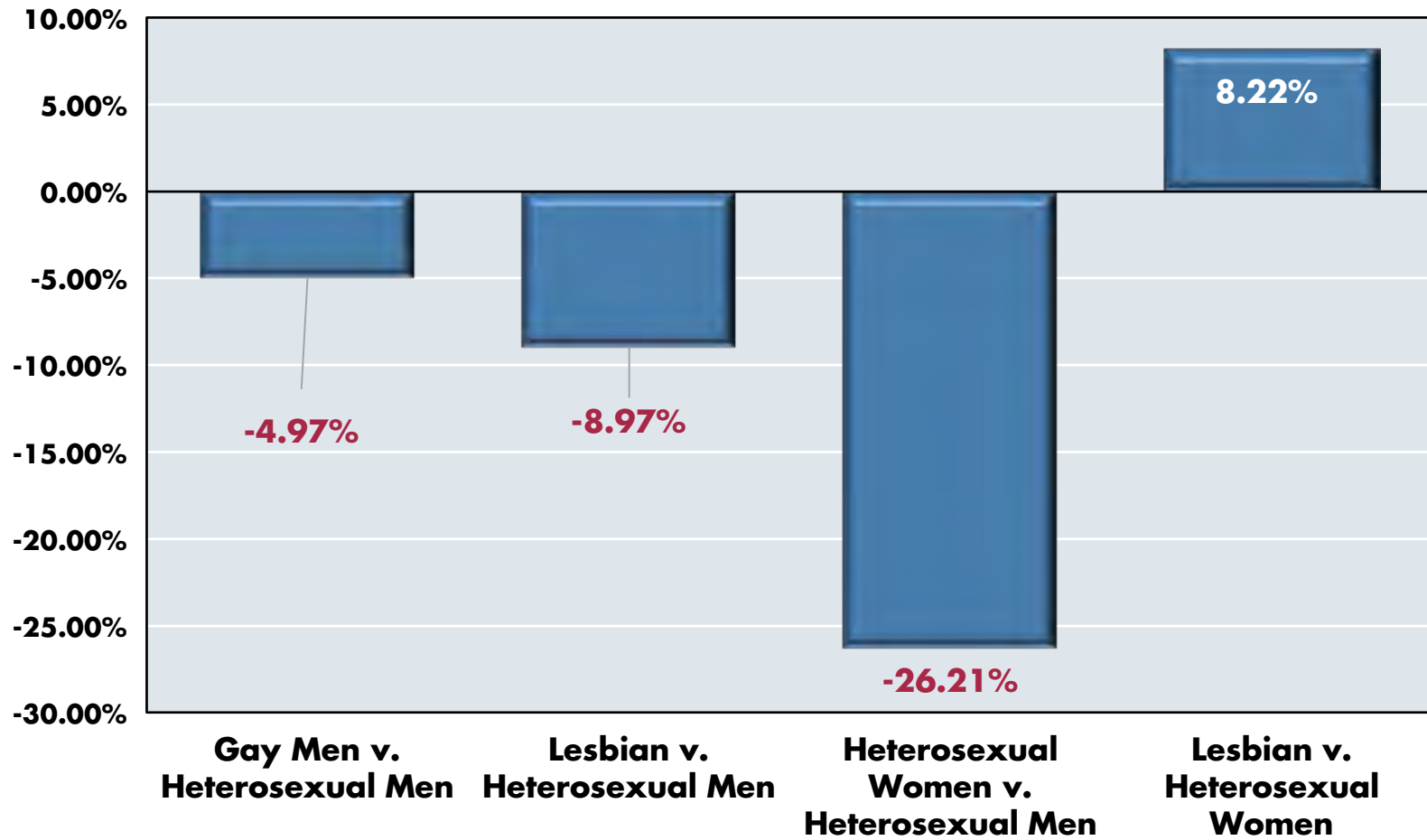
Sylvia A. Allegretto and Michelle M. Arthur (*Industrial and Labor Relations Review*, April 2001) reported that gay men who were part of a same-sex couple earned 15.6 percent less than comparable heterosexual married men and 2.4 percent less than similarly situated partnered, but unmarried, heterosexual men. Dan A. Black et al. (*Journal of Economic Perspectives*, spring 2007) found that gay men earned 14 to 16 percent less than their heterosexual counterparts, but notably that lesbian women earned 20 to 34 percent more than comparable straight women.

The Black et al. and Allegretto and Arthur studies are often cited because they were based on U.S. Census data, albeit data on unmarried partner households that therefore could include non-LGBTQ individuals. The Census forms that households complete do not directly address sexual orientation. Hence, while these studies are interesting, they do not constitute unimpeachable evidence.

Presuming one is willing to accept evidence from Canada, more recent and more rigorous evidence is contained in a study by Sean Waite and Nicole Denier, published in *Gender and Society* in May 2015. In contrast to the United States, the Canadian Census records relationship status, sexual orientation, educational background and employment status. Graph 4 summarizes their results. Three patterns emerge: (1) men are paid more than women; (2) gay men are paid less than heterosexual men; and (3) lesbians are paid more than heterosexual women. In addition, the authors found that the presence of children and marriage had no effect on the earnings of either gay men or lesbians in conjugal relationships and that the individuals characterized as “gay” in Canada typically were better educated than straight people. However, they were less likely to enter occupations associated with STEM disciplines.

GRAPH 4

GAY-STRAIGHT WAGE GAPS IN CANADA, 2006



Source: Sean Waite and Nicole Denier, "Gay Pay for Straight Work," *Gender and Society* (May 2015)

What the authors termed the “gay-straight” pay gap virtually disappeared inside the public sector, where unionization and job security provisions diminished opportunities both for market-based wage differentials and discrimination.

Taking into account the typical distribution of LGBTQ individuals across occupations, and the wage data we have just seen, how much income can be attributed to the LGBTQ community in Hampton Roads? We can make this task a bit simpler by focusing on

Why do “gay” women earn more than “straight” women? The most important reasons appear to be that gay women have fewer children and more often work full time.

individuals ages 25 through 64, the prime ages for working adults. There were 900,947 such Hampton Roads residents in May 2015.³ If 5 percent of this population identify as LGBTQ, that translates to 45,047 prime working-age individuals. If LGBTQ males earn less than straight men, but LGBTQ women earn more than straight women, and taking into account the occupational distribution of LGBTQ individuals as well as their labor force participation (see especially Waite and Denier), we estimate that the working members of the LGBTQ community earned a total income of \$2.017 billion in 2015. This is 4.86 percent of the estimated total income earned by all people in that age group in Hampton Roads in 2015.

To provide some perspective, the working-age LGBTQ community in Hampton Roads is only slightly smaller in size than that of the Hispanic/Latino community in our region and about 50 percent larger in size than that of the Filipino community in Hampton Roads.

Hampton Roads Business Outreach (HRBOR), based in Norfolk, is Virginia’s only LGBTQ chamber of commerce. HRBOR’s 1,000 contacts include 200 active LGBTQ businesses owned by a member of the LGBTQ community. Fully 670 members are “interested parties” or those business owners who wish to connect with the LGBTQ community in a positive manner and show their support by joining the HRBOR. The organization boasts several supportive

“platinum partners” (Decorum Furniture, the Tysinger Automotive Family and Met Life). “Gold partners” include Deadline Digital Printing, Distinctive Events and Rentals, and New York Life.



³ www.usa.com/virginia-beach-norfolk-newport-news-va-nc-area-population-and-races.htm#PopulationbyAge.

LGBTQ Health: A Differentiated Picture

Historically, a stereotypical view of members of LGBTQ communities has been that they are unhealthy individuals who pursue unhealthy lifestyles. The empirical evidence on this issue is mixed, at least according to a 2013 survey of 34,557 adults ages 18 and over that was conducted by the Centers for Disease Control and Prevention and published under the aegis of the National Center for Health Statistics. Table 1 reports some of the findings of this report.

Individuals who self-identify as lesbian or gay are more likely to be smokers and heavy users of alcohol than straight individuals, and lesbians are more likely to be obese than straight women. Gay men, however, are less likely to be obese than straight men. Lesbians and gay men are more likely to report that they did not obtain medical care for reasons relating to cost than are straight individuals. On the other hand, lesbian and gay individuals are more likely to hold private health insurance than straight individuals.

The long-running Showtime television series “The L Word,” which focused on the LGBTQ community in Los Angeles, deliberately cast a diverse range of individuals in LGBTQ roles in an attempt to broaden public perceptions of the LGBTQ community. The content and language of the series, however, made it an unlikely vehicle to reach those whose attitudes the producers perhaps wished to change. The popular television series “Orange Is the New Black” streams on Netflix and deals with many LGBTQ themes within the context of a prison. “Orange” has received generally favorable reviews but, once again, its content and language diminish its ability to reach and inform large numbers of viewers.

	LG Population	“Straight” Population
Tobacco smoker	25.8%	17.6%
Consumed five or more alcoholic drinks in one day in the last year	33.0%	22.3%
Experienced serious psychological stress in last 30 days	4.9%	3.7%
Obese	29.5%	29.0%
	23.6% Men	29.7% Men
	36.7% Women	28.3% Women
Ever tested for HIV	66.6%	36.7%
Failed to obtain medical care because of cost in the last year	11.7%	8.8%
Have private health care insurance coverage	69.1%	62.3%

Source: “Sexual Orientation and Health Among U.S. Adults: National Health Interview Survey, 2013,” No. 77, July 15, 2014, www.hivlawandpolicy.org/resources/sexual-orientation-and-health-among-us-adults-national-health-interview-survey-2013-us

Members of the LGBTQ community in Hampton Roads believe that the manner in which gender information is collected at area health agencies and hospitals is problematic. One is considered either to be male or female, and no other choices exist. They point out that the same binary system of gender identification exists within our regional law enforcement agencies. Referring to bisexual and transgender individuals, Cpl. Melinda Wray, a Norfolk Police Department public affairs officer and its LGBTQ advocate, told us in an interview, “There’s no doubt we need those numbers to be known so that we can move forward. But this is Pandora’s box, because opening it will allow a lot more opportunity, but opening it also allows, possibly, more division. In that case you qualify a person as being this way, or that way, when really they’re just us.”

Standardized police incident reporting forms in the region also use the term “homosexual” to describe crimes against or committed by LGBTQ individuals. LGBTQ advocates believe this term is both limiting and pejorative. No option exists for designating or recording crimes against transgender people. The forms used locally come from the standardized federal Uniform Crime Reporting (UCR) Program, which is used to generate all of the incident-based reporting forms used by the Virginia State Police and police departments nationally. When coupled with the reluctance of many LGBTQ individuals to identify their sexual orientation, it is difficult to make definitive statements about the amount of crime directed toward or committed by the LGBTQ community.⁴

Mary Aab, director of the LGBT Center of Hampton Roads in Norfolk, which also runs Access AIDS Care, told us in a personal interview, “Virginia does not have a hate crime law that says if you commit a crime that is specifically against an LGBTQ individual, then it’s specifically regarded as a hate crime. Getting statistics for this community is really hard because first, people have to disclose their sexual orientation [being LGBTQ] on a form that they’re part of the LGBTQ community.”

⁴ “We have to use, and in using promote, this kind of hate language every day as part of our jobs,” said one openly gay Norfolk Police officer, who asked to remain anonymous. “We need to make forms that include a transgender M-F (male to female) and F-M (female to male) designation for transgender people so we can begin tracking those crimes and so we can get the training sessions needed in order to better serve the community.”



Virginia Beach residents and life partners Robert Roman and Claus Ihlemann are owners of Decorum Furniture in Norfolk’s Ghent district and have been strong advocates of LGBTQ rights within Hampton Roads.

An increasing proportion of younger Americans appear to view gender as a more fluid, flexible concept than do their elders. Some resist binary gender identification as either male or female and assert that there is nothing immutable about either gender identification or sexual orientation. Both, they say, can change over time. Some individuals report that they move back and forth along what they perceive to be a gender continuum.

How Our Cities Rank In Terms Of Policies And Procedures

The Human Rights Campaign (HRC) represents more than 1.5 million members and supporters and is the largest national LGBTQ civil rights organization in the United States. HRC's Municipal Equality Index (MEI) evaluates municipal laws affecting LGBTQ communities in 408 municipalities around the country. The index demonstrates the ways that many cities "can – and do – support the LGBT people who live and work there, even where states and the federal government have failed to do so," according to the HRC website.

HRC rated five regional cities: Chesapeake, Hampton, Newport News, Norfolk and Virginia Beach. The city of Norfolk garnered the highest score in Hampton Roads. Norfolk scored 57 out of 100, higher than all other Hampton Roads cities as well as Richmond and Fairfax County. However, Norfolk's score only slightly exceeded the national average score of 56. Scoring categories included housing, employment, accommodations, nondiscrimination policies, city contractor nondiscrimination ordinances, the number of openly LGBTQ individuals elected to office, and each city's overall relationship with the LGBTQ community. Table 2 reports the scores for the five included cities in Hampton Roads.

Norfolk receives high praise from local advocates for being the only city in the region to create an LGBTQ liaison position within its police department. A Norfolk Police Department spokesperson confirmed that at least 20 officers self-identify as being lesbian or gay.

According to Hampton Roads Pride president Michael Berlucchi, the cities of Virginia Beach and Norfolk lead the region in implementing inclusive policies. Norfolk has the distinction of hosting, and financially supporting, the region's annual Pridefest event, which drew a crowd of 20,000 in 2015.

City	Total Points	Bonus Points
Chesapeake	18	N/A
Hampton	14	N/A
Newport News	23	3 points for: providing enforcement mechanism via its Human Rights Commission
Norfolk	57	14 points for: services to LGBTQ youth services to LGBTQ homeless services to LGBTQ elderly services to people living with HIV/AIDS
Virginia Beach	31	3 points for: providing enforcement mechanism via its Human Rights Commission

Source: www.hrc.org/resources/mei-2015-see-your-citys-score

Old Dominion University, the College of William & Mary and Norfolk State University each has an LGBTQ student organization on campus, and ODU and W&M have LGBTQ alumni organizations. Virginia Wesleyan College and Hampton University do not appear to host LGBTQ organizations, nor do any of the region's three community colleges. In addition, ODU has a Gay Cultural Studies academic program.

When discussing jobs and the labor force, one should not forget that Virginia is an at-will employment state – meaning that employers may terminate any employee at any time, for any reason, or for no reason, unless they are constrained by contract from doing so. “Frankly, in Virginia they can fire you for anything,” says Mary Aab, who directs Norfolk’s LGBT Center for Hampton Roads. “Especially if you identify as trans [transgender]. It’s very hard to prove you were fired for being transgender or LGBT because an employer will find another reason. Maybe they will say, ‘You were late too much.’ But the reality we are seeing is that may tend to happen right after the employer sees a picture of an LGBT person with their spouse on the desk.”

Marriage

On Oct. 6, 2014, the U.S. Supreme Court declined to hear an appeal of a case emanating from the U.S. 4th Circuit Court of Appeals upholding lower court rulings that Virginia’s ban against same-sex marriages was unconstitutional. Since that date, same-sex marriage has been legal in the Commonwealth. This stance was fortified on June 6, 2015, when the U.S. Supreme Court formally struck down statutes denying marriage rights to same-sex individuals. The UCLA School of Law’s Williams Institute and the National Center for Transgender Equality estimated that 96,000 same-sex couples married in the four months following this decision. Wedding spending by these couples and their out-of-state guests totaled an estimated \$813 million and generated an estimated \$52 million in state and local sales tax revenue. In an economic study of the Commonwealth of Virginia, M.V. Lee Badgett estimated that extending marriage to same-sex couples in Virginia would generate up to \$60 million in spending within the Commonwealth.⁵



Acquiring accurate data on marriage in Hampton Roads is still a painstaking process because marriage certificates themselves make no distinction between types of marriage. The only place where gender distinctions are made is on marriage license applications, where it has always been standard to ask applicants to self-identify as male or female.

