

Statewide Economic Analysis Report

Division of Economic Information & Analytics
2019-2020 Program Year



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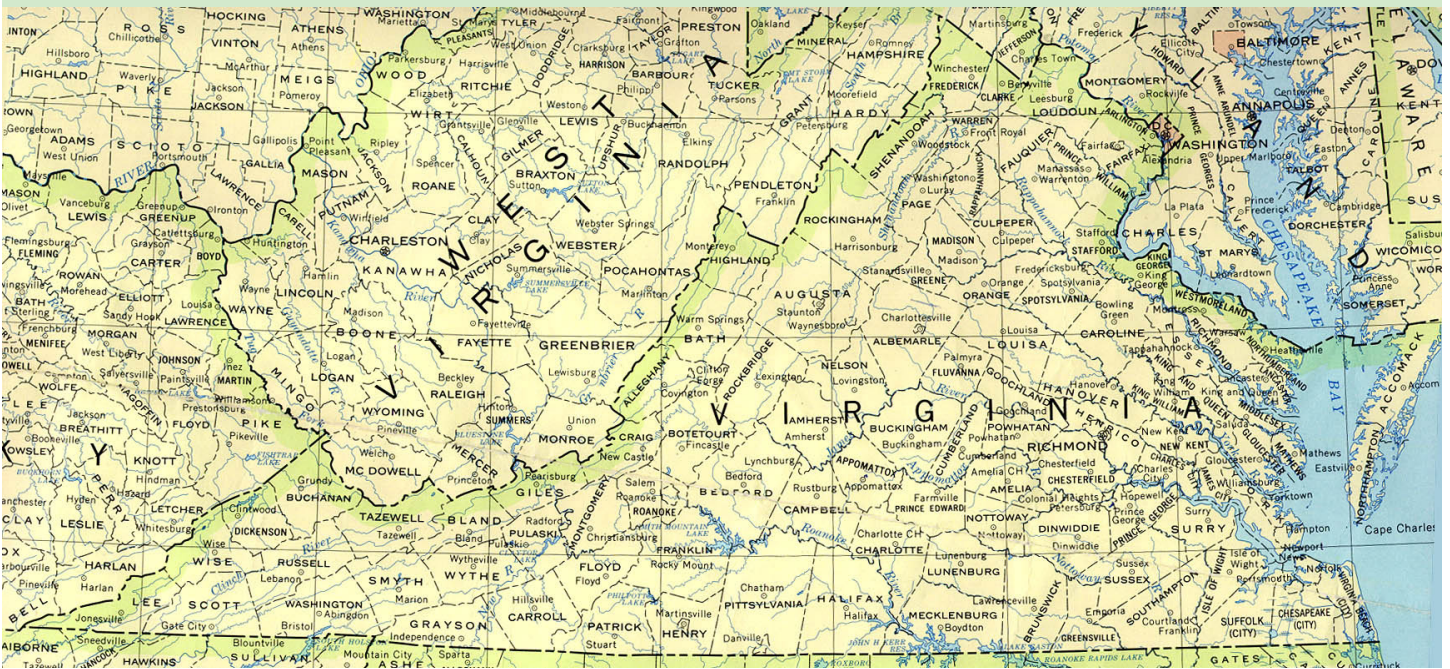
Introduction



The Statewide Economic Analysis (SEA) Report is an annual publication that is meant to serve as a resource for policy makers, researchers, employers, job seekers, and workforce development professionals. The data presented in this report draws from multiple sources including the Economic Information & Analytics' (EIA) labor market information and other economic and demographic data, and provides a detailed look at Virginia's economy, such as: its composition; what drives it; and where it's going. It also gives an overview of regional trends within the state by presenting detailed information on local workforce development area (LWDA) labor markets.

Ultimately, this report is part of an ongoing effort to put labor market information into the hands of those who need it to better understand Virginia's rapidly changing labor market, whether it be a workforce development professional analyzing demographic and claims data to estimate local available labor supply or a school administrator using occupational projections estimates to help prepare students for the high-growth, high-wage jobs of the future.

Part I: Statewide Analysis



The Virginia Economy

Before the COVID-19 crisis, Virginia's economy was experiencing record low unemployment and high business activity. Early in the program year, the Commonwealth saw over-the-year decreases in both the unemployment rate and in claims for unemployment insurance. However, in mid-March initial claims for unemployment insurance jumped by more than 1,600% over-the-week in response to the first COVID cases reaching the Commonwealth. The level of both initial and continued claims has remained elevated since March.

Virginia has many highly skilled workers. Compared to most states, its workers possess a high level of educational attainment, especially in sought-after STEM disciplines. In recent decades, these workers and the employers that hire them have congregated in Northern Virginia, boosting its household incomes with their high-paying jobs. In that region of Virginia, job growth has come mainly from private sector hiring as the professional and business service industry has supplanted the federal government as the main source of job growth.

Richmond and Hampton Roads, the state's other major metropolitan areas, have also shown positive economic trends during this period. Richmond has seen significant growth in white collar professional services and finance jobs. At the same time, its quality of life and relatively low cost of living are attracting more young, skilled workers resulting in lean housing inventories and rising prices for residential real estate. After suffering through a period of flat defense spending and sequestration, the Hampton Roads metro area anticipates increased budget allowances for naval ship building and repair, adding to current project backlogs in Newport News. Before the crisis, strong hotel and related tourism spending in Virginia Beach and other areas also helped to boost that region's economy. Healthcare industry job growth remains robust in both areas and in others throughout the state. Depending on the duration of the pandemic, the industries responsible for the area's strong growth could see a slower recovery and overall slower job growth in the future.

Outside of the three metro areas mentioned, the rest of the Commonwealth has experienced slower growth. The industries that used to be the anchor for the rural areas of the state, such as manufacturing and mining, have seen significant declines. These areas are also seeing an exodus of younger workers, potentially exacerbating declining job growth in the future. While the COVID crisis has affected nearly all sections of the economy, it has hit certain industries like accommodation and food services especially hard. Additionally, certain sectors of the healthcare industry have

experienced hardship due to many elective surgeries and procedures being postponed until after the pandemic. This decrease in cash flow could leave many smaller practices vulnerable. Rural areas often have a higher concentration of these industries in their economies, and therefore may see a slower recovery from the current crisis.

Virginia Snapshot

Table 1 provides a snapshot of the most recent economic data for Virginia, the change over the last five years, and how Virginia compares to the nation. The Commonwealth’s overall story is one of steady growth and a demographically diverse workforce. Between 2013 and 2018, the most recent data available, the Virginia population for the young professional eligible population aged 20 to 34 years had a 3.4 percent increase. There was a very slight decrease in the number of adults of middle working age, with 69 percent of the population falling into the prime working years aged between 20 and 74. This portion of the population is most likely to be educated, with work experience, and have an established career. Using those metrics as a basis, Virginia can expect to hold the economy steady in the near future. Another thing to consider is that the younger cohort (20 to 34 years old) and the older cohort (55 to 74 years old) are close in size, meaning that as individuals age out of the workforce, there are individuals ready to enter into their positions.

One matter that may prove problematic for Virginia’s age group of 35 to 54 year cohort is that they are the most likely to enter into positions vacated by the aging population of 55 to 74 years old. In this case, the 35 to 54 year cohort is significantly larger than those aged 55 to 74 years. As the older population group retires, the positions that open up will not be in large enough supply for the younger workers to move into, thus setting the stage for underemployment and discouragement among the workforce in that age group.



Table 1: Virginia's Economic Snapshot, 5-Year Trend

	Subject	Virginia, 2013	Virginia, 2018	US Total, 2018	5-Year Change
Demographics: U.S. Census Bureau, American Community Survey 5-Year Estimates	Total Population	8,100,653	8,413,774	322,903,030	3.9%
	Male	3,977,926 (49.1%)	4,138,574 (49.2%)	158,984,190 (49.2%)	4.0%
	Female	4,122,727 (50.9%)	4,275,200 (50.8%)	163,918,840 (50.8%)	3.7%
	0 to 14 Years	1,541,555 (19.0%)	1,552,054 (18.5%)	60,965,763 (18.8%)	0.7%
	15 to 19 Years	549,877 (6.8%)	547,867 (6.5%)	21,204,226 (6.6%)	-0.4%
	20 to 34 Years	1,696,231 (21.0%)	1,753,962 (20.8%)	66,546,138 (21.1%)	3.4%
	35 to 54 Years	2,306,710 (28.5%)	2,253,368 (26.8%)	837,47,562 (26.5%)	-2.3%
	55 to 74 Years	1,569,258 (19.3%)	1,809,017 (21.4%)	68,250,909 (21.6%)	15.3%
	75 Years and Over	437,022 (5.4%)	497,506 (5.9%)	20,229,000 (6.4%)	13.8%
	Median Age	37.5 Years	38.1 Years	37.9 Years	1.6%
	White	5,627,076 (69.5%)	5,722,660 (68.0%)	234,904,818 (72.7%)	1.7%
	Black or African American	1,568,021 (19.4%)	1,613,285 (19.2%)	40,916,113 (12.7%)	2.9%
	American Indian and Alaska Native	24,816 (0.3%)	22,972 (0.3%)	2,699,073 (0.8%)	-7.4%
	Asian	457,792 (5.7%)	531,503 (6.3%)	17,574,550 (5.4%)	16.1%
	Native Hawaiian and Other Pacific Islander	5,633 (0.1%)	5,677 (0.1%)	582,718 (0.2%)	0.8%
	Some Other Race	179,449 (2.9%)	208,464 (2.5%)	15,789,961 (4.9%)	16.2%
	Two or More Races	237,866 (2.9%)	309,213 (3.7%)	10,435,797 (3.2%)	30.0%
	Percent of persons under 65 with any disability	7.6%	8.0%	8.6%	5.3%
	Percent of persons under 65 without health insurance	14.0%*	10.2%*	10.4%*	-27.1%
	Persons 25 and older with a high school diploma or higher	87.5%	89.3%	87.7%	2.1%
	Persons 25 and older with a bachelor's degree or higher	35.2%	38.2%	31.5%	8.5%
Income: U.S. Department of Commerce, Bureau of Economic Analysis	Real GDP (2012 dollars)	\$446.6 Billion	\$477.0 Billion	\$18.69 Trillion	6.8%
	Real GDP per capita (2012 dollars)	\$54,113	\$56,110	\$57,052	3.7%
	Per capita Personal Income	\$48,858	\$57,910	\$54,526	19.2%
	Per capita Disposable Income	\$42,851	\$50,725	\$48,172	18.4%
Business Demographics:** U.S. Census Bureau, Survey of Business Owners	Number of Firms	638,643	653,193	27,626,360	2.3%
	Men-owned Firms	330,968 (51.8%)	353,012 (54.0%)	14,844,597 (53.7%)	6.7%
	Women-owned Firms	192,033 (30.1%)	236,290 (36.2%)	9,878,397 (35.8%)	23.0%
	Minority-owned Firms	138,256 (21.6%)	185,043 (28.3%)	7,952,386 (28.8%)	33.8%
	Veteran-owned Firms	79,248 (12.4%)	76,434 (11.7%)	2,521,682 (9.1%)	-3.6%

*5-Year estimates not available. U.S. Census Bureau, American Community Survey

**Due to data collection constraints, data is presented for 2007 and 2012

Industrial Landscape

Existing Demand for Major Industry and Occupations

For years the main industries of employment for Virginians have been, and continue to be, health care and social assistance, professional, scientific, and technical services, retail trade, educational services, and accommodation and food services; while the mining, agricultural, utilities, and real estate industries exert the least influence on state employment. **Appendix A** reports the number of establishments, average employment, total wages, and average annual salary for each industry sector (2-digit NAICS level) as reported by the Quarterly Census of Employment and Wages (QCEW) program.

Location quotients (LQs) illustrate that the industrial share of Virginia's economy largely mirrors that of the nation; a quotient of one indicates that the industry's share of Virginia's employment or total wages is equal to the industry's national share.

One noteworthy finding is the extremely low statistic for both the mining and agriculture industries. Current political discourse would suggest that these are two industries with significant decline, particularly in employment. However, with mining in particular, Virginia has been thought of as having a large stake in the industry. This is not without reason, as the Appalachian region – often viewed as the hub of mining activity – runs through the western portion of the Commonwealth.

Mining still accounts for over five percent of all employment in the Southwest Virginia Local Workforce Development Area, as well as almost twelve percent of the area's total wages. However, this is the only workforce area in the state with a notable mining presence in the local economy, as the industry is either completely absent or accounts for less than one percent of area establishments, employment, and wages in all other regions. In fact, even with the large presence in the southwest, there is a small overall impact on the state's economy. This large imbalance creates the low quotient identified here. Were the industry to be more widespread and have a greater impact on the economy, there would be a larger location quotient. While significant, Virginia is likely not the only state with a low quotient for the mining industry.

On the other end, Professional Scientific and Technical Services has an employment LQ of 1.71, and a total wages LQ of 1.78. As was the case with the mining industry, professional services are disproportionately spread out in the Commonwealth, concentrated largely in the Northern Virginia and Alexandria/Arlington workforce areas. However, unlike mining in southwest Virginia, the northern Virginia region and the Professional Scientific and Technical Services industry are very large contributors to the statewide economy. The industry accounts for more than 15 percent of all Virginia Establishments, over 11 percent of employment, and more than 20 percent of total wages. As shown in **Appendix A**, these figures are driven primarily by Computer Systems Design and Related Services, which has a much higher share of Virginia's economy than would be expected given the national trends. Accounting for more than 44 percent of the industry's total wages, and more than 37 percent of its employment, computer systems design also boasts the highest calculated average annual salary. The high wages and employment suggests that the industry is in high demand from both the demand and supply side of the workforce.

Appendix B further highlights the current relative importance of the healthcare, accommodation, professional services, retail, and education industries. Looking at the 20-year progression illustrated by the three figures we see how the landscape of Virginia's economy has evolved. For instance, the Manufacturing industry dropped significantly between 1999 and 2009, going from 11 and 12 percent of statewide employment and total wages, respectively, in 1999 to 6 and 7 percent. Though the decline seems to have slowed in the most recent decade in regards to wages, the industry has continued to decline by an additional percentage point of its share of both establishments and employment. Similarly, Construction went from a substantial 11 percent of statewide employment and 12 percent of total wages in 1999, to a more modest 7 percent of both in 2019. Though the employment and wages share declined by approximately five percent, the industry held onto its share of establishments, seeing it slip slightly from three to two percent during the same period.

Turning to occupations, **Table 2** displays the most recent Occupation and Employment Statistics (OES) program data. Office and Administrative Support positions rank undeniably first in terms of employment levels, which

underscores the narrative of moving from goods-producing work such as manufacturing, to more white-collar positions in industries such as professional services and health care. Office and Administrative Support positions are concentrated in the professional, education, and retail industries, so it is important to remember that this is not a new trend and has been common knowledge for more than ten years. This year, the average annual growth turned slightly negative to -0.06% for the occupation, so it seems that the growth in this occupation might be over and it has reached capacity which has been expected due to the small growth rate in previous years forecasting this exact situation.

As stated previously, the Virginia (and the United States) economy has undergone a change in recent history, moving from a goods to services-based economy. This has been reported on throughout the past several years from nearly every reputable publication and economic think tank. Such a switch occurs, no matter how rapidly, over the span of multiple years if not decades.¹ What we may be witnessing now, is that the economy has made a full transition to the service industry, and we are currently at a type of equilibrium until the next major industrial shift. This shift may be from one industry to another – such as the transition from retail to health care between 2000 and 2010 – or potentially a shift back to a parity between goods and services that existed only briefly in the late 1990s and early 2000s.

¹ For a particularly visual example, see the Washington Post info graphic that visualizes employment across the United States growing from Manufacturing in the 1990s, to retail in the 2000s, and now to health care in 2010. View the original article at https://www.washingtonpost.com/blogs/govbeat/wp/2014/09/03/watch-the-u-s-transition-from-a-manufacturing-economy-to-a-service-economy-in-one-gif/?utm_term=.229a8202c41f



Table 2: Overview of Major Occupations, May 2019

Occupation	Employment	Median Salary	Average Annual Growth*	Top Employing Industry (Percent of Occupational Employment)**
Architecture and Engineering	77,800	\$85,550	0.60%	Architectural, Engineering, and Related Services (33.04%)
Arts, Design, Entertainment, Sports, & Media	50,020	\$55,640	0.45%	Professional and Business Services (20.28%)
Building and Grounds Cleaning & Maintenance	124,470	\$26,470	0.75%	Services to Buildings and Dwellings (40.43%)
Business and Financial Operations	283,820	\$78,780	0.91%	Government (20.06%)
Community and Social Services	58,510	\$47,040	1.15%	Education and Health Services (56.16%)
Computer and Mathematical	215,480	\$99,170	1.82%	Professional and Business Services (65.72%)
Construction and Extraction	167,520	\$43,600	0.91%	Construction (61.2%)
Education, Training, and Library	247,050	\$51,400	0.44%	Education and Health Services (92.01%)
Farming, Fishing, and Forestry	5,370	\$32,610	-0.35%	Natural Resources and Mining (86.85%)
Food Preparation and Serving Related	330,280	\$22,290	1.13%	Leisure and Hospitality (85.08%)
Healthcare Practitioners and Technical	214,200	\$66,200	1.23%	Education and Health Services (76.25%)
Healthcare Support	137,930	\$27,490	1.82%	Education and Health Services (84.07%)
Installation, Maintenance, & Repair	158,590	\$48,650	0.45%	Trade, Transportation, and Utilities (26.33%)
Legal	36,450	\$89,260	0.18%	Professional and Business Services (47.55%)
Life, Physical, & Social Sciences	35,660	\$75,820	0.71%	Government (35.69%)
Management	186,600	\$126,180	0.67%	Professional and Business Services (22.18%)
Office and Administrative Support	485,170	\$37,650	-0.06%	Professional and Business Services (22.09%)
Personal Care and Service	90,560	\$25,040	1.75%	Education and Health Services (36.28%)
Production	180,930	\$35,720	-0.46%	Manufacturing (64.70%)
Protective Service	106,920	\$42,750	0.32%	Government (57.22%)
Sales and Related	385,790	\$28,190	0.02%	Financial Activities (8.64%)
Transportation and Material Moving	299,650	\$31,500	0.43%	Trade, Transportation, and Utilities (50.64%)
State Total/Average	3,878,770	\$42,220	0.64%	Education and Health Services (19.52%)

Source: Virginia Employment Commission, Occupational Employment and Wage Statistics program
Totals may not sum due to rounding.

*Growth based on 2018-2028 Long-term Occupational Projections, Virginia Employment Commission

**Data based on staffing patterns for Industry and Occupational Projections, Virginia Employment Commission. Data subject to confidentiality agreements.

Virginia's Labor Force

Employment and Unemployment in Virginia²

Not since the Great Recession have employment metrics been under such scrutiny for real time data and insight concerning the labor force. There are two distinct storylines when analyzing Virginia's labor market this program year: Pre-COVID (March for Virginia) and within the current crisis, which is where we find ourselves in now. **Table 3** illustrates Virginia's labor market.

Pre-COVID, in the last 4 and a half years until March 2020, the Commonwealth greatly reduced unemployment. Virginia had a positive employment growth for 72 consecutive months until April's sharp decline. The March unemployment rate did not reflect the decline since the data collection week was prior to business closings in Virginia due the virus. Employment was growing faster than the labor force, which gave us reason to believe that many individuals were regaining employment. However, the continuing decline of labor force participation offered a possible explanation to the contrary. Part of the reason for the drop in unemployment might have been contributed to the amount of workers that left the labor force altogether, possibly as a consequence of an aging population, the growth of the younger age cohorts discussed earlier gives us some pause towards that justification.

Since the onset of COVID, those positive trends that the Commonwealth had were quickly reversed not unlike those seen all over the nation. The labor force and the labor force participation rate have increased slightly over the five year period; however, it is important to note that the labor force participation rate is the annual rate of 2019 so Coronavirus did not impact that metric. Both the number of unemployed and the unemployment rate have almost doubled in the five year period showing the impact of COVID-19 on Virginia's workforce. While Virginia has maintained an unemployment rate lower than the national average it is still largely elevated than previous levels.

Table 3: Local Area Unemployment Statistics

(Not Seasonally Adjusted)

Unemployment Statistic	July 2016	July 2020	5-Year Actual Change	5-Year Percent Change
Labor Force	4,296,549	4,376,805	80,256	1.90%
Number of Employed	4,112,404	4,027,517	-84,887	-2.10%
Number of Unemployed	184,145	349,288	165,143	89.70%
Unemployment Rate	4.30%	8.00%	3.7	90.70%
Labor Force Participation Rate*	65.00%	66.10%	1.1	1.70%

Source: Virginia Employment Commission, Local Area Unemployment Statistics Program.

*Labor Force Participation Rates shown for 2016 and 2019 annual averages, and reflect Virginia Employment Commission calculations
Totals may not add due to rounding.

As **Table 4** examines, unemployment insurance claimants in Virginia. There are more women than men currently unemployed, and those in the 25 to 34 aged cohorts have more than a quarter of the state's unemployment claims. Where we see the largest discrepancy is when looking at educational attainment. Those with less than a bachelor's degree account for more than 67 percent of the Virginia's unemployment claimants. This is relatively proportionate, as the same group accounts for approximately 56 percent of the state's employed population, as outlined further below.

Table 4: Who are the Unemployed?

Subject	Estimate (Percent)
Total Claimants	438,900
Male	192,200(43.8%)
Female	246,574(56.2%)
Veteran*	2684(0.7%)
Under 22 Years	32,756(7.5%)

² For a thorough analysis of unemployment in the Commonwealth, please refer to the Virginia Employment Commission's Economic Information & Analytics Division publication, "Labor Supply and Demand in Virginia." All versions can be found at <https://virginiaworks.com/publications/labor-supply-demand>

Table 4 Continued

Subject	Estimate (Percent)
22 to 24 Years	39,680(9.0%)
25 to 34 Years	117,529(26.8%)
35 to 44 Years	86,712(19.8%)
45 to 54 Years	72,607(16.5%)
55 to 64 Years	34,692(7.9%)
65 Years and Over	27,738(6.3%)
8 th Grade or Less**	27,184(6.2%)
Some High School**	9,573(2.4%)
High School Grad/GED**	31,351(7.9%)
Some College/2-Year Degree**	164,489(41.7%)
Bachelor's Degree**	101,777(25.8%)
Some Graduate School**	55,103(14.0%)
Post Graduate Degree**	169(0.0%)
Unknown Educational Attainment**	17,174(4.3%)

Source: Virginia Employment Commission, Characteristics of the Insured Unemployed – July 2019

*Data from 2018, Annual

**Education data from 2018

In the following 6 tables and figures we will further analyze each of these demographics of unemployment claimants for a six month time period starting in March when claims dramatically increased due to Coronavirus and how they have shifted during that period of time. It allows us to see which populations have been the most affected by the pandemic, and to give insight to those whom are trying to develop programs to reach those affected populations, through targeted outreach and support. The figures provide a visual representation of each table to better see the shifts between the months. Please keep in mind that some of these demographic elements are voluntary, so it is not a full sample of the claimant population.

Table 5 and **Figure A** show the BLS estimates for the age breakdown of Virginia's labor force for different age cohorts. If each cohort was affected equally by the COVID-19 crisis and the ensuing recession we would expect the initial claims numbers to be close to the BLS estimates. Instead, we see that workers in the youngest two cohorts, ages 16-24 and 25-34, consistently accounted for a larger share of initial claims than the BLS estimates would expect. The share of initial filings by workers in the third cohort, ages 35-44, seemed to generally reflect the BLS estimates. On the other hand, workers in the last three cohorts consistently accounted for a smaller share of initial filings than we would expect. This discrepancy leads us to believe that the economic fallout following the COVID-19 crisis more heavily impacted the Commonwealth's younger workers, especially those ages 16-34, than older workers, ages 45 and up. We should compare the age cohort breakdowns month-to-month. Overall the shares of initial claims remained pretty consistent between the different cohorts. The youngest cohort, workers ages 16-24, saw a small increase in their share of claims during the months of May and June.

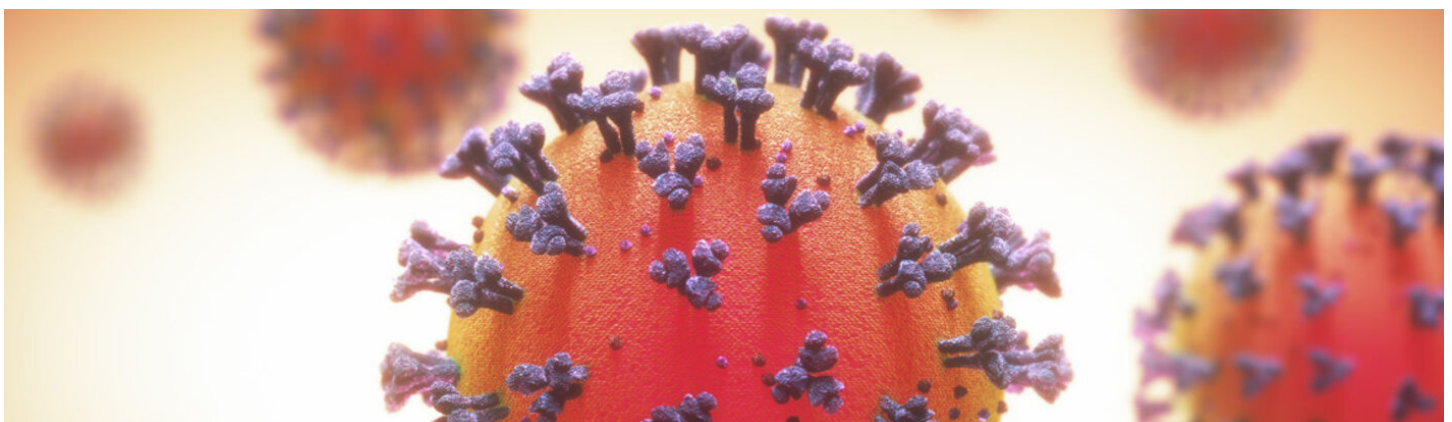
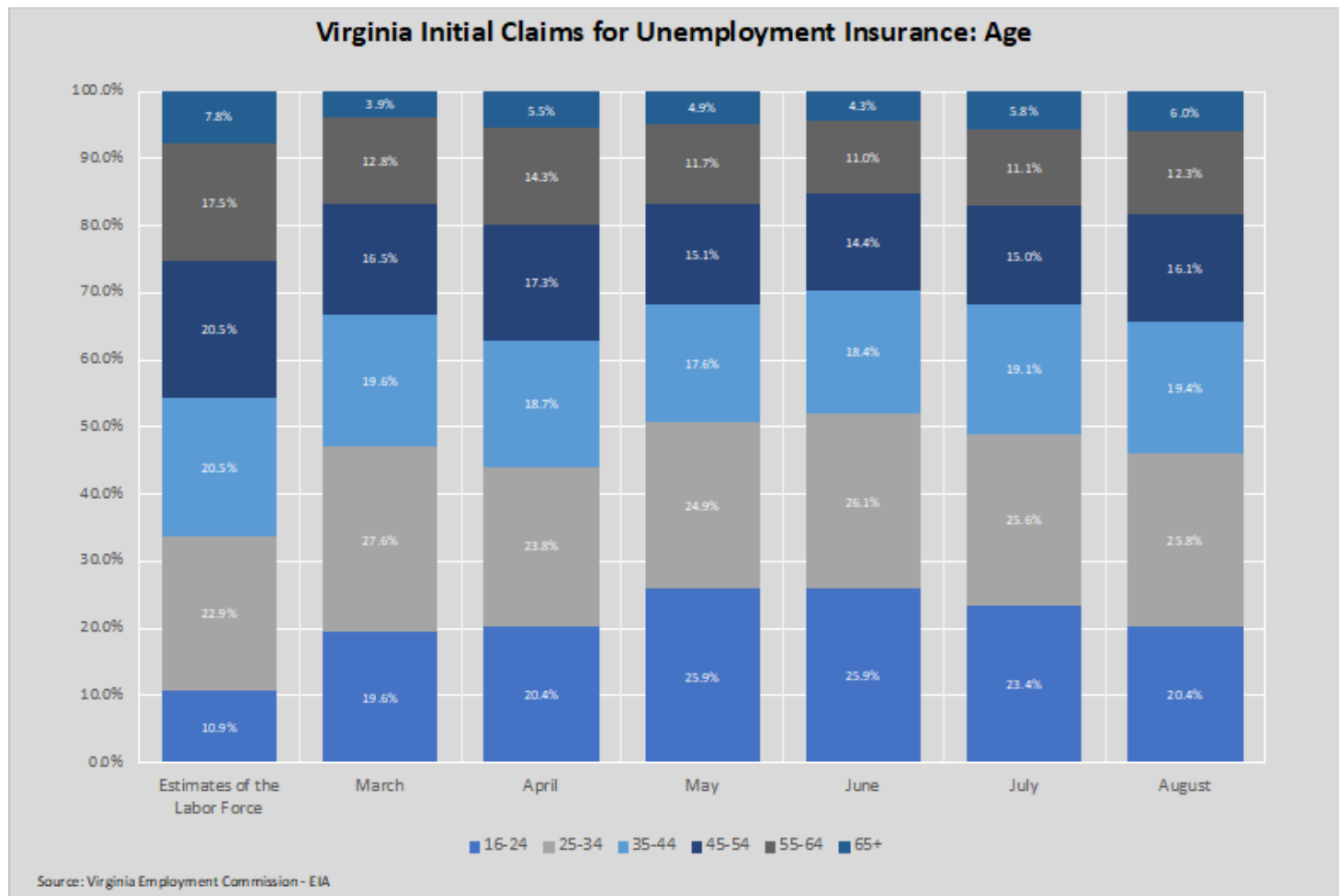


Table 5: Who has been affected by Coronavirus? Age

Virginia Initial Claims for Unemployment Insurance: Age							
	Estimates of Virginia's Workforce (%)	March (% of Monthly Claims)	April (% of Monthly Claims)	May (% of Monthly Claims)	June (% of Monthly Claims)	July (% of Monthly Claims)	August (% of Monthly Claims)
16-24	10.91%	44,377 (19.6%)	75,284 (20.4%)	42,115 (25.9%)	29,099 (25.9%)	33,506 (23.4%)	9,563 (20.4%)
25-34	22.88%	62,700 (27.6%)	87,991 (23.8%)	40,516 (24.9%)	29,324 (26.1%)	36,734 (25.6%)	12,081 (25.8%)
35-44	20.52%	44,503 (19.6%)	69,226 (18.7%)	28,615 (17.6%)	20,646 (18.4%)	27,382 (19.1%)	9,090 (19.4%)
45-54	20.49%	37,341 (16.5%)	64,080 (17.3%)	24,655 (15.1%)	16,188 (14.4%)	21,489 (15%)	7,550 (16.1%)
55-64	17.48%	29,113 (12.8%)	52,993 (14.3%)	19,043 (11.7%)	12,323 (11%)	15,894 (11.1%)	5,780 (12.3%)
65+	7.77%	8,851 (3.9%)	20,200 (5.5%)	7,959 (4.9%)	4,876 (4.3%)	8,275 (5.8%)	2,796 (6%)

Figure A: Who has been affected by Coronavirus? Age

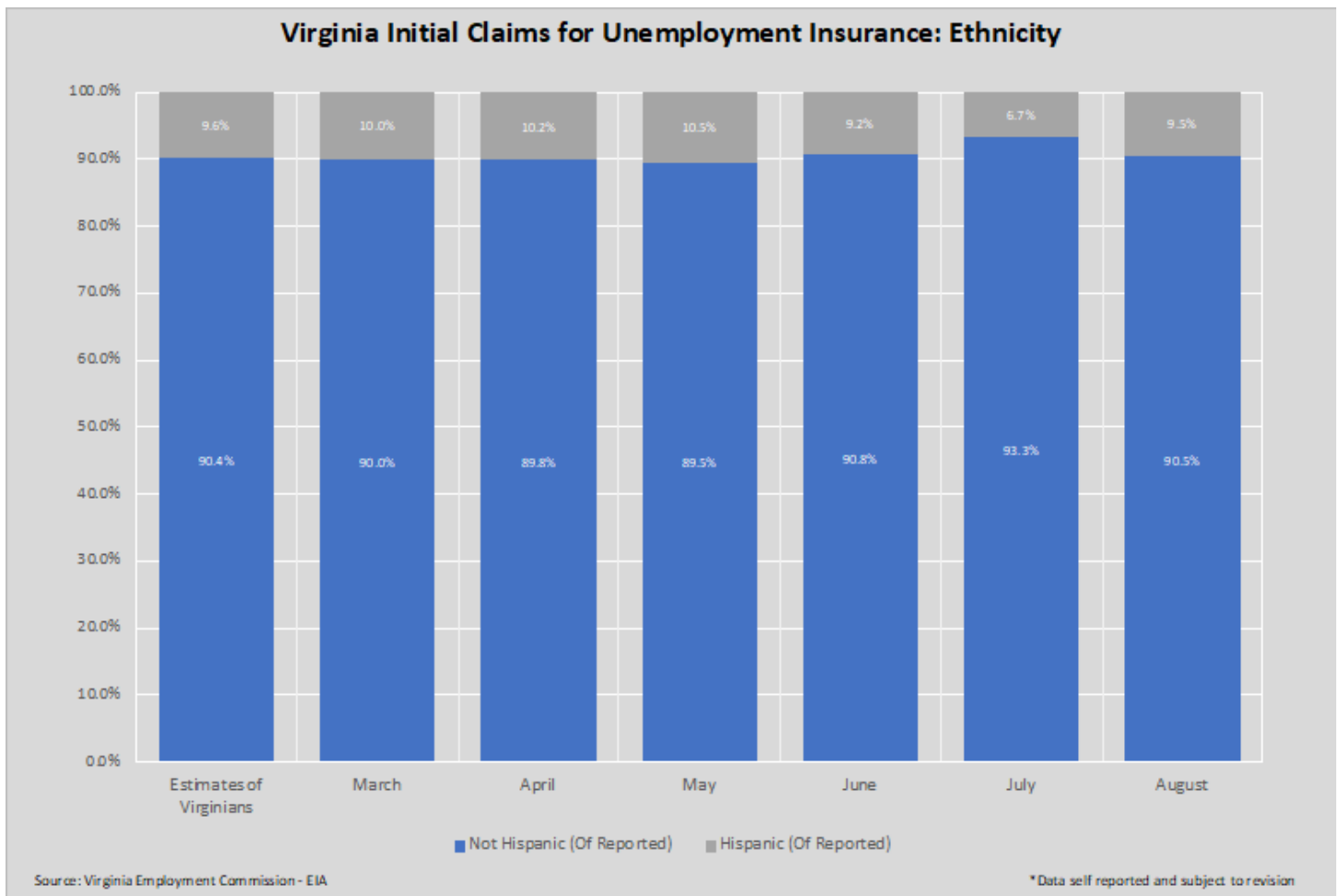


The ethnicity of workers filing for initial unemployment benefits is another important metric to explore. **Table 6** and **Figure B** show the monthly breakdown between claimants who identify as Hispanic or Latino and claimants who do not. It also includes an estimate from an American Community Survey (ACS) report of the percentage of Virginians who identify as Hispanic or Latino. According to the ACS report, an estimated 9.6% of Virginians identify as being ethnically Hispanic or Latino and the other 90.4% being non-Hispanic. Overall, the ethnicity breakdown of initial claimants has remained relatively consistent throughout the COVID-19 crisis, fluctuating around 9-10%. The month of July was the only outlier to this since the share of Hispanic or Latino claimants fell to 6.7% before jumping back up to 9.5% the following month.

Table 6: Who has been affected by Coronavirus? Ethnicity

Virginia Initial Claims for Unemployment Insurance: Ethnicity*							
	Estimates of Virginians (%)	March (% of Monthly Claims)	April (% of Monthly Claims)	May (% of Monthly Claims)	June (% of Monthly Claims)	July (% of Monthly Claims)	August (% of Monthly Claims)
Not Hispanic or Latino	90.4%	192,218 (90%)	316,691 (89.8%)	136,027 (89.5%)	90,825 (90.8%)	119,971 (93.3%)	36,744 (90.5%)
Hispanic or Latino	9.6%	21,401 (10%)	35,964 (10.2%)	15,944 (10.5%)	9,241 (9.2%)	8,674 (6.7%)	3,877 (9.5%)

Figure B: Who has been affected by Coronavirus? Ethnicity

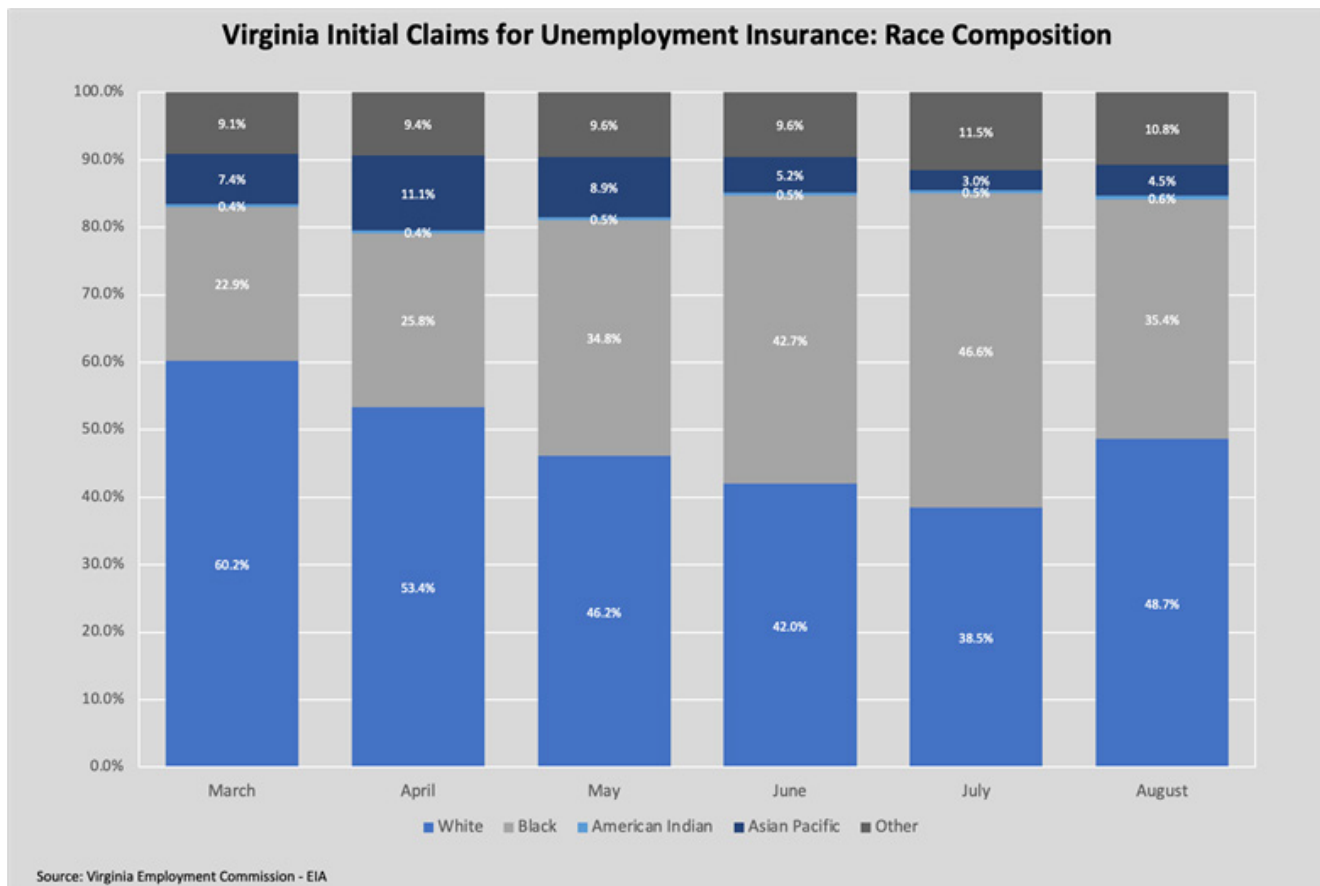


The race of people filing for initial unemployment insurance claims is another variable that should be examined. **Table 7** and **Figure C** show the race breakdown of the Virginia population according to an ACS survey from 2018. According to this survey, the majority of Virginians (84.9%) identify as either white or black. In the initial claims data, we see a similar portion of white and black claimants, fluctuating between 80-85% month-to-month. We can also see that in every month except for March, white claimants are heavily underrepresented in the claims data compared to the ACS estimates while black claimants are overrepresented. In the month of June, white and black claimants each made up roughly 42% of initial claims despite the portion of white Virginians being more than three times larger than the portion of black Virginians. This disparity leads us to believe that black workers have been more heavily affected by recession following the COVID-19 crisis. The share of Asian claimants varied greatly in the 6 months following the COVID-19 crisis, ranging from 11.1% in April to just 3% in July. Contrarily, the share of claimants who identified their race as either American Indian or "Other" remained relatively constant month-to-month, remaining around 0.5% and 10% respectively.

Table 7: Who has been affected by Coronavirus? Race

Virginia Initial Claims for Unemployment Insurance: Race							
	Estimates of Virginians (%)	March (% of Monthly Claims)	April (% of Monthly Claims)	May (% of Monthly Claims)	June (% of Monthly Claims)	July (% of Monthly Claims)	August (% of Monthly Claims)
White	65.6%	137,076 (60.2%)	201,259 (53.4%)	76,819 (46.2%)	48,104 (42%)	56,184 (38.5%)	23,801 (48.7%)
Black	19.3%	52,084 (22.9%)	97,203 (25.8%)	57,918 (34.8%)	48,885 (42.7%)	68,069 (46.6%)	17,329 (35.4%)
American Indian	0.3%	1,005 (0.4%)	1,594 (0.4%)	776 (0.5%)	561 (0.5%)	724 (0.5%)	280 (0.6%)
Asian Pacific	6.5%	16,914 (7.4%)	41,795 (11.1%)	14,808 (8.9%)	5,995 (5.2%)	4,315 (3%)	2,215 (4.5%)
Other	8.3%	20,667 (9.1%)	35,276 (9.4%)	15,893 (9.6%)	10,954 (9.6%)	16,777 (11.5%)	5,258 (10.8%)

Figure C: Who has been affected by Coronavirus? Race



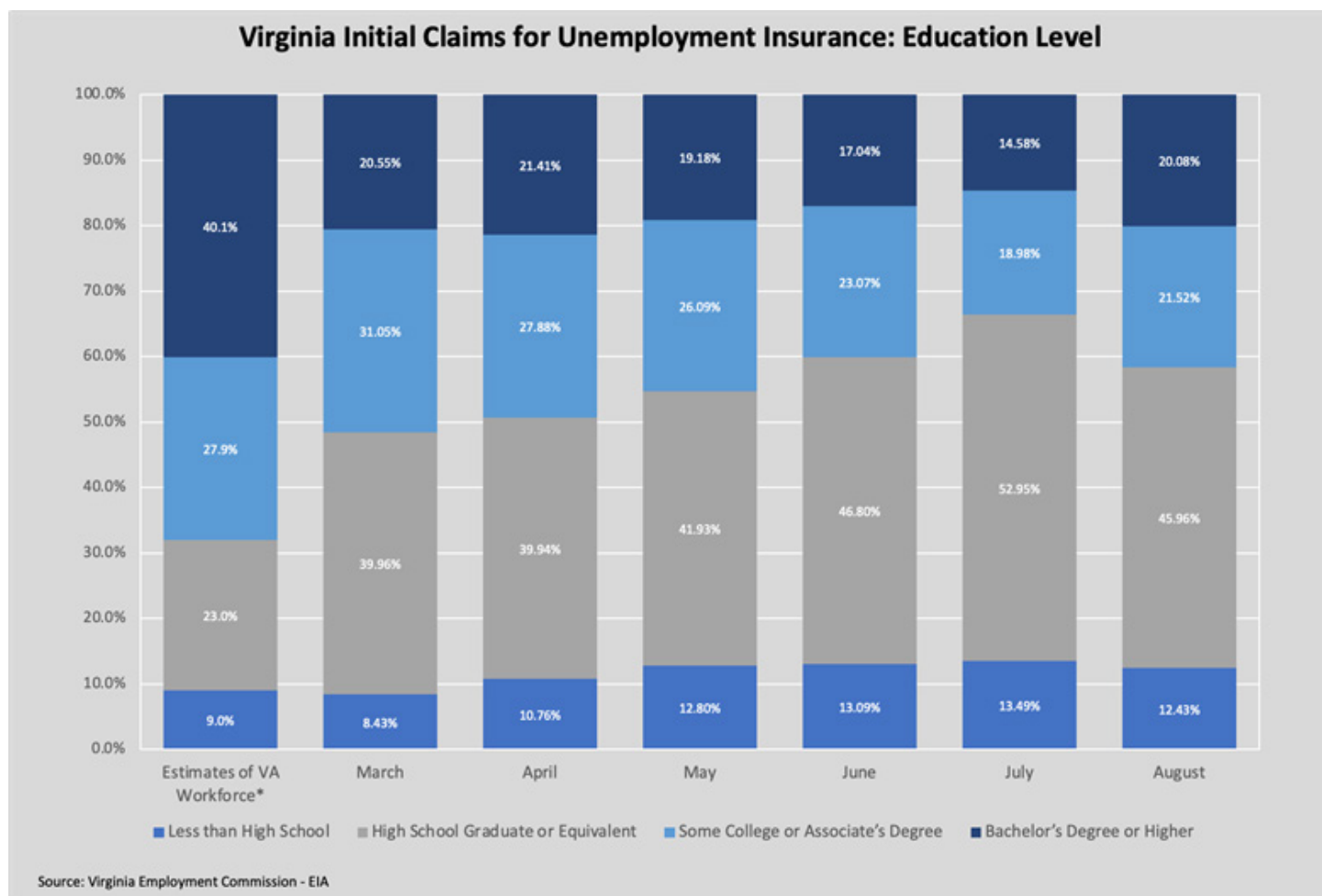
Examining the highest level of education that an initial claimant has received will help determine how the COVID-19 crisis affected different levels of the workforce. **Table 8** and **Figure D** breaks down the share of initial claimants with different levels of education achieved. The table also includes estimates from the ACS about the education level of Virginians between the ages of 25 and 64. From the table, we can see that workers with a high school diploma or less are far overrepresented compared to the ACS estimates. The ACS estimated that 9.0% of Virginians have less than a high school diploma, however, between 09-13% of initial claimants each month reported having less than a high school diploma. Similarly, the ACS estimated that 23.0% of Virginians had a high school degree, but between 40-50% of initial claimants reported the same thing. Contrarily, workers with a bachelor's degree or higher have been largely underrepresented in the pool of initial claimants. The ACS estimated that 40.1% of Virginians between the ages of 25-64 had at least a bachelor's degree. The demographics of initial claimants; however, showed that roughly 20% of workers filing an unemployment insurance claim had a bachelor's degree or higher. This disparity among workers with high school degrees and workers with bachelor's degrees leads us to believe that workers with less education have been more heavily affected by the recession than more educated workers. Looking ahead at **Table 13** we see that two of the occupations with large numbers of claimants were retail and food occupations. Together these two conclusions seem reasonable since many of the jobs in these occupations do not require a college degree.



Table 8: Who has been affected by Coronavirus? Educational Attainment

Virginia Initial Claims for Unemployment Insurance: Educational Attainment							
	Estimates of Virginians* (%)	March (% of Monthly Claims)	April (% of Monthly Claims)	May (% of Monthly Claims)	June (% of Monthly Claims)	July (% of Monthly Claims)	August (% of Monthly Claims)
Less than High School	9.0%	18,843 (8.4%)	39,510 (10.8%)	20,666 (12.8%)	14,715 (13.1%)	19,323 (13.5%)	5,824 (12.4%)
High School Graduate or Equivalent	23.0%	89,272 (40%)	146,619 (39.9%)	67,687 (41.9%)	52,619 (46.8%)	75,844 (52.9%)	21,531 (46%)
Some College or Associate's Degree	27.9%	69,370 (31.1%)	102,345 (27.9%)	42,124 (26.1%)	25,942 (23.1%)	27,185 (19%)	10,081 (21.5%)
Bachelor's Degree or Higher	40.1%	45,921 (20.6%)	78,583 (21.4%)	30,955 (19.2%)	19,157 (17%)	20,886 (14.6%)	9,408 (20.1%)

Figure D: Who has been affected by Coronavirus? Educational Attainment



The gender of initial claimants is yet another factor that we should explore. According to estimates from the BLS, approximately 53.0% of Virginia's labor force is male and 47.0% is female. **Table 9** and **Figure E** show the monthly breakdown in the gender of initial claimants. In the first months of the COVID-19 crisis, female claimants accounted for a considerably larger share of initial claims than the BLS estimates would suggest. During the month of March, 61% of all initial claims were filed by female workers, with a similar 55.7% in April. One possible explanation for this is highlighted in **Table 13** with the occupations of initial claimants. During the months of March and April, three of the largest shares of claimants came from Food Preparation and Serving Related Occupations, Personal Care and Service Occupations and Sales and Related Occupations. These occupations include jobs like servers, cooks, retail workers, hair stylists and childcare workers. These jobs, and other similar jobs in those occupation groups, typically employ more female workers which could lead to the gender discrepancy during the first few months. During the later months we see the gender breakdown become more equitable and more similar to the BLS estimates for Virginia's labor force. Overall, the gender breakdown leads us to believe that during the beginning of the COVID-19 crisis, female workers were more heavily impacted than male workers, however, recently it has become more equal.

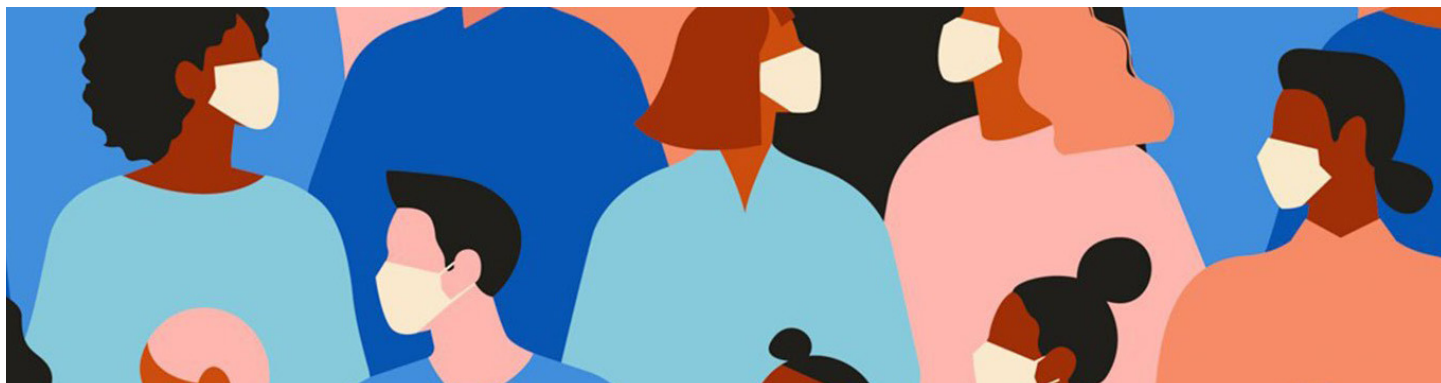
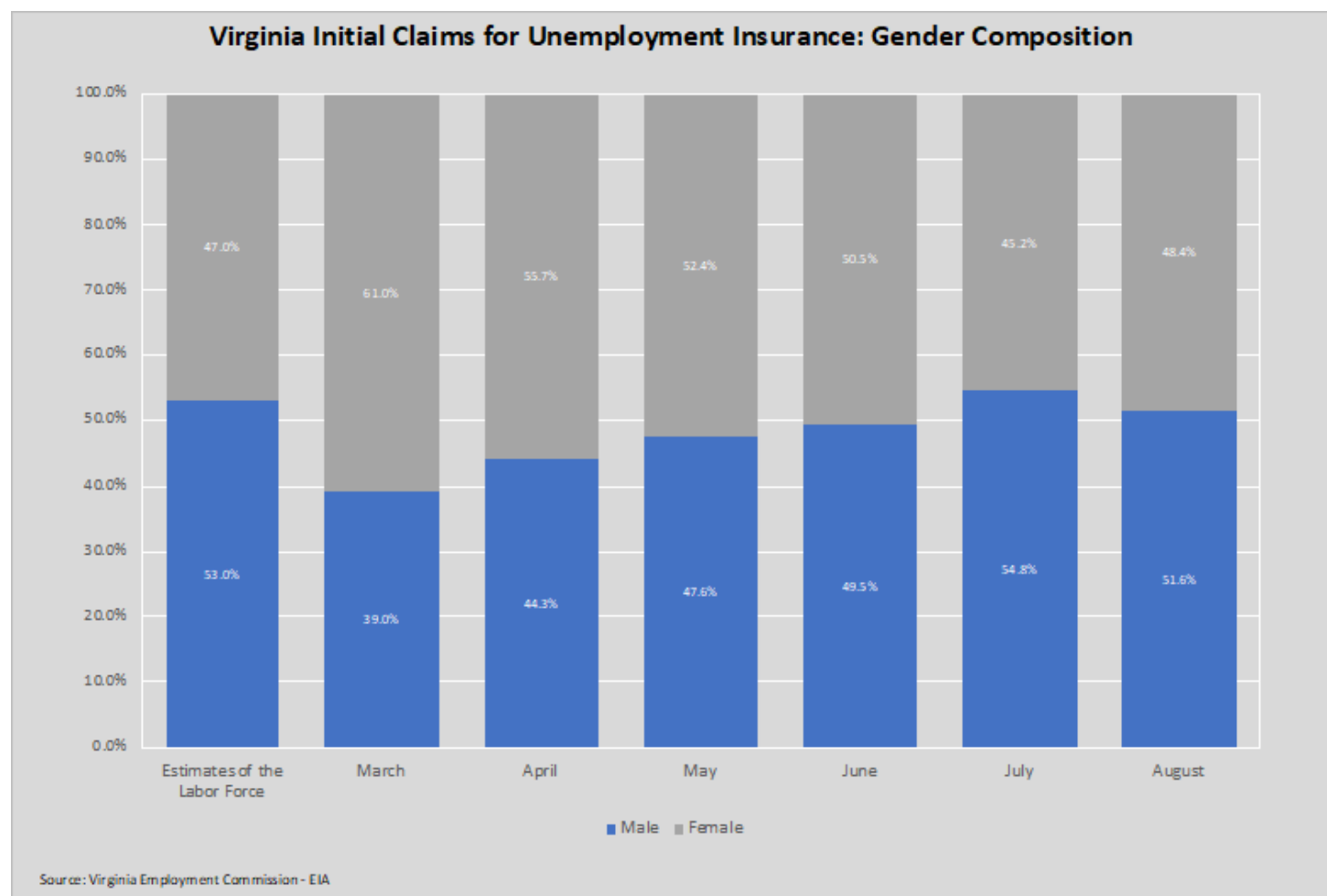