Between October 2014 and August 2015, 3,600 apparent LGBTQ marriage certificates were filed in Virginia, 839 of which were issued in Hampton Roads. **Overall, the cities of Norfolk and Virginia Beach have seen the greatest absolute number of LGBTQ unions in the Commonwealth since the 2014 ruling went into effect.**

TABLE 3

SAME-SEX MARRIAGES IN HAMPTON ROADS, 2015

City	Total	Same-Sex	Not Same-Sex
Chesapeake	1,022	38 (3.72%)	984
Hampton	832	50 (6.01%)	782
Newport News	1,657	110 (6.64%)	1,547
Norfolk	2,748	264 (9.61%)	2,484
Portsmouth	831	49 (5.90%)	782
Suffolk	414	12 (2.90%)	402
Virginia Beach	4,499	281 (6.32%)	4,218
Williamsburg	654	35 (5.35%)	619

Source: <http://www.vdh.virginia.gov/HealthStats/stats.htm>

In 2015, Norfolk had the highest share of same-sex marriages, 9.61 percent, followed by Newport News with 6.64 percent. Table 3 reports these data. **LGBTQ individuals report that the greatest proportionate concentration of LGBTQ residents in Hampton Roads is to be found in Norfolk, with the Ghent district constituting the preferred location. In general, LGBTQ populations nationally and in Virginia tend to prefer urban areas, which appear to promise greater levels of tolerance and, in some cases,**

⁵ <http://williamsinstitute.law.ucla.edu/press/press-releases/22-apr-2014/#sthash.NSgbSGQ1.dpuf>. (Note that Badgett’s numbers do not necessarily constitute “new” expenditures or new jobs generated because such expenditures likely reduced those made for other goods and services. The same dollar cannot be spent in two places.)

a greater ability to remain inconspicuous or anonymous, if that is what is desired. Though not prevalent in Hampton Roads, “gayborhoods” arise in some large cities – high concentrations of LGBTQ individuals living in specific areas. Hence, their presence and business clout can easily be discerned. Urbanist writer Richard Florida also argues that high proportions of LGBTQ individuals are associated with higher levels of creative activity and inventiveness.

Legislation

The Commonwealth of Virginia does not have a hate crime law that specifically protects LGBTQ citizens. Regionally, only the city of Virginia Beach has enacted such a statute that applies to LGBTQ individuals. These are among the reasons why it is difficult to assess or count the number of potentially civil or criminal episodes that might pertain to LGBTQ populations.

Following the U.S. Supreme Court’s decision in 2015 that effectively extended marriage to same-sex couples, a spate of bills was introduced in the Virginia General Assembly that responded to the content of this decision. While most of the bills were designed to thwart the Supreme Court’s decision within the confines of Virginia, several proposed pieces of legislation had the support of most members of the LGBTQ community. In general, these proposals failed to pass, primarily because of opposition from Democrats and Republicans responding to pressure from the business community.

In January 2015, Gov. Terry McAuliffe opined that scrubbing the state code of references to “husband and wife” in exchange for the gender-neutral term “spouse” would help attract businesses to the state. “While this change may seem small, it does send a message to the entire commonwealth, to the nation and to the globe that Virginia is welcome to members of the LGBT community,” he said in *The Washington Post*.*

* Jenna Portnoy, “Same-sex marriage is legal in Virginia, but maneuvering rages on in Richmond,” *The Washington Post* (Jan. 12, 2015), www.washingtonpost.com

Summing It Up

Surveys suggest that 3 to 7 percent of all adults self-identify as LGBTQ. If we take the midpoint, 5 percent, as our estimate, then approximately 45,000 people ages 25-64 in our region are LGBTQ. Extrapolating from this number and available evidence on LGBTQ earnings, we estimate that these working-age LGBTQ Hampton Roads residents earn more than \$2 billion in income annually.

The bottom line is that the LGBTQ community in our region is sizable and exercises considerable economic clout, even though the best evidence available suggests that the typical LGBTQ individual earns less than the typical straight individual with comparable characteristics.

Among the area’s largest cities, Norfolk receives the most favorable ratings from LGBTQ advocacy organizations for its laws and procedures, followed by Virginia Beach. Norfolk also appears to host the largest proportion of LGBTQ residents of any of our region’s cities.

Approximately half of the states have adopted legislation that outlaws discrimination in employment and accommodations against LGBTQ people. The Commonwealth of Virginia is not among them. Changing this circumstance is one of the highest priorities of LGBTQ individuals and advocacy organizations.

Will Robots Take Your Job? A Look At Virginia's Opportunities And Vulnerabilities



WILL ROBOTS TAKE YOUR JOB? A LOOK AT VIRGINIA'S OPPORTUNITIES AND VULNERABILITIES

It's not about the skill level or how much education you have. Really, the primary question is, is the job on some level routine, repetitive and predictable?

– Martin Ford, “Rise of the Robots” (Basic Books, 2015)

It's not often that a study generated by two Oxford academics creates as much hubbub as did a 2013 examination that focused on which U.S. occupations are at “high risk” of being automated within the next 20 years. **Carl Benedikt Frey, an economist, and Michael A. Osborne, an engineer, led the Oxford automation study,¹ which concluded that 47 percent of total employment in 702 occupations in the United States should be considered to be in the “high risk” category relative to the potential of automation to destroy these jobs. “Automation” here refers broadly to the substitution by employers of machines, software-guided processes and artificial intelligence (AI) for workers.**

Virtually everyone knows about mechanical dishwashers replacing human dishwashers and one can easily visualize a single giant combine harvester replacing dozens of farmworkers wielding scythes. Less obvious perhaps has been the accelerating automation of the financial services industry, where giants such as Goldman Sachs are using software programs instead of highly paid associates to conduct and write research, make stock trades, summarize relevant news and even communicate with customers. Consider also the use of sensors rather than people to pick out which microcircuits or even heads of lettuce that are of inferior quality and therefore should be discarded. Or, consider that a computer now can defeat the best human chess player and an AI program developed by Google “learned” on its own how to beat the reigning world champion at Go, the exceedingly complex 2,500-year-old strategy game.

An increasing number of McDonald's restaurants now have computer screens that take your order – rendering unnecessary some of the workers formerly behind the counter. No minimum-wage law applies to the computer screens. In the realm of higher education, the advent of new distance-learning tools and the rise of “MOOCs” (massive open online courses) are disrupting the

¹ Carl Benedikt Frey and Michael A. Osborne, “The Future of Employment: How Susceptible Are Jobs to Automation?” Oxford Martin School, Sept. 17, 2013. www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf.

centuries-old “sage on the stage” model that emphasizes professors lecturing to groups of more or less interested students arrayed in front of them.

Highest on the risk list are occupations that include telemarketers, tax preparers, library technicians, etchers and engravers, and bank tellers. Frey and Osborne argue that up to 87 percent of jobs in the accommodation and food services sector are at risk, as are up to 54 percent of jobs in finance and insurance. Lowest on their risk list are occupations such as elementary school teachers, doctors and dentists, nurses, many health care workers, plumbers, theatrical makeup artists and foresters.

Data presented in this chapter relate either to the U.S. or Virginia. What about Hampton Roads? Bureau of Labor Statistics occupational data that focus on mid-sized regions, such as ours, are much more variable than statewide data and, in some cases, simply not available. Presentation of these data might lead to unjustified conclusions. Hence, we do not offer any regional data, though some are available.

The Common Denominator

What determines whether the jobs of workers in some occupations (say, secretaries and legal researchers) are at high risk, while the jobs of workers in other occupations (nurses and plumbers) are not? **The key is not necessarily the level of education required for each job, though this may play a role. Instead, the overriding deciding factor is the extent to which jobs require creative and social intelligence, perception, interpretation and the ability to manipulate as opposed to being dominated by repetitive, routine tasks capable of being learned by machines fueled by artificial intelligence.**

Note that job recovery in the United States (and Virginia) from the Great Recession of 2008 has been built upon relatively low-skill service jobs that pay relatively low wages. It is often these jobs that Frey and Osborne argue are most at risk because of automation. The reason is that they involve repetitive tasks that can be programmed into a machine or computer. Further, the machine frequently can complete those tasks with a higher level of quality and do so at a lower per-unit cost than their human counterpart. Think about the computer screen that is taking the place of behind-the-counter personnel at Panera Bread.

Reality is that computerization of jobs no longer is confined to traditional assembly-line, mass-production industries. However, it also is true that some manual labor tasks require physical adaptability and flexibility in approach. Hence, workers doing these tasks are more resistant to automation than those in other jobs that often require more education, but nevertheless can be imitated by “smart” machines.

It is the exercise of reasoning, judgment, creative abilities and the application of social interaction skills that most frequently cause a job to fall into the low automation risk category rather than high risk. One does not need a bachelor’s degree to become an electrician or a plumber (both low-risk occupations). Nevertheless, electricians, automobile mechanics and plumbers must be able to assess, interpret, adjust, reason and create when inserted into unpredictable situations. “You never know what kinds of wiring and connections you’re going to find in an old house,” a veteran electrician told us. Some variant of this observation, however, might be applied to nurses, engineers and multimedia artists. On-the-job experience often assumes great value in such positions because it provides workers with a set of proficiencies that enables them to exercise sound judgment in situations that seldom are repetitive.

On the other hand, the tasks confronting a telephone operator, shipping clerk or Las Vegas gaming employee tend to be repetitive and frequently can be replaced by a smart machine. True, these jobs usually require less formal education than those in low-risk occupations. However, it is not education

Some analysts believe that Frey and Osborne’s estimates are substantially too high. A 2016 Organization for Economic Cooperation and Development (OECD) study takes issue with their methodology and argues that it isn’t all workers in an occupation that are at risk, but rather specific jobs within occupations. Thus, some workers at financial firms can readily be supplanted by trading algorithms incorporated into software, while others cannot be replaced because of their personal relationships with specific firms and customers. The OECD study concludes that only 9 percent of all jobs are at risk because of automation (Melanie Arntz, Terry Gregory and Ulrich Zierahn, “The Risk of Automation for Jobs in OECD Countries,” www.oecd-ilibrary.org, May 2016). A July 2016 study produced by McKinsey analysts Michael Chui, James Manyika and Mehdi Miremadi (“Where Machines Could Replace Humans — and Where They Can’t (Yet),” www.mckinsey.com/business-functions/business-technology/our-insights/where-machines-could-replace-humans-and-where-they-cant-yet?cid=other-eml-alt-mkq-mck-oth-1607), concluded that 60 percent of all occupations in the United States could see 30 percent or more of their work activities being automated.

per se that makes the difference here, but rather the presence or absence of repetitive tasks, reasoning and creativity.

The principle is straightforward: Repetitive, predictable tasks are susceptible to machine learning and the application of artificial intelligence. Thus, college professors, despite their Ph.Ds., may indeed find some of their number being replaced by learner-driven technology that is capable of doing what they do, but at a reduced cost. Ironically, the learner-driven technologies with access to abundant data and feedback may actually be more sensitive than the typical college professor is to the peculiar geographic locations, job and family situations, and learning preferences of individual students.

Contrast college professors to elementary school teachers, very few of whom hold a doctorate. These teachers cannot be replaced by a machine because of their need to exercise judgment, interpret what is going on in their sometimes unpredictable classrooms, develop individually focused plans of action on the fly, and use their social skills to deal with impressionable and sometimes delicate young people. Elementary school teachers are among the least at-risk workers in society today.

What The Studies Say (And Do Not Say)

Neither Frey and Osborne, nor the OECD or McKinsey Global Institute, are rigid determinists. They speak in terms of probabilities (“susceptibilities”) rather than certainties. The future they paint is a plausible one, yet not one that is inevitable. Why? Because technological change and changing prices may alter the world they have addressed. Consider the following situations.

- Think of a new machine that is capable of performing many of the tasks of a software engineer; however, this machine is prohibitively expensive and hence what is feasible is not economic.
- Further, even when a machine is capable of performing a task inexpensively, there may be a visible gap between the machine doing that task inexpensively and doing it well. Consider automated checkout lines at supermarkets and automated check-in lines at airports. Intelligent machine innovations such as these reduce supplier costs, but clearly can be the source of customer frustration and delays.
- The use of “big data” has the potential to diminish the need for human judgment and interpretation that currently cause some jobs to be resistant to automation. A range of cognitive tasks could be susceptible to machine learning and recognition if their development is based upon large data sets that are capable of recognizing patterns and therefore can capture the key aspects of human choice and behavior. Just as big data enable Amazon to suggest books that customers might like based on their internet behavior, these data sets also might inform activities ranging from selling automobiles, houses and tickets to serving legal clients and responding to calls for law enforcement.
- None of the studies directly addresses the distinction that some economists currently make between “tradable” versus “nontradable” goods. Tradable goods are those that are sold internationally in competitive markets, for example, cellphones. In tradable markets, automobile workers in one country (say, the U.S.) can lose their jobs to automobile workers in another country (say, China) because of international competition. By contrast, goods and services in nontradable markets are not subject to international competition. A hairstylist in Hampton isn’t in competition with a hairstylist in Beijing. Even so, things can change. Consider that tax preparation used to be a predominantly local industry – relatively few customers went outside of their hometowns to get their tax returns completed. However, because of automation, a tax preparer in Suffolk now can lose her job to tax preparers in New York City or Beijing who are using software and internet connections that enable them to prepare tax returns for residents in Southwest Virginia. The point is easily understood: Automation converts some goods and services from tradable to nontradable and this can result in the loss or shuffling of jobs. This trend is likely to continue as software driven by artificial intelligence makes it possible for items such as tax forms to be completed anywhere.

- Frey and Osborne point out that many of the people who will lose their jobs as a result of automation are among those in society least able to cope with such disruptions due to background, education and lack of mobility. It seems likely, therefore, that the impact of automation will be felt unevenly across income classes.
- The analysts do not directly discuss current proposals, such as a \$15 per hour minimum wage, but economic analysis predicts that such a law would provide an additional incentive for employers to accelerate the adoption of laborsaving automation. The salient questions are whether the nature of their production processes, their specific collective bargaining agreements and the law actually give them the flexibility to do so. The answers clearly differ across industries and even inside industries.

None of the analysts should be regarded as champions of the world they foresee. They are impartial reporters of the facts as they view them. Still, they note that the demise of high-risk jobs will increase unemployment at least in the short run and likely increase economic inequality as well unless society provides financial incentives and invests in job retraining programs designed to ease the flow of people from the high-risk occupations where jobs are being lost, to low-risk occupations where the number of jobs is increasing. Of course, this may be easier said than done. How does one teach creative and social skills, how to interpret and make judgments, and how to adjust to the unexpected to people who may have lower than average intellectual abilities and who for decades have been performing repetitive tasks? How does one convince an unemployed steelworker with a family and a mortgage that he or she should move from West Virginia to Texas? Frey and Osborne are straightforward: “For workers to win the race, however, they will have to acquire creative and social skills.” This is important advice, given that McKinsey suggested in 2013 that sophisticated algorithms could substitute for approximately 140 million full-time knowledge workers worldwide.²

² McKinsey Global Institute, “Disruptive Technologies: Advances That Will Transform Life, Business and the Global Economy.”

The National Picture

For the United States as a whole, Frey and Osborne estimate that 47 percent of all nonfarm jobs fall into their “high risk” category in terms of being eliminated because of automation. In April 2016, this would have translated to 67.64 million nonfarm jobs – a staggering number.³ However, even if Frey and Osborne’s estimates are precisely on the mark, it does not follow that these losses will occur immediately. Multiple decades sometimes are required for industries to adjust to new realities. Witness the slow deterioration of output levels and jobs in the coal, textile and tobacco industries in Virginia.

Graph 1 reports the five broad occupational categories that Frey and Osborne estimated have the greatest vulnerability to job losses because of technological change, plus the five broad occupations with the least susceptibility.