Table 9: Who has been affected by Coronavirus? Gender

Virginia Initial Claims for Unemployment Insurance: Gender							
	Estimates of Virginia's Workforce (%)	March (% of Monthly Claims)	April (% of Monthly Claims)	May (% of Monthly Claims)	June (% of Monthly Claims)	July (% of Monthly Claims)	August (% of Monthly Claims)
Male	53.0%	88,829 (39%)	167,019 (44.3%)	79,174 (47.6%)	56,647 (49.5%)	80,013 (54.8%)	25,239 (51.6%)
Female	47.0%	138,917 (61%)	210,108 (55.7%)	87,040 (52.4%)	57,852 (50.5%)	66,056 (45.2%)	23,644 (48.4%)

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates

Figure E: Who has been affected by Coronavirus? Gender

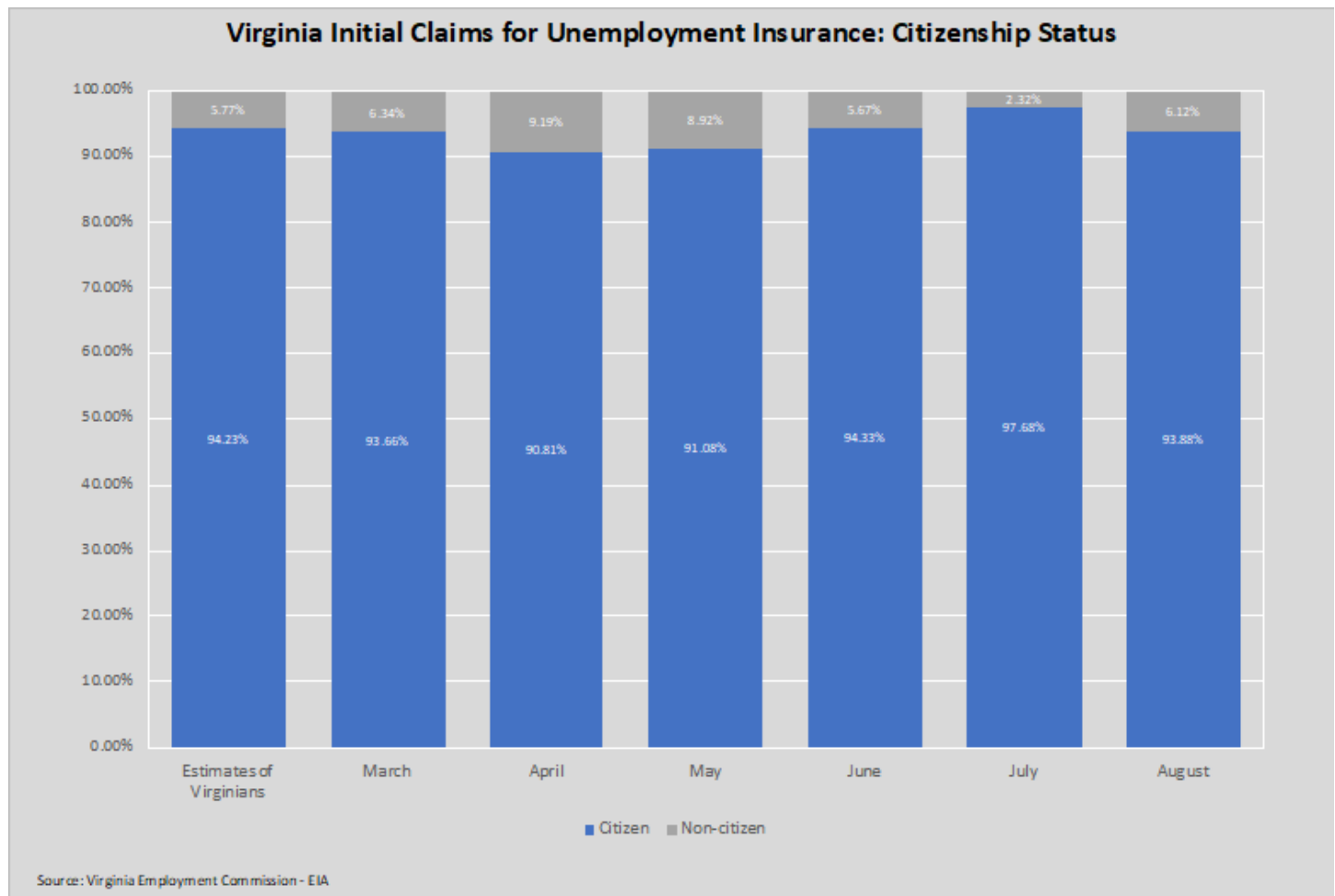


Also, we should examine the citizenship status of initial claimants to determine if there are any discrepancies. According to a 2018 ACS survey, roughly 94.2% of Virginians are citizens and 5.8% are non-citizens. **Table 10** and **Figure F** show us the ACS estimates along with the monthly initial claim breakdowns between citizens and non-citizens. Overall, the share of initial claimants who identify themselves as non-citizens fluctuates somewhat month-to-month, reaching a peak in April with 9.2% and a low in July of 2.3%. Averaging the 6 months of claims data shows us that an average of 6.4% of initial claimants identify as non-citizens. This is close to the ACS estimates, so there's nothing that leads us to believe that non-citizen workers have been affected more or less than their citizen counterparts.

Table 10: Who has been affected by Coronavirus? Citizenship Status

Virginia Initial Claims for Unemployment Insurance: Citizenship Status							
	Estimates of Virginians (%)	March (% of Monthly Claims)	April (% of Monthly Claims)	May (% of Monthly Claims)	June (% of Monthly Claims)	July (% of Monthly Claims)	August (% of Monthly Claims)
Citizen	94.2%	213,311 (93.7%)	342,486 (90.8%)	151,385 (91.1%)	108,002 (94.3%)	142,673 (97.7%)	45,889 (93.9%)
Non-Citizen	5.8%	14,435 (6.3%)	34,641 (9.2%)	14,829 (8.9%)	6,497 (5.7%)	3,396 (2.3%)	2,994 (6.1%)

Figure F: Who has been affected by Coronavirus? Citizenship Status



Tables 11 through 13 look at unemployment claimants in terms of occupations and industries. The bulk of claimants come from those positions and industries that traditionally have higher rates of turnover. What is of particular note is the spread between the two extremes of the top ten occupations and industries. There is a difference of 32,482 claimants between the Retail Sales Workers and Building Cleaning and Pest Control Workers. All of the occupations in the top 10 are service and retail focused which has been severely impacted by Coronavirus. Even more stark is the 55,899 claimant difference between Accommodation and Food Services and Construction. Accommodation and Food Services make up almost 32 percent of the total top 10 industry claims making it obvious how drastic the pandemic has been to this industry.

Table 11: Top 10 Occupations by Number of Claimants, July 2020

Retail Sales Workers	54,253
Food and Beverage Serving Workers	51,683
Personal Appearance Workers	41,995
Information and Record Clerks	36,651
Motor Vehicle Operators	36,527
Other Management Occupations	28,356
Other Personal Care and Service Workers	27,722
Construction Trades Workers	27,265
Cooks and Food Preparation Workers	26,626
Building Cleaning and Pest Control Workers	21,771
Total	352,849

Source: Virginia Employment Commission

Table 12: Top 10 Industries by Number of Claimants, July 2020

Accommodation and Food Services	64,467
Retail Trade	28,984
Health Care and Social Assistance	24,744
Administration and Support, Waste Management and Remedial Services	19,074
Public Administration	17,136
Manufacturing	11,939
Professional, Scientific, and Technical Services	9,857
Educational Services	9,028
Transportation and Warehousing	8,796
Construction	8,568
TOTAL	202,593

Source: Virginia Employment Commission

Looking at the SOC codes of workers filing initial claims in **Table 13** shows the different two-digit SOC codes and the share of initial claim which each one is responsible for during the six month period. During the beginning of the crisis in March, workers in the *Food Preparation and Serving Related Occupations* (35-0000) made up the largest share of initial claims with 21.2%. This is likely because the first establishments to be shut down or restricted were restaurants. In the months that followed, the share of claims by workers in *Food Preparation and Serving Related Occupations* (35-0000) fell closer to 8%. Workers from *Management Occupations* (11-0000), *Sales and Related Occupations* (41-000) and *Office and Administrative Support Occupations* (43-0000) all accounted for large shares of initial claims filings between March and August. Workers from *Management Occupations* (11-0000), which includes managers and top executives, made up between 6-8% of initial claims each month. *Sales and Related Occupations* (41-000), including retail workers, supervisors and sales representatives, made up between 10% and 12% of initial claims each month. This is likely because many stores implemented reduced hours or closed entirely following restrictions by the Governor's office. Finally, workers from *Office and Administrative Support Occupations* (43-0000) made up the last large group of

workers filing claims, accounting for roughly 10-12% of initial claims in any month. This occupation code includes office supervisors, administrative assistants, clerks and secretaries. A large number of businesses transitioned to remote working or working from home during the COVID-19 crisis, likely leading to an increase in layoffs among this occupation group.

Table 13: Who has been affected by Coronavirus? Occupations

Virginia Initial Claims for Unemployment Insurance: 2-Digit SOC						
	March (% of Monthly Claims)	April (% of Monthly Claims)	May (% of Monthly Claims)	June (% of Monthly Claims)	July (% of Monthly Claims)	August (% of Monthly Claims)
11-0000	15,359 (8.7%)	24,622 (8.2%)	9,138 (6.8%)	6,944 (6.6%)	8,793 (6.5%)	3,769 (8.5%)
13-0000	3,967 (2.3%)	7,493 (2.5%)	3,591 (2.7%)	2,722 (2.6%)	3,166 (2.3%)	1,407 (3.2%)
15-0000	2,964 (1.7%)	5,969 (2%)	3,170 (2.4%)	2,435 (2.3%)	2,468 (1.8%)	1,276 (2.9%)
17-0000	1,241 (0.7%)	2,960 (1%)	1,792 (1.3%)	1,475 (1.4%)	1,922 (1.4%)	849 (1.9%)
19-0000	953 (0.5%)	1,922 (0.6%)	1,101 (0.8%)	808 (0.8%)	861 (0.6%)	322 (0.7%)
21-0000	2,030 (1.2%)	3,405 (1.1%)	1,674 (1.2%)	1,340 (1.3%)	1,255 (0.9%)	562 (1.3%)
23-0000	687 (0.4%)	1,451 (0.5%)	553 (0.4%)	427 (0.4%)	503 (0.4%)	202 (0.5%)
25-0000	5,882 (3.3%)	9,639 (3.2%)	4,227 (3.1%)	4,011 (3.8%)	3,215 (2.4%)	1,288 (2.9%)
27-0000	5,107 (2.9%)	10,680 (3.6%)	4,896 (3.6%)	3,778 (3.6%)	4,880 (3.6%)	1,541 (3.5%)
29-0000	7,879 (4.5%)	13,890 (4.6%)	5,274 (3.9%)	3,351 (3.2%)	3,317 (2.4%)	1,349 (3%)
31-0000	8,451 (4.8%)	12,173 (4.1%)	5,614 (4.2%)	4,027 (3.8%)	3,949 (2.9%)	1,686 (3.8%)
33-0000	1,544 (0.9%)	3,341 (1.1%)	2,014 (1.5%)	1,643 (1.6%)	1,621 (1.2%)	656 (1.5%)
35-0000	37,247 (21.2%)	32,682 (10.9%)	12,770 (9.5%)	8,561 (8.1%)	11,358 (8.4%)	3,396 (7.6%)
37-0000	4,583 (2.6%)	8,524 (2.8%)	4,984 (3.7%)	5,567 (5.3%)	8,890 (6.6%)	2,296 (5.1%)
39-0000	18,686 (10.6%)	27,907 (9.3%)	10,540 (7.8%)	8,262 (7.8%)	15,510 (11.4%)	3,259 (7.3%)
41-0000	13,780 (7.8%)	34,404 (11.5%)	13,936 (10.4%)	10,562 (10%)	16,510 (12.2%)	4,525 (10.1%)
43-0000	18,428 (10.5%)	34,945 (11.7%)	16,208 (12.1%)	12,243 (11.6%)	13,075 (9.6%)	5,137 (11.5%)
45-0000	296 (0.2%)	726 (0.2%)	414 (0.3%)	523 (0.5%)	684 (0.5%)	210 (0.5%)
47-0000	4,129 (2.3%)	11,048 (3.7%)	6,661 (5%)	6,595 (6.3%)	10,313 (7.6%)	3,081 (6.9%)
49-0000	5,045 (2.9%)	11,960 (4%)	5,211 (3.9%)	4,046 (3.8%)	5,312 (3.9%)	1,716 (3.8%)
51-0000	7,642 (4.3%)	15,353 (5.1%)	7,379 (5.5%)	5,976 (5.7%)	7,158 (5.3%)	2,524 (5.7%)
53-0000	9,741 (5.5%)	24,344 (8.1%)	13,134 (9.8%)	9,965 (9.5%)	10,756 (7.9%)	3,498 (7.8%)
55-0000	73 (0%)	147 (0%)	83 (0.1%)	93 (0.1%)	88 (0.1%)	38 (0.1%)

The alternative measures of labor underutilization produced by the Bureau of Labor Statistics (BLS) provides six measures of unemployment, each with varying degrees of exclusivity³. The most recent four-quarter average for the alternative measures of labor underutilization ends with the second quarter of 2020. Not surprising, as evidenced in **Table 14**, most measures increased since the last four-quarter average. The increase of the alternative measures signals the current economic downturn we are experiencing in Virginia. Looking at over-the-year changes, all measures are up with the exception of U-1 which decreased by 0.1 points over the year. U-6 again had the greatest transformation with a 2.1 percentage point decline from the same point last year. See Figure G for a depiction of historical values and trends.

Table 14: Alternative Measures of Labor Underutilization

Measurement	Virginia's current 4 quarter average (2019:III – 2020:II)	Virginia's previous 4 quarter average (2019:II – 2020:I)	National Data (2019:III – 2020:II)	Virginia's 4 quarter average from previous year (2018:III – 2019:II)
U-1	0.9	0.9	1.3	1.0
U-2	2.8	1.1	4.1	1.2
U-3*	4.4	2.6	5.9	2.9
U-4	4.6	2.8	6.2	3.1
U-5	5.2	3.5	6.9	3.7
U-6	8.5	6.0	10.4	6.4

Source: Bureau of Labor Statistics "Alternative Measures of Labor Underutilization for States"

* Measurement utilized as the "official" unemployment rate, defined as the total number of unemployed reported as a percentage of the civilian labor force

Note: Quarters reflect calendar year and not Virginia's fiscal year. National Data is seasonally adjusted.

Comparing Virginia's underutilization to that of the nation, **Table 14** illustrates that the Commonwealth continues to outperform the national average across every measure as it has since data collection began in 2003. Only 23 other states are currently below the national average in every measure. Furthermore, Virginia has the lowest underutilization rates of all neighboring states in every measure. North Carolina is the only other state below the nation in all measures, West Virginia is above the national average across all six measures.

In **Table 15** we show the measures of job-seeker discouragement and underemployment. As stated above, U-6 suggests that Virginia currently has adequate labor demand for the current underemployed and discouraged populations. This may be in part due to the change (or lack thereof) in these populations. In the most recent quarter and over-the-year, job-seeker discouragement remained steady at 0.2 percent. However, our measure of underemployment has inched upward 0.8 percentage point from last quarter to 3.3 percent, and is up a full 0.6 percentage point over-the-year. The national average behaved similarly, with Virginia slightly outperforming on the measure of discouragement, and remaining at slightly below the country for underemployment. See **Figure H** for a historical depiction of job-seeker discouragement and underemployment.

Table 15: Underemployment and Job Seeker Discouragement

Measurement	Virginia's current 4 quarter average (2019:III – 2020:II)	Virginia's previous 4 quarter average (2019:II – 2020:I)	National Data (2019:III – 2020:II)	Virginia's 4 quarter average from previous year (2018:III – 2019:II)
Underemployment	3.3	2.5	3.5	2.7
Job Seeker Discouragement	0.2	0.2	0.3	0.2

Source: Virginia Employment Commission, quarterly Labor Supply and Demand report

³ For a thorough analysis of unemployment in the Commonwealth, please refer to the Virginia Employment Commission's Economic Information & Analytics Division publication, "Labor Supply and Demand in Virginia." All versions can be found at <https://virginiaworks.com/publications/labor-supply-demand>

Overall, Virginia's measures of labor underutilization were fairly stagnated prior to COVID-19, but have steeply increased in the past quarter. This suggests that the labor market is currently at a deficient between the supply of and demand for labor. While not at levels seen in the Great Recession this is yet another signal that the labor market is not in balance and there is an abundance of available labor. People are now focusing on regaining employment, whereas before COVID-19 individuals were showing signs of looking for a better job rather than an adequate one.

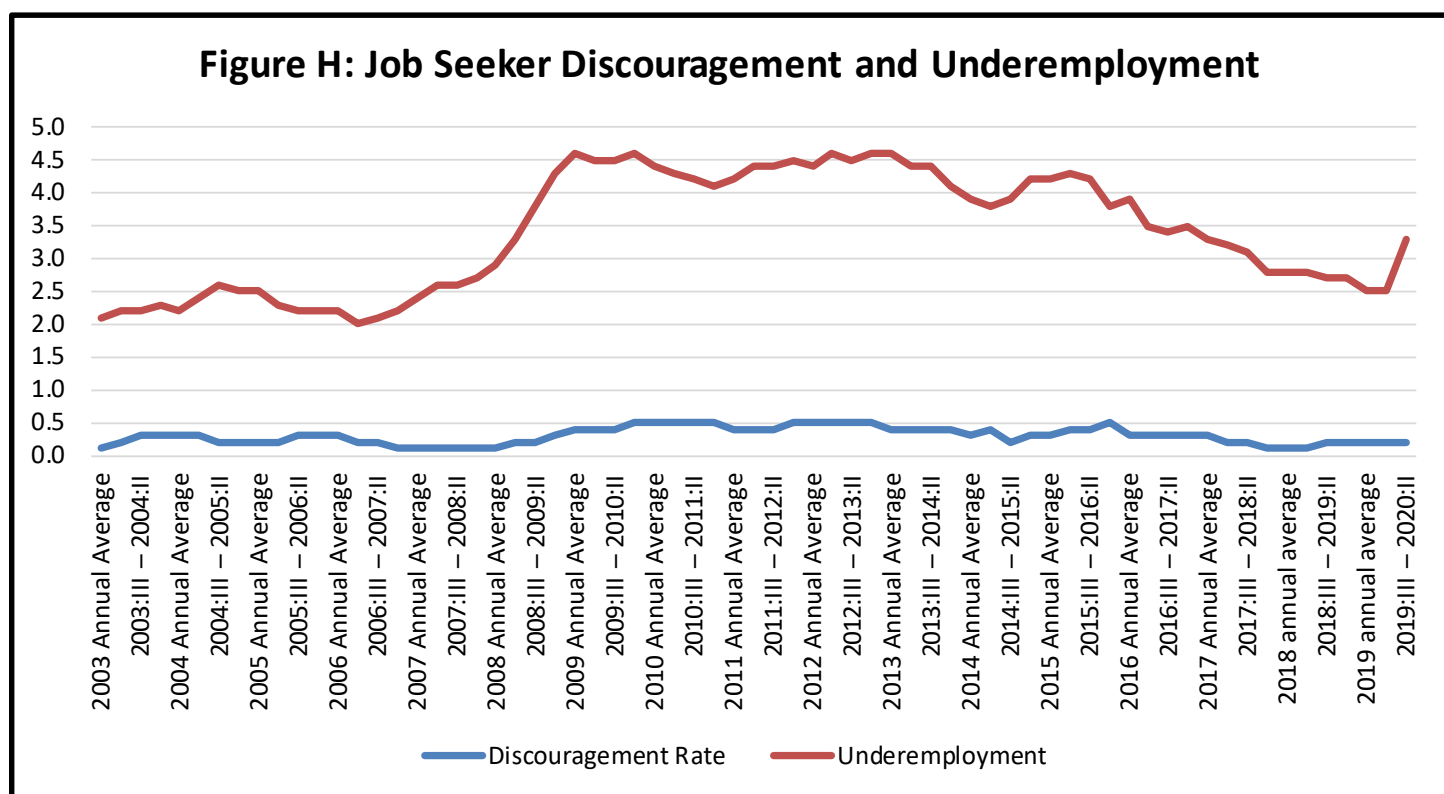
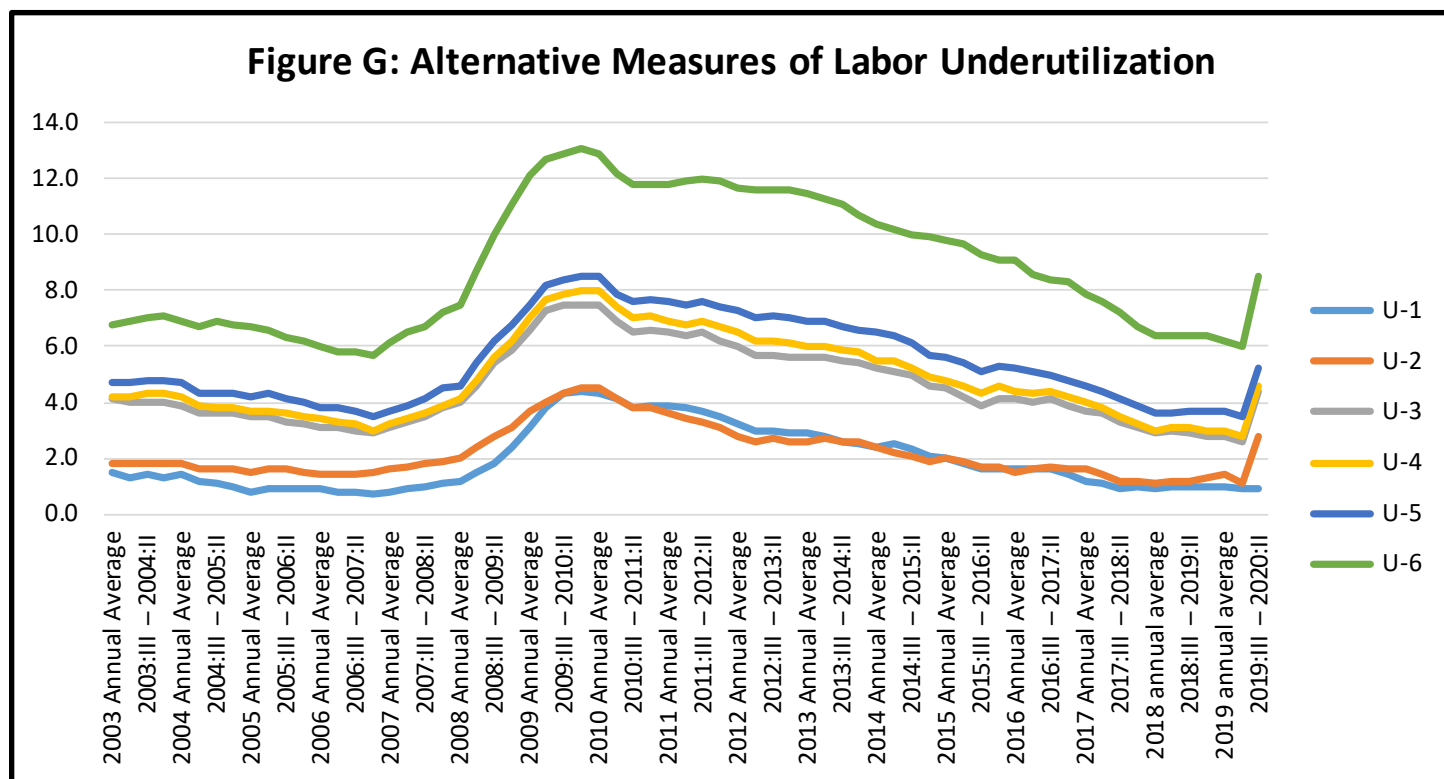


Table 16 builds upon the topic of unemployment by examining the changing poverty rates across the Commonwealth. Many of the populations examined have seen a decrease in the percentage living below the poverty level of the last 4 years. However, the smaller changes in groups such as men and women may be more reflective of the growing populations and less so of an increase in poverty rates. This optimistic explanation does little for groups such as those with less than a bachelor's degree, which while having seen a minor decrease in those living below poverty over the 4 years, largely encompasses the impoverished in Virginia. Much of this is likely due to slow wage growth, which has been a concern across the country.

Table 16: Poverty in the Commonwealth

Subject	Population	2013 Estimate		2018 Estimate	
		Population	Percent Below Poverty Level	Population	Percent Below Poverty Level
Age	Under 18 Years	1,829,571	14.9%	1,839,399	14.5%
	18 to 64 Years	5,027,888	14.6%	5,119,087	10.5%
	65 Years and Over	996,677	10.7%	1,203,621	7.6%
Sex	Male	3,821,772	10.0%	3,980,770	9.8%
	Female	4,031,364	12.5%	4,181,337	12.1%
Race	White, not Hispanic or Latino	5,073,482	8.5%	5,094,343	8.4%
	Black or African American	1,481,461	19.8%	1,539,083	18.6%
	American Indian and Alaska Native	23,536	14.8%	21,819	13.7%
	Asian	449,879	8.3%	521,950	7.4%
	Native Hawaiian and other Pacific Islander	5,215	12.9%	5,250	7.4%
	Hispanic or Latino	641,992	15.5%	750,196	14.7%
Educational Attainment	Less than High School	649,107	22.3%	588,583	22.1%
	High School Graduate or GED	1,330,476	11.3%	1,341,777	11.9%
	Some College or Associate's	1,448,625	7.5%	1,525,006	8.1%
	Bachelor's Degree or Higher	1,902,754	3.0%	2,177,608	3.2%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates

Recent trends of labor force participation by demographic are shown in **Table 17**. This is the most optimistic of the pre-pandemic labor market, as nearly every demographic and region of the state has seen labor force participation rates increase. In fact all age cohorts experienced an increase in their participation rates while all demographics shown had a decrease in their unemployment rates. The population experiencing great labor force participation are the cohorts of those with largest rate increases are younger Virginians. 20 to 24 increased by 1.4% from 74.4% to 75.8%.

The next largest increase was in those 75 years and older whose participation rate increased from 6.3% to 7.2%. These 2 age cohorts have also largely seen decreases in their unemployment rates.

This would appear to be a byproduct of older individuals remaining in the workforce longer as well as reentering the labor force. Recent increases in the wages for highly skilled workers, coupled with a widening skills gap, is creating an environment where older workers are more akin to price setters, than price takers.

The fear of an aging workforce, with a weakened retirement plan from the previous recession, remaining in the labor force and not allowing recent college graduates to access those employment opportunities seems to be less of an issue in the Commonwealth, due to the favorable labor market conditions in Northern Virginia, as the labor force participation rates of college graduates continues to increase while unemployment rates for the same group show little movement.

Most of these trends will not remain once data from the current economic crisis has been analyzed. It will very important to look how these metrics shift in the post-pandemic economy. For instance, will those in the older cohorts remain in the labor force or will they transition out of the working population.

Table 17: Employment Status of Virginians by Demographic

Subject	2013 Estimate			2018 Estimate		
	Population	Labor Force Participation Rate	Unemployment Rate	Population	Labor Force Participation Rate	Unemployment Rate
16 to 19 Years	444,395	37.9%	25.5%	442,366	38.5%	17.8%
20 to 24 Years	581,283	74.4%	14.4%	583,501	75.8%	9.9%
25 to 44 Years	2,218,709	84.1%	6.5%	2,266,739	84.3%	4.7%
45 to 54 Years	1,292,949	82.4%	6.5%	1,157,090	82.5%	3.5%
55 to 64 Years	982,994	66.8%	4.6%	1,076,277	68.0%	3.0%
65 to 74 Years	586,264	27.4%	3.7%	732,740	28.2%	2.7%
75 Years and Over	437,022	6.3%	4.4%	497,506	7.2%	2.2%
White, not Hispanic or Latino	4,289,771	65.4%	5.8%	4,345,227	64.1%	4.1%
Black or African American	1,20,927	65.7%	12.1%	1,281,031	66.1%	8.1%
American Indian and Alaska Native	20,640	67.0%	8.5%	19,074	66.0%	7.0%
Asian	363,159	71.0%	5.4%	431,271	69.2%	3.7%
Native Hawaiian or Other Pacific Islander	4,578	80.3%	13.2%	4,508	72.0%	5.9%
Hispanic or Latino	466,070	77.8%	7.9%	544,803	76.0%	5.0%
Male*	2,465,569	84.1%	6.9%	2,522,809	84.1%	4.6%
Female*	2,520,366	74.4%	6.4%	2,560,798	74.9%	4.7%
Less than High School**	449,416	61.1%	12.3%	405,359	61.2%	7.8%
High School Graduate or Equivalent**	1,060,312	75.3%	7.8%	1,034,503	73.6%	5.6%
Some College or Associate's Degree**	1,250,073	81.2%	6.1%	1,255,219	80.1%	4.3%
Bachelor's Degree or Higher**	1,644,851	86.7%	3.1%	1,805,025	87.6%	2.4%
With Any Disability	442,257	42.9%	14.9%	470,580	44.7%	10.8%

*For the 20 to 64 year old population

**For the 25 to 64 year old population

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates

Education and Skill Levels of the Virginia Workforce

Virginia is a well-educated state. At both the state and local level, less than four percent of job seekers have below a high school diploma or equivalent. The highest rates of post-bachelor's degree attainment are in the Northern Virginia and Alexandria/Arlington LWDAs, as can be expected after seeing the high wages, employment, and participation rates of the region. **Table 18** shows that more than 53 percent of Virginia's job-seekers have some type of college degree. For those that do obtain a bachelor's degree or higher, the median income increases drastically, far surpassing the statewide average as shown in **Table 19**.

Table 18: Educational Attainment of Available Candidates

Education Level	Potential Candidates (Percent of Total Candidates)*
Less than High School	5,649 (3.81%)
High School Diploma or Equivalent	58,399 (39.38%)
Vocational School Certificate	6,428 (4.33%)
Associate's Degree	21,613 (14.57%)
Bachelor's Degree	25,536 (17.22%)
Master's Degree	9,432 (6.36%)
Doctorate or Specialized Degree (i.e. MD, DDS)	1,505 (1.01%)

*Candidates are defined as individuals with an active resume in the Virginia Workforce Connection
Source: Virginia Employment Commission

Table 19: Median Annual Earnings by Educational Attainment

	2014 Estimate	2018 Estimate
Less than High School Graduate	\$21,618	\$24,999
High School Graduate or Equivalent	\$29,421	\$31,115
Some College or Associate's Degree	\$36,525	\$38,020
Bachelor's Degree	\$55,637	\$59,150
Graduate or Professional Degree	\$79,472	\$82,833
Average	\$41,263	\$44,378

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates



Veterans, Children and Individuals with Disabilities: Barriers to Employment in Virginia

Throughout this analysis, we have touched on various aspects relating to individuals with barriers to employment. According to the Workforce Innovation and Opportunity Act, barriers to employment include having a disability, homelessness, low income individuals, individuals with significant cultural barriers, older individuals, individuals who are English language learners, American Indians, Alaska Natives, Native Hawaiians, the long-term unemployed, and

others. Unfortunately, substantial data shortcomings exist which prevent a thorough and even analysis of all of these populations. In this section, we highlight available data discussed throughout this analysis, as well as highlighting three key populations; veterans, children, and the homeless.

Due to Virginia's larger than average veteran population, it is worth addressing each of the groups separately. **Table 20** illustrates the changing veteran population since 2010. What jumps out most starkly is the strong decreasing veteran population, even as the non-veteran population continues to rise. Though the exact reason for this may be unknown, one possibility is that individuals that leave the military through any of Virginia's many bases are staying in the Commonwealth at a decreasing rate. Another possibility is that, as the total number of individuals in the U.S. Armed Forces has decreased over time, obviously fewer veterans are created by definition.

As **Table 20** demonstrates, despite its causes, losing veterans from Virginia's potential labor force means losing a very economically valuable resource. Aside from the unquantifiable skills offered by the veteran community, veterans are also more highly educated than the non-veteran population, which as was stated earlier equates to a higher median income. Furthermore, this educated population also has a substantially higher labor force participation rate, and a much lower unemployment rate. All in all, by attracting the veteran population to remain in Virginia, the state economy stands to benefit greatly.

Table 20: Virginia's Veteran Population, Recent Trend

Subject	2013		2015		2018	
	Veteran	Non-Veteran	Veteran	Non-Veteran	Veteran	Non-Veteran
Population Estimate (18 Years and Over)	726,470	5,403,152	706,539	5,575,445	684,480	5,747,359
Male	88.1%	42.5%	87.6%	43.0%	86.6%	43.5%
Female	11.9%	57.5%	12.4%	57.0%	13.4%	56.6%
18 to 34 Years	11.7%	32.7%	11.8%	32.7%	11.3%	31.9%
35 to 54 Years	32.6%	37.6%	32.1%	36.3	31.3%	34.9%
55 to 64 Years	22.2%	15.2%	20.5%	15.8%	19.8%	16.4%
65 Years and Over	33.5%	14.4%	35.6%	15.3%	37.6%	16.9%
White, not Hispanic or Latino	73.0%	65.9%	72.0%	65.0%	70.2%	63.9%
Black or African American	20.2%	18.6%	20.5%	18.6%	20.9%	18.7%
American Indian and Alaska Native	0.4%	0.3%	0.4%	0.3%	0.4%	0.3%
Asian	1.6%	6.3%	1.7%	6.6%	2.0%	7.0%
Native Hawaiian and Other Pacific Islander	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Hispanic or Latino	3.7%	7.5%	4.1%	7.9%	4.8%	8.3%
Less than High School	6.7%	13.6%	6.2%	12.6%	5.3%	11.6%
High School Graduate	22.9%	25.7%	22.3%	25.4%	21.1%	24.7%
Some College or Associate's Degree	34.5%	25.7%	34.4%	26.0%	34.1%	25.9%
Bachelor's Degree or Higher	35.9%	35.0%	37.18%	36.1%	39.5%	37.8%
Labor Force Participation Rate	82.0%	76.8%	--	--	82.9%	77.3%
Unemployment Rate	5.2%	7.3%	--	--	3.6%	5.1%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimate

Note: Totals may not sum due to rounding

Children are another important group to focus on. As they are not yet a part of the labor force, the under 18 population can often be over-looked in economic analyses. However, as they represent the future of the labor market, it is important to understand as much as possible about the youngest cohort. Furthermore, the better the literacy and poverty rates for children, the better the economy can be assumed to perform now and in the future.

Beginning with the positives, **Table 21** shows that 90 percent of children between the ages of 3 and 17 are enrolled in school. Furthermore, while the population of children in Virginia has increased since 2013, it has done

so at a modest pace while also maintaining most proportions across age brackets and demographics. However, the percent of children living below the poverty level, as well as the percent receiving public assistance, has remained relatively similar over the last five years. The highest incidences of poverty and public assistance are found in female-lead households where the husband is not present. The median income for female-led households is substantially lower than all other groups, with nearly half of children in these households receiving public assistance, and almost 40 percent being below the poverty level. These two figures have remained steady over the past five years, likely a partial result of being the only type of household with stagnant income levels.

Table 21: Children in the Commonwealth

Subject	Total		In Married-Couple Family Household		In Male Head of Household, no wife present		In Female Head of Household, no husband present	
	2013	2018	2013	2018	2013	2018	2013	2018
Children Under 18 Years	1,850,274	1,862,261	1,288,185	1,298,939	117,391	124,302	432,994	425,319
Under 6 Years	33.3%	32.8%	33.5%	33.6%	35.1%	34.2%	32.0%	30.1%
6 to 11 Years	33.5%	33.7%	33.8%	33.6%	30.9%	32.0%	33.3%	34.5%
12 to 17 Years	33.3%	33.4%	32.7%	32.7%	34.0%	33.8%	34.6%	35.3%
White, not Hispanic or Latino	56.4%	54.0%	63.6%	60.9%	53.3%	49.6%	35.7%	33.9%
Black or African American	21.2%	20.1%	13.0%	12.4%	22.1%	21.7%	45.2%	43.1%
American Indian and Alaska Native	0.3%	0.2%	0.2%	0.2%	0.4%	0.4%	0.3%	0.2%
Asian	5.7%	6.0%	7.2%	7.6%	2.4%	3.2%	2.0%	2.1%
Native Hawaiian and other Pacific Islander	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%	0.0%	0.0%
Hispanic or Latino	11.5%	13.4%	11.0%	12.6%	16.4%	19.8%	11.4%	14.0%
Other Race	2.9%	3.5%	2.7%	3.2%	4.6%	5.5%	3.0%	3.6%
With any disability	3.6%	4.0%	2.9%	3.3%	3.3%	3.9%	5.6%	6.2%
Foster or other Unrelated to Householder Child	1.5%	1.7%	0.5%	0.6%	3.9%	3.9%	1.1%	1.1%
Foreign Born	3.6%	3.9%	4.0%	4.3%	3.3%	4.1%	2.1%	2.6%
Enrolled in School**	90.4%**	90.6%	91.3%**	91.0%	87.3%	87.3%	88.9%	90.3%
Median Income for Families with Children	\$75,857	\$85,880	\$98,443	\$110,718	\$43,661	\$48,611	\$29,187	\$31,367
Public Assistance: Children Living in Households with Supplemental Security Income, Cash Public Assistance Income, or Food Stamp/SNAP benefits	19.4%	19.5%	9.9%	10.2%	26.4%	26.3%	45.4%	45.4%
Income below Poverty Level	14.8%	14.5%	6.2%	5.7%	19.3%	17.9%	39.1%	39.8%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates

Note: Totals may not sum due to rounding.

**The percent of children enrolled in school is based on the 3 to 17 years population.

As shown in **Table 22**, Virginia's Homeless population breaks down in similar ways to the national figures. However, a far smaller share of Virginia's homeless population is unsheltered compared to that of the national population (14.9 versus 37.0 percent). This points in part to the efficacy of Virginia's Continuums of Care. Another cause for hope is that Virginia's homeless population accounts for slightly more than one percent of the national homeless population, suggesting that the Commonwealth is performing relatively well in this realm. While the percentage of the homeless population that are veterans is larger than the national share (8.1 versus 6.5 percent), it is entirely plausible that this is in large part due to the larger than average veteran population in Virginia, compared to the rest of the nation.

Table 22: Virginia's Homeless Population, 2019

Subject	National ¹	Virginia
Total Homeless	567,715	5,783 (1.0% of National homeless population)
Continuums of Care ²	392	16 (4.1% of National CoC)
Unsheltered Homeless	210,055 (37.0%)	859 (14.9%)
Chronically Homeless ³	96,141 (16.9%)	817 (14.1%)
Veterans	37,085 (6.5%)	447 (8.1%)
Less than 18 Years, Unaccompanied	3,976 (11.3%)	10 (0.2%)
18 to 24 Years, Unaccompanied	31,062 (88.7%)	248 (4.3%)
Parenting Youth ⁴	7,564 (1.3%)	74 (1.3%)
Children of Parenting Youth	9,779 (1.7%)	102 (1.8%)

National Figures are a total of all 50 States

² Continuums of Care (CoC) are local planning bodies responsible for coordinating the full range of homelessness services in a geographic area, which may cover a city, county, metropolitan area, or an entire state.

³ Chronically homeless refers to an individual with a disability who has been continuously homeless for one year or more, or has experienced at least four episodes of homelessness in the last three years where the combined length of time homeless in those occasions is at least 12 months.

⁴ Parenting Youth are people under 25 Years who are the parents or legal guardians of one or more children who are present with or sleeping in the same place as that youth parent, where there is no person over age 24 in the household.

Source: 2019 Annual Homeless Assessment Report to Congress, January 2020, U.S Department of Housing and Urban Development

Table 23 outlines the available statistics for several populations said to have barriers to employment under the Workforce Innovation and Opportunity Act, not detailed elsewhere. One take away is the very low labor force participation rate for both individuals with disabilities and those living below the poverty line. As this population includes individuals with any disability, one conclusion may be that not enough is currently being done to create a workplace that is welcoming and adaptable to the disabled population. The low rate for those below the poverty line might be due to a lack of wraparound services like public transportation and childcare services available to that sector of that population. Another notable figure is the extremely low educational attainment for individuals below the poverty line, which further underscores the importance of education in the Commonwealth, as education is seen as the best way to escape poverty.

Table 23: Individuals with Barriers to Employment

Subject	Virginia Population	Labor Force Participation Rate ¹	High School Graduate or Higher
Population	8,413,774	65.9%	89.3%
Individuals Living Below the Poverty Line	18.3%	49.0%	11.9%
Individuals with Less than a High School Degree (or equivalent)	10.7%	61.2%	-
American Indians and Alaska Natives	0.3%	66.0%	85.1%

Subject	Virginia Population	Labor Force Participation Rate ¹	High School Graduate or Higher
Native Hawaiian and Other Pacifica Islanders	0.1%	72.0%	89.6%
Individuals with Disabilities	11.6%	44.7%	-
65 Years and Over	14.6%	17.6% ¹	83.1%
Ex-Offenders ²	0.1%	-	-
Individuals that speak a language other than English at home ³	16.1%	-	81.6%
TANF Recipients ⁴	0.4%	-	-
Single Parent Households ⁵	8.2%	-	-

¹Participation Rates are available for 65 to 74 Years (28.2%) and 75 Years and Over (6.9%). The statistic shown is the average of these two populations, which are similar in size.

² Statistic represents offenders released by the Virginia Department of Corrections in calendar year 2016. Source: Judicial Mapping Project, FY 2017 Report, Virginia Department of Corrections

³ There are various definitions and statistics for those whom are non-native English speakers. According to the U.S. Department of Education, National Center for Education Statistics' "Local Education Agency Universe Survey," 7.7% of Virginia's public school students were English language Learners in the 2014-15 school year.

⁴ Calendar Year 2019 average from TANF Caseload Data 2019, Office of Administration for Children and Families, July 2020. Percent is TANF recipients as a share of total Virginia population.

⁵ Population includes male householders, no wife present and female householders, no husband present. Both household types with own children under 18 years. Percent is total of these populations of all households with own children under 18 years.

Source: U.S. Census Bureau, American Community Survey 2018 5-Year Estimates, unless otherwise noted

Note: All Population figures are a percent of the total state population unless otherwise noted.

Note: Due to data limitations, all statistics are not available for all populations



Statewide Gap Analysis and Emerging Demand

Emerging and Declining Industries and Occupations

Table 24 ranks the top 20 minor group⁴ occupations according to projected employment growth. More than a quarter of the top growing occupations are specific to the Health Care and Social Assistance industry. Indeed a previous section illustrated the growing prominence of the industry, which began around the time of the Affordable Care Act. Other occupations such as Cooks and Food Preparation Workers, Food and Beverage Serving Workers and Mathematical Science Occupations are strongly represented in the other top industries of the state. Some occupations that are particularly noteworthy are Personal Appearance Workers and Ground Maintenance Workers, which are also among the top growing occupations, which suggest a need to address areas outside of the obvious white collar positions.

Table 24: Top 20 Growing Detailed Occupations by Employment Change

Occupation	2018 Estimated Employment	2028 Employment Forecast	Forecasted Employment Change	Average Annual Growth
Mathematical Science Occupations	11,370	14,640	3,270	2.88%
Occupational Therapy and Physical Therapy Assistants	5,498	6,974	1,476	2.69%
Animal Care and Service Workers	9,559	11,916	2,357	2.47%
Other Personal Care and Service Workers	99,446	121,039	21,593	2.17%
Other Healthcare Support Occupations	40,887	49,622	8,735	2.14%
Nursing, Psychiatric, and Home Health Aides	53,006	62,411	9,405	1.77%
Personal Appearance Workers	27,466	31,402	3,936	1.43%
Health Diagnosing and Treating Practitioners	133,472	151,233	17,761	1.33%
Health Technologists and Technicians	80,124	90,428	10,304	1.29%
Supervisors of Personal Care and Service Workers	7,323	8,250	927	1.27%
Cooks and Food Preparation Workers	77,063	86,505	9,442	1.23%
Food and Beverage Serving Workers	195,199	219,103	23,904	1.23%
Counselors, Social Workers, and other Community and Social Support Workers	59,881	67,205	7,324	1.22%
Operations Specialties Workers	46,772	52,340	5,568	1.19%
Supervisors of Food Preparation and Serving Workers	30,533	34,085	3,552	1.16%
Supervisors of Construction and Extraction Workers	22,398	24,914	2,516	1.12%
Social Scientists and Related Workers	13,498	14,979	1,481	1.10%
Grounds Maintenance Workers	36,904	40,947	4,043	1.10%
Helpers, Construction Trades	11,815	13,068	1,253	1.06%
Funeral Service Workers	2,529	2,797	268	1.06%

Source: Virginia Employment Commission, Long-Term Occupational Projections 2018 - 2028

⁴ Minor group is a designation given to the more detailed SOC code occupations below the broadest 2-digit level. There are 96 minor group occupations.

Table 25 provides a ranking of the declining occupations in the Commonwealth. What is promising is that there are only 17 declining minor group occupations, with most being a relatively minor decline. None of the occupations shown are unsurprising with the way market trends have been going. For instance, the loss of retail department stores has been expected for years though it most likely was hastened along due to the hardships stores encountered due to the pandemic.

Table 25: Declining Detailed Occupations by Employment Change

Occupation	2018 Estimated Employment	2028 Employment Forecast	Forecasted Employment Loss	Average Annual Decline
Communications Equipment Operators	1,213	948	-265	-2.19%
Printing Workers	6,156	5,213	-943	-1.53%
Rail Transportation Workers	2,780	2,482	-298	-1.07%
Assemblers and Fabricators	28,126	25,628	-2,498	-0.89%
Secretaries and Administrative Assistants	65,195	60,016	-5,179	-0.79%
Extraction Workers	2,422	2,257	-185	-0.76%
Textile, Apparel, and Furnishings Workers	18,357	17,108	-1,249	-0.68%
Plant and System Operators	6,615	6,278	-337	-0.51%
Sales Representatives, Wholesale and Manufacturing	35,511	33,901	-1,610	-0.45%
Other Production Occupations	55,942	53,442	-2,500	-0.45%
Agricultural Workers	31,334	30,033	-1,301	-0.42%
Metal Workers and Plastic Workers	101,924	98,818	-3,106	-0.31%
Other Office and Administrative Support Workers	33,665	32,662	-1,003	-0.30%
Financial Clerks	79,344	77,962	-1,382	-0.17%
Retail Sales Workers	248,881	245,902	-2,979	-0.12%
Supervisors of Production Workers	12,768	12,660	-108	-0.09%
Supervisors of Sales Workers	54,875	54,657	-218	-0.04%

Source: Virginia Employment Commission, Long-Term Occupational Projection 2018 - 2028

Turning the focus from occupations to industries in **Table 26** professional services and health care related industries, and Food Services are once again well represented among the fastest growing industries. Other emerging industries of note are Water Transportation, Data Processing, and Waste Management.

Table 27 illustrates the top declining industries, with various types of manufacturing being among the most vulnerable and placing 8 times on the list. Service providing industries, such as health care and education, provide jobs and growing wages in the most populous areas of the state, and their growth can be fruitful for the Commonwealth's economy. What is particularly troubling is that the Manufacturing industry, which accounts for over a quarter million workers, is not represented in either the occupations or industries that are emerging in Virginia. While there is nothing wrong with the economy shifting from goods-producing to service based it can pose problems with transferable skill gaps between industries. If those industries and associated occupations continue to decline, focus will need to shift on addressing these gaps, an issue which will be returned to in the latter portion of this analysis.

Table 26: Top 20 Growing Industries (3 Digit NAICS) by Forecasted Employment Growth

Industry	2018 Estimated Employment	2028 Employment Forecast	Forecasted Employment Growth	Average Annual Growth
Water Transportation	1,032	1,495	463	4.49%
Support Activities for Agriculture and Forestry	2,249	3,123	874	3.89%
Other Information Services	4,831	6,544	1,713	3.55%
Petroleum and Coal Products Manufacturing	482	632	150	3.11%
Non-store Retailers	11,769	15,337	3,568	3.03%
Ambulatory Health Care Services	184,630	230,046	45,416	2.46%
Construction of Buildings	42,310	52,432	10,122	2.39%
Lessors of Nonfinancial Intangible Assets	333	395	62	1.86%
Transit and Ground Passenger Transportation	9,015	10,533	1,518	1.68%
Social Assistance	75,218	87,752	12,534	1.67%
Professional, Scientific and Technical Services	427,684	498,031	70,347	1.65%
Data Processing, Hosting and Related Services	10,990	12,701	1,711	1.56%
Personal and Laundry Services	45,052	52,055	7,003	1.55%
Amusement, Gambling, and Recreation Industries	43,115	49,755	6,640	1.54%
Nursing and Residential Care Facilities	77,074	88,195	11,121	1.44%
Forestry and Logging	2,111	2,389	278	1.32%
Waste Management and Remediation Service	8,967	10,064	1,097	1.22%
Food Services and Drinking Places	303,565	339,853	36,288	1.20%
Fishing, Hunting and Trapping	259	289	30	1.16%
Support Activities for Mining	700	781	81	1.16%

Source: Virginia Employment Commission, Long-Term Industry Projections 2028 - 2028

Table 27: Top 20 Declining Industries (3 Digit NAICS) by Forecasted Employment Loss

Industry	2018 Estimated Employment	2028 Employment Forecast	Forecasted Employment Loss	Average Annual Decline
Wholesale Electronics Markets and Agents and Brokers	17,940	12,790	-5,150	-2.87%
Oil and Gas Extraction	228	166	-62	-2.72%
Textile Mills	3,491	2,555	-936	-2.68%
Clothing and Clothing Accessories Stores	32,065	23,942	-8,123	-2.53%
Mining (except Oil and Gas)	4,997	3,914	-1,083	-2.17%
Printing and Related Support Activities	9,842	7,753	-2,089	-2.12%
Textile Product Mills	3,040	2,418	-622	-2.05%
Scenic and Sightseeing Transportation	373	317	-56	-1.50%
Chemical Manufacturing	14,804	12,607	-2,197	-1.48%
Plastics and Rubber Products Manufacturing	16,278	14,003	-2,275	-1.40%
Leather and Allied Product Manufacturing	204	176	-28	-1.37%
Apparel Manufacturing	1,350	1,165	-185	-1.37%
Primary Metal Manufacturing	3,902	3,379	-523	-1.34%
Broadcasting (except Internet)	7,628	6,714	-914	-1.20%
Furniture and Related Product Manufacturing	9,578	8,521	-1,057	-1.10%
Nonmetallic Mineral Product Manufacturing	8,695	7,768	-927	-1.07%
Merchant Wholesalers, Nondurable Goods	32,384	29,293	-3,091	-0.95%
Machinery Manufacturing	14,362	13,156	-1,206	-0.84%
Sporting Goods, Hobby, Book, and Music Stores	15,554	14,382	-1,172	-0.75%
Rental and Leasing Services	11,633	10,947	-686	-0.59%

Source: Virginia Employment Commission, Long-Term Industry Projections 2018 - 2028

Appendix C outlines the top occupations, skill requirements and certification/license requirements for each major industry. As the data is pulled from online job orders via the Virginia Workforce Connection, it represents the self-identified needs of employers. The industries explored are the 2-digit super sectors, thus representing a wide array of more detailed industries and occupations. As such, the primary requirements are customer service, problem solving, and similar skills apply to myriad positions. The same is true for the certifications, with CPR; Commercial Drivers License; and Basic Life Support occurring across multiple industries. Other in-demand certifications include CompTIA and Cisco Associate certification for more technological based industries. Please note that as not every job order lists necessary skills or certifications, results will be skewed towards those that have included those categories listed.

Appendix D builds on the needs of employers, focusing on the occupations with the most openings. Many of the skills are similar to those requested by industry, but with a heavy emphasis on computer skills. The same goes for the most requested certifications, with computer-specific certifications such as GIAC Security-Cyber Defense certification appearing in four of the top ten occupations. The lack of available candidates that specify an interest in these occupations with the highest need does look worrisome. In fact, only Customer Service Representatives has an adequate number of candidates, with the number of candidates greater than the number of opening.

In **Table 28** we explore the nebulous topic of a skills gap from another point of view. As mentioned previously, many of the desirable skills sought after by employers are “soft skills” that are difficult to measure and train. To recap, these include customer service, problem solving, flexibility, and time management. However, the table below focuses on the labor gap that exists in various forms. For instance, in each of the top five occupations according to job openings, there is less than one candidate per opening. A positive consequence of this is that it creates a potentially favorable situation to unemployed individuals looking for work. In opposition to that fact is that this also points to the equally real possibility that job seekers in Virginia are not interested in the available opportunities, or at least not as a first choice.

One particularly troubling gap shown in **Table 28** is the high proportion of experienced candidates, 10 or more years of experience, to openings requiring said experience. At 170 candidates per opening, (from a previous rate of 86 at the same time last year.) The idea of underemployment and subsequent worker discouragement becomes more understandable. A lasting effect of the last recession, and even more prevalent in the current job market, and the move to a less physically demanding service-based economy, which allows for individuals to keep working later in life, is that individuals that may face hardships such as a layoff later in their career face an economy that is not ready to meet them at their optimum level. Without addressing this shortcoming, it is unlikely to see underemployment decline, which in turn creates a potentially more contentious labor force that is less likely to find benefit in participating in the labor market. In the current crisis people will focus more on gaining adequate employment rather than making desired career choices.