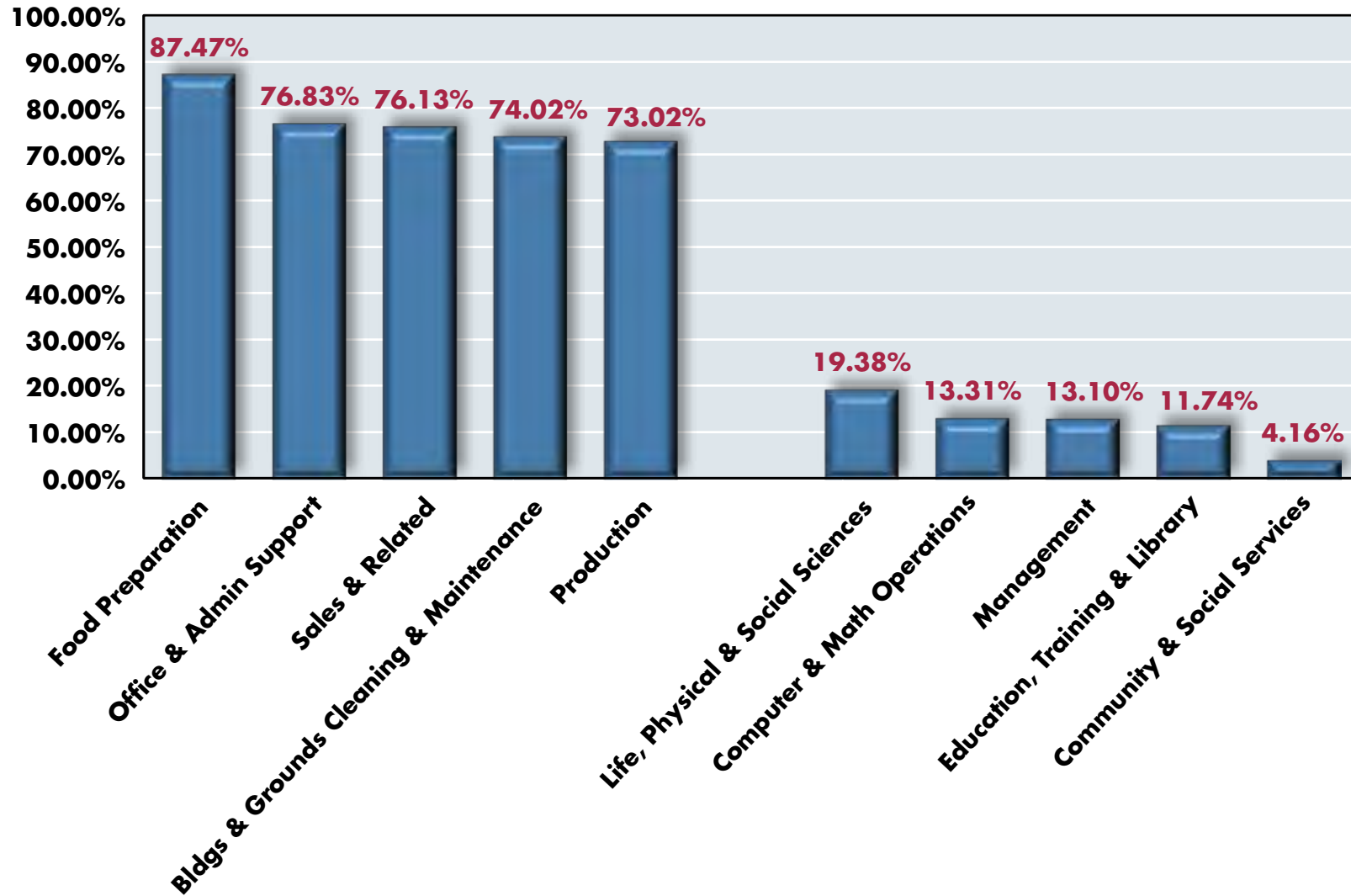
The McKinsey study approaches the job vulnerability question through a somewhat different lens by focusing on 2,000 different work activities in more than 800 occupations. Similar to the OECD, McKinsey argues that individual occupations are distinctive in requiring a variety of different work activities, which might include physical movement, processing data, interacting with customers and the like. These work activities have varying potential for automation. The McKinsey study provides estimates of the portion of time during each workweek that a typical worker spends on each specific work activity. Graph 2 reports the estimates of the percentage of time during a typical workweek that workers in the United States spend on various work activities. From left to right, these range from the work activities least susceptible to automation (such as managing others) to those most susceptible to automation (predictable physical work).

Miles Brundage of Slate asks an interesting question: In the future, will “made by humans” become a phrase equivalent to “organic” or “fair trade?” www.slate.com (Sept. 27, 2013)

³ This is a seasonally adjusted number and includes government employees.

GRAPH 1

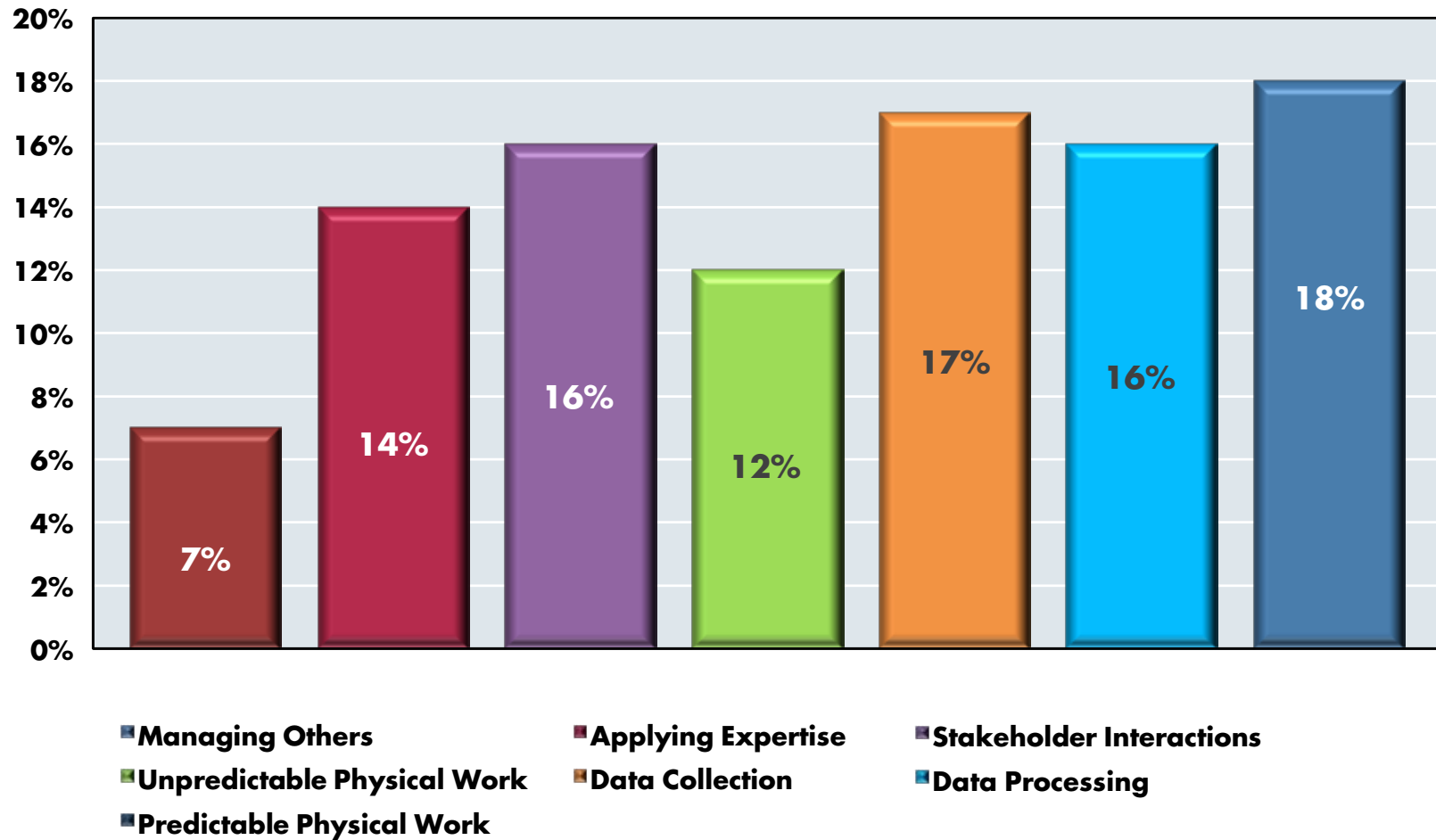
THE BROAD OCCUPATIONS MOST (LEAST) SUSCEPTIBLE TO AUTOMATION:
PERCENT OF JOBS IN FREY AND OSBORNE'S "HIGH RISK" CATEGORY



Source: Carl Benedikt Frey and Michael A. Osborne, "The Future of Employment: How Susceptible Are Jobs to Computerisation?" Oxford University Martin School, Sept. 17, 2013

GRAPH 2

PERCENT OF TIME SPENT IN VARIOUS WORK ACTIVITIES IN ALL U.S. OCCUPATIONS, 2014

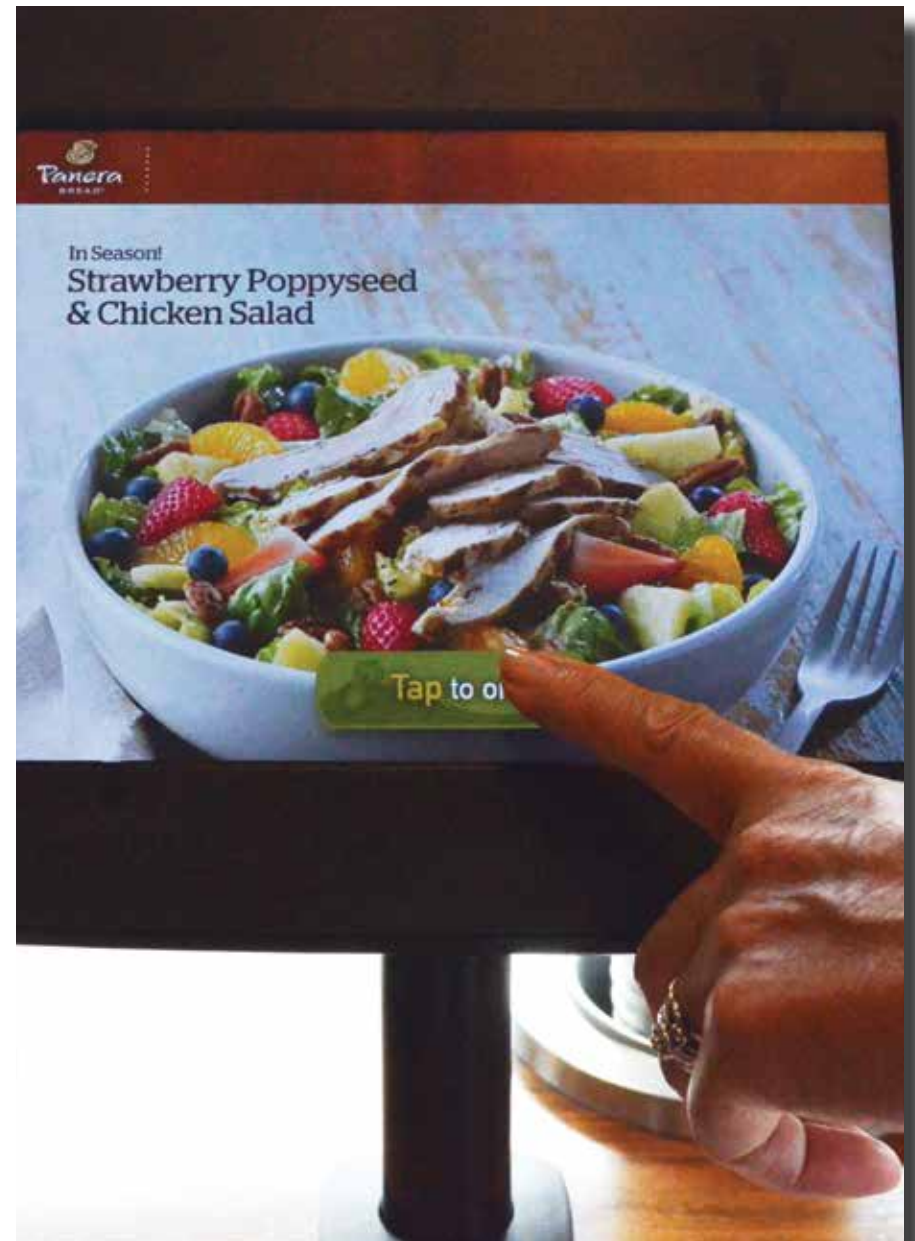


Source: Michael Chui, James Manyika and Mehdi Miremadi ("Where Machines Could Replace Humans – and Where They Can't (Yet)," www.mckinsey.com/business-functions/business-technology/our-insights/where-machines-could-replace-humans-and-where-they-cant-yet?cid=other-eml-alt-mkq-mck-oth-1607), July 2016

Where physical work is concerned, it is the predictability of the motions involved with that work that is the key to the susceptibility of a particular occupation to automation. McKinsey concluded that 78 percent of jobs involving predictable physical work (welding, food preparation and packaging of products) are prone to be automated, whereas only 25 percent of jobs involving less predictable physical work (construction, forestry and raising outdoor animals) are vulnerable. Using the same analysis, McKinsey concluded that 47 percent of a retail salesperson's activities have the technical potential to be automated, but fully 86 percent of the jobs of the retail sector's bookkeepers, accountants and auditing clerks are in jeopardy. McKinsey reported these estimates in detail in a 2015 study.⁴ The consulting group concluded that 45 percent of all work activities could be automated using already available technologies, but only 5 percent of all occupations (the Frey and Osborne focus indicator).

The McKinsey analysts also estimated that more than 20 percent of a typical CEO's working time could be automated using currently available technologies. The analysts concluded that several lower-paid occupations, such as health aides, landscapers and maintenance workers, faced fewer risks associated with automation because the work of the individuals in these occupations could not easily be replaced by a machine or replicated by means of AI.

The consulting group found that the amount of workers' average hourly wages explained only 19 percent of the variability in their automation susceptibility. That is, it was the characteristics of specific work tasks rather than the monetary value of that work that was the most important determinant of whether or not those work tasks were vulnerable to automation. High salaries did not guarantee reduced susceptibility to automation. Indeed, the opposite may be true – high salaries increase the incentive for employers to seek ways to automate.



⁴ Michael Chui, James Manyika and Mehdi Miremadi, "Four Fundamentals of Workplace Automation," www.mckinsey.com/business-functions/business-technology/our-insights/four-fundamentals-of-workplace-automation (November 2015).

The Virginia Picture

Frey and Osborne examined 702 specific occupations as defined by the Bureau of Labor Statistics and ultimately assigned a probability to each occupation that is their estimate of the susceptibility of the jobs in that occupation to disappearing because of automation. Let's begin our analysis by applying their technique to 22 broad occupational labor force segments in Virginia. Table 1 supplies these data, which apply to 3,682,470 Virginia nonfarm workers in 2015 in the Commonwealth.

It is evident in Table 1 that Frey and Osborne's methodology suggests that 1,877,540 jobs in Virginia are susceptible to automation whereby a machine, software or artificial intelligence replaces the worker. This is 51 percent of all Virginia jobs (compared to the national average of 47 percent) and these jobs account for \$70.56 billion in annual wages. Note that Virginia's total employment roster is slightly more vulnerable to technological change than is true for the United States. This implies that Virginia's workforce has a lower percentage of workers performing nonrepetitive tasks that require judgment and on-the-job flexibility.

That one's job is susceptible to being lost to technological change does not mean that this actually will occur. Not all employers choose to automate, or to do it in the same ways. Further, some work tasks that appear to be highly repetitive sometimes turn out not to be so at crucial decision points in the work process and therefore resist "pattern recognition" – the application of artificial intelligence in a manner that adequately imitates what a human being would do in a specific situation. A manufacturing robot, for example, might be superb at detecting minute differences in the size and weight of items being produced, but nevertheless be unable to detect emerging differences in smell or color. Human participation and intervention still are required in some situations.

Frey and Osborne are not inerrant savants who can see around corners and neither are we. They note that "making predictions about technological progress is notoriously difficult" and acknowledge that some occupations will experience future tumult from automation that they currently do not predict. For example, one should not read the numbers in Table 1 to mean that it is a certainty that more than 278,000 jobs relating to food preparation absolutely

are going to be lost in Virginia. Additionally, as noted above, even if these job losses do occur, decades may be required for this to happen.

In general, we can see in Table 1 that there is a tendency for the negative job impacts of technological change to land most heavily on the least-educated members of the labor force – but only if their jobs involve the repetitive, absence of judgment characteristics mentioned previously. The key to surviving automation is not worker education, per se, but instead job characteristics involving varied tasks that require workers to make judgment calls, on occasion to use their intuition and in some cases to work together as a team.

Note that if the previously referenced OECD study is correct, then the number of Virginia jobs at risk is not 1,877,540, but rather only 327,822 – still a large number, but one that would be much more manageable. The OECD critique of Frey and Osborne's work focuses on the variability in the occupational circumstances and conditions the OECD believes exist inside the 702 occupations that Frey and Osborne analyze. This variability, the OECD argues, means that it often is inappropriate to include all jobs in an occupation in a category labeled "at risk."

No doubt some variability in job activities and requirements does exist inside conventionally labeled occupations; however, 702 distinct occupations is a large number and separate analysis of each occupation at this level of detail likely picks up considerable heterogeneity in worker tasks. Nonetheless, the OECD analysis underlines that the most expansive estimates of the impact of automation on jobs should be inspected carefully and probably deflated. Further, even if 47 percent of all jobs in the United States are at risk because of automation, it does not follow that the loss of these jobs would occur immediately. Decades might be required for such an adjustment to occur. The slow, downward employment evolution of the automobile, coal and steel industries in the United States illustrates the often-gradual nature of occupational and industrial change.

TABLE 1

FREY AND OSBORNE'S SUSCEPTIBILITY TO AUTOMATION TECHNIQUE APPLIED TO 22 BROAD JOB CLASSIFICATIONS: VIRGINIA, 2015

Broad Occupational Group	Virginia Total Employment	Average Hourly Wage	Average Annual Income	Total Virginia Annual Wages	Percent Jobs at Risk	Total Jobs at Risk	Total Annual Wages at Risk
Management Occupations	166,610	\$ 61.79	\$ 128,530	\$ 21,414,383,300	13.10%	21,826	\$ 2,606,680,168
Business and Financial Operations Occupations	251,780	\$ 39.24	\$ 81,620	\$ 20,550,283,600	43.37%	109,197	\$ 8,561,241,991
Computer and Mathematical Occupations	195,140	\$ 46.52	\$ 96,750	\$ 18,879,795,000	13.31%	25,973	\$ 2,020,223,511
Architecture and Engineering Occupations	73,790	\$ 41.31	\$ 85,930	\$ 6,340,774,700	21.15%	15,607	\$ 985,125,516
Life, Physical and Social Science Occupations	31,160	\$ 39.76	\$ 82,700	\$ 2,576,932,000	19.38%	6,039	\$ 414,754,154
Community and Social Service Occupations	50,870	\$ 22.91	\$ 47,660	\$ 2,424,464,200	4.16%	2,116	\$ 86,907,634
Legal Occupations	36,050	\$ 49.75	\$ 103,480	\$ 3,730,454,000	27.53%	9,925	\$ 565,249,295
Education, Training and Library Occupations	237,250	\$ 25.93	\$ 53,930	\$ 12,794,892,500	11.74%	27,853	\$ 1,051,500,158
Arts, Design, Entertainment, Sports and Media Occupations	48,510	\$ 27.51	\$ 57,220	\$ 2,775,742,200	17.85%	8,659	\$ 531,050,098
Healthcare Practitioners and Technical Occupations	198,840	\$ 36.24	\$ 75,390	\$ 14,990,547,600	14.30%	28,434	\$ 1,366,670,286
Healthcare Support Occupations	85,840	\$ 14.00	\$ 29,120	\$ 2,499,660,800	23.70%	20,344	\$ 625,569,235
Protective Service Occupations	99,650	\$ 21.41	\$ 44,530	\$ 4,437,414,500	44.31%	44,155	\$ 1,604,686,868
Food Preparation and Serving Related Occupations	318,730	\$ 11.00	\$ 22,870	\$ 7,289,355,100	87.47%	278,793	\$ 6,239,845,855
Building and Grounds Cleaning and Maintenance Occupations	124,970	\$ 12.21	\$ 25,400	\$ 3,174,238,000	74.02%	92,503	\$ 2,369,839,041
Personal Care and Service Occupations	119,900	\$ 12.47	\$ 25,930	\$ 3,109,007,000	41.06%	49,231	\$ 1,057,000,959
Sales and Related Occupations	392,330	\$ 18.61	\$ 38,710	\$ 15,187,094,300	76.13%	298,681	\$ 9,298,746,336

TABLE 1

FREY AND OSBORNE'S SUSCEPTIBILITY TO AUTOMATION TECHNIQUE APPLIED TO 22 BROAD JOB CLASSIFICATIONS: VIRGINIA, 2015

Broad Occupational Group	Virginia Total Employment	Average Hourly Wage	Average Annual Income	Total Virginia Annual Wages	Percent Jobs at Risk	Total Jobs at Risk	Total Annual Wages at Risk
Office and Administrative Support Occupations	549,560	\$ 17.58	\$ 36,570	\$ 20,097,409,200	76.83%	422,227	\$ 14,749,877,695
Farming, Fishing and Forestry Occupations	6,380	\$ 15.77	\$ 32,800	\$ 209,264,000	41.54%	2,650	\$ 100,689,765
Construction and Extraction Occupations	156,160	\$ 20.36	\$ 42,360	\$ 6,614,937,600	61.58%	96,163	\$ 3,743,489,693
Installation, Maintenance and Repair Occupations	144,650	\$ 22.65	\$ 47,110	\$ 6,814,461,500	56.94%	82,364	\$ 3,649,015,736
Production Occupations	171,550	\$ 17.51	\$ 36,420	\$ 6,247,851,000	73.82%	126,638	\$ 4,328,941,847
Transportation and Material Moving Occupations	222,750	\$ 17.41	\$ 36,220	\$ 8,068,005,000	63.05%	108,162	\$ 4,606,862,311
Totals	3,682,470			\$ 190,226,967,100	50.99%	1,877,540	\$ 70,563,968,152

Source: May 2015 Occupational Employment Statistics (OES) data are available from the Bureau of Labor Statistics, www.bls.gov/oes/tables.htm. The May 2015 area level estimates are the first OES estimates to use the 2010 metropolitan statistical area definitions.

Is Technological Change (And Job Churning) Speeding Up?

Is the job-churning process identified by Frey and Osborne going to accelerate? That is the trillion-dollar question. It's true that nearly everywhere we look, there is evidence of technological change: self-driving automobiles and intelligent tractors, smartphones with amazing capabilities, potent new drugs, cloud computing, disease-resistant crops, medical therapies tailored to a specific individual's genetic makeup. The list of technological changes is impressively long and some argue that this lends credence to futurist Ray Kurzweil's 2001 prediction: "We won't experience 100 years of progress in the 21st century – it will be more like 20,000 years of progress (at today's rate)."⁵ The implication is that technological change is going to cut a wide swath through global labor forces in the coming decades.

Perhaps, but there are others who point out that for all of the marvelous technological innovations that have occurred in recent years, actual productivity increases have been disappointingly small. As George Mason University economist Tyler Cowen put it, "Silicon Valley has not saved us from a productivity slowdown" (*The New York Times*, March 4, 2016). The fundamental economics is simple: If technological innovations do not lead to significant increases in productivity, then this seriously diminishes their lure. Why invest in equipment, software enhancements or AI unless such investments are really going to make a difference?

Graph 3 reports the average annual growth in labor productivity (literally, output per worker hour) in the United States over the past 20 years. One can see that since 2009, labor productivity growth has stalled and now is clearly on a lower trend line than it was in the previous decade. This reduces

⁵ <http://www.kurzweilai.net/the-law-of-accelerating-returns>. Kurzweil and others speak of "singularity," a situation in which technological change has become so rapid and so profound that it disrupts, perhaps even destroys, human life as we know it. In this view, technological change is a double-edged sword that simultaneously generates benefits, such as longer life spans and reduced physical drudgery, even while it introduces significant new dangers that range from the obvious (nuclear bombs) to less-obvious AI innovations and nanobots that are controlled by unscrupulous forces, perhaps even other, nonhuman AI software.

the incentive for decision makers to invest in new technologies that hold little promise of improving the firm's bottom line.

Economic data leave little doubt that there has been a slowdown in productivity growth that actually dates back to about 1970. Some label this "secular stagnation," but whatever its label, it has afflicted nearly all mature Western economies that have not been sitting on substantial oil deposits. Some highly reputable analysts, such as Northwestern University's Robert Gordon, argue that recent decades have been characterized by a dearth of truly consequential, cost-reducing, production-increasing innovations ("The Rise and Fall of American Growth," Princeton University Press, 2015).

Nevertheless, even if productivity were not declining, reality is that a significant proportion of recent innovations have been *labor-saving* in nature – apparent advances that cause firms and organizations to substitute machines and AI for people. Consider that in 2015, the United States produced 21.3 percent more manufactured output, but accomplished this with 16 percent fewer workers than in 2001.⁶ Further, this and similar episodes of automation often generate ripples of change throughout the economy. As self-driving cars and trucks move into the mainstream, the jobs of mechanics, insurance agents, car salespersons and repair shop workers will be disrupted, and some of them no doubt will lose their jobs.

In the long run, society as a whole emerges better off and enjoys a higher standard of living when such developments occur because these innovations free up workers who subsequently can be employed doing other things. Remember that in 1800, approximately 90 percent of the labor force in the United States was involved in agriculture. Today, less than 2 percent of our labor force is so occupied, but that 2 percent is marvelously productive. The remaining 98 percent of the labor force is employed doing other things that have resulted in dramatic growth in our standard of living.⁷

⁶ Old Dominion University calculations based upon U.S. Department of Commerce data and the North American Industry Classification System (NAICS).

⁷ In the jargon of economics, such innovations push out society's production possibilities curve and make it possible for society to improve its standard of living.

The short-run story, however, can be painfully different. Workers displaced by technological innovations lose their jobs and subsequently may find it difficult to obtain new employment. In some cases, this is because they are not qualified for the jobs that are available – they are the proverbial square pegs attempting to fit into round holes. Jobs exist for welders, but steelworkers who have lost their jobs are not trained to weld.

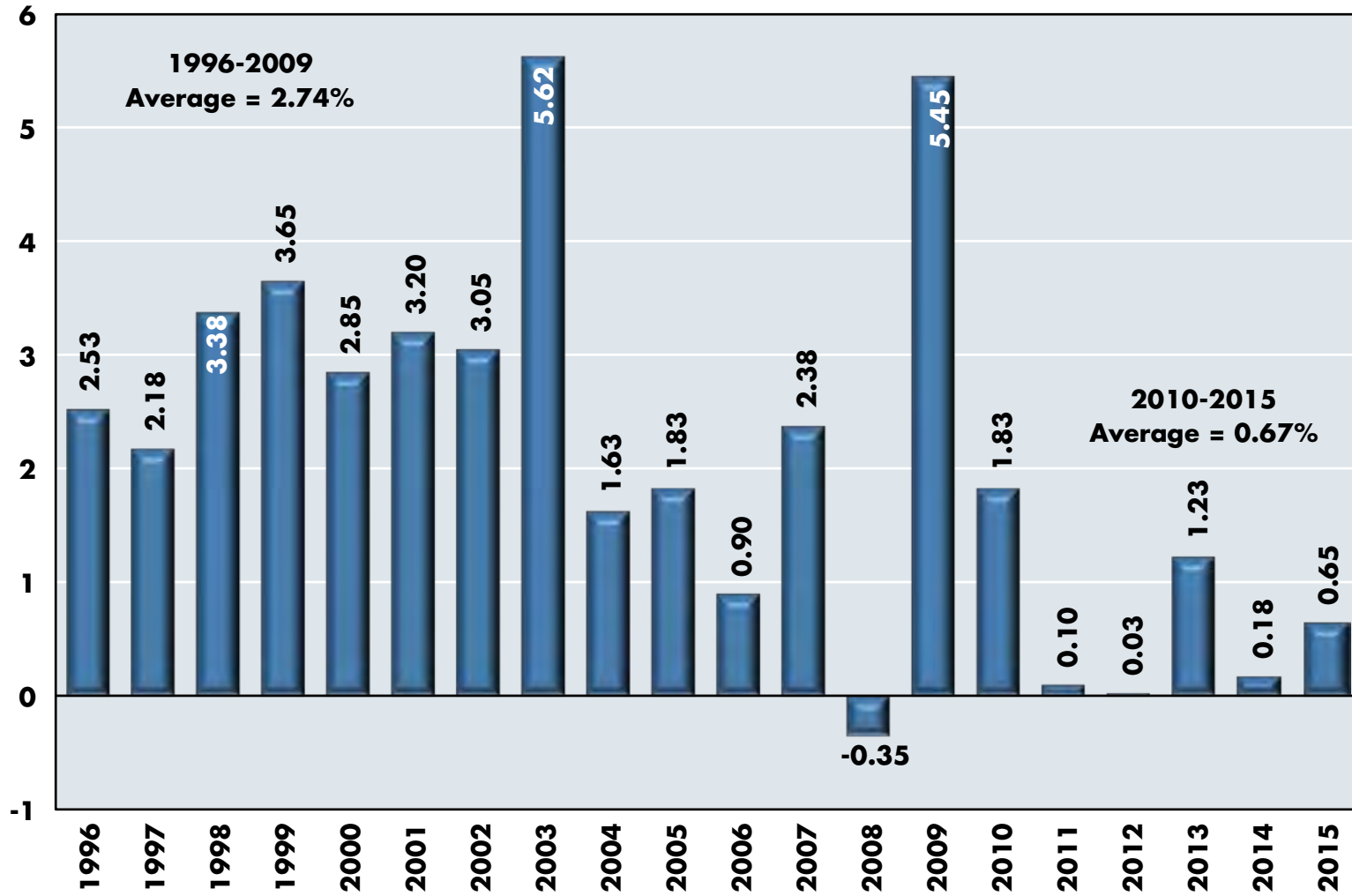
It is these “susceptible” individuals/workers whose circumstances are highlighted by Frey and Osborne. Not only may some of them lose their jobs, but also their spell of unemployment could turn out to be disappointingly long because they are not qualified to fill available job openings. They also could be both emotionally and geographically immobile. Or, the economy could be in the midst of recession and employers simply don’t need additional workers. Whatever the reason, they are the “at risk” employees in today’s economy.

While we sometimes hear alarmist rhetoric about job-destroying new technologies, the available data do not really support this interpretation. Graph 4 reports the absolute number of job layoffs and discharges by month in the United States between 2000 and 2016. Immediately visible is the upward spike in layoffs and discharges produced by the Great Recession. Other than this, since 2011, monthly levels of layoffs and discharges in the United States now are lower than they were at the turn of the century. It’s not clear that changes in technology, whether accelerating or not, have resulted in huge numbers of displaced workers who have lost their jobs to machines, software or AI.



GRAPH 3

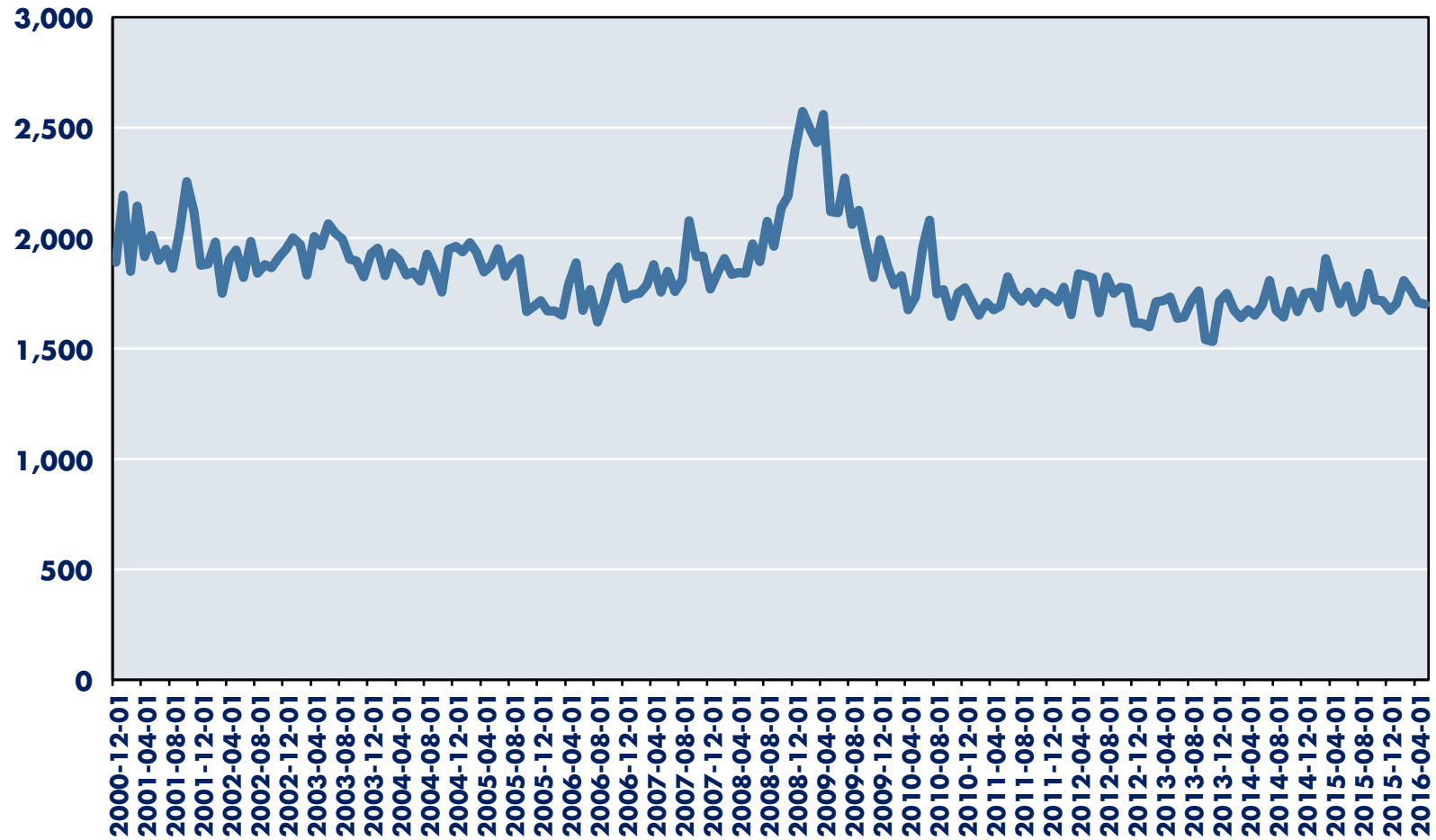
ANNUAL PERCENT GROWTH IN LABOR PRODUCTIVITY (OUTPUT PER HOUR) IN THE UNITED STATES, 1996-2015



Source: Bureau of Labor Statistics, Series ID PRS85006092

GRAPH 4

NUMBER OF JOB LAYOFFS AND DISCHARGES BY MONTH: UNITED STATES, 2000-2016



Source: FRED database, <https://research.stlouisfed.org/fred2/series/JTSLDL>. Data are seasonally adjusted.