Table 28: Supply and Demand in Virginia

	Subject	Job Openings	Potential Candidates	Potential Candidates per Job Opening
	Statewide Total	192,977	148,850	0.77
Top 5 Occupations by Job Openings	Registered Nurses	8,025	536	0.07
	Retail Salesperson	3,646	2,792	0.77
	First-Line Supervisors of Food Preparation and Serving Workers	3,029	607	0.20
	Computer Systems Engineers/Architects	2,996	162	0.05
	Computer Programmers	2,915	235	0.08
Educational Attainment	High School Diploma or Equivalent	12,013	58,672	4.88
	Vocational School Certificate	246	6,455	26.24
	Associate’s Degree	1,977	21,718	10.99
	Bachelor’s Degree	14,499	25,650	1.77
	Post-Graduate Degree	1,165	10,975	9.42
Work Experience	Less than 1 Year	814	7,215	8.86
	1 to 2 Years	173,697	5,031	0.03
	2 to 5 Years	6,478	11,824	1.83
	5 to 10 Years	3,094	15,326	4.95
	More than 10 Years	643	109,454	170.22

Source: Virginia Employment Commission. Jobs are online advertised jobs. Candidates are individuals with active resumes in the Virginia Workforce Connection.
Note: Both job and candidate information is self-reported by businesses and job-seekers as of September 2020

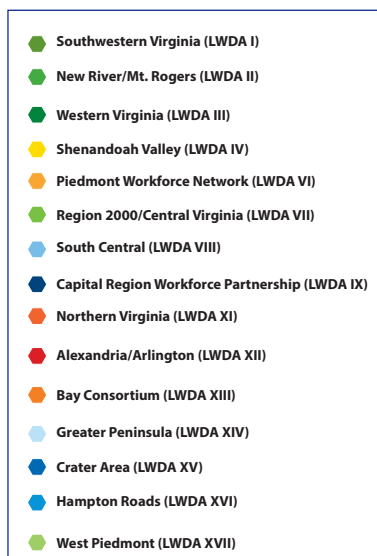
Part II: Substate Analysis



Overview of Local Economies

While the state economy overall has undergone drastic improvements in the post-recession years, the same cannot be said when viewed at the regional level. This section of the report focuses on the Local Workforce Development Area (LWDA) sub-state level. Broken up into 15 areas, each LWDA offers an opportunity to go deeper into some of the topics addressed in the previous section, allowing for more patterns to emerge. It is worth noting that at the sub-state level, less data is readily available. Moreover, the data that is kept is often accessible at a later date than that of state level data. As a result, data presented does not mirror that provided in the first section of the report.

Tables 29 and 30 provide an overview of each of the LWDAs, and their share of the overall state economy. Much of the economy is driven by Northern Virginia and the suburbs of Washington DC, Hampton Roads, and the Capital Region. Together these four areas account for more than half of all employers in the state, over 62 percent of total employment, and over 73 percent of total wages. While this may not be too disproportionate given that the areas also comprise just under 55 percent of the state's population, it creates an increased difficulty in equal service to every region in the state. As a result, many people seek out the stronger regions of the state to live and work in, creating a cycle that prevents many regions from growing to the level that the statewide economic outlook would suggest. In fact, areas in the southwestern portion of the state have seen employment decline over the last five years. areas in the southwestern portion of the state have seen employment and wages decline over the last five years.



Local Workforce Development Areas (LWDAs)

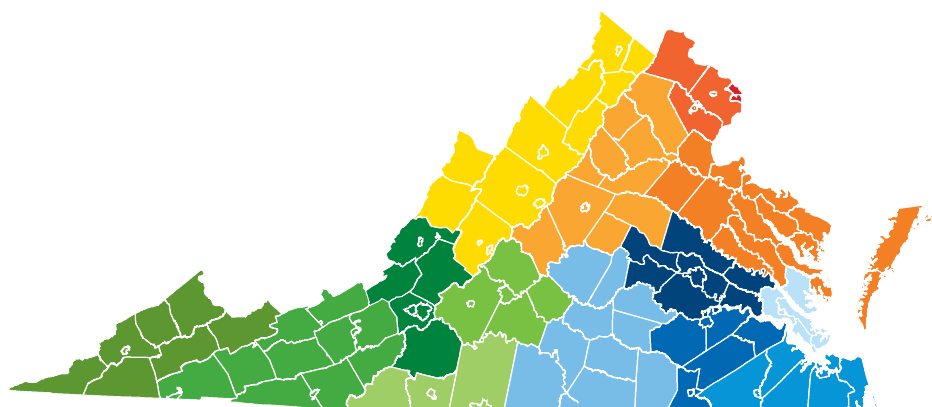


Table 29: Regional Labor Market Snapshot

Workforce Area	Composition	Population	Total Commuters	Net Commuters (In-commuters minus Out-commuters)	Number of People that Live and Work in the Area	Total Number of Unemployment Insurance Claimants	Number of Employers (Share of State Total)	Percent of Population 18 and over with at least a College Degree	Turnover Rate*
I Southwestern Virginia	7 Counties 1 City	208,150	43,902	-10,994	45,129	3,827	4,576 (1.6%)	19%	0.082
II New River/Mt. Rogers	10 Counties 3 Cities	371,832	84,052	1,916	100,358	9,448	9,718 (3.5%)	29%	0.083
III Western Virginia	5 Counties 3 Cities	330,918	91,921	22,049	109,949	10,124	10,060 (3.6%)	32%	0.080
IV Shenandoah Valley	10 Counties 6 Cities	508,933	138,852	-30,038	154,421	12,440	14,986 (5.4%)	28%	0.081
VI Piedmont Workforce Network	10 Counties 1 City	400,766	129,703	-22,971	102,200	10,960	14,177 (5.1%)	38%	0.083
VII Central VA	4 Counties 1 City	252,634	64,488	-7,928	68,869	6,873	7,659 (2.7%)	30%	0.080
VIII South Central	10 Counties	191,011	56,020	-23,158	36,485	4,565	5,561 (2.0%)	21%	0.081
IX Capital Region Workforce Partnership	7 Counties 1 City	1,002,696	257,745	56,953	389,568	39,373	35,226 (12.6%)	40%	0.087
XI Northern Virginia	3 Counties 3 Cities	1,883,030	673,899	-21,199	593,008	61,663	63,539 (22.7%)	56%	0.084
XII Alexandria/ Arlington	1 County 1 City	347,593	329,361	50,861	47,760	9,377	15,312 (5.5%)	70%	0.079
XIII Bay Consortium	15 Counties 1 City	477,723	169,066	-71,936	93,900	13,646	13,635 (4.9%)	33%	0.085
XIV Greater Peninsula	3 Counties 4 Cities	513,704	145,838	11,042	140,572	20,832	12,190 (4.4%)	37%	0.087
XV Crater Area	5 Counties 4 Cities	173,463	77,367	-10,179	28,496	8,228	4,221 (1.5%)	21%	0.093
XVI Hampton Roads	2 Counties 6 Cities	1,145,548	204,950	-3,474	374,373	43,433	29,848 (10.7%)	35%	0.083
XVII West Piedmont	3 Counties 2 Cities	193,023	48,568	-6,486	48,128	6,451	6,271 (2.2)	23%	0.085
Virginia Statewide	96 Counties 37 Cities	8,001,024	677,606	-65,542	3,252,279	272,738	279,625	40%	0.082

Source: Virginia Employment Commission, Community Profiles

*Turnover Rate taken from U.S. Census Bureau's Local Employment Dynamics, and reflect First Quarter 2019 Averages

Table 30: Trends of State and Local Economies

Region	2015 Establishments	2020 Establishments (Share of State Total)	5-Year Trend	2015 Employment	2020 Employment (Share of State Total)	5-Year Trend	2015 Wages	2020 Wages (Share of State Total)	5-Year Trend
I Southwestern Virginia	4,713	4,576 (2%)	-2.9%	57,936	54,638 (1%)	-5.7%	\$512,071,489	\$514,109,623 (1%)	0.4%
II New River/Mt. Rogers	8,969	9,718 (4%)	8.4%	137,441	138,935 (4%)	1.1%	\$1,235,383,829	\$1,407,917,451 (2%)	14.0%
III Western Virginia	9,184	10,060 (4%)	9.5%	155,544	158,249 (4%)	1.7%	\$1,601,140,506	\$1,818,051,071 (3%)	13.5%
IV Shenandoah Valley	13,493	14,986 (6%)	11.1%	208,088	224,135 (6%)	7.7%	\$1,960,743,397	\$2,506,010,489 (4%)	27.8%
VI Piedmont Workforce Network	12,630	14,177 (6%)	12.2%	158,177	172,458 (5%)	9.0%	\$1,826,206,014	\$2,224,602,788 (4%)	21.8%
VII Central VA	6,756	7,659 (3%)	13.4%	96,130	98,985 (3%)	3.0%	\$937,255,631	\$1,101,486,027 (2%)	17.5%
VIII South Central	4,861	5,561 (2%)	14.4%	53,497	53,426 (1%)	-0.1%	\$423,903,565	\$493,132,519 (1%)	16.3%
IX Capital Region Workforce Partnership	30,843	35,226 (14%)	14.2%	527,575	572,904 (15%)	8.6%	\$7,162,602,459	\$8,853,655,854 (15%)	23.6%
XI Northern Virginia	57,717	63,539 (26%)	10.1%	895,603	984,391 (26%)	9.9%	\$16,676,957,579	\$2,115,347,6821 (36%)	26.8%
XII Alexandria/Arlington	14,838	15,312 (6%)	3.2%	260,121	272,957 (7%)	4.9%	\$5,452,357,732	\$6,596,712,914 (11%)	21.0%
XIII Bay Consortium	11,987	13,635 (6%)	13.7%	154,306	167,229 (4%)	8.4%	\$1,640,534,480	\$2,021,217,471 (3%)	23.2%
XIV Greater Peninsula	11,113	12,190 (5%)	9.7%	219,637	229,112 (6%)	4.3%	\$2,516,234,053	\$2,825,262,062 (5%)	12.3%
XV Crater Area	3,707	4,221 (2%)	13.9%	67,818	68,198 (2%)	0.6%	\$688,579,679	\$796,140,599 (1%)	15.6%
XVI Hampton Roads	27,148	29,848 (12%)	9.9%	491,950	516,618 (14%)	5.0%	\$5,539,083,156	\$65,29,573,478 (11%)	17.9%
XVII West Piedmont	5,618	6,271 (3%)	11.6%	67,431	66,193 (2%)	-1.8%	\$530,293,485	\$604,065,034 (1%)	13.9%
Virginia, Statewide	223,577	246,979	10.5%	3,551,254	3,778,429	6.4%	\$48,703,347,054	\$59,445,414,201	22.1%

Source: Virginia Employment Commission, Quarterly Census of Employers and Wages Program. First quarter data utilized.

Industrial Landscape/ Current Demand

Table 31 displays the largest industry in each workforce area according to each Quarterly Census of Employment and Wage (QCEW) metric. What is interesting is that this table illustrates the strength of the Northern Virginia LWDA. Looking at total wages, Professional, Scientific, and Technical Services is the top industry in the Commonwealth, despite Northern Virginia and Alexandria/Arlington being the only LWDAs that name that industry as their largest percentage of total wages. While it makes sense from an economic standpoint that the state would be focused around the most populous and wealthy regions, there is a large underlying consequence. Due to the size and economic might of Northern Virginia along with the Capital and Hampton Roads regions, also known as Virginia’s population crescent, other regions of the state are often left out of conversations regarding the state economy. What we see from the data provided in this section is that such an omission may prove to be harmful to some regions of the state. However, it is important not to understate the reality of economic disparity between regional economies.



Table 31: Largest Industry in Local Workforce Development Area

LWDA Region	Number of Establishments (Percent of LWDA Total)	Average Employment (Percent of LWDA Total)	Total Wage (Percent of LWDA Total)	Highest Average Weekly Wage
I Southwestern Virginia	Health Care and Social Assistance (27.1%)	Health Care and Social Assistance (16.2%)	Health Care and Social Assistance (16.5%)	Utilities (\$1,80)
II New River/Mt. Rogers	Health Care and Social Assistance (24.3%)	Manufacturing (18.3%)	Manufacturing (23.1%)	Finance and Insurance (\$1,339)

LWDA Region	Number of Establishments (Percent of LWDA Total)	Average Employment (Percent of LWDA Total)	Total Wage (Percent of LWDA Total)	Highest Average Weekly Wage
III Western Virginia	Health Care and Social Assistance (18.7%)	Health Care and Social Assistance (18.3%)	Health Care and Social Assistance (20.4%)	Management of Companies and Enterprises (\$1,562)
IV Shenandoah Valley	Health Care and Social Assistance (20.0%)	Manufacturing (15.0%)	Manufacturing (19.7%)	Finance and Insurance (\$1,519)
VI Piedmont Workforce Network	Health Care and Social Assistance (20.7%)	Educational Services (16.9%)	Educational Services (17.2%)	Utilities (\$2,395)
VII Region 2000/Central VA	Health Care and Social Assistance (24.5%)	Health Care and Social Assistance (17.6%)	Manufacturing (22.2%)	Finance and Insurance (\$1,491)
VIII South Central	Health Care and Social Assistance (32.3%)	Health Care and Social Assistance (18.6%)	Health Care and Social Assistance (19.2%)	Utilities (\$2,011)
IX Capital Region Workforce Partnership	Health Care and Social Assistance (19.8%)	Health Care and Social Assistance (14.7%)	Finance and Insurance (16.0%)	Management of Companies and Enterprises (\$3,113)
XI Northern Virginia	Professional, Scientific, and Technical Services (25.5%)	Professional, Scientific, and Technical Services (20.3%)	Professional, Scientific, and Technical Services (31.0%)	Management of Companies and Enterprises (\$5,011)
XII Alexandria/Arlington	Other Services (Except Public Administration) (24.8%)	Professional, Scientific, and Technical Services (23.9%)	Professional, Scientific, and Technical Services (33.4%)	Utilities (\$6,912)
XIII Bay Consortium	Health Care and Social Assistance (21.1%)	Health Care and Social Assistance (13.3%)	Public Administration (18.7%)	Utilities (\$1,742)
XIV Greater Peninsula	Health Care and Social Assistance (16.8%)	Manufacturing (14.8%)	Manufacturing (21.2%)	Management of Companies and Enterprises (\$2,319)
XV Crater Area	Health Care and Social Assistance (23.3%)	Health Care and Social Assistance (17.9%)	Health Care and Social Assistance (16.3%)	Utilities (\$2,437)
XVI Hampton Roads	Health Care and Social Assistance (17.7%)	Health Care and Social Assistance (14.5%)	Health Care and Social Assistance (14.5%)	Management of Companies and Enterprises (\$2,237)
XVII West Piedmont	Health Care and Social Assistance (40.9%)	Health Care and Social Assistance (17.3%)	Manufacturing (24.2%)	Management of Companies and Enterprises (\$1,875)s
State	Health Care and Social Assistance (17.1%)	Health Care and Social Assistance (13.1%)	Professional, Scientific, and Technical Services (20.5%)	Management of Companies and Enterprises (\$3344)

Source: Virginia Employment Commission, Quarterly Census of Employment and Wages, First Quarter 2019

Local Labor Force Statistics

Table 32 illustrates the continuing story of strong success in four of the LWDA's, and the consequential positive statistics at the state level. Also, it shows the evidence of struggles in other regions of the state. Though the unemployment rate has been steadily decreasing statewide since the end of the Great Recession, prior to COVID-19, a third of LWDA's (5 out of 15) has an unemployment rate above the state average of 8.2%. Alexandria/Arlington and the Shenandoah Valley have the lowest unemployment rates at 6.5%, well below that state average. The highest unemployment rates include the Crater Area, the Greater Peninsula, and West Piedmont. These rates reflect some regions' struggles related to the decline of manufacturing and traditional goods-producing industries, along with the economic impact of COVID-19.

Table 32: Local Area Unemployment Statistics, Second Quarter 2019

(Not Seasonally Adjusted)

LWDA Region	Labor Force	Employed	Unemployed	Unemployment Rate
I Southwestern Virginia	69,900	63,840	6,060	8.7%
II New River/Mt. Rogers	173,421	160,562	12,859	7.4%
III Western Virginia	164,356	151,590	12,766	7.8%
IV Shenandoah Valley	271,343	253,725	17,618	6.5%
VI Piedmont Workforce Network	222,531	207,522	15,009	6.7%
VII Region 2000/Central VA	121,105	112,003	9,102	7.5%
VIII South Central	79,660	73,353	6,307	7.9%
IX Capital Region Workforce Partnership	589,917	539,118	50,799	8.6%
XI Northern Virginia	1,148,806	1,060,647	88,159	7.7%
XII Alexandria/Arlington	251,603	235,160	16,443	6.5%
XIII Bay Consortium	256,665	237,677	18,988	7.4%
XIV Greater Peninsula	262,371	236,069	26,302	10.0%
XV Crater Area	76,413	67,558	8,855	11.6%
XVI Hampton Roads	600,233	545,659	54,574	9.1%
XVII West Piedmont	86,481	78,297	8,184	9.5%
State	4,374,805	4,022,780	352,025	8.2%

Source: Virginia Employment Commission, Local Area Unemployment Statistics Program
Totals may not add due to rounding.

Appendix E provides a breakdown of each area's labor force participation rate by county. As alluded to previously, Virginia has had most participation rates increasing over the last five years in every LWDA, with only 27 localities, or 20% decreasing. This is a shift from previous years where the majority were trending down. This shows that though Virginia as a whole had a labor force participation rate increase by 1.4 percentage points, not all regions experienced the same growth. As with the alternative measures of labor underutilization addressed previously, analyzing participation rates allows us to gain a better understanding of the labor market.

Independent of employment figures, participation rates reflect the amount of working age individuals that are either working or actively seeking employment. What a declining participation rate reflects is fewer individuals even looking for work that would otherwise be expected to. Without an explanation, such as a new and substantial economic downturn, or a massive catastrophe or population shift increasing the number of individuals with barriers to employment, declining participation rates signal a potential conflict in the future based on a few possible causes.

These are yet another factor that will be important to study how the pandemic and subsequent economic events affects each locality and if there is a need for programs to target specific areas where declines are more steep than other areas of the Commonwealth. Increasing participation rates are indicative of a decrease in barriers to economic prosperity. It will be interesting to see if, and how, the shift comes about post-COVID.

As shown in **Table 33**, the first six months of the pandemic initial unemployment claims are broken down into workforce areas with the corresponding percentage of claims as a percentage of the population. This allows us to see how the claims have been spread throughout the state. For all areas claims peaked in April at the height of the most strict business restrictions and of Virginia's diagnosed cases. Not surprisingly, since it is the most densely populated, the Northern Virginia region had the most claims in April. The regions have followed the overall statewide trend of decreasing claims in the most recent month's data.

Table 33: Who has been affected by Coronavirus? Initial Claims by Workforce Area

Workforce Area	March	As a % of population	April	As a % of population	May	As a % of population	June	As a % of population	July	As a % of population	August	As a % of population
I: Southwest Virginia	1,524	0.7%	5,378	2.6%	2,173	1.0%	1,277	0.6%	1,740	0.8%	1,163	0.6%
II: New River/Mt. Rogers	6,202	1.7%	13,882	3.7%	6,256	1.7%	3,209	0.9%	3,506	0.9%	2,081	0.6%
III: Western Virginia	6,109	1.8%	14,101	4.3%	8,242	2.5%	3,527	1.1%	4,063	1.2%	2,441	0.7%
IV: Shenandoah Valley	8,987	1.8%	21,859	4.3%	10,499	2.1%	4,056	0.8%	3,705	0.7%	2,514	0.5%
IX: Capital Region Workforce Partnership	23,140	2.3%	51,106	5.1%	28,321	2.8%	13,615	1.4%	18,036	1.8%	7,894	0.8%
VI: Piedmont Workforce Network	7,328	1.8%	16,104	4.0%	9,206	2.3%	3,198	0.8%	3,201	0.8%	1,806	0.5%
VII: Region 2000/ Central Virginia	4,169	1.7%	9,373	3.7%	4,999	2.0%	2,270	0.9%	2,570	1.0%	1,572	0.6%
VIII: South Central	2,057	1.1%	4,832	2.5%	2,983	1.6%	1,638	0.9%	2,072	1.1%	1,144	0.6%
XI: Northern Virginia	32,048	1.7%	102,872	5.5%	49,909	2.7%	18,750	1.0%	19,190	1.0%	10,314	0.5%
XII: Alexandria/ Arlington	5,133	1.5%	14,048	4.0%	7,442	2.1%	3,223	0.9%	5,424	1.6%	2,000	0.6%
XIII: Bay Consortium	8,226	1.7%	19,995	4.2%	10,917	2.3%	4,744	1.0%	5,410	1.1%	2,981	0.6%
XIV: Greater Peninsula	11,152	2.2%	26,304	5.1%	14,895	2.9%	7,978	1.6%	10,865	2.1%	4,321	0.8%
XV: Crater Area	3,130	1.8%	7,453	4.3%	5,883	3.4%	3,478	2.0%	5,245	3.0%	2,061	1.2%
XVI: Hampton Roads	24,181	2.1%	55,692	4.9%	31,831	2.8%	18,226	1.6%	33,532	2.9%	11,875	1.0%
XVII: West Piedmont	4,170	2.2%	7,767	4.0%	4,763	2.5%	2,429	1.3%	3,417	1.8%	1,718	0.9%
Total	147,556	1.8%	370,766	4.6%	198,319	2.5%	91,618	1.1%	121,976	1.5%	55,885	0.7%

*Does not equal state totals due to interstate claims

In **Table 34**, the initial unemployment claims are separated into occupations. In 13 of the 15 areas the top occupation of claimants are those in the food preparation and serving related occupations. Southwest Virginia had the largest proportion of claims in the construction and extraction sector. The New River/Mt. Rogers area also differed from the statewide trend with production occupations making up the largest occupation group to file for unemployment.

Looking at the regional makeup of who has been affected lets those who work in re-employment programs, government officials, and social service providers to focus their efforts on the sectors of the population that have been impacted by the pandemic in a smaller area where the overall state trend may not hold true.

Table 34: Who has been affected by Coronavirus? Initial Claims by SOC Codes Workforce Regions

SOC Code	11	13	15	17	19	21	23	25
SOC Title	Management Occupations	Business and Financial Operations Occupations	Computer and Mathematical Occupations	Architecture and Engineering Occupations	Life, Physical, and Social Science Occupations	Community and Social Service Occupations	Legal Occupations	Educational Instruction and Library Occupations
I: Southwest Virginia	688	146	88	182	74	329	50	547
II: New River/Mt. Rogers	2,773	561	394	764	358	638	79	1,172
III: Western Virginia	3,122	805	471	585	251	503	92	1,442
IV: Shenandoah Valley	4,793	1,041	587	538	396	714	139	1,446
IX: Capital Region Workforce Partnership	14,452	4,452	2,802	1,553	1,091	2,530	680	4,811
VI: Piedmont Workforce Network	4,484	1,048	824	397	299	651	157	1,643
VII: Region 2000/ Central Virginia	2,107	444	238	503	232	552	83	833
VIII: South Central	1,070	221	185	167	88	284	25	562
XI: Northern Virginia	23,764	7,959	9,246	2,277	1,659	1,802	1,224	10,549
XII: Alexandria/ Arlington	3,658	1,440	1,214	341	339	284	372	1,402
XIII: Bay Consortium	5,019	1,312	943	497	297	676	170	2,014
XIV: Greater Peninsula	6,371	1,703	1,097	906	492	1,140	246	2,341
XV: Crater Area	1,771	508	240	264	126	465	60	746
XVI: Hampton Roads	13,997	4,032	2,242	1,644	903	2,052	889	5,451
XVII: West Piedmont	1,446	353	208	417	177	434	40	538

SOC Code	27	29	31	33	35	37	39	41
SOC Title	Arts, Design, Entertainment, Sports, and Media Occupations	Healthcare Practitioners and Technical Occupations	Healthcare Support Occupations	Protective Service Occupations	Food Preparation and Serving Related Occupations	Building and Grounds Cleaning and Maintenance Occupations	Personal Care and Service Occupations	Sales and Related Occupations
I: Southwest Virginia	177	778	584	158	1,489	634	849	1,143

II: New River/Mt. Rogers	974	1,635	1,496	295	6,237	1,399	2,811	3,013
III: Western Virginia	1,015	1,960	2,225	347	7,119	1,519	3,271	3,594
IV: Shenandoah Valley	1,495	2,491	2,970	501	10,840	2,282	4,365	5,139
IX: Capital Region Workforce Partnership	6,070	7,412	7,044	1,512	27,731	6,001	15,137	15,769
VI: Piedmont Workforce Network	1,705	2,550	2,670	459	8,929	1,766	4,263	4,125
VII: Region 2000/ Central Virginia	747	1,447	1,639	237	4,907	1,000	2,266	2,630
VIII: South Central	304	610	1,035	292	2,604	731	1,192	1,472
XI: Northern Virginia	8,488	10,433	10,620	2,921	35,892	6,734	27,268	26,555
XII: Alexandria/ Arlington	1,744	1,184	1,351	477	6,826	1,339	3,114	4,389
XIII: Bay Consortium	1,596	2,313	3,372	702	9,713	2,129	5,609	6,053
XIV: Greater Peninsula	2,311	3,089	3,699	1,061	14,955	4,249	7,225	9,100
XV: Crater Area	591	861	1,514	382	4,045	1,635	2,354	2,561
XVI: Hampton Roads	5,416	7,520	8,329	2,367	33,667	9,035	18,588	20,053
XVII: West Piedmont	438	978	1,334	193	2,871	910	1,563	2,162

SOC Code	43	45	47	49	51	53	55
SOC Title	Office and Administrative Support Occupations	Farming, Fishing, and Forestry Occupations	Construction and Extraction Occupations	Installation, Maintenance, and Repair Occupations	Production Occupations	Transportation and Material Moving Occupations	Military Specific Occupations
I: Southwest Virginia	1,659	158	2,109	911	1,485	1,150	n.d.
II: New River/Mt. Rogers	4,198	191	1,905	2,078	7,992	2,594	n.d.
III: Western Virginia	5,595	116	2,011	1,778	4,366	3,013	n.d.
IV: Shenandoah Valley	6,795	264	2,647	2,422	5,149	3,982	n.d.
IX: Capital Region Workforce Partnership	20,875	226	6,285	5,135	6,275	11,308	53
VI: Piedmont Workforce Network	5,571	215	1,841	1,638	1,680	2,213	28
VII: Region 2000/ Central Virginia	3,659	90	1,105	1,155	2,676	1,720	n.d.
VIII: South Central	2,170	118	1,109	799	1,702	1,656	n.d.
XI: Northern Virginia	26,661	199	6,001	6,651	5,233	17,481	115
XII: Alexandria/ Arlington	3,608	27	755	840	627	3,554	n.d.
XIII: Bay Consortium	7,336	611	2,861	2,518	2,284	4,320	38

XIV: Greater Peninsula	11,526	333	4,132	3,171	4,509	5,683	58
XV: Crater Area	4,390	86	1,612	1,221	2,350	3,013	n.d.
XVI: Hampton Roads	5,416	7,520	8,329	2,367	33,667	9,035	18,588
XVII: West Piedmont	438	978	1,334	193	2,871	910	1,563

Source: Virginia Employment Commission

n.d. is not disclosed

*Aggregate Initial Claims for March 1, 2020-August 29, 2020

**SOC Codes are self reported

***When totaled will not match state totals due to nonresponse or undefined codes

Regional Gap Analysis and Emerging Demand

As with the previous discussion regarding the current leading industries and occupations, the fastest growing across the workforce areas are largely the same as the state and in relation to one another. **Appendix F** illustrates the top growing occupations for each LWDA, while **Appendix G** addresses the emerging industries. Unsurprisingly, the Northern Virginia Alexandria/Arlington LWDA's look like outliers in their demand, skewing towards more technical and professional occupations. The dominance of the health care industry, as well as service industries such as retail and accommodation hold reign as the top occupations everywhere else in the state.