Implications

When technological change occurs, it often results in some workers losing their jobs and increased levels of economic inequality. Predictably, labor unions and worker advocates (some political) often resist such adjustments and demand that generous benefits be paid to those affected and that extensive job retraining programs and educational alternatives be offered at very low personal cost to each displaced worker. Similar arguments are made when freely flowing international trade causes workers to lose their jobs. One can make a credible equity case for supplying such benefits and programs to displaced workers even though the available economic evidence discourages the notion that there are conspicuous skill shortages (even in STEM-related occupations)⁸ in American labor markets and the rates of return realized by governments that finance job retraining programs often are mediocre.

A dynamic, growing economy requires willingness on the part of firms and organizations (including governments) to accept and implement cost-effective new methods of production and service. **In response, wise public policies in this arena should focus on “riding the wave” of technological change rather than encouraging resistance movements that are destined to prove futile. Astutely constructed public-private partnerships between governments and firms have the potential to develop programs designed to compensate and redirect job losers, who in many cases are relatively innocent victims of dynamic economic forces well beyond their control.**

Three classes of programs commend themselves. These involve increasing the skills, flexibility and mobility of the workforce.

With respect to skills, policy focus should be upon proficiencies that count in modern labor markets. This is not the same thing as generating massive numbers of additional bachelor’s degree holders, or STEM-degree holders, though many elected officials make this a high priority. To the surprise of many casual observers, there is relatively little rigorous economic evidence available that a significant shortage of job candidates exists in STEM-related

occupations. Examples of skills currently in demand include computer coding, welding and a wide variety of tasks associated with health care. The recent emphasis on “credentialing” may provide a means for individuals to upgrade their qualifications and abilities without committing themselves to entire academic degree programs.

With respect to flexibility, wherever possible, education and training should emphasize suppleness in thinking and approach, rather than rote memory. As Fareed Zakaria of *The Washington Post* (March 26, 2015) put it so succinctly, “Critical thinking is, in the end, the only way to protect American jobs.” Occupational shortages come and go, often in unpredictable sequences. Workers now stay with the same employer for a median of only 4.6 years.⁹ The days of virtually guaranteed, steady employment with the same firm are all but gone. Like it or not, flexibility on the part of both employers and employees is the key to success.

With respect to mobility, wise public policy will reduce barriers that discourage people from moving geographically and/or telecommuting to jobs that may be located thousands of miles away.

Relatively little in this domain will occur either easily or without controversy; witness recent discussions surrounding disrupters Uber and Lyft. What the available empirical evidence does tell us, however, is that the current range of public policies is insufficient to deal with the occupational ferment that Frey and Osborne have identified. We are forewarned.

⁸ See Peter H. Cappelli, “Skills Gaps, Skill Shortages, and Skill Mismatches: Evidence and Arguments for the United States,” *Industrial and Labor Relations Review*, 68 (March 2015), 251-90.

⁹ Bureau of Labor Statistics, www.bls.gov/news.release/pdf/tenure.pdf.



Traffic Congestion in Hampton Roads: Myths And Realities



TRAFFIC CONGESTION IN HAMPTON ROADS: MYTHS AND REALITIES

Death and taxes may be inevitable, but what about traffic congestion?
– Anonymous

When we stir each weekday morning, many of us rely upon our televisions, radios and smartphones to tell us about traffic conditions. These reports can be rather repetitious because they usually announce things that are utterly predictable – for example, that the Hampton Roads Bridge-Tunnel (HRBT) is backed up in both directions. Nor can we really be surprised when we learn once again that there is significant traffic congestion near the I-64 exit for Camp Peary, or that the Midtown Tunnel is experiencing backups extending halfway up the West Norfolk Bridge. Further, almost ritually we are advised to avoid miscellaneous accidents that may be causing problems on I-264 in Virginia Beach, on the High Rise Bridge in Chesapeake or (perish the thought) either inside or near the Midtown and Downtown tunnels.

There are times when our freeways and arterial streets function more like parking lots than free-flowing motorways. In truth, however, traffic problems always have existed in Hampton Roads. Much of this is a function of our geography. Our most abundant natural resource – water – divides and segments our region. The far-reaching tentacles of the Elizabeth, James and York rivers, as well as indentations such as the Lynnhaven River, channel traffic into a series of choke points that result in traffic congestion and longer commuting times.

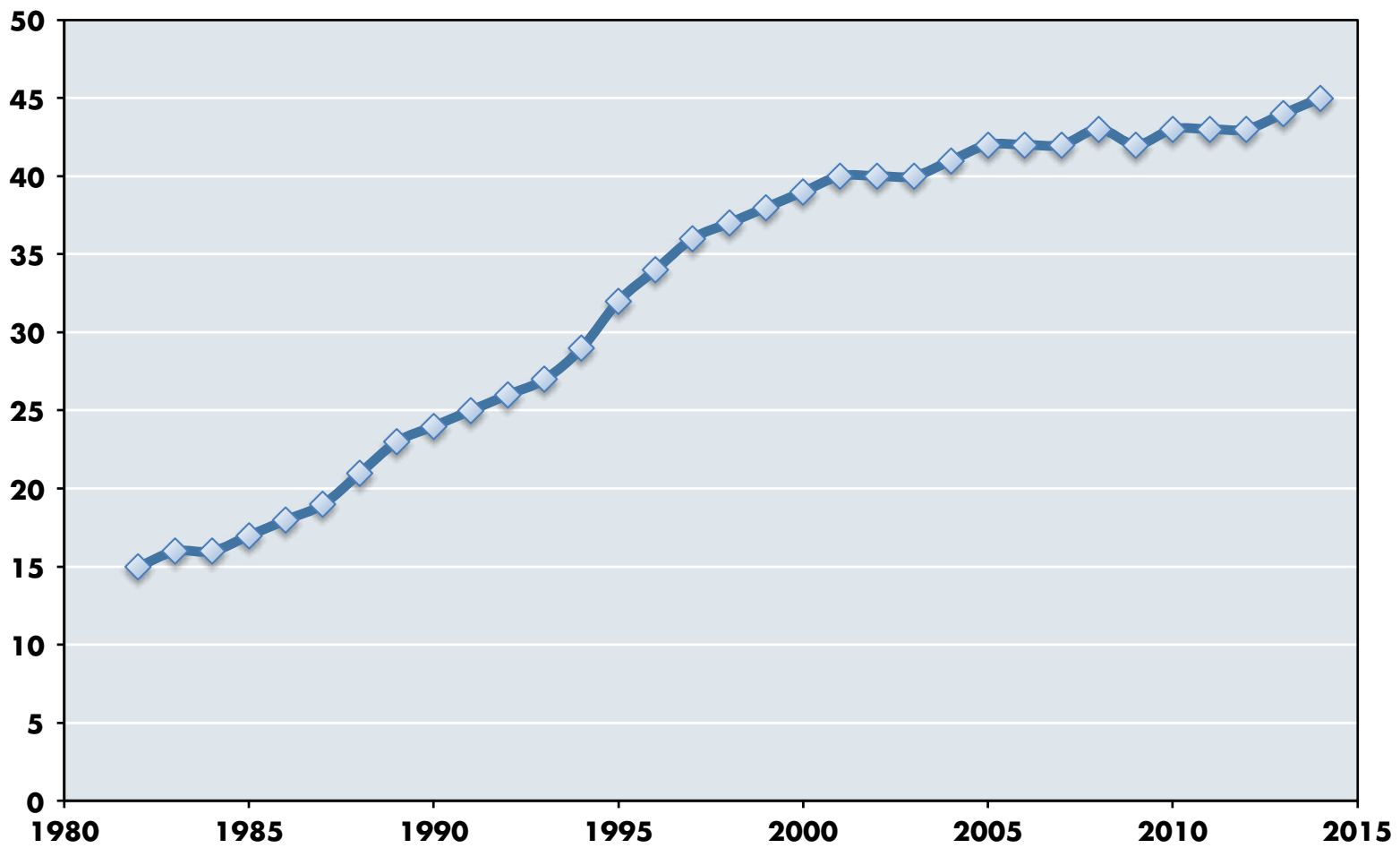
The amount of time we spend in traffic mimics other urbanized areas of the United States. Graph 1 reveals that Hampton Roads drivers have been spending an increasing amount of time stuck in traffic. There has been a steady increase from 15 commuting hours of delay annually per commuter in the early 1980s to 45 hours of delay in recent years.

In Hampton Roads, as elsewhere, traffic congestion and delays are tied to population size and economic growth. Whatever base one starts from, population growth and economic expansion (such as in the 1990s) nearly always strain existing road capacity and result in congestion. Conversely,

slower rates of population growth and economic expansion (such as those connected to the Great Recession of 2008) put a damper on an increase in congestion.

This highlights our first traffic congestion conundrum. Obviously, we don't like traffic congestion and the costs and delays attached to it. However, when congestion occurs, it usually is a sign of a growing population and an expanding economy. If we desire a growing economy that is generating additional jobs, then some traffic congestion is almost an inevitable consequence.

GRAPH 1
ANNUAL HOURS OF DELAY PER COMMUTER IN HAMPTON ROADS



Source: Urban Mobility Scorecard 2015, Texas A&M Transportation Institute

Traffic Patterns In Hampton Roads

We can't say much about congestion without looking at existing traffic patterns. Hampton Roads is an economically interdependent region and almost 65 percent of all jobholders cross city or county lines when they go to work. In addition, virtually every citizen travels from one jurisdiction to another for social and entertainment purposes, to patronize restaurants, to attend church, etc. Often, this requires them to cross one of our several waterways and means that they must travel through one of our transportation choke points. Conjure in your mind pictures of the Hampton Roads Bridge-Tunnel, the Midtown and Downtown tunnels, the Lesner Bridge, the High Rise Bridge, and the bridges across the James and York rivers as you consider the reality of these traffic choke points.

Table 1 provides data disclosing where people live and work within the seven largest cities in Hampton Roads. The main diagonal of the table displays the number of residents that live and work in the same city, while the off-diagonal numbers indicate the number of people who commute across city lines. For example, looking down the column labeled Newport News, we can see that 8,775 individuals who live in Newport News commute to Hampton to work, while 29,006 stay in Newport News to work.

Looking left to right across the columns, and looking this time at Virginia Beach, we can see that it receives 18,624 workers from Chesapeake and 16,353 from Norfolk. We also can verify in Table 1 that more residents of Virginia Beach work in Norfolk (33,263) than Norfolkiens (31,121). The fundamental lesson of Table 1 is straightforward. More than 60 percent of those who hold jobs in Hampton Roads commute to another city or county for their employment.

Table 1 tells us that very large numbers of people are on the move across city lines when they go to work. Over the last decade, their average commuting times have been slowly increasing. Graph 2 shows that the average commuting time in the region increased by .7 minutes between 2005 and 2014. While an extra minute in your vehicle each day might only sound like

a minor inconvenience, the time adds up in a hurry when we consider that approximately 800,000 people in our region travel to work each day.

Of course, commuting times vary considerably and some workers undertake much longer commutes than others. Graph 3 shows the distribution of average work commuting times in Hampton Roads. In 2014, over 33 percent of drivers experienced a commute that is half an hour or longer, while 5.1 percent had commutes of an hour or longer.

Further, those associated with the military in our region typically undertake longer commutes on average than other drivers. The Hampton Roads Transportation Planning Organization (HRTPO) conducted a survey of military service members in 2012.¹ The HRTPO found that it took military personnel an average of 37.9 minutes to commute to their posting – approximately 12 minutes longer than civilians not employed by the Department of Defense.²

Does traffic congestion deter people from traveling to other cities to do business? Yes, it appears so. The Social Science Research Center at Old Dominion University asked a sample of the citizenry questions about driving in our region. In 2015, 46.2 percent of respondents indicated that they had been discouraged from patronizing a business in another city because of traffic congestion concerns.

¹ <http://hrtpo.org/uploads/docs/T12-11%20Military%20Commuter%20Survey%202012%20FINAL%20Report.pdf>.

² The survey also revealed that military personnel perceived traffic congestion problems to be one of the least attractive characteristics associated with being stationed in Hampton Roads.

TABLE 1

WHERE PEOPLE LIVE AND WHERE THEY WORK: HAMPTON ROADS, 2014

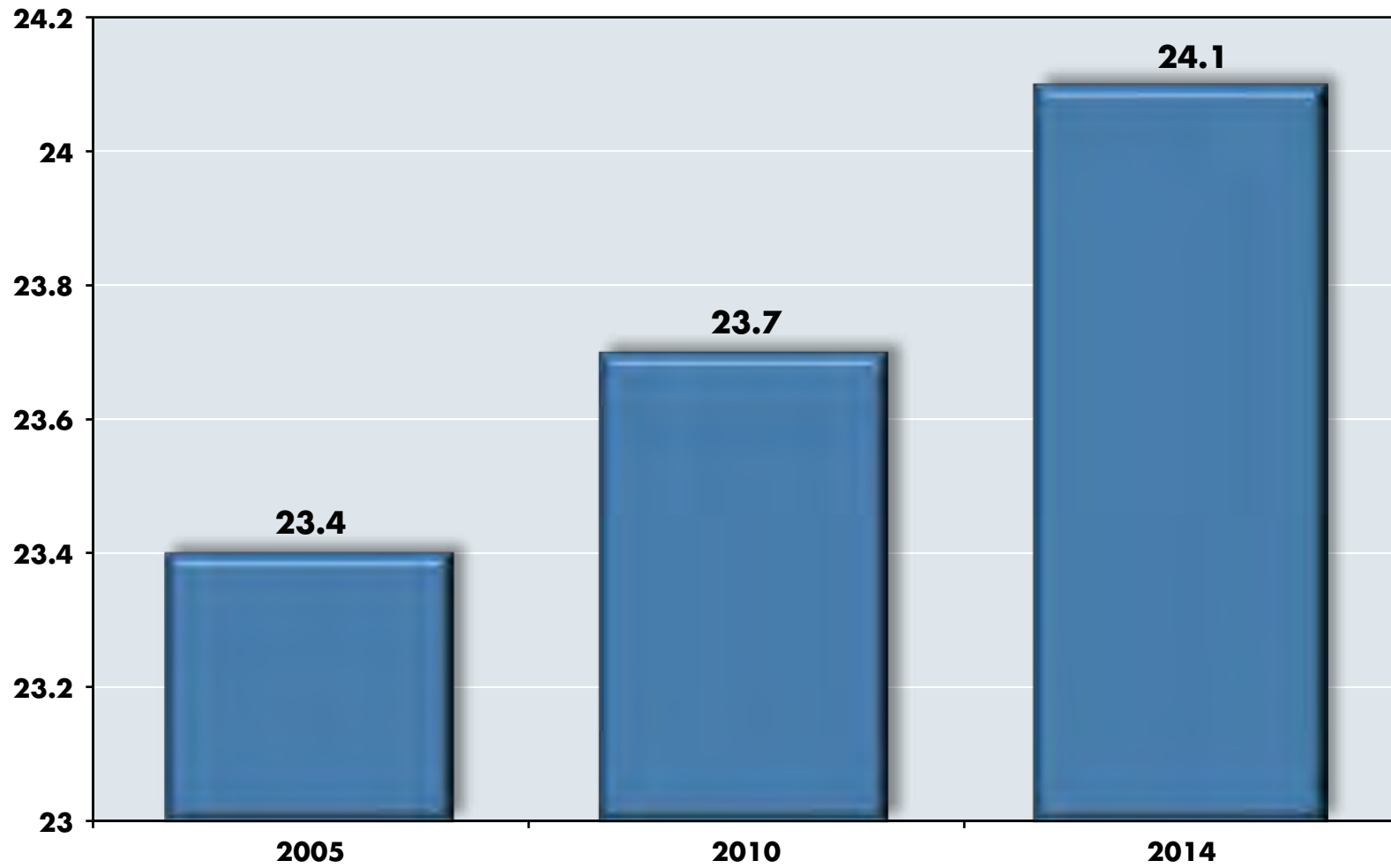
		Where People Live							
		Chesapeake	Hampton	Newport News	Norfolk	Portsmouth	Suffolk	Virginia Beach	Working in Area
Job Location	Chesapeake	28,522	2,071	2,129	9,451	6,485	4,448	21,345	91,624
	Hampton	2,385	14,903	8,775	2,436	1,230	1,366	3,222	48,737
	Newport News	3,483	14,775	29,006	2,790	2,480	3,169	4,086	92,437
	Norfolk	17,714	4,178	3,525	31,121	6,201	4,412	33,263	120,870
	Portsmouth	5,636	893	975	3,331	7,739	2,475	4,193	30,035
	Suffolk	2,797	607	868	988	1,910	8,015	1,900	24,087
	Virginia Beach	18,624	2,540	2,653	16,353	4,877	3,629	85,653	158,139
Living in Area		91,355	51,436	68,999	78,524	36,525	34,086	178,778	

Source: U.S. Census Bureau, 2015, Longitudinal-Employer Household Dynamics Program, <http://onthemap.ces.census.gov>



GRAPH 2

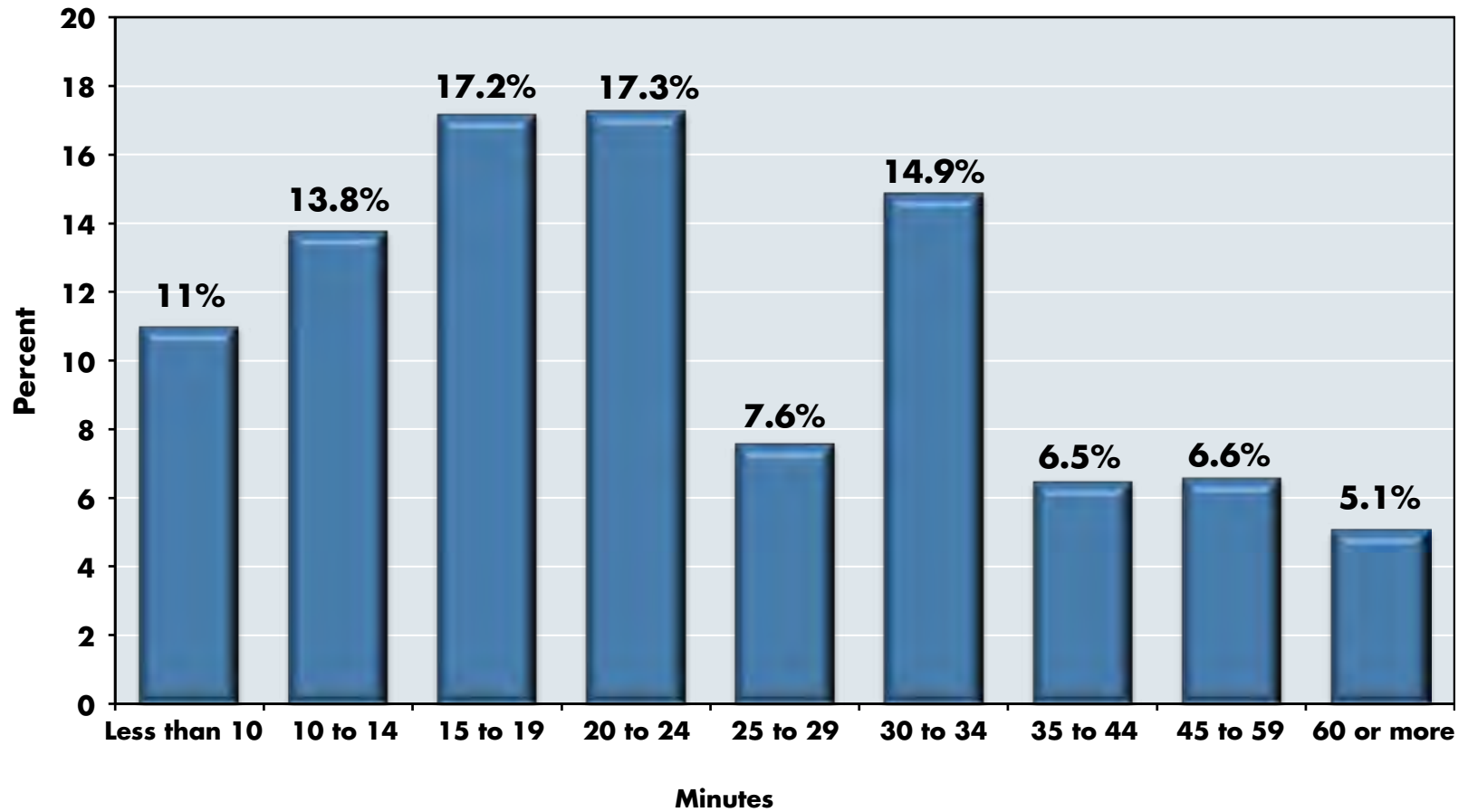
AVERAGE MINUTES OF DAILY COMMUTING TIME: HAMPTON ROADS, 2005-2014



Source: Urban Mobility Scorecard 2015, Texas A&M Transportation Institute

GRAPH 3

LENGTH OF COMMUTES OF WORKERS IN HAMPTON ROADS, 2014 (AVERAGE DAILY MINUTES)



Source: Urban Mobility Scorecard 2015, Texas A&M Transportation Institute

Basic economic analysis suggests that some commuters, when faced with traffic congestion, will seek alternative means to get to work. That is, they will switch to mass transportation, choose to ride The Tide, begin to telecommute, etc. Interestingly, this does not appear to be happening on a large scale in our region – which in turn suggests that automobile traffic congestion perhaps is not quite as bad as some allege and also that our public transportation system is not well developed. Graph 5 compares the use of various traffic modes by commuters in Hampton Roads over the last decade. The vast majority of commuters (over 82 percent) still drive by themselves to and from work. This “one car, one person” percentage is higher than the national average – which hovers around 75 percent. Between 2011 and 2015 in our region, there were slight increases in alternative transit methods such as biking, walking and public transit, and a rise in telecommuting or working from home. Further, we have also seen a drop in the amount of carpooling in the region by more than 2.5 percent.

Graphs 3 through 5 highlight a second traffic congestion conundrum for Hampton Roads. Despite numerous complaints about traffic congestion, measured congestion has not increased dramatically in recent years and it has not caused very many commuters to change their behavior (despite some reports to the contrary).

What about “all those trucks” (the comment of a Norfolk resident)? Those who ply the streets and highways of Hampton Roads know that freight traffic to and from the various sites of the Port of Virginia can be an important contributor to traffic congestion during certain times of the day. Area residents are wont to complain about the volume of truck traffic and its consequences.³ Nevertheless, the HRTPO reported in its State of Transportation in 2015 that the number of trucks passing through the region actually peaked almost 10 years ago in 2007 when more than 20,000 trucks passed through our region each weekday.⁴ The Great Recession put a crimp in this traffic and it has yet to return to the pre-recession level. Even so, in 2014, the Hampton Roads Bridge-Tunnel still handled an average of 6,000 trucks during each workday. The proportion of cargo handled at the Port of Virginia via rail has increased in

recent years, but it remains true that more than 60 percent of all of the cargo it handles comes and goes via trucks.

This is our third traffic conundrum. Perceptions to the contrary, truck traffic today is not as heavy as it was a decade previous. The HRTPO reported that in 2014, truck traffic in Hampton Roads was about 15 percent below what it was in 2007.⁵

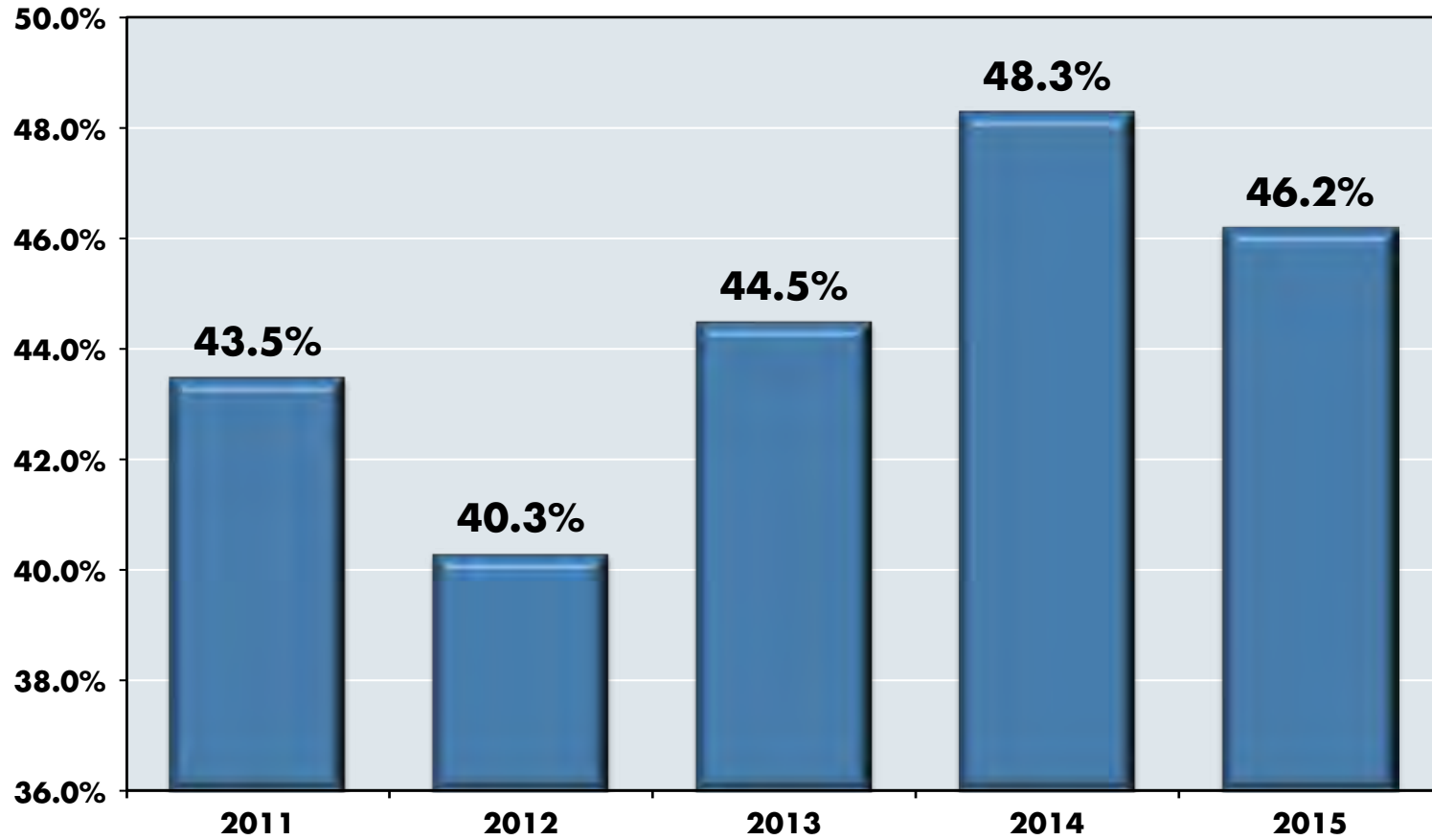
³ <http://interactives.wavy.com/photomojo/gallery/14205>.

⁴ <http://hrtpo.org/uploads/docs/State%20of%20Transportation%202015%20Final%20Report.pdf>.

⁵ Ibid.

GRAPH 4

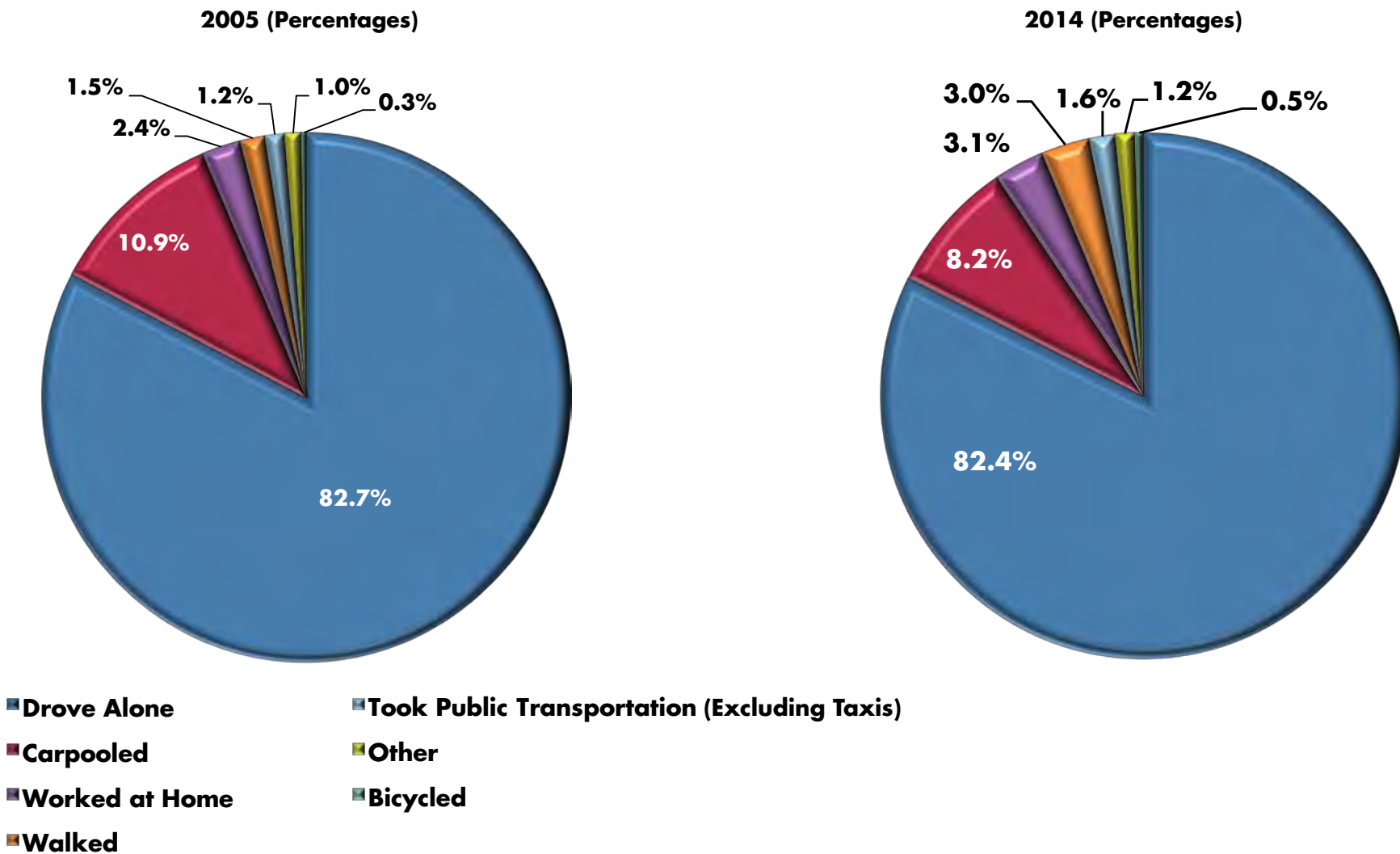
PERCENTAGE OF INDIVIDUALS WHO SAID THEY AVOIDED VISITING OTHER CITIES IN HAMPTON ROADS BECAUSE OF TRAFFIC CONGESTION, 2011-2015



Source: Social Science Research Center, Old Dominion University

GRAPH 5

HOW COMMUTERS IN HAMPTON ROADS TRAVELED TO WORK, 2005 AND 2014



Source: Social Science Research Center, Old Dominion University

How Do We Compare To Other Regions?

Perhaps the grass isn't actually greener on the other side of the fence insofar as traffic congestion is concerned. Even though average commuter travel time in Hampton Roads has been slowly creeping up over the last decade, Table 2 reveals that the average travel time in our region is second to the lowest among eight reasonably comparable metropolitan regions along the East Coast. Only Savannah, which is about one-fifth the size of Hampton Roads, has a lower average commuting time. Indeed, Hampton Roads has held this "almost the lowest" status consistently throughout the 2000s. The bottom line is that our average commuting time has been increasing, but not as fast as in other cities/metropolitan areas.