Appendix H and I further illustrate the gaps between labor supply and demand at the sub-state level, by examining the discrepancies between candidates seeking employment and the available jobs being offered. The trend that emerges is that although there are more job opportunities than candidates at the state level, regionally, the demand is not being met. Candidates tend to be over-educated and over-experienced for the positions that need to be filled, which further underscores the underemployment phenomenon discussed in the previous section. For example, in the Alexandria/Arlington and Northern Virginia Areas 25 percent or more of job candidates have a Master's degree or higher, while less than two percent of the job openings require that level of educational attainment.

On a positive note, 13 of the 15 workforce areas have less than one unemployed person per job opening, suggesting that there is a greater demand for workers than currently exists. However, this good news for unemployment figures has potentially negative consequences for businesses that are seeking to fill positions. Employers are likely to be forced into making a decision between increasing wages to attract new hires, or potentially slowing growth and output. This cyclical paradox between workers finding gainful employment and employers filling positions while maintaining profits and growth is indeed one of the most difficult aspects of economics in practice. Full employment leaves little flexibility for alterations.

One argument that could be made regarding the supply and demand data presented here is that it is based on individuals and employers registering and searching for positions or workers in the Virginia Workforce Connection. Moreover, employee profiles and job orders must be filled out accurately and completely to obtain the information provided here. While this does likely mean that our data represent only a subset of jobs and job-seekers, this is a reliable sample as it is distributed across the state and relatively representative of the populations. Another reason to use this data as a reliable source is that it represents individuals and employers actively looking to fill vacant positions. In other words, it is less theoretical than other supply and demand analyses.



Glossary of Terms

Civilian Labor Force: All persons classified as employed or unemployed. Civilian meaning not living in institutions such as correctional facilities, long-term care hospitals, and nursing homes, and not on active duty in the Armed Forces

Discouraged Workers: Persons not in the labor force who want and are available for a job and who have looked for work sometime in the past 12 months (or since the end of their last job if they held one within the past 12 months), but who are not currently looking because they believe there are no jobs available or there are none for which they would qualify

Employed: Persons 16 years and older in the civilian non-institutional population who, during the reference week, (a) did any work at all (at least 1 hour) as paid employees; worked in their own business, profession, or on their own farm, or worked 15 hours or more as unpaid workers in an enterprise operated by a member of the family; and (b) all those who were not working but who had jobs or businesses from which they were temporarily absent because of vacation, illness, bad weather, childcare problems, maternity/paternity leave, labor-management dispute, job training, or other family or personal reasons, whether or not they were paid for the time off or were seeking other jobs. Each employed person is counted only once, even if they hold more than one job.

Involuntary Part-Time Workers: Persons who are available and want to work full-time, but accept part-time work for economic reasons.

Job Losers: Unemployed persons who involuntarily lost their last job or who had completed a temporary job. This includes persons who were on temporary layoff expecting to return to work, as well as persons not on temporary layoff. Those not on temporary layoff include permanent job losers and persons whose temporary jobs had ended.

Job-seeker Discouragement: A measurement of would-be job-seeker discouragement, calculated as the difference between alternative measures **U-4** and **U-3**. While the actual figure is somewhat artificial and difficult to interpret on its own, the overall trend gives an idea of perceptions about the labor market.

Marginally Attached Workers: Persons not in the labor force who want and are available for work, and who have looked for a job sometime in the prior 12 months (or since the end of their last job if they held one within the past 12 months), but were not counted as unemployed because they had not searched for work in the 4 weeks preceding the survey. Discouraged workers are a subset of the marginally attached.

Marginally Attached Workers Plus Civilian Labor Force: Measure of the "Full" labor force, often used when calculating alternative measures of underutilization in order to include discouraged workers

NAICS: The North American Industry Classification System, or "NAICS," is a system developed by Mexico, Canada, and the United States to provide a consistent framework of industrial statistics used by policy analysts, academics, and researchers. NAICS are given for all economic activity and go from the 2-digit NAICS sector, and down to the more detailed three, four, five, and six-digit industry sub-sectors. For example, the Construction Industry (23), can be broken down further to Construction of Buildings (236), Heavy and Civil Engineering Construction (237), and Specialty Trade Contractors (238). Construction of Buildings can then be divided into nonresidential (2362) versus residential (2361) construction. From here, Nonresidential construction can be broken down further into Commercial and Institutional (23622) versus Industrial (23621) Building Construction.

Underemployment: A measurement of the underemployment rate, calculated as the difference between alternative measures **U-6** and **U-5**. This essentially looks at the widest possible definition of unemployment and the labor force, and separates out those that, while employed, feel that they are not in a position which suits their needs and abilities.

Unemployed: Persons aged 16 years and older who had no employment during the reference week, were available for work, except for temporary illness, and had made specific efforts to find employment sometime during the 4-week period ending the reference week. Persons who were waiting to be recalled to a job from which they had been laid off need not have been looking for work to be classified as unemployed.

U-1: Persons unemployed 15 weeks or longer, as a percent of the civilian labor force

U-2: Job losers and persons who completed temporary jobs, as a percent of the civilian labor force

U-3: Total unemployed, as a percent of the civilian labor force (this is the definition used for the official unemployment rate)

U-4: Total unemployed, plus discouraged workers, as a percent of the civilian labor force, plus discouraged workers

U-5: Total unemployed, plus discouraged workers, plus all other marginally attached workers, as a percent of the civilian labor force, plus all marginally attached workers

U-6: Total unemployed, plus all marginally attached workers, plus total employed part-time for economic reasons, as a percent of the civilian labor force plus all marginally attached workers

Appendix

Appendix A

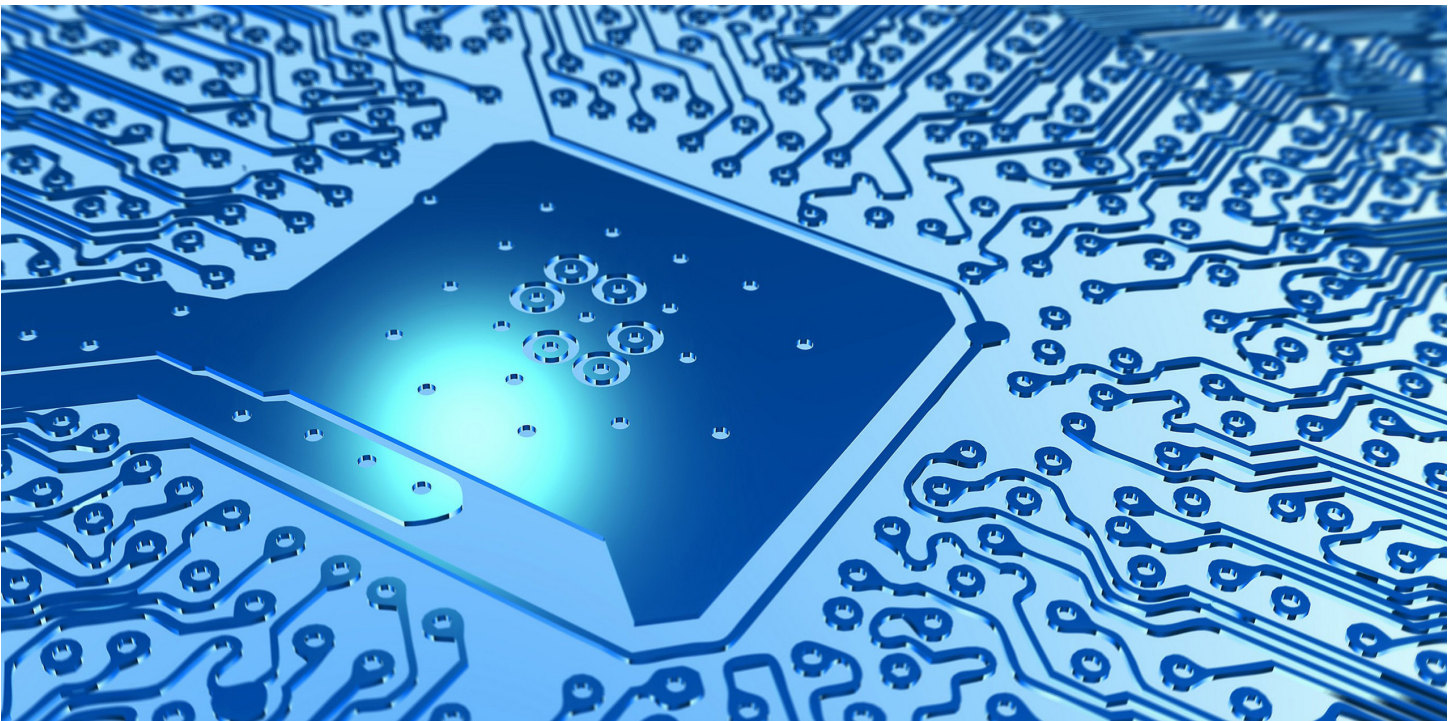
Existing Demand and Industry Sector Overview, First Quarter 2020

Industry	Industry Sub-Sector	2015 Employment and Wages (in Millions of Dollars)	2020 Employment and Wages (in Millions of Dollars)	5-Year Change	2015 Location Quotients	2019 Location Quotients	Average Annual Growth Rate*	Top Occupation by Employment
Accommodation and Food Services		Employment: 317,136 Wages: \$1,363.0	Employment: 341,323 Wages: \$1,767.4	Employment: 7.6% Wages: 29.7%	Employment: 0.96 Wages: 0.89	Employment: 0.94 Wages: 0.85	1.00%	Combined Food Preparation and Serving Workers
Administrative and Support and Waste Management		Employment: 216,854 Wages: \$2,093.3	Employment: 244,271 Wages: \$2,853.1	Employment: 12.6% Wages: 36.3%	Employment: 0.95 Wages: 0.98	Employment: 1.00 Wages: 1.04	0.57%	Janitors and Cleaners
Agriculture, Forestry, Fishing and Hunting		Employment: 11,091 Wages: \$82.1	Employment: 11,592 Wages: \$103.7	Employment: 4.5% Wages: 26.3%	Employment: 0.41 Wages: 0.40	Employment: 0.38 Wages: 0.38	-0.14%	Farmworkers and Laborers, Crop, Nursery, and Greenhouse
Arts, Entertainment and Recreation		Employment: 56,255 Wages: \$372.1	Employment: 65,147 Wages: \$465.9	Employment: 15.8% Wages: 25.2%	Employment: 0.89 Wages: 0.40	Employment: 0.86 Wages: 0.62	1.28%	Fitness Trainers and Aerobics Instructors
Construction		Employment: 183,180 Wages: \$2,177.9	Employment: 210,787 Wages: \$3,215.0	Employment: 15.1% Wages: 47.6%	Employment: 1.06 Wages: 0.95	Employment: 1.02 Wages: 0.94	1.08%	Construction Laborers
Educational Services		Employment: 360,984 Wages: \$3,817.3	Employment: 374,781 Wages: \$4,479.2	Employment: 3.8% Wages: 17.3%	Employment: 0.85 Wages: 0.73	Employment: 0.83 Wages: 0.69	0.33%	Elementary School Teachers, Except Special Education
Finance and Insurance		Employment: 131,918 Wages: \$3,467.7	Employment: 143,548 Wages: \$4,647.1	Employment: 8.8% Wages: 34.0%	Employment: 0.86: Wages: 0.74	Employment: 0.89 Wages: 0.77	0.83%	Customer Service Representatives
Health Care and Social Assistance		Employment: 464,141 Wages: \$5,221.5	Employment: 510,938 Wages: \$6,552.1	Employment: 10.1% Wages: 25.5%	Employment: 0.85 Wages: 0.85	Employment: 0.84 Wages: 0.83	1.56%	Registered Nurses
Information		Employment: 74,445 Wages: \$1,980.3	Employment: 72,661 Wages: \$2,137.4	Employment: -2.4% Wages: 7.9%	Employment: 0.93 Wages: 0.86	Employment: 0.90 Wages: 0.79	0.50%	Telecommunications Line Installers and Repairers



Industry	Industry Sub-Sector	2015 Employment and Wages (in Millions of Dollars)	2020 Employment and Wages (in Millions of Dollars)	5-Year Change	2015 Location Quotients	2019 Location Quotients	Average Annual Growth Rate*	Top Occupation by Employment
	Broadcasting	Employment: 7,830 Wages: \$113.4	Employment: 7,581 Wages: \$158.3	Employment: -3.2% Wages: 39.6%	Employment: 1.06 Wages: 0.80	Employment: 1.08 Wages: 0.77	-1.27%	Producers and Directors
	Data Processing, Hosting, and Related Service	Employment: 12,581 Wages: \$415.6	Employment: 13,818 Wages: \$451.0	Employment: 9.0% Wages: 8.5%	Employment: 1.53 Wages: 1.72	Employment: 1.47 Wages: 1.72	1.46%	Software Developers, Applications
	Motion Picture and Sound Recording Industries	Employment: 4,643 Wages: \$33.7	Employment: 5,750 Wages: \$46.7	Employment: 23.8% Wages: 38.6%	Employment: 0.47 Wages: 0.18	Employment: 0.51 Wages: 0.23	0.08%	Ushers, Lobby Attendants, and Ticket Takers
	Other Information Services	Employment: 8,479 Wages: \$174.1	Employment: 10,465 Wages: \$227.0	Employment: 23.4% Wages: 30.4%	Employment: 0.62 Wages: 0.36	Employment: 0.58 Wages: 0.30	3.08%	Customer Service Representatives
	Publishing Industries	Employment: 15,349 Wages: \$365.4	Employment: 13,725 Wages: \$440.4	Employment: -10.6% Wages: 20.5%	Employment: 0.77 Wages: 0.62	Employment: 0.69 Wages: 0.58	0.01%	Editors
	Telecommunications	Employment: 25,563 Wages: \$878.1	Employment: 21,322 Wages: \$814.0	Employment: -16.6% Wages: -7.3%	Employment: 1.14 Wages: 1.44	Employment: 1.14 Wages: 1.38	0.35%	Telecommunications Line Installers and Repairers
Management of companies and Enterprises		Employment: 73,916 Wages: \$2,869.2	Employment: 82,605 Wages: \$3,591.3	Employment: 11.8% Wages: 25.2%	Employment: 1.24 Wages: 1.15	Employment: 1.27 Wages: 1.21	-0.13%	Accountants and Auditors
Manufacturing		Employment: 240,388 Wages: \$3,535.4	Employment: 251,798 Wages: \$4,047.4	Employment: 4.7% Wages: 14.5%	Employment: 0.71 Wages: 0.62	Employment: 0.71 Wages: 0.61	-0.43%	Team Assemblers
Mining		Employment: 7,177 Wages: \$122.4	Employment: 5,678 Wages: \$105.0	Employment: 20.9% Wages: -14.2%	Employment: 0.34 Wages: 0.24	Employment: 0.35 Wages: 0.24	-1.96%	Operating Engineers and Other Construction Equipment Operators
Other Services		Employment: 131,984 Wages: \$1,345.2	Employment: 141,030 Wages: \$1,665.6	Employment: 6.9% Wages: 23.8%	Employment: 1.18 Wages: 1.35	Employment: 1.15 Wages: 1.29	0.80%	Hairdressers, Hairstylists, and Cosmetologists
	Personal and Laundry Services	Employment: 41,622 Wages: \$253.4	Employment: 44,831 Wages: \$321.3	Employment: 7.7% Wages: 26.8%	Employment: 1.14 Wages: 1.12	Employment: 1.11 Wages: 1.09	1.46%	Hairdressers, Hairstylists, and Cosmetologists
	Private Households	Employment: 10,003 Wages: \$57.0	Employment: 10,784 Wages: \$73.2	Employment: 7.8% Wages: 28.4%	Employment: 1.45 Wages: 1.51	Employment: 1.35 Wages: 1.33	-0.18%	Maids and Housekeeping Cleaners
	Religious, Grant-making, Civic, Professional, and Similar	Employment: 45,500 Wages: \$660.9	Employment: 49,313 Wages: \$841.6	Employment: 8.4% Wages: 27.3%	Employment: 1.29 Wages: 1.79	Employment: 1.33 Wages: 1.75	0.70 %	Office Clerks, General
	Repair and Maintenance	Employment: 34,858 Wages: \$374.0	Employment: 36,101 Wages: \$429.4	Employment: 3.6% Wages: 14.8%	Employment: 1.03 Wages: 1.04	Employment: 0.98 Wages: 0.95	0.38%	Automotive Service Technicians and Mechanics

Industry	Industry Sub-Sector	2015 Employment and Wages (in Millions of Dollars)	2020 Employment and Wages (in Millions of Dollars)	5-Year Change	2015 Location Quotients	2019 Location Quotients	Average Annual Growth Rate*	Top Occupation by Employment
Professional, Scientific and Technical Services		Employment: 399,778 Wages: \$9,914.3	Employment: 448,962 Wages: \$12,862.9	Employment: 12.3% Wages: 29.7%	Employment: 1.73 Wages: 1.84	Employment: 1.71 Wages: 1.78	1.53%	Management Analysts
	Accounting, Tax Prep., Bookkeeping, and Payroll Services	Employment: 37,899 Wages: \$698.5	Employment: 41,264 Wages: \$882.4	Employment: 8.9% Wages: 26.3%	Employment: 1.41 Wages: 1.53	Employment: 1.42 Wages: 1.21	0.60%	Accountants and Auditors
	Advertising, Public Relations, and Related	Employment: 11,671 Wages: \$184.8	Employment: 10,875 Wages: \$203.4	Employment: -6.8% Wages: 10.1%	Employment: 0.93 Wages: 0.73	Employment: 0.86 Wages: 0.88	0.01%	Mail Clerks and Mail Machine Operators, Except Postal Service
	Architectural Engineering and Related	Employment: 58,156 Wages: \$1371.1	Employment: 63,405 Wages: \$1,688.9	Employment: 9.0% Wages: 23.2%	Employment: 1.41 Wages: 1.49	Employment: 1.40 Wages: 1.36	0.32%	Civil Engineers
	Computer Systems Design and Related	Employment: 149,909 Wages: \$4420.3	Employment: 169,438 Wages: \$5,742.5	Employment: 13.0% Wages: 29.9%	Employment: 3.00 Wages: 3.18	Employment: 2.87 Wages: 3.0	2.63%	Software Developers, Applications
	Legal Services	Employment: 25,124 Wages: \$475.9	Employment: 25,214 Wages: \$567.1	Employment: 0.4% Wages: 19.2%	Employment: 0.85 Wages: 0.74	Employment: 0.83 Wages: 0.72	-0.85%	Paralegals and Legal Assistants
	Management, Scientific, and Technical Consulting	Employment: 69,732 Wages: \$1,821.0	Employment: 82,072 Wages: \$2,394.4	Employment: 17.7% Wages: 31.5%	Employment: 2.07 Wages: 2.29	Employment: 1.99 Wages: 2.02	1.11%	Management Analysts
	Other Professional, Scientific, and Technical Services	Employment: 8,479 Wages: \$174.1	Employment: 10,465 Wages: \$227.0	Employment: 23.4% Wages: 30.4%	Employment: 1.31 Wages: 1.44	Employment: 1.38 Wages: 1.44	2.83%	Veterinary Assistants and Laboratory Animal Caretakers
	Scientific Research and Development Services	Employment: 23,592 Wages: \$647.3	Employment: 26,299 Wages: \$868.1	Employment: 11.5% Wages: 34.1%	Employment: 1.29 Wages: 1.17	Employment: 1.22 Wages: 1.0	0.62%	Software Developers, Systems Software
	Specialized Design Services	Employment: 2,092 Wages: \$28.0	Employment: 2,158 Wages: \$36.2	Employment: 3.2% Wages: 29.3%	Employment: 0.59 Wages: 0.50	Employment: 0.58 Wages: 0.56	-1.68%	Graphic Designers



Industry	Industry Sub-Sector	2015 Employment and Wages (in Millions of Dollars)	2020 Employment and Wages (in Millions of Dollars)	5-Year Change	2015 Location Quotients	2019 Location Quotients	Average Annual Growth Rate*	Top Occupation by Employment
Public Administration		Employment: 245,161 Wages: \$4,639.9	Employment: 257,327 Wages: \$4,996.1	Employment: 5.0% Wages: 7.7%	Employment: 0.89 Wages: 0.73	Employment: 0.92 Wages: 0.72	0.16%	Business Operations Specialists, All Other
	Admin. Of Economic Programs	Employment: 32,564 Wages: \$702.9	Employment: 31,990 Wages: \$667.7	Employment: -1.8% Wages: -5.0%	Employment: 1.04 Wages: 0.71	Employment: 1.13 Wages: 0.71	N/A	N/A
	Admin. Of Environmental Programs	Employment: 8,459 Wages: \$155.6	Employment: 8,165 Wages: \$148.0	Employment: -3.5% Wages: -4.9%	Employment: 0.48 Wages: 0.43	Employment: 0.49 Wages: 0.40	N/A	N/A
	Admin. of Housing Programs, and Urban Planning	Employment: 3,643 Wages: \$48.7	Employment: 3,699 Wages: \$55.8	Employment: 1.5% Wages: 14.6%	Employment: 0.00 Wages: 0.00	Employment: 0.00 Wages: 0.00	N/A	N/A
	Admin. Of Human Resource Programs	Employment: 16,197 Wages: \$234.3	Employment: 16,636 Wages: \$261.6	Employment: 2.7% Wages: 11.7%	Employment: 0.78 Wages: 0.73	Employment: 0.80 Wages: 0.73	N/A	N/A
	Executive, Legislative, Other General Government	Employment: 33,531 Wages: \$409.5	Employment: 36,095 Wages: \$493.6	Employment: 7.6% Wages: 20.5%	Employment: 0.51 Wages: 0.56	Employment: 0.53 Wages: 0.51	N/A	N/A
	Justice, Public Order, and Safety Activities	Employment: 79,788 Wages: \$1,251.8	Employment: 83,878 Wages: \$1,464.5	Employment: 5.1% Wages: 17.0%	Employment: 1.08 Wages: 0.85	Employment: 1.13 Wages: 0.86	N/A	N/A
	National Security and International Affairs	Employment: 68,854 Wages: \$1,775.3	Employment: 74,829 Wages: \$1,848.3	Employment: 8.7% Wages: 4.1%	Employment: 4.62 Wages: 5.50	Employment: 4.67 Wages: 5.60	N/A	N/A
	Space Research and Technology	Employment: 2,125 Wages: \$61.8	Employment: 2,035 Wages: \$56.5	Employment: -4.2% Wages: -8.6%	Employment: 4.54 Wages: 4.19	Employment: 4.47 Wages: 4.10	N/A	N/A
Real Estate and Rental & Leasing		Employment: 50,910 Wages: \$658.4	Employment: 55,429 Wages: \$869.4	Employment: 8.9% Wages: 36.1%	Employment: 0.94 Wages: 0.94	Employment: 0.92 Wages: 0.88	0.96%	Maintenance and Repair Workers, General
Retail Trade		Employment: 412,651 Wages: \$2,757.3	Employment: 403,578 Wages: \$3,215.7	Employment: -2.2% Wages: 16.6%	Employment: 1.01 Wages: 0.92	Employment: 0.98 Wages: 0.88	0.91%	Retail Salespersons
Transportation and Warehousing		Employment: 128,399 Wages: \$1,643.7	Employment: 150,884 Wages: \$2,082.8	Employment: 17.5% Wages: 26.7%	Employment: 0.88 Wages: 0.84	Employment: 0.85 Wages: 0.80	0.59%	Heavy and Tractor- Trailer Truck Drivers
Utilities		Employment: 18,341 Wages: \$415.3	Employment: 18,716 Wages: \$503.7	Employment: 2.0% Wages: 21.3%	Employment: 0.73 Wages: 0.72	Employment: 0.74 Wages: 0.73	0.24%	Electrical Power-Line Installers and Repairers
Wholesale Trade		Employment: 109,083 Wages: \$2,094.3	Employment: 109,028 Wages: \$2,460.7	Employment: -0.1% Wages: 17.5%	Employment: 0.70 Wages: 0.70	Employment: 0.70 Wages: 0.72	-1.07%	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products
Total		Employment: 3,642,817 Wages: \$50,675.9	Employment: 3,923,217 Wages: \$62,896.5	Employment: 7.7% Wages: 24.1%	N/A	N/A	0.64%	N/A

Source: Virginia Employment Commission, Quarterly Census of Employment

Source: Quarterly Census of Employment and Wages Location Quotient Calculator, Bureau of Labor Statistics

*Growth based on 2018-2028 Long-Term Industry Projections, Virginia Employment Commission

Note: Totals may not add due to rounding.

Note:- Employment and wage data represents data from the first quarter of the year, while location quotients are for the final quarter of the year due to data availability

- Location quotients reflect data from privately owned establishments, with the exception of Public Administration and its industry sub-sectors, which reflect data from state government owned establishments. National Security and International Affairs and Space Research and Technology reflect data from federal government owned establishments.