Notably, Charlotte's regional workforce expanded by 43.1 percent between 2005 and 2014, but the average commuting time in that region increased by only 3.11 percent – barely more than Hampton Roads, where our workforce expanded by a much more modest 9.6 percent. What should we make of this? Light rail supporters point to Charlotte's Lynx light rail system, which opened in 2007 and is now undergoing expansion. Daily ridership was 15,800 in 2014 (as compared to a reported 5,800 daily trips on The Tide in the same year).⁶ While the Lynx no doubt was helpful, it cannot account for Charlotte's rather remarkable performance in handling traffic. Charlotte does not have to contend with the traffic choke points we endure in Hampton Roads and it also has benefited from some strategic road building.

The Texas Transportation Institute (TTI) at Texas A&M annually publishes an Urban Mobility Scorecard that provides several useful metrics for comparing congestion. The TTI's Travel Time Index compares each region's peak commuting travel period to free-flow conditions. Essentially, this index shows how much extra time one should anticipate if one wants to take a typical trip (commuting or otherwise) during peak congestion time periods. Graph 6 shows the Travel Time Index for 31 large U.S. cities with populations between 1 million and 3 million. Hampton Roads, with a Travel Time Index of 1.19, has

only the 18th-highest index on this list of comparably sized regions. This means that on average travelers should expect a typical trip across town that would take 30 minutes in free-flow conditions to require $30 * 1.19 = 35.7$ minutes during peak congestion periods. This does not represent the beginning of a transportation dark age.

The TTI's Travel Time Index in Graph 6 covers trips on all types of metropolitan area roads (arterial and freeway). However, many commuters have no choice but to utilize freeways when they travel to and from work. In Hampton Roads, this necessarily means utilizing I-64, I-264, Route 164, I-564 and I-664. This makes a significant difference. Graph 7 reports the TTI's Freeway Travel Time Index, which quantifies the time reliability of each region's freeway system. This index measures how much time a traveler should plan on adding to a peak congestion trip in order to be on time 95 percent of the time. The 2.52 index measure for Hampton Roads implies that if a trip would take 30 minutes in light traffic, drivers should allocate 75 minutes for the same trip during periods of peak congestion. By this metric, Hampton Roads fares worse – it has the 11th-highest index among the 31 comparable metropolitan regions.

INRIX, a private-sector firm that analyzes the nation's transportation infrastructure, ranks congestion on individual freeway segments in metropolitan areas around the United States. INRIX ranks the Hampton Roads Bridge-Tunnel connecting Southside to the Peninsula as the 170th-worst traffic corridor in the country. If one excludes New York City, Los Angeles and Chicago, then the HRBT jumps to 95th. By this measure, it is the worst travel choke point in our regional freeway system and perhaps the worst choke point of any kind in Hampton Roads. Even so, it only barely edges into the top 100.

⁶ https://en.wikipedia.org/wiki/List_of_United_States_light_rail_systems_by_ridership.

TABLE 2

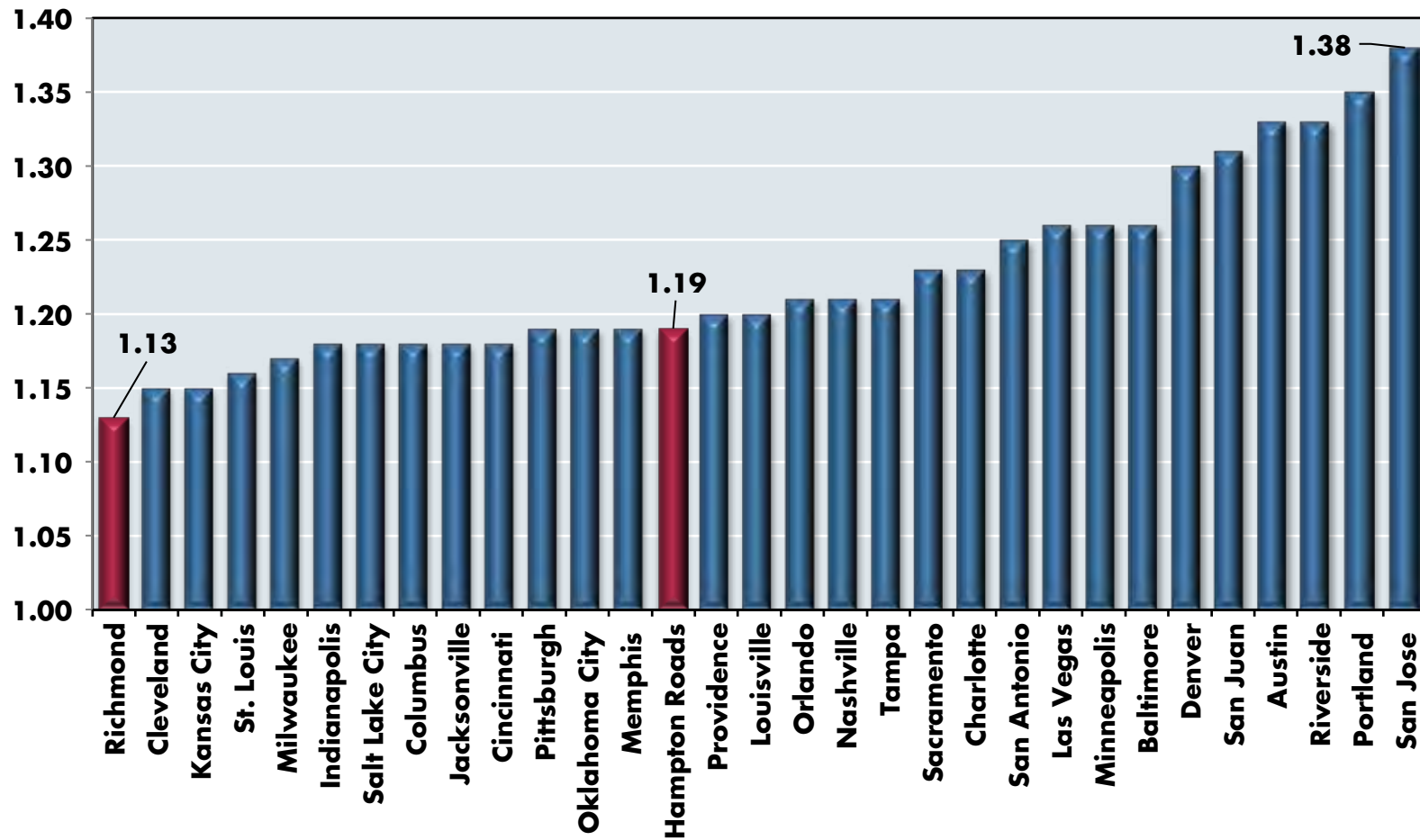
NUMBER OF WORKERS AND TRAVEL TIMES IN SELECTED EAST COAST CITIES

MSA	Number of Workers 2005	Mean Travel Time to Work (Minutes) 2005	Number of Workers 2014	Mean Travel Time to Work (Minutes) 2014	% Change in Workers (2005-2014)	% Change in Mean Travel Time (2005-2014)
Baltimore, MD	1,256,076	29	1,370,828	30.3	8.7%	4.39%
Charlotte, NC	729,042	25.3	1,121,688	26.1	43.1%	3.11%
Hampton Roads	763,184	23.4	839,837	24.1	9.6%	2.95%
Jacksonville, FL	574,334	25.5	640,484	26.1	10.9%	2.33%
Raleigh, NC	473,446	25	620,561	25.2	27.1%	0.80%
Richmond, VA	563,297	24.4	619,172	24.8	9.5%	1.63%
Savannah, GA	139,948	24.2	169,222	23.9	19.0%	-1.25%
Washington, DC	2,646,427	33.4	3,152,741	34.5	17.5%	3.24%

Source: American Community Survey, www.census.gov/programs-surveys/acs

GRAPH 6

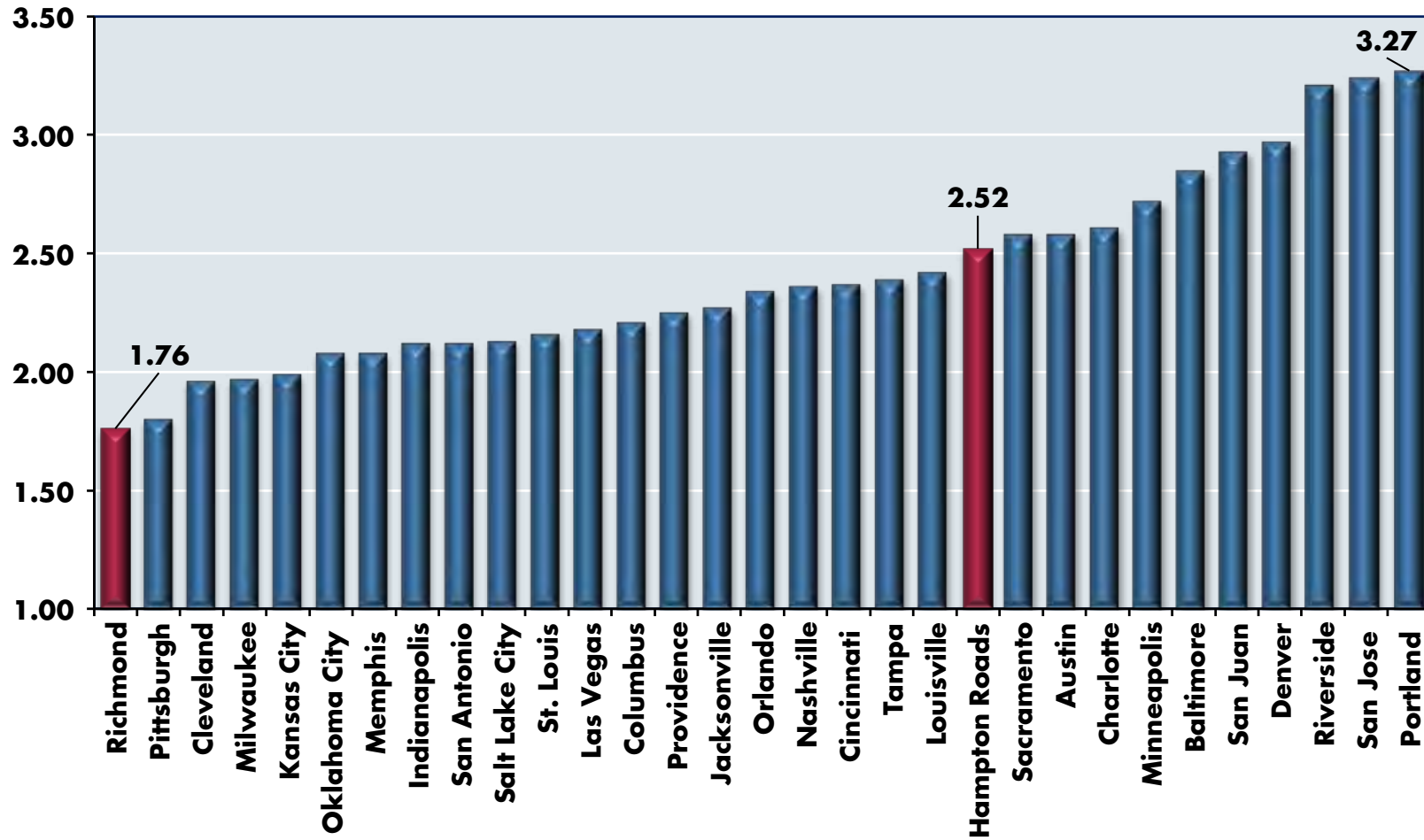
THE TTI'S TRAVEL TIME INDEX: SELECTED METROPOLITAN REGIONS, 2014



Source: Urban Mobility Scorecard 2015, Texas A&M Transportation Institute

GRAPH 7

THE TTI'S FREEWAY TRAVEL TIME INDEX: SELECTED METROPOLITAN REGIONS, 2014



Source: Urban Mobility Scorecard 2015, Texas A&M Transportation Institute

What Costs Does Congestion Impose On Us?

It can be difficult to quantify the full costs of extra vehicles on a city's roadways and any increased traffic congestion that results. Some costs can be rather easily identified. For example, we can compute the cost of the gasoline that is burned when drivers sit in traffic jams. Similarly, these traffic jams also often waste the time of those sitting in the ensnared automobiles and, as the old adage advises, time is money.⁷ We can approximate this cost by multiplying the hours lost in congestion times the wage rates of those being delayed.

Other congestion costs resist easy calculation. These include the costs of higher vehicle emissions that result when automobiles sit in traffic. These are "negative externalities," or spillovers, and adversely affect all citizens, whether or not they drive. Health ailments such as asthma, which is exacerbated by automobile-generated pollution, are obvious spillovers, as are corroded metals, deteriorating paint on houses, etc. These phenomena are not so easily measured. However, one reputable economic study estimated these pollution costs to be about \$.015 per mile traveled per vehicle in 2000.⁸ At first glance, this may not seem to be an impressively large number, but the cost mounts up rapidly when one considers the number of vehicles being driven and average mileage. In Hampton Roads, for example, suppose 400,000 vehicles each day travel 10 miles round-trip as individuals drive to and from their places of work. This translates to 4,000,000 daily miles, which at \$.015, results in a daily pollution cost of \$60,000. If there are 200 commuting days in a year, then the total annual cost is \$12 million. This does not take into account non-commuting miles driven and further does not take into account truck air pollution costs, which considerably exceed \$.015 per mile. One can jiggle with the figures by adjusting the number of vehicles and length of trips, but the total cost remains large in any realistic scenario.

⁷ Smartphones and iPads may have reduced these losses, however.

⁸ See *Transportation Cost and Benefit Analysis II – Air Pollution Costs* (Victoria Transport Policy Institute, 2011), www.vtpi.org/tca for a survey of this and other studies.

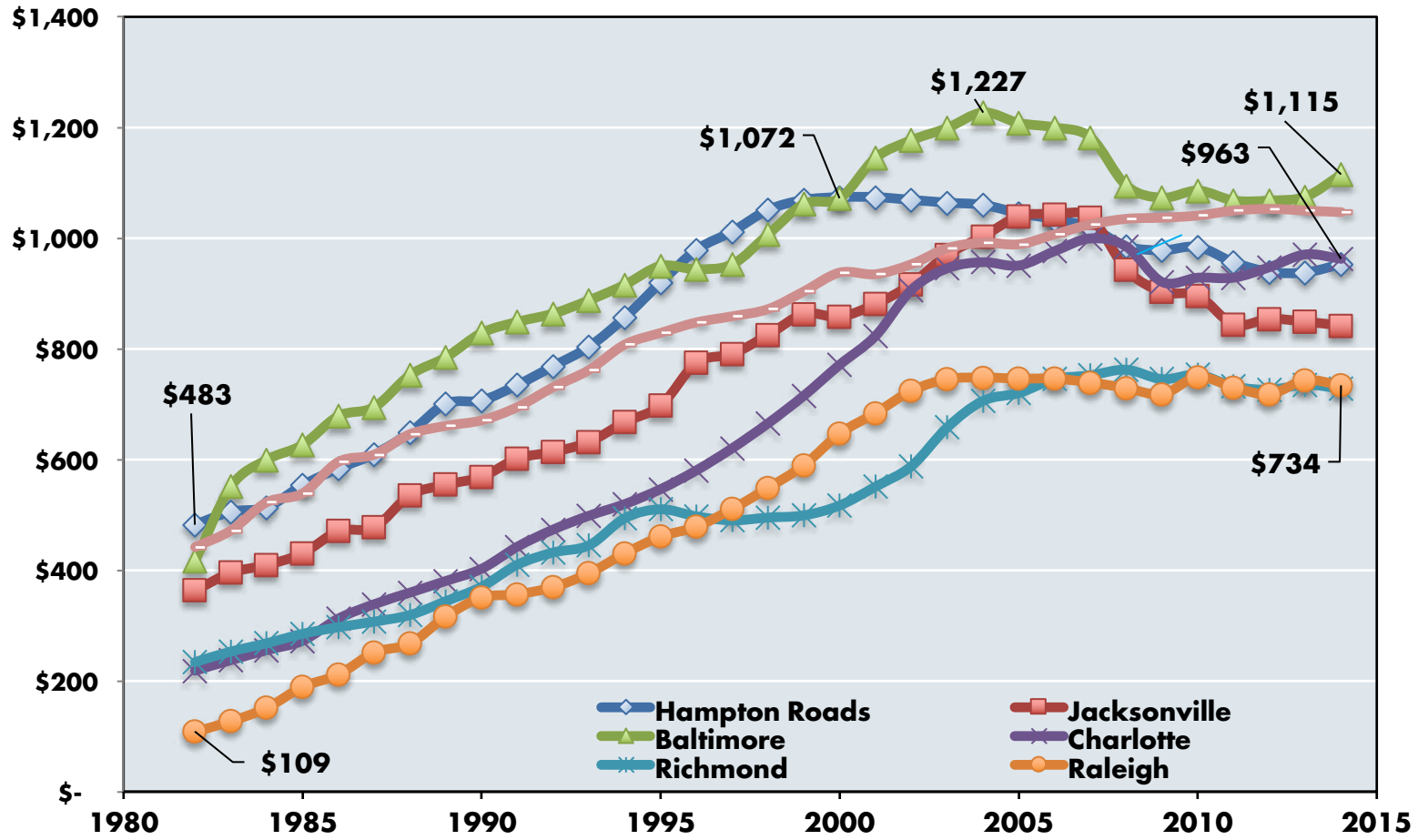
LOST TIME AND FUEL

We recognize the existence of spillover costs, but don't have the ability to measure them precisely for Hampton Roads. Instead, we'll focus on the monetary costs of the time and fuel that accrue from traffic congestion in Hampton Roads and comparable East Coast cities. The Texas A&M Traffic Institute calculates these costs by estimating the travel time delays incurred by people and trucks and then relates those delays to additional fuel consumption. Graph 8 displays the estimated lost time and fuel costs incurred per commuter in Hampton Roads and six other metropolitan regions between 1982 and 2014. One can see that these costs grew steadily over the 1980s and 1990s in all of the regions and peaked in the 2005-2007 time period.