Appendix B

Industrial Shares of the Statewide Economy Over 30 Years

Industry	2019			2009			1999		
	Share of Establishments	Share of Employment	Share of Total Wages	Share of Establishments	Share of Employment	Share of Total Wages	Share of Establishments	Share of Employment	Share of Total Wages
Accommodation & Food Services	1%	0%	0%	1%	0%	0%	1%	0%	0%
Administrative and Support & Waste Management	0%	0%	0%	0%	0%	0%	0%	0%	0%
Agriculture, Forestry, Fishing & Hunting	0%	0%	1%	0%	1%	1%	0%	1%	1%
Arts, Entertainment & Recreation	8%	5%	5%	11%	6%	5%	12%	6%	6%
Construction	2%	6%	7%	3%	7%	7%	3%	11%	12%
Educational Services	4%	3%	4%	6%	3%	4%	6%	3%	5%
Finance & Insurance	9%	10%	5%	12%	11%	6%	14%	12%	7%
Health Care & Social Assistance	2%	4%	3%	3%	3%	3%	3%	4%	4%
Information	2%	2%	3%	2%	2%	4%	2%	3%	7%
Management of Companies & Enterprises	4%	4%	6%	5%	3%	5%	5%	4%	5%
Manufacturing	4%	1%	1%	4%	2%	1%	4%	2%	1%
Mining, Quarrying, and Oil & Gas Extraction	15%	11%	20%	15%	11%	20%	12%	8%	14%
Other Services (Except Public Administration)	1%	2%	4%	1%	2%	4%	1%	2%	4%
Professional, Scientific & Technical Services	5%	6%	5%	5%	6%	4%	5%	6%	4%
Public Administration	1%	9%	7%	1%	10%	8%	1%	8%	7%
Real Estate and Rental & Leasing	16%	13%	11%	11%	12%	11%	7%	10%	9%
Retail Trade	1%	2%	1%	1%	2%	1%	1%	2%	1%
Transportation & Warehousing	6%	9%	3%	7%	8%	3%	6%	7%	3%
Utilities	11%	4%	3%	10%	4%	3%	13%	4%	3%
Wholesale Trade	2%	6%	9%	2%	7%	9%	N/A	N/A	N/A

Source: Virginia Employment Commission, Quarterly Census of Employment and Wages, Annual 2019

Appendix C

Employer Needs by 2-Digit NAICS Industry

Industry	Quick Facts	Top 5 Occupations (Estimated Employment based on 2016 projections)	Top Advertised Skills	Top Advertised Certifications
Accommodation and Food Services	<ul style="list-style-type: none"> • 10.9% of VA Jobs • 16,040 Openings • 19,410 Employers • \$9.98 Average Hourly Wage • Top advertised Tool or Technology: Cash Register 	<ol style="list-style-type: none"> 1. Combined food Preparation and Serving Workers (74,873) 2. Waiters and Waitresses (66,326) 3. Cooks, Restaurant (31,780) 4. First-Line Supervisors of Food Preparation and Serving Workers (21,258) 5. Cashiers (14,522) 	<ol style="list-style-type: none"> 1. Customer Service 2. Conflict Management 3. Positive Attitude 4. Food Preparation 5. Cash Handling 	<ol style="list-style-type: none"> 1. ServeSafe 2. CPR 3. Commission of Dietetic Registration 4. First Aid 5. State Food Safety
Administrative Support and Waste Management	<ul style="list-style-type: none"> • 7.7% of VA Jobs • 10,073 Openings • 14,343 Employers • \$21.53 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Janitors and Cleaners (32,804) 2. Security Guards (22,030) 3. Landscaping and Grounds-keeping Workers (18,361) 4. Customer Service representatives (10,958) 5. Laborers and Freight, Stock, and Material Movers (8,781) 	<ol style="list-style-type: none"> 1. Customer Service 2. Flexibility 3. Attention to Detail 4. Interpersonal Skills 5. Problem Solving 	<ol style="list-style-type: none"> 1. CPR and First Aid 2. Nursing Credentials and Certifications 3. Commercial Drivers License (CDL) 4. Cisco Associate 5. ISC
Agriculture, Forestry, Fishing and Hunting	<ul style="list-style-type: none"> • 0.4% of VA Jobs • 95 Openings • 1,433 Employers • Average Hourly Wage • Top advertised Tool or Technology: Ladders 	<ol style="list-style-type: none"> 1. Farmworkers and Laborers (26,160) 2. Agricultural Equipment Operators (2,593) 3. First-Line Supervisors of Farming, Fishing and Forestry Workers (1,363) 4. Logging Equipment Operators (1,131) 5. Farmworkers, farm, ranch, and aquacultural animals (950) 	<ol style="list-style-type: none"> 1. Customer Service 2. Attention to Detail 3. Willingness to Learn 4. Time Management 5. Watering 	<ol style="list-style-type: none"> 1. Commercial Drivers License (CDL) 2. Cisco Associate 3. ISC 4. Offensive Security 5. GIAC Security – Cyber Defense
Arts, Entertainment and Recreation	<ul style="list-style-type: none"> • 2.0% of VA Jobs • 850 Openings • 5,614 Employers • \$11.63 Average Hourly Wage • Top advertised Tool or Technology: Saws 	<ol style="list-style-type: none"> 1. Amusement and Recreation Attendants (4,515) 2. Cashiers (1,857) 3. Waiters and Waitresses (1,812) 4. Receptionist and Information Clerks (1,544) 5. Lifeguards, Ski Patrol, and Other Recreational Protective Service (1,515) 	<ol style="list-style-type: none"> 1. Customer Service 2. Positive Attitude 3. Attention to Detail 4. Be a Team Player 5. Positive Work Ethic 	<ol style="list-style-type: none"> 1. CPR 2. First Aid 3. American Sports and Fitness Association 4. Aerobics and Fitness Association of America 5. Commission on Dietetic Registration

Industry	Quick Facts	Top 5 Occupations (Estimated Employment based on 2016 projections)	Top Advertised Skills	Top Advertised Certifications
Construction	<ul style="list-style-type: none"> • 6.3% of VA Jobs • 2,291 Openings • 21,198 Employers • \$28.50 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Construction Laborers (17,063) 2. Supervisors of Construction and Extraction Workers (14,101) 3. Carpenters (14,073) 4. Electricians (10,715) 5. Plumbers, Pipefitters, and Steamfitters (8,855) 	<ol style="list-style-type: none"> 1. Customer Service 2. Problem Solving 3. Attention to Detail 4. Work Independently 5. Self-Motivated 	<ol style="list-style-type: none"> 1. Commercial Drivers License (CDL) 2. CPR and First Aid 3. Board of Certified Safety Professionals 4. American Traffic Safety Services Association 5. Northwest Lineman College
Educational Services	<ul style="list-style-type: none"> • 1.9% of VA Jobs • 7,124 Openings • 6,857 Employers • \$22.33 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Teacher Assistants (24,496) 2. Bus Drivers (12,906) 3. Janitors and Cleaners (11,414) 4. Office Clerks (10,176) 5. Combined Food Preparation and Serving Workers (8,961) 	<ol style="list-style-type: none"> 1. Customer Service 2. Work Independently 3. Attention to Detail 4. Interpersonal Skills 5. Problem Solving 	<ol style="list-style-type: none"> 1. CPR 2. Nursing Credentials 3. First Aid 4. Council for Professional Recognition 5. Commercial Drivers License (CDL)
Finance and Insurance	<ul style="list-style-type: none"> • 4.4% of VA Jobs • 2,899 Openings • 13,097 Employers • \$42.80 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Customer Service Representatives (12,824) 2. Tellers (11,231) 3. Insurance Sales Agents (9,851) 4. First-Line Supervisors of Office and Administrative Support Workers (6,131) 5. Loan Interviewers and Clerks (5,343) 	<ol style="list-style-type: none"> 1. Customer Service 2. Problem Solving 3. Decision Making 4. Organizational Skills 5. Interpersonal Skills 	<ol style="list-style-type: none"> 1. Nursing Credentials 2. American Institute of CPAs 3. Information Systems Audit and Control 4. ISC 5. FINRA Financial Securities Professionals
Health Care and Social Assistance	<ul style="list-style-type: none"> • 13.8% of VA Jobs • 19,557 Openings • 37,093 Employers • \$24.43 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Registered Nurses (54,344) 2. Nursing Assistants (34,695) 3. Licensed Practical and Licensed Vocational Nurses (18,337) 4. Receptionists and Information Clerks (15,099) 5. Medical Assistants (11,577) 	<ol style="list-style-type: none"> 1. Customer Service 2. Problem Solving 3. Flexibility 4. Decision Making 5. Critical Thinking 	<ol style="list-style-type: none"> 1. Nursing Credentials 2. CPR and First Aid 3. Cisco Associate 4. National Registry of Emergency Medical Technicians 5. ISC
Information	<ul style="list-style-type: none"> • 2.1% of VA Jobs • 2,368 Openings • 5,675 Employers • \$46.60 Average Hourly Wage • Top advertised Tool or Technology: Linux Software 	<ol style="list-style-type: none"> 1. Customer Service Representatives (4,210) 2. Sales Representatives (3,850) 3. Telecommunications Line Installers and Repairers (3,229) 4. Software Developers, Applications (2,762) 5. Computer User Support Specialists (2,335) 	<ol style="list-style-type: none"> 1. Problem Solving 2. Customer Service 3. Attention to Detail 4. Flexibility 5. Work Independently 	<ol style="list-style-type: none"> 1. ISC 2. Information Systems Audit and Control Association 3. Cisco Associate 4. American Institute of CPAs 5. Cisco Professional

Industry	Quick Facts	Top 5 Occupations (Estimated Employment based on 2016 projections)	Top Advertised Skills	Top Advertised Certifications
Management of Companies and Enterprises	<ul style="list-style-type: none"> • 2.5% of VA Jobs • 1,429 Openings • 286 Employers • \$52.68 Average Hourly Wage • Top advertised Tool or Technology: Gmail 	<ol style="list-style-type: none"> 1. Accountants and Auditors (3,725) 2. General Operations Managers (2,675) 3. Bookkeeping, Accounting, and Auditing Clerks (2,454) 4. Management Analysts (2,369) 5. Financial Managers (2,360) 	<ol style="list-style-type: none"> 1. Customer Service 2. Problem Solving 3. Vacuum Floors 4. Flexibility 5. Decision Making 	<ol style="list-style-type: none"> 1. Nursing Credentials 2. CPR and First Aid 3. Competency and Credentialing Institute 4. National Board for Respiratory Care 5. Social Worker Credentials
Manufacturing	<ul style="list-style-type: none"> • 7.5% of VA Jobs • 5,217 Openings • 6,675 Employers • \$28.65 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Team Assemblers (11,822) 2. First-Line Supervisors of Production and Operating Workers (9,001) 3. Laborers and Freight, Stock, and Material Movers (6,896) 4. Inspectors, Testers, Sorters, Samplers, and Weighers (6,702) 5. Machinists (5,096) 	<ol style="list-style-type: none"> 1. Problem Solving 2. Customer Service 3. Decision Making 4. Attention to Detail 5. Work Independently 	<ol style="list-style-type: none"> 1. ISC 2. CompTIA 3. Commercial Drivers License (CDL) 4. Cisco Associate 5. Human Resource Certification Institute
Mining, Quarrying, and Oil and Gas Extraction	<ul style="list-style-type: none"> • 0.2% of VA Jobs • 112 Openings • 262 Employers • \$35.03 Average Hourly Wage • Top advertised Tool or Technology: Water Pump 	<ol style="list-style-type: none"> 1. Operating Engineers and Other Construction Equip. Operators (758) 2. Mine Cutting and Channeling Machine Operators (679) 3. Continuous Mining Machine Operators (632) 4. Helpers- extraction Workers (202) 5. Mobile heavy Equipment Mechanics (183) 	<ol style="list-style-type: none"> 1. Flexibility 2. Maintain Equipment 3. Customer Service 4. Welding 5. Preventative Maintenance 	<ol style="list-style-type: none"> 1. Commercial Drivers License (CDL)
Other Services (Except Public Administration)	<ul style="list-style-type: none"> • 4.4% of VA Jobs • 2,021 Openings • 38,954 Employers • \$21.20 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Hairdressers, Hairstylists, and Cosmetologists (9,368) 2. Automotive Service Technicians and Mechanics (7,170) 3. Office Clerks (5,187) 4. Cleaners of Vehicles and Equipment (4,945) 5. Childcare Workers (4,897) 	<ol style="list-style-type: none"> 1. Customer Service 2. Work Independently 3. Organizational Skills 4. Interpersonal Skills 5. Problem Solving 	<ol style="list-style-type: none"> 1. CPR 2. First Aid 3. Council for Professional Recognition 4. Association of Nutrition and Foodservice Professionals 5. Commercial Drivers License (CDL)
Professional, Scientific and Technical Services	<ul style="list-style-type: none"> • 13.5% of VA Jobs • 38,323 Openings • 26,216 Employers • \$50.15 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Management Analysts (27,472) 2. Software Developers, Applications (23,439) 3. Accountants and Auditors (18,825) 4. Software Developers, Systems Software (18,326) 5. Computer Systems Analysts (17,153) 	<ol style="list-style-type: none"> 1. Problem Solving 2. Flexibility 3. Work Independently 4. Customer Service 5. Risk Management 	<ol style="list-style-type: none"> 1. ISC 2. Cisco Associate 3. CompTIA 4. Information Systems Audit and Control Association 5. GIAC Security Certifications – Cyber Defense

Industry	Quick Facts	Top 5 Occupations (Estimated Employment based on 2016 projections)	Top Advertised Skills	Top Advertised Certifications
Public Administration	<ul style="list-style-type: none"> • 66.1% of VA Jobs • 3,195 Openings • 7,657 Employers • \$53.03 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Correctional Officers and Jailers (6,834) 2. Highway Maintenance Workers (2,959) 3. Office and Administrative Support Workers (2,184) 4. Probation Officers and Correctional Treatment Specialists (2,007) 5. Office Clerks (1,943) 	<ol style="list-style-type: none"> 1. Customer Service 2. Work Independently 3. Problem Solving 4. Attention to Detail 5. Decision Making 	<ol style="list-style-type: none"> 1. First Aid and CPR 2. Commercial Drivers License (CDL) 3. Nursing Credentials 4. Institute for Sustainable Infrastructure 5. American Public Works Association
Real Estate and Rental and Leasing	<ul style="list-style-type: none"> • 1.8% of VA Jobs • 1,139 Openings • 12,863 Employers • \$26.95 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Maintenance and Repair Workers (7,554) 2. Office Clerks (3,296) 3. Property, Real Estate, and Community Association Mgrs. (1,739) 4. Real Estate Brokers(1,622) 5. Secretaries and Administrative Assistants (1,614) 	<ol style="list-style-type: none"> 1. Customer Service 2. Preventative Maintenance 3. General Maintenance 4. Self-Motivated 5. Time Management 	<ol style="list-style-type: none"> 1. Commercial Drivers License 2. Nursing Credentials 3. North American Transportation Management Institute 4. National Apartment Association 5. CPR and First Aid
Retail Trade	<ul style="list-style-type: none"> • 12.4% of VA Jobs • 17,062 Openings • 34,006 Employers • \$14.80 Average Hourly Wage • Top advertised Tool or Technology: Cash Register 	<ol style="list-style-type: none"> 1. Retail Salespersons (109,799) 2. Cashiers (85,675) 3. Stock Clerks and Order Fillers (40,032) 4. First-Line Supervisors of Retail Sales Workers (27,868) 5. Automotive Service Technicians and Mechanics (10,725) 	<ol style="list-style-type: none"> 1. Customer Service 2. Willingness to Learn 3. Greeting Customers 4. Honesty 5. Stock Merchandise 	<ol style="list-style-type: none"> 1. Pharmacy Technician Certification Board 2. National Registry of Food Safety Professionals 3. Commercial Drivers License (CDL) 4. CPR and First Aid 5. Nursing Credentials
Transportation	<ul style="list-style-type: none"> • 3.9% of VA Jobs • 4,886 Openings • 5,027 Employers • \$24.73 Average Hourly Wage • Top advertised Tool or Technology: Android 	<ol style="list-style-type: none"> 1. Heavy and Tractor-Trailer Truck Drivers (22,261) 2. Laborers and Freight, Stock, and Material Movers (16,175) 3. Light Truck or Delivery Services Drivers (6,641) 4. Industrial Truck and Tractor Operators (5,110) 5. Flight Attendants (4,080) 	<ol style="list-style-type: none"> 1. Customer Service 2. Problem Solving 3. Work Independently 4. Delivers Mail 5. Verbal Communication Skills 	<ol style="list-style-type: none"> 1. Commercial Drivers License (CDL) 2. Project Management Institute 3. Toyota 4. Doctor of Veterinary Medicine 5. CPR and First Aid

Industry	Quick Facts	Top 5 Occupations (Estimated Employment based on 2016 projections)	Top Advertised Skills	Top Advertised Certifications
Utilities	<ul style="list-style-type: none"> • 0.3% of VA Jobs • 169 Openings • 341 Employers • \$50.88 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Electrical Power-Line Installers and Repairers (1,645) 2. Electrical Engineers (603) 3. Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (564) 4. Customer Service Representatives (467) 5. Control and Valve Installers and Repairers (404) 	<ol style="list-style-type: none"> 1. Self-Motivated 2. Customer Service 3. Problem Solving 4. Work Independently 5. Welding 	<ol style="list-style-type: none"> 1. Commercial Drivers License (CDL) 2. National Society of Professional Engineers 3. American Institute of CPAs 4. CPR and First Aid 5. Northwestern Lineman College
Wholesale Trade	<ul style="list-style-type: none"> • 3.4% of VA Jobs • 2,492 Openings • 6,691 Employers • \$40.83 Average Hourly Wage • Top advertised Tool or Technology: Forklift 	<ol style="list-style-type: none"> 1. Sales Reps, Wholesale and Manufacturing (19,774) 2. Laborers and Freight, Stock, and Material Movers, Hand (6,007) 3. Customer Service Representatives (4,220) 4. Heavy and Tractor-Trailer Truck Drivers (4,188) 5. Stock Clerks and Order Fillers (4,172) 	<ol style="list-style-type: none"> 1. Customer Service 2. Problem Solving 3. Interpersonal Skills 4. Attention to Detail 5. Verbal Communication Skills 	<ol style="list-style-type: none"> 1. Commercial Drivers License (CDL) 2. ISC 3. Cisco Associate 4. Americas Health Insurance Plans 5. Society for Maintenance and Reliability Professionals

Source: Virginia Employment Commission, Industry Profile. Skills, Certifications, and technologies based on employer self-identification in the Virginia Workforce Connection. Please note that as many job orders do not list these categories, data may skew towards those that do.



Appendix D

Employer Needs for Top Occupations by Current Openings

Occupation	Job Openings, ¹ Available Candidates ² and Average Advertised Annual wage ³	Top Employer Advertised Skills	Top Employer Advertised Certifications	Employer Advertised Education ⁴ and Experience
Registered Nurses	<ul style="list-style-type: none"> • 7,995 Openings • 534 Candidates • \$85,688 Average Wage 	<ul style="list-style-type: none"> • Customer Service • Critical Thinking • Must be Flexible • Interpersonal Skills • Decision Making 	<ul style="list-style-type: none"> • Registered Nurse • CPR and First Aid • American Association of Critical-Care Nurses • Competency and Credentialing Institute • Nephrology Nursing Certification Commission 	<ul style="list-style-type: none"> • Associate's Degree (or other 2- year degree) • 1 year to 2 years experience
Retail Salesperson	<ul style="list-style-type: none"> • 3,663 Openings • 2,792 Candidates • \$26,810 Average Wage 	<ul style="list-style-type: none"> • Customer Service • Honesty • Stock Merchandise • Check-in Merchandise • Greeting Customers 	<ul style="list-style-type: none"> • CPR and First Aid • National Registry of Emergency Medical Technicians • Soil Science Society of America • Commercial Drivers License • Information Systems Audit and Control 	<ul style="list-style-type: none"> • High School Diploma or GED • Entry Level
First-line Supervisors of Food Preparation and Serving Workers	<ul style="list-style-type: none"> • 3,482 Openings • 605 Candidates • \$47,726 Average Wage 	<ul style="list-style-type: none"> • Customer Service • Restaurant Management • Food Preparation • Control Costs • Interpersonal Skills 	<ul style="list-style-type: none"> • ServSafe • CPR • First Aid • TIPS Training • Commission on Dietetic Registration 	<ul style="list-style-type: none"> • High School Diploma or GED • Entry Level
Combined Food Preparation and Serving Workers, Including Fast Food	<ul style="list-style-type: none"> • 3,050 Openings • 1,372 Candidates • \$22,301 Average Wage 	<ul style="list-style-type: none"> • Customer Service • Greeting Customers • Positive Attitude • Conflict Management • Cash Handling 	<ul style="list-style-type: none"> • State Food Safety • Commission on Dietetic Registration 	<ul style="list-style-type: none"> • Less Than High School Diploma • Entry Level
Computer Systems Engineers/Architects	<ul style="list-style-type: none"> • 2,982 Openings • 163 Candidates • \$125,923 Average Wage 	<ul style="list-style-type: none"> • Problem Solving • Risk Management • Data Analytics • Work Independently • System Integration 	<ul style="list-style-type: none"> • ISC • Cisco Associate • CompTIA • Information Systems Audit and Control • GIAC Security – Cyber Defense 	<ul style="list-style-type: none"> • Bachelor's Degree • 6-8 years experience

Occupation	Job Openings, ¹ Available Candidates ² and Average Advertised Annual wage ³	Top Employer Advertised Skills	Top Employer Advertised Certifications	Employer Advertised Education ⁴ and Experience
Computer Programmers	<ul style="list-style-type: none"> • 2,857 Openings • 234 Candidates • \$126,669 Average Wage 	<ul style="list-style-type: none"> • Developing Web Based Applications • Problem Solving • Work Independently • Software Design • Agile Software Development 	<ul style="list-style-type: none"> • CompTIA • Cisco Associate • ISC • ServiceNow • GIAC Security – Cyber Defense 	<ul style="list-style-type: none"> • Bachelor's Degree • 6 to 8 years experience
Customer Service Representatives	<ul style="list-style-type: none"> • 2,661 Openings • 9,375 Candidates • \$31,108 Average Wage 	<ul style="list-style-type: none"> • Customer Service • Problem Solving • Organizational Skills • Decision Making • Relationship Management 	<ul style="list-style-type: none"> • Commercial Drivers License • CPR and First Aid • National Association of Healthcare Access Management • Nursing Credentials • LOMA 	<ul style="list-style-type: none"> • High School Diploma or GED • 1 to 2 years experience
Network and Computer Systems Administrators	<ul style="list-style-type: none"> • 2,193 Openings • 463 Candidates • \$78,562 Average Wage 	<ul style="list-style-type: none"> • Problem Solving • Customer Service • Conflict Management • Work Independently • Interpersonal Skills 	<ul style="list-style-type: none"> • Cisco Associate • ISC • CompTIA • GIAC Security – Cyber Defense • Cisco Professional 	<ul style="list-style-type: none"> • Bachelor's Degree • 6 to 8 years experience
First-line Supervisors of Retail Sales Workers	<ul style="list-style-type: none"> • 2,136 Openings • 1,675 Candidates • \$38,419 Average Wage 	<ul style="list-style-type: none"> • Customer Service • Problem Solving • Organizational Skills • Decision Making • Record Keeping 	<ul style="list-style-type: none"> • National Registry of Food Safety Professionals • CPR and First Aid • Avaya • Soil Science Society of America • Institute of Hazardous Materials Management 	<ul style="list-style-type: none"> • High School Diploma or GED • 4 to 6 years experience
Computer Network Support Specialists	<ul style="list-style-type: none"> • 2,119 Openings • 292 Candidates • \$76,240 Average Wage 	<ul style="list-style-type: none"> • Problem Solving • Customer Service • Decision Making • Risk Management • Interpersonal Skills 	<ul style="list-style-type: none"> • ISC • Cisco Associate • CompTIA • GIAC • Information Systems Audit and Control 	<ul style="list-style-type: none"> • Bachelor's Degree • 4 to 6 years experience

¹ Monthly Job Count for September 2020. Job openings include all online postings, after de-duplication efforts.

² Candidate Count is individuals with active resumes in the Virginia Workforce Connection that specify a preference for a given occupation as of September 27, 2020.

³ Not all positions advertised include wage information.

⁴ Not all positions advertised include education requirements

Source: Virginia Employment Commission, Occupation Profiles. Skills, Certifications, and Technologies are self-reported by employers in the Virginia Workforce Connection.

Appendix E

Labor Force Participation Rates and Trends by Locality

Area	2015	2019	Change
Virginia	62.0	63.4	1.4
Accomack County	60.1	63.9	3.8
Albemarle County	69.9	72.1	2.2
Alexandria City	77.9	81.3	3.4
Alexandria/Arlington (LWDA XII)	78.1	81.9	3.8
Alleghany County	54.1	55.2	1.1
Amelia County	60.7	61.5	0.8
Amherst County	60.1	59.9	-0.2
Appomattox County	57.7	57.6	-0.1
Arlington County	78.2	82.5	4.3
Augusta County	62.8	64.2	1.4
Bath County	67.5	67.8	0.3
Bedford County	62.0	60.7	-1.3
Bland County	55.5	58.6	3.1
Botetourt County	64.7	64.3	-0.4
Bristol City	53.4	53.3	-0.1
Brunswick County	52.0	50.2	-1.8
Buchanan County	38.8	38.3	-0.5
Buckingham County	53.1	54.2	1.1
Buena Vista City	66.2	72.7	6.5
Campbell County	58.8	58.1	-0.7
Capital Region Workforce Partnership (LWDA IX)	67.4	68.4	1.0
Caroline County	67.4	71.0	3.6
Carroll County	53.4	54.2	0.8
Charles City County	61.2	61.4	0.2
Charlotte County	53.4	54.7	1.3
Charlottesville City	67.7	70.9	3.2
Chesapeake City	68.2	70.2	2.0
Chesterfield County	70.7	71.9	1.2
Clarke County	64.2	65.8	1.6
Colonial Heights City	63.5	64.8	1.3
Covington City	54.2	53.4	-0.8
Craig County	58.2	53.9	-4.3
Culpeper County	64.1	65.9	1.8
Cumberland County	56.7	57.6	0.9
Danville City	58.7	60.7	2.0
Dickenson County	40.6	39.7	-0.9
Dinwiddie County	60.1	61.4	1.3
Emporia City	51.4	57.1	5.7
Essex County	61.5	62.7	1.2
Fairfax City	68.9	73.7	4.8
Fairfax County	70.8	72.6	1.8
Falls Church City	77.7	80.8	-3.1
Fauquier County	67.7	69.1	1.4
Floyd County	66.3	64.1	-2.2
Fluvanna County	66.7	69.2	2.5
Franklin City	55.6	58.1	2.5
Franklin County	58.8	58.0	-0.8

Area	2015	2019	Change
Frederick County	70.9	72.8	1.9
Fredericksburg City	68.7	70.2	1.5
Galax City	56.4	58.6	2.2
Giles County	58.4	58.5	0.1
Gloucester County	64.6	65.4	0.8
Goochland County	62.4	62.9	0.5
Grayson County	58.6	65.4	6.8
Greene County	66.9	70.5	3.6
Greensville County	63.8	66.3	2.5
Halifax County	54.1	56.6	2.5
Hampton City	63.3	64.4	1.1
Hampton Roads (LWDA XVI)	65.7	67.1	1.4
Hanover County	71.2	72.8	1.6
Harrisonburg City	65.5	66.2	0.7
Henrico County	70.8	71.7	0.9
Henry County	52.7	56.7	4.0
Highland County	68.2	64.2	-4.0
Hopewell City	56.8	57.6	0.8
Isle of Wright County	65.9	67.2	1.3
James City County	61.1	62.2	1.1
King and Queen County	62.0	65.9	3.9
King George County	65.4	69.7	4.3
King William County	69.1	70.7	1.6
Lancaster County	54.1	59.3	5.2
Lee County	44.8	44.7	-0.1
Lexington City	63.1	55.7	-7.4
Loudoun County	78.7	79.4	0.7
Louisa County	68.6	70.1	1.5
Lunenburg County	56.3	58.4	2.1
Lynchburg City	66.0	65.6	-0.4
Madison County	68.8	71.1	2.3
Manassas City	70.5	71.0	0.5
Manassas Park City	71.4	75.0	3.6
Martinsville City	50.8	56.0	5.2
Matthews County	54.4	55.2	0.8
Mecklenburg County	49.4	50.8	1.4
Middlesex County	56.5	60.0	3.5
Montgomery County	67.7	69.3	1.6
Nelson County	59.5	61.3	1.8
New Kent County	73.7	75.9	2.2
New River/Mt. Rogers (LWDA II)	59.3	60.9	1.6
Newport News City	70.0	71.1	1.1
Norfolk City	76.4	78.3	1.9
Northern Virginia (LWDA XI)	72.9	75.2	2.3
Norton City	53.8	55.4	1.6
Northampton County	62.7	57.4	-5.3
Northumberland County	51.3	53.8	2.5
Nottoway County	67.2	67.9	0.7
Orange County	58.9	62.6	3.7
Page County	59.8	62.6	2.8
Patrick County	50.1	49.3	-0.8

Area	2015	2019	Change
Piedmont Workforce Network (LWDA VI)	65.3	67.5	2.2
Petersburg City	54.1	54.1	0.0
Pittsylvania County	59.5	60.6	1.1
Poquoson City	64.3	66.8	2.5
Portsmouth City	62.7	64.7	2.0
Powhatan County	60.7	61.9	1.2
Prince Edward County	65.6	66.2	0.6
Prince George	62.6	60.4	-2.2
Prince William County	72.6	73.6	1.0
Pulaski County	58.9	58.4	-0.5
Radford City	69.5	70.4	0.9
Rappahannock County	59.7	59.9	0.2
Region 2000/Central VA (LWDA VII)	60.9	60.4	-0.5
Richmond City	68.6	68.8	0.2
Richmond County	62.8	70.2	7.4
Roanoke City	63.6	63.7	0.1
Roanoke County	66.0	66.5	0.5
Rockbridge County	55.2	58.6	3.4
Rockingham County	66.2	67.6	1.4
Russell County	49.8	50.0	0.2
Salem City	67.2	68.2	1.0
Scott County	52.8	52.3	-0.5
Shenandoah County	61.6	65.0	3.4
Shenandoah Valley (LWDA IV)	64.3	65.5	1.2
Smyth County	53.3	55.4	2.1
South Central (LWDA VIII)	56.9	57.8	0.9
Southampton County	67.6	68.8	1.2
Southwestern Virginia (LWDA I)	46.8	46.7	-0.1
Staunton City	62.5	64.4	1.9
Spotsylvania County	65.4	66.7	1.3
Stafford County	69.1	70.4	1.3
Suffolk City	65.9	67.4	1.5
Surry County	65.0	66.5	1.5
Sussex County	53.9	52.1	-1.8
Tazewell County	48.3	47.3	-1.0
Virginia Beach City	70.5	71.5	1.0
Warren County	65.2	67.2	2.0
Washington County	61.3	61.6	0.3
Waynesboro City	60.7	63.1	2.4
West Piedmont (LWDA XVII)	54.4	56.7	2.3
Western Virginia (LWDA III)	60.5	60.4	-0.1
Westmoreland County	61.9	66.2	4.3
Williamsburg City	75.1	76.9	1.8
Winchester City	68.4	70.5	2.1
Wise County	45.6	45.8	0.2
Wythe County	57.8	58.2	0.4
York County	65.6	67.2	1.6

Source: Virginia Employment Commission

Appendix F

Top 5 Growing Minor Group Occupations by Employment Growth

Workforce Area	Occupation	2018 Estimated Employment	2028 Employment Forecast	Forecasted Employment Change	Average Annual Growth
LWDA I – Southwestern Virginia	Other Personal Care and Service Workers	1,276	1,99	703	5.51%
	Nursing, Psychiatric, and Home Health Aides	901	1,185	284	3.15%
	Animal Care and Service Workers	77	100	23	2.99%
	Occupational Therapy and Physical Therapist Assistants	176	225	49	2.78%
	Other Healthcare Support Occupations	404	484	80	1.98%
LWDA II – New River/ Mt. Rogers	Other Personal Care and Service Workers	3,433	5,042	1,609	4.69%
	Occupational Therapy and Physical Therapist Assistants	197	262	65	3.30%
	Media and Communication Equipment Workers	142	186	44	3.10%
	Animal Care and Service Workers	434	552	118	2.72%
	Other Healthcare Support Occupations	1,214	1,530	316	2.60%
LWDA III – Western Virginia	Other Personal Care and Service Workers	2,192	3,425	1,233	5.63%
	Animal Care and Service Workers	94	129	35	3.72%
	Social Scientists and Related Workers	162	218	56	3.46%
	Nursing, Psychiatric, and Home Health Aides	1,702	2,068	366	2.15%
	Supervisors of Farming, Fishing, and Forestry Workers	113	133	20	1.77%
LWDA IV – Shenandoah Valley	Other Professional Care and Service Workers	5,942	8,276	2,334	3.93%
	Occupational Therapy and Physical Therapist Assistants	379	498	119	3.14%
	Social Scientists and Related Workers	380	483	103	2.71%
	Counselors, Social Workers, and Other Community and Social Support Occupations	2,476	3,112	636	2.57%
	Nursing, Psychiatric, and Home Health Aides	3,966	4,978	1,012	2.55%
LWDA VI – Piedmont Workforce Network	Other Personal Care and Service Workers	5,764	8,053	2,289	3.97%
	Mathematical Science Occupations	176	243	67	3.81%
	Occupational Therapy and Physical Therapist Assistants	135	179	44	3.26%
	Animal Care and Service Workers	303	393	90	2.97%
	Other Healthcare Support Occupations	1,396	1,739	343	2.46%
LWDA VII – Central Virginia	Other Personal Care and Service Workers	3,170	4,422	1,252	3.95%
	Occupational Therapy and Physical Therapist Assistants	194	266	72	3.71%
	Other Healthcare Support Occupations	1,168	1,510	342	2.93%
	Counselors, Social Workers, and Other Community and Social Support Occupations	2,043	2,626	583	2.85%
	Nursing, Psychiatric, and Home Health Aides	2,031	2,558	527	2.59%
LWDA VIII – South Central Virginia	Other Personal Care and Service Workers	2,192	3,425	1,233	5.63%
	Animal Care and Service Workers	94	129	35	3.72%
	Social Scientists and Related Workers	162	218	56	3.46%
	Nursing, Psychiatric, and Home Health Aides	1,702	2,068	366	2.15%
	Supervisors of Farming, Fishing, and Forestry Workers	113	133	20	1.77%

Workforce Area	Occupation	2018 Estimated Employment	2028 Employment Forecast	Forecasted Employment Change	Average Annual Growth
LWDA IX – Capital Region Workforce Partnership	Other Personal Care and Service Workers	13,877	18,808	4,931	3.55%
	Mathematical and Science Occupations	1,205	1,566	361	3.00%
	Occupational Therapy and Physical Therapist Assistants	662	857	195	2.95%
	Nursing, Psychiatric, and Home Health Aides	7,373	9,476	2,103	2.85%
	Animal Care and Service Workers	1,164	1,495	331	2.84%
Combined LWDA XI and XII– Northern Virginia and Alexandria/ Arlington*	Occupational Therapy and Physical Therapist Assistants	941	1,309	368	3.91%
	Mathematical Science Occupations	6,457	8,934	2,477	3.84%
	Nursing, Psychiatric, and Home Health Aides	10,238	13,671	3,433	3.35%
	Other Healthcare Support Occupations	11,620	14,910	3,290	2.83%
	Animal Care and Service Workers	3,436	4,399	963	2.80%
LWDA XIII – Bay Consortium	Media and Communication Equipment Workers	139	230	91	6.55%
	Occupational Therapy and Physical Therapist Assistants	281	430	149	5.30%
	Other Personal Care and Service Workers	5,752	8,139	2,387	4.15%
	Mathematical Science Occupations	658	860	202	3.07%
	Other Healthcare Support Occupations	1,726	2,203	477	2.76%
LWDA XIV – Greater Peninsula	Media and Communication Equipment Workers	414	605	191	4.61%
	Occupational Therapy and Physical Therapist Assistants	399	546	147	3.68%
	Mathematical Science Occupations	207	276	69	3.33%
	Other Personal Care and Service Workers	5,007	6,431	1,424	2.84%
	Animal Care and Service Workers	614	786	172	2.80%
LWDA XV – Crater Area	Other Personal Care and Service Workers	2,312	3,296	984	4.26%
	Occupational Therapy and Physical Therapist Assistants	76	100	24	3.16%
	Nursing, Psychiatric, and Home Health Aides	1,280	1,616	336	2.63%
	Other Healthcare Support Occupations	718	906	188	2.62%
	Animal Care and Service Workers	191	237	46	2.41%
LWDA XVI – Hampton Roads	Mathematical Science Occupations	951	1,377	426	4.48%
	Other Personal Care and Service Workers	12,513	16,953	4,440	3.55%
	Occupational Therapy and Physical Therapist Assistants	822	1,103	281	3.42%
	Nursing, Psychiatric, and Home Health Aides	9,563	12,564	3,001	3.14%
	Other Healthcare Support Occupations	6,109	7,918	1,809	2.96%
LWDA XVII – West Piedmont	Other Personal Care and Service Workers	3,336	5,086	1,750	5.25%
	Occupational Therapy and Physical Therapist Assistants	161	217	56	3.48%
	Animal Care and Service Workers	125	158	33	2.64%
	Other Healthcare Support Occupations	431	540	109	2.53%
	Nursing, Psychiatric, and Home Health Aides	1,832	2,274	442	2.41%

Source: Virginia Employment Commission, Long-Term Occupational Projections

Note: Occupations based on 2018 data, and estimated through 2028

*Long-Term Occupational Projections are not available for Alexandria/Arlington and Northern Virginia LWDAs individually

Appendix G

Top 5 Growing Industries (3 Digit NAICS) by Forecasted Employment Growth

Workforce Area	Occupation	2018 Estimated Employment	2028 Employment Forecast	Forecasted Employment Change	Average Annual Growth
LWDA I – Southwestern Virginia	Social Assistance	1,645	2,627	982	5.97%
	Ambulatory Health Care Services	3,293	4,411	1,118	3.40%
	Oil and Gas Extraction	214	260	46	2.15%
	Nursing and Residential Care Facilities	1,686	1,976	290	1.72%
	Professional, Scientific, and Technical Services	2,119	2,454	335	1.58%
LWDA II – New River/ Mt. Rogers	Social Assistance	3,186	4,859	1,673	5.25%
	Ambulatory Health Care Services	5,466	7,220	1,754	3.21%
	Warehousing and Storage	1,052	1,307	255	2.42%
	Nursing and Residential Care Facilities	3,456	4,041	585	1.69%
	Professional, Scientific, and Technical Services	4,413	5,138	725	1.64%
LWDA III – Western Virginia	Ambulatory Health Care Services	7,368	9,826	2,458	3.34%
	Support Activities for Agriculture and Forestry	104	132	28	2.69%
	Warehousing and Storage	1,682	2,064	382	2.27%
	Nursing and Residential Care Facilities	4,856	5,882	1,026	2.11%
	Religious, Grantmaking, Civic, Professional, and Similar Organizations	1,666	1,987	321	1.93%
LWDA IV – Shenandoah Valley	Social Assistance	4,906	7,563	2,657	5.42%
	Other Information Services	379	561	182	4.80%
	Ambulatory Health Care Services	8,118	10,755	2,637	3.25%
	Support Activities for Agriculture and Forestry	585	771	186	3.18%
	Warehousing and Storage	5,013	6,333	1,320	2.63%
LWDA VI – Piedmont Workforce Network	Social Assistance	3,766	5,973	2,207	5.86%
	Ambulatory Health Care Services	6,613	8,675	2,062	3.12%
	Support Activities for Agriculture and Forestry	312	405	93	2.98%
	Nursing and Residential Care Facilities	3,643	4,410	767	2.11%
	Building Material and Garden Equipment and Supplies Dealers	2,123	2,554	431	2.03%
LWDA VII – Central Virginia	Social Assistance	2,767	4,082	1,315	4.75%
	Ambulatory Health Care Services	5,290	7,089	1,799	3.40%
	Nursing and Residential Care Facilities	2,963	3,588	625	2.11%
	Warehousing and Storage	225	271	46	2.04%
	Religious, Grantmaking, Civic, Professional, and Similar Organizations	921	1,084	163	1.77%
LWDA VIII – South Central Virginia	Social Assistance	1,708	2,848	1,140	6.67%
	Ambulatory Health Care Services	2,916	3,960	1,044	3.58%
	Warehousing and Storage	966	1,185	219	2.27%
	Religious, Grantmaking, Civic, Professional, and Similar Organizations	276	328	52	1.88%
	Nursing and Residential Care Facilities	2,131	2,514	383	1.80%

Workforce Area	Occupation	2018 Estimated Employment	2028 Employment Forecast	Forecasted Employment Change	Average Annual Growth
LWDA IX – Capital Region Workforce Partnership	Social Assistance	12,850	19,025	6,175	4.81%
	Other Information Services	352	521	169	4.8%
	Ambulatory Health Care Services	26,193	34,875	8,682	3.31%
	Support Activities for Agriculture and Forestry	115	148	33	2.87%
	Warehousing and Storage	5,590	7,011	1,421	2.54%
Combined LWDA XI and XII– Northern Virginia and Alexandria/Arlington*	Other Information Services	2,593	3,909	1,316	5.08%
	Ambulatory Health Care Services	50,492	67,859	17,367	3.44%
	Social Assistance	19,678	26,331	6,653	3.38%
	Nursing and Residential Care Facilities	13,915	17,310	3,215	2.31%
	Heavy and Civil Engineering Construction	8,318	10,122	1,804	2.17%
LWDA XIII – Bay Consortium	Social Assistance	4,476	6,726	2,250	5.03%
	Other Information Services	130	192	62	4.77%
	Ambulatory Health Care Services	8,282	11,074	2,792	3.37%
	Nursing and Residential Care Facilities	3,235	3,910	675	2.09%
	Professional, Scientific, and Technical Services	9,895	11,780	1,885	1.91%
LWDA XIV – Greater Peninsula	Other Information Services	168	249	81	4.82%
	Social Assistance	4,117	5,691	1,574	3.82%
	Ambulatory Health Care Services	10,805	14,325	3,520	3.26%
	Nursing and Residential Care Facilities	5,032	6,047	1,015	2.02%
	Health and Personal Care Stores	1,684	2,004	320	1.90%
LWDA XV – Crater Area	Social Assistance	1,507	2,319	812	5.39%
	Ambulatory Health Care Services	3,566	4,843	1,277	3.58%
	Warehousing and Storage	3,704	4,516	812	2.19%
	Nursing and Residential Care Facilities	2,268	2,747	479	2.11%
	Professional, Scientific, and Technical Services	1,623	1,924	301	1.85%
LWDA XVI – Hampton Roads	Social Assistance	9,741	13,956	4,215	4.33%
	Ambulatory Health Care Services	28,532	38,472	9,940	3.48%
	Warehousing and Storage	3,392	4,185	793	2.34%
	Support Activities for Agriculture and Forestry	152	186	34	2.24%
	Nursing and Residential Care Facilities	11,539	13,993	2,454	2.13%
LWDA XVII – West Piedmont	Social Assistance	2,499	4,147	1,648	6.59%
	Ambulatory Health Care Services	3,601	4,848	1,247	3.46%
	Nursing and Residential Care Facilities	2,264	2,713	449	1.98%
	Professional, Scientific, and Technical Services	2,125	2,538	413	1.94%
	Religious, Grantmaking, Civic, Professional, and Similar Organizations	460	542	82	1.78%

Source: Virginia Employment Commission, Long-Term Industry Projections

Note: Industries based on 2018 data, and estimated through 2028

*Long-Term Industry Projections are not available for Alexandria/Arlington and Northern Virginia LWDAs individually

Appendix H

Regional Education Gap

Local Workforce Development Area	Education Level	Job Openings (Percent of Total Openings)*	Potential Candidates (Percent of Total Candidates)
LWDA I – Southwest Virginia	No Minimum Required	53 (2.97%)	0 (N/A)
	High School Diploma or Equivalent	132 (7.39%)	10,919 (36.75%)
	Vocational School Certificate	1 (0.06%)	1,258 (4.23%)
	Associate's Degree	5 (0.28%)	4,154 (13.98%)
	Bachelor's Degree	26 (1.46%)	5,585 (18.80%)
	Master's Degree	2 (0.11%)	2,424 (8.16%)
	Doctorate Degree	1 (0.06%)	306 (1.03%)
LWDA II – New River/Mt. Rogers	No Minimum Required	254 (3.92%)	0 (N/A)
	High School Diploma or Equivalent	425 (6.56%)	14,867 (39.61%)
	Vocational School Certificate	4 (0.06%)	1,554 (4.14%)
	Associate's Degree	46 (0.71%)	5,371 (14.31%)
	Bachelor's Degree	121 (1.87%)	6,460 (17.21%)
	Master's Degree	39 (0.60%)	2,645 (7.05%)
	Doctorate Degree	7 (0.11%)	334 (0.89%)
LWDA III – Western Virginia	No Minimum Required	150 (2.20%)	0 (N/A)
	High School Diploma or Equivalent	631 (9.25%)	13,597 (38.00%)
	Vocational School Certificate	5 (0.07%)	1,519 (4.25%)
	Associate's Degree	75 (1.10%)	5,209 (14.56%)
	Bachelor's Degree	170 (2.49%)	6,451 (18.03%)
	Master's Degree	15 (0.22%)	2,658 (7.43%)
	Doctorate Degree	5 (0.07%)	323 (0.90%)
LWDA IV – Shenandoah Valley	No Minimum Required	267 (2.97%)	0 (N/A)
	High School Diploma or Equivalent	792 (8.82%)	13,602 (37.13%)
	Vocational School Certificate	13 (0.14%)	1,632 (4.46%)
	Associate's Degree	71 (0.79%)	4,894 (13.36%)
	Bachelor's Degree	242 (2.70%)	7,117 (19.43%)
	Master's Degree	53 (0.59%)	2,982 (8.14%)
	Doctorate Degree	8 (0.09%)	374 (1.02%)
LWDA VI – Piedmont Workforce Network	No Minimum Required	147 (1.59%)	0 (N/A)
	High School Diploma or Equivalent	788 (8.55%)	13,377 (33.40%)
	Vocational School Certificate	18 (0.20%)	1,765 (4.41%)
	Associate's Degree	186 (2.02%)	5,590 (13.96%)
	Bachelor's Degree	879 (9.54%)	8,878 (22.17%)
	Master's Degree	104 (1.13%)	3,682 (9.19%)
	Doctorate Degree	50 (0.54%)	451 (1.13%)
LWDA VII – Central Virginia	No Minimum Required	74 (1.68%)	0 (N/A)
	High School Diploma or Equivalent	193 (4.38%)	12,571 (37.27%)
	Vocational School Certificate	4 (0.09%)	1,441 (4.27%)
	Associate's Degree	16 (0.36%)	4,803 (14.24%)
	Bachelor's Degree	107 (2.43%)	6,324 (18.75%)
	Master's Degree	4 (0.09%)	2,646 (7.84%)
	Doctorate Degree	4 (0.09%)	329 (0.98%)
LWDA VIII – South Central Virginia	No Minimum Required	53 (2.25%)	0 (N/A)
	High School Diploma or Equivalent	164 (6.95%)	12,567 (36.61%)
	Vocational School Certificate	5 (0.21%)	1,448 (4.22%)
	Associate's Degree	14 (0.59%)	4,910 (14.30%)
	Bachelor's Degree	63 (2.67%)	6,598 (19.22%)
	Master's Degree	19 (0.81%)	2,764 (8.05%)
	Doctorate Degree	0 (N/A)	338 (0.99%)

Local Workforce Development Area	Education Level	Job Openings (Percent of Total Openings)*	Potential Candidates (Percent of Total Candidates)
LWDA IX – Capital Region	No Minimum Required	399 (1.52%)	0 (N/A)
	High School Diploma or Equivalent	1,726 (6.56%)	17,667 (35.82%)
	Vocational School Certificate	27 (0.10%)	2,082 (4.22%)
	Associate's Degree	279 (1.06%)	7,207 (14.61%)
	Bachelor's Degree	995 (3.78%)	9,924 (20.12%)
	Master's Degree	58 (0.22%)	3,861 (7.83%)
	Doctorate Degree	11 (0.04%)	420 (0.85%)
LWDA XI – Northern Virginia	No Minimum Required	2,009 (3.03%)	0 (N/A)
	High School Diploma or Equivalent	3,286 (4.95%)	14,440 (29.11%)
	Vocational School Certificate	42 (0.06%)	2,074 (4.18%)
	Associate's Degree	660 (0.99%)	6,717 (13.54%)
	Bachelor's Degree	7,609 (11.46%)	12,729 (25.66%)
	Master's Degree	366 (0.55%)	5,463 (11.01%)
	Doctorate Degree	46 (0.07%)	633 (1.28%)
LWDA XII - Alexandria/Arlington	No Minimum Required	675 (3.94%)	0 (N/A)
	High School Diploma or Equivalent	591 (3.45%)	10,999 (29.23%)
	Vocational School Certificate	21 (0.12%)	1,583 (4.21%)
	Associate's Degree	178 (1.04%)	4,996 (13.28%)
	Bachelor's Degree	2,794 (16.31%)	9,543 (25.36%)
	Master's Degree	162 (0.95%)	4,347 (11.55%)
	Doctorate Degree	36 (0.21%)	508 (1.35%)
LWDA XIII – Bay Consortium	No Minimum Required	192 (2.22%)	0 (N/A)
	High School Diploma or Equivalent	484 (5.60%)	15,272 (33.22%)
	Vocational School Certificate	18 (0.21%)	2,063 (4.49%)
	Associate's Degree	37 (0.43%)	6,491 (14.12%)
	Bachelor's Degree	320 (3.71%)	10,128 (22.03%)
	Master's Degree	42 (0.49%)	4,183 (9.10%)
	Doctorate Degree	3 (0.03%)	510 (1.11%)
LWDA XIV – Greater Peninsula	No Minimum Required	212 (2.30%)	0 (N/A)
	High School Diploma or Equivalent	793 (8.59%)	15,342 (35.85%)
	Vocational School Certificate	31 (0.34%)	2,019 (4.72%)
	Associate's Degree	112 (1.21%)	6,516 (15.23%)
	Bachelor's Degree	426 (4.61%)	8,050 (18.81%)
	Master's Degree	70 (0.76%)	3,430 (8.01%)
	Doctorate Degree	14 (0.15%)	395 (0.92%)
LWDA XV – Crater Area	No Minimum Required	82 (2.15%)	0 (N/A)
	High School Diploma or Equivalent	309 (8.09%)	13,940 (36.99%)
	Vocational School Certificate	10 (0.26%)	1,660 (4.41%)
	Associate's Degree	34 (0.89%)	5,400 (14.33%)
	Bachelor's Degree	81 (2.12%)	7,181 (19.05%)
	Master's Degree	8 (0.21%)	3,002 (7.97%)
	Doctorate Degree	2 (0.05%)	345 (0.92%)
LWDA XVI – Hampton Roads	No Minimum Required	562 (2.63%)	0 (N/A)
	High School Diploma or Equivalent	1,713 (8.01%)	17,119 (35.30%)
	Vocational School Certificate	50 (0.23%)	2,317 (4.78%)
	Associate's Degree	323 (1.51%)	7,511 (15.49%)
	Bachelor's Degree	1,170 (5.47%)	9,071 (18.71%)
	Master's Degree	61 (0.29%)	3,655 (7.54%)
	Doctorate Degree	10 (0.05%)	419 (0.86%)
LWDA XVII – West Piedmont	No Minimum Required	118 (3.62%)	0 (N/A)
	High School Diploma or Equivalent	331 (10.17%)	12,992 (38.57%)
	Vocational School Certificate	10 (0.31%)	1,420 (4.22%)
	Associate's Degree	23 (0.71%)	4,831 (14.34%)
	Bachelor's Degree	84 (2.58%)	5,933 (17.61%)
	Master's Degree	4 (0.12%)	2,530 (7.51%)
	Doctorate Degree	0 (N/A)	315 (0.94%)

*Not all job postings list an educational requirement

Source: Virginia Employment Commission. Area Labor Market Profiles, September 2020

Appendix I

Regional Supply and Demand

Region	Candidates Per Job	Unemployed Per Job*	Candidates Per Job of Top 5 Advertised Occupation Groups	Candidates Per job by Work Experience**
LWDA I - Southwestern VA	16.64	3.43	First-Line Supervisors of Food Preparation and Serving Workers (0.62)	Less than 1 year (82.5)
			Retail Salespersons (3.51)	1 Year to 2 Years (1)
			Combined Food Preparation and Serving Workers, Including Fast Food (1.66)	2 Years to 5 Years (304.54)
			Customer Service Representatives (14.68)	5 Years to 10 Years (4913)
			Physicians and Surgeons, All Other (N/A)	More than 10 Years (5618.67)
LWDA II – New River/Mt. Rogers	5.80	2.06	Registered Nurses (0.44)	Less than 1 year (58.49)
			Combined Food Preparation and Serving Workers, Including Fast Food (0.96)	1 Year to 2 Years (0.3)
			First-Line Supervisors of Food Preparation and Serving Workers (0.63)	2 Years to 5 Years (56.42)
			Retail Salespersons (2.86)	5 Years to 10 Years (267.35)
			Cashiers (6.96)	More than 10 Years (2951.75)
LWDA III – Western VA	5.25	1.64	Registered Nurses (0.26)	Less than 1 year (67.67)
			Combined Food Preparation and Serving Workers, Including Fast Food (1.05)	1 Year to 2 Years (0.28)
			Retail Salespersons (2.49)	2 Years to 5 Years (42.33)
			First-Line Supervisors of Food Preparation and Serving Workers (0.64)	5 Years to 10 Years (430.92)
			Physicians and Surgeons, All Other (0.09)	More than 10 Years (3182.57)
LWDA IV – Shenandoah Valley	4.08	1.82	Registered Nurses (0.48)	Less than 1 year (36.41)
			Retail Salespersons (1.79)	1 Year to 2 Years (0.22)
			First-Line Supervisors of Food Preparation and Serving Workers (0.62)	2 Years to 5 Years (28.37)
			Combined Food Preparation and Serving Workers, Including Fast Food (1.38)	5 Years to 10 Years (117.87)
			Cashiers (6.66)	More than 10 Years (1889)

Region	Candidates Per Job	Unemployed Per Job*	Candidates Per Job of Top 5 Advertised Occupation Groups	Candidates Per job by Work Experience**
LWDA VI – Piedmont Workforce Network	4.35	1.63	Registered Nurses (0.28)	Less than 1 year (24.47)
			Retail Salespersons (2.78)	1 Year to 2 Years (0.21)
			Driver/Sales Workers (1.66)	2 Years to 5 Years (16.82)
			Heavy and Tractor-Trailer Truck Drivers (3.08)	5 Years to 10 Years (76.41)
			Social Science Research Assistants (0.25)	More than 10 Years (538.06)
LWDA VII – Central VA	7.66	2.08	Registered Nurses (0.39)	Less than 1 year (132.11)
			Combined Food Preparation and Serving Workers, Including Fast Food (1.57)	1 Year to 2 Years (0.41)
			First-Line Supervisors of Food Preparation and Serving Workers (0.76)	2 Years to 5 Years (160.36)
			Retail Salespersons (3.79)	5 Years to 10 Years (460.64)
			Cashiers (14.86)	More than 10 Years (1869.45)
LWDA VIII – South Central VA	14.55	2.3	Registered Nurses (0.95)	Less than 1 year (184.85)
			First-Line Supervisors of Food Preparation and Serving Workers (1.47)	1 Year to 2 Years (0.77)
			Retail Salespersons (6.82)	2 Years to 5 Years (183.05)
			Combined Food Preparation and Serving Workers, Including Fast Food (4.07)	5 Years to 10 Years (557.78)
			Licensed Practical and Licensed Vocational Nurses (2.26)	More than 10 Years (10582)
LWDA IX – Capital Region	1.87	1.64	Registered Nurses (0.12)	Less than 1 year (36.88)
			Retail Salespersons (1.28)	1 Year to 2 Years (0.09)
			First-Line Supervisors of Food Preparation and Serving Workers (0.35)	2 Years to 5 Years (14.1)
			Combined Food Preparation and Serving Workers, Including Fast Food (0.85)	5 Years to 10 Years (64.13)
			Customer Service Representatives (8.19)	More than 10 Years (1422.7)

Region	Candidates Per Job	Unemployed Per Job*	Candidates Per Job of Top 5 Advertised Occupation Groups	Candidates Per job by Work Experience**
LWDA XI – Northern VA	0.75	0.94	Computer Occupations, All Other (0.49)	Less than 1 year (18.91)
			Computer Programmers (0.06)	1 Year to 2 Years (0.04)
			Registered Nurses (0.10)	2 Years to 5 Years (1.58)
			Network and Computer Systems Administrators (0.18)	5 Years to 10 Years (3.62)
			Computer