The lost time of drivers and wasted fuel costs due to traffic congestion peaked in Hampton Roads at \$1,072 per commuter in the late 1990s. Since then, this annual cost has fallen gradually. Why? More fuel-efficient automobiles, fewer miles driven and the Great Recession. The recent decline in gasoline prices likely will continue this trend.

GRAPH 8

ANNUAL CONGESTION COSTS PER AUTO COMMUTER, 1982-2014



Source: Texas A&M Transportation Institute

INFRASTRUCTURE BENEFITS AND COSTS

Any competent examination of the costs of driving must take into account infrastructure costs – the expense associated with building and maintaining roads. This, too, is a complicated subject because of the tortuous manner in which road construction and maintenance are funded and related costs recorded. One example will suffice: What proportion of the cost of a typical Virginia Beach police officer should be allocated to transportation in general and roads and highways in particular? We will not leap into this statistical chasm here, but instead will briefly look at some of the costs associated with building new transportation infrastructure in Hampton Roads.

Infrastructure improvements are often touted as a means to reduce traffic congestion and offset the monetary costs that commuters face. The Hampton Roads Transportation Planning Organization (HRTPO) is the organization legally tasked with analyzing regional transportation infrastructure projects. The HRTPO scores and prioritizes projects based on three criteria: 1) project effectiveness, which relates to reducing congestion, safety and system connectivity; 2) potential economic gains to the region; and 3) project readiness.

Few argue about these criteria. Instead, it is the weights attached to each of these criteria that separate the wheat from the chaff. Shuffling the weights attached to each criterion easily can alter the ranking of competing projects. Surprisingly, there has been relatively little pointed discussion about the weights the HRTPO utilizes to rank projects in our region, even though the weights have huge importance. Even elected officials relatively familiar with virtually every proposed transportation project appear to regard the weights the HRTPO adopts as an arcane, specialized topic about which they will not argue.

Unfortunately, the pervasive presence of water courses in our region causes our most significant transportation solutions to be more expensive per mile than projects in other comparable regions (namely, Charlotte). The proposed Patriots Crossing, or “Third Crossing,” would connect Norfolk to I-664 and the Monitor-Merrimac Memorial Bridge-Tunnel. This project has been on the region’s radar screen for some time and it scores high on the list of proposed projects HRTPO has been analyzing. It was included as one of the

proposed major improvement projects to be advanced under the regional transportation funding referendum vote in 1999. It would provide relief for the often-congested HRBT and perhaps Hampton Boulevard in Norfolk as well. The estimated cost of this project was \$3.1 billion to \$4.2 billion already in 2013. Widening the HRBT, a less favorably ranked alternative, would cost an estimated \$8 billion. The HRTPO also provides an outline of the future transportation spending needs of the region in its 2040 Long Range Transportation Plan. In it, the organization highlights \$12.8 billion in potential spending on a long list of projects.

The means to pay for these projects unfortunately is rather cloudy. In 2013, the Virginia General Assembly overhauled funding for transportation infrastructure projects. It created a Hampton Roads Transportation Fund, based substantially on new sales tax-based revenue, to fund regional transit projects. The new taxes generate in excess of \$200 million annually, though the tendency of drivers to reduce their driving mileage and falling gasoline prices have disrupted forecasts. In any case, this tax revenue is dispersed at the discretion of the Hampton Roads Transportation Accountability Commission.

Only brief analysis is required for one to ascertain that the Hampton Roads Transportation Fund by itself will not generate funds sufficient to pay for the projects that have been described as essential by the HRTPO. While some regional projects, such as the expansion of I-64 on the Peninsula, already are underway, other projects (for example, the Patriots Crossing) now seem unlikely to occur for decades unless new revenue sources are established.

Currently, the HRTPO attaches a weight of 30 percent to traffic congestion when it evaluates the worth of competing projects. However, in some cases, the Commonwealth’s Transportation Board assigns a 50 percent weight to traffic congestion. We do not argue for or against either weighting scheme, but note that different weighting arrangements can produce different project rankings.

WORDS OF CAUTION: INFRASTRUCTURE IMPROVEMENTS MAY NOT REDUCE CONGESTION VERY MUCH

If we undertake the projects the HRTPO has identified and given favorable rankings, will we really notice a difference in our traffic? The truthful answer – based both on economic theory and empirical evidence – is “probably not as much as many would hope.”

This answer might cause readers to scratch their heads. Huh? Why wouldn't new road infrastructure lead to noticeable improvements in traffic flows? After all, if this really is true, then why build new infrastructure if the new projects really aren't going to make much of a difference?

Let's introduce a concept known as *induced demand* in order to answer these questions. In a nutshell, the notion of induced demand tells us that most consumers tend to substitute less-expensive versions of items for the more-expensive versions (holding constant things such as product quality and service). For example, consumers prefer to purchase regular-grade gasoline at \$2 per gallon rather than at \$2.25 per gallon and consistently will opt for the lower-priced gasoline if they have the opportunity to do so.

What does this have to do with newly constructed roads? **If a new roadway is constructed and actually makes travel less expensive by reducing driver and passenger travel times and gasoline usage, then this will cause some individuals to: 1) switch their travel patterns and begin to use this new, improved path more often; and (2) increase the number of miles they will drive because driving has become less expensive.** The first effect ordinarily is the larger of the two and reflects natural, predictable economic behavior. If Mary Jones learns that she can get to work five minutes faster by taking, say, a newly improved Jefferson Avenue instead of I-64, then likely she will switch her travel path to Jefferson Avenue. She may learn this by word of mouth, or by accident, but if she is internet savvy, she can rely on software applications such as Google and Waze to tell her how long it should take her to get to her destination via alternate routes.

Consumers (and drivers) often substitute less-expensive products and processes for more expensive ones, assuming everything else (such as quality and service) is held constant. Thus, the shorter travel times that are produced by improvements on Jefferson Avenue likely will stimulate more traffic on that thoroughfare.

Let's drive home this notion with a different type of example. In your mind's eye, consider two identical water glasses, with one containing more water than the other. Suppose we now make it possible for water to flow freely from one glass to the other. Water will begin to flow from the glass with the higher water level into the glass with the lower water level. This process will continue until the water levels in each glass are the same. This is the same dynamic we observe with respect to induced traffic demand. Drivers will switch to Jefferson Avenue when it is improved.

At the same time, in our Jefferson Avenue vs. I-64 example, traffic congestion will decline somewhat on I-64 when some drivers there switch to Jefferson Avenue. Hence, those who continue to drive on I-64 will end up a little bit better off – just as drivers on Jefferson Avenue will end up a bit better off.

The moral to this story is that infrastructure improvements alone often do not result in dramatic reductions in the amount of time commuters spend in traffic. Exceptions to this dynamic are confined to cases in which no alternate methods of transportation exist. Suppose, for example, a bridge is constructed to an island that previously could only be reached via a ferry, or a new highway is constructed that crosses an area that previously had no roads. In general, however, drivers search out the most efficient way to reach their destinations and this soon results in a competitive balance between alternatives.

Economists and transportation researchers have thoroughly documented the existence of this phenomenon in transportation. An illustration is a 2011 study published in *American Economic Review* that found when the number of lanes on a road is increased, the distance traveled by drivers on those lanes increases by almost the same proportion.⁹ To paraphrase the memorable words of the movie “Field of Dreams,” “If you build it, they will come.”

⁹ Giles Duranton and Mathew A. Turner. “The Fundamental Law of Road Congestion: Evidence from U.S. Cities.” *American Economic Review*, 101, October 2011, 2616-52.

But, note this. The logic that shifts drivers to less congested routes also applies to situations when the price of driving is increased, for example, when tolls are imposed or increased on roadways or tunnels. Graph 9 lists many of the things commuters in Hampton Roads say they have done to avoid paying the newly imposed tolls on the Midtown and Downtown tunnels. Over 50 percent of respondents to this 2015 survey indicated that they had changed their driving routes, while 37 percent reported that they had reduced their total travel.

Of course, the anger attached to the imposition of tolls may cause some drivers to experiment with alternate travel routes that subsequently do not prove to be cost efficient. In the case of the Midtown and Downtown tunnels, vehicle traffic volumes initially dropped significantly, but then recovered to levels that were about 15 percent below pre-toll levels.¹⁰ Usage likely will increase further when tunnel construction ends.

NEW TRANSPORTATION INFRASTRUCTURE AND THE LOCATION OF BUSINESS ACTIVITY

While increasing traffic infrastructure may not have a major impact on traffic congestion, it can change the locations where economic activity takes place. We see this clearly as businesses and residential developments pop up at freeway off-ramps. It also shows up in the aforementioned HRTPO scoring scheme. For example, the Patriots Crossing receives high scores on the economic vitality criteria. This is largely due to opportunities for growth in the western sections of Hampton Roads.

The potential relocation of economic activity because of transportation improvements raises questions of equity, however. If one chooses to construct the Patriots Crossing and this moves the preferred location of business activity from, say, Norfolk and Virginia Beach to Suffolk, is this a good idea? Is this something Norfolk and Virginia Beach should support because it is good for the region? If the extension of The Tide to the Virginia Beach Town Center area results in significantly increased property values for those who already own properties adjacent to Tide stations, should property owners elsewhere in Virginia Beach attempt to “tax away” these incremental gains, arguing that

otherwise they, in effect, would be redistributing their own incomes and wealth to these owners?

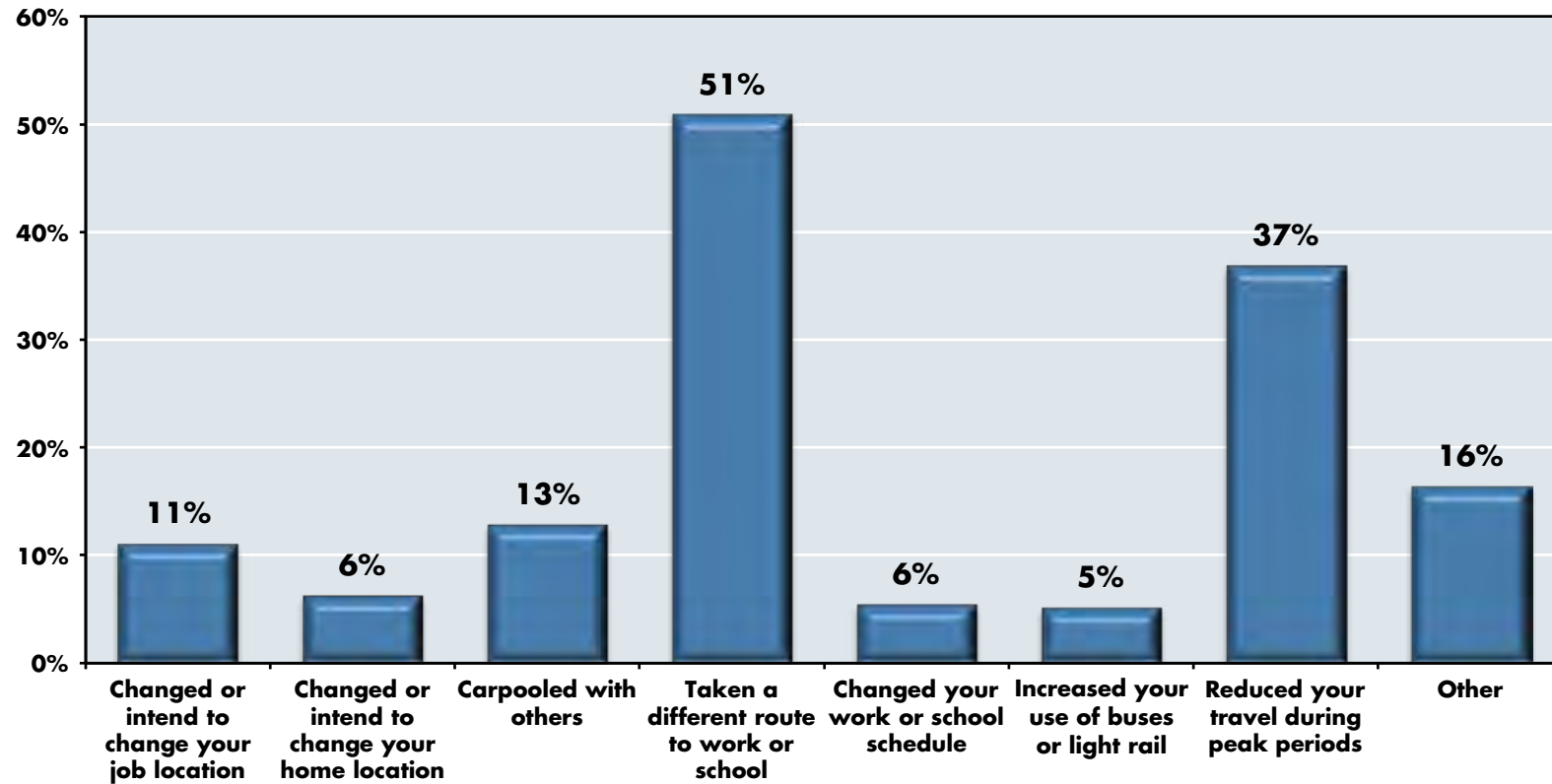
These are ticklish questions for which there are no firm economic answers. The political process ultimately decides such issues. **Our point is simply to underline that the better and more efficient a transportation system is, the more likely it is to redistribute economic benefits and change the location of economic activity.**



¹⁰ James V. Koch, “The Impact of Tolls on the City of Portsmouth,” April 15, 2015, www.jamesvkoch.com.

GRAPH 9

ACTIONS DRIVERS SAY THEY TOOK IN RESPONSE TO THE IMPOSITION OF TOLLS ON THE MIDTOWN AND DOWNTOWN TUNNELS



Source: Life in Hampton Roads Survey 2015, Old Dominion University Social Science Research Center

Summing It Up

Transportation infrastructure is essential to economic development and this is especially true in Hampton Roads, which sometimes is said to be located at the end of one of the longest cul-de-sacs in North America. That there also are ubiquitous fingers of water that divide our region only exacerbates the need for cost-efficient roads, bridges and tunnels that enable residents to work and leisure. Absent good connections to the outer world and the ability to cross our region with a minimum of expense, we clearly risk withering on the economic vine. Hence, quality transportation infrastructure is critical to our future prosperity, especially if defense spending continues to stagnate.

Even so, as we have just seen, specific transportation infrastructure projects typically only provide marginal improvements in traffic congestion because drivers soon learn to distribute themselves amongst alternate routes until these alternatives offer them roughly the same travel efficiency. Thus, widening I-64 to Richmond will provide some relief to drivers, but it also will attract additional traffic that previously traveled on Routes 60 and 460 and even induce some drivers to travel to and from Richmond who previously declined to do so. This reflects a natural economic process that is well documented.

Cover: Clockwise from left

USS Gerald R. Ford (CVN-78): Navy.mil

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Virginia Department of Transportation

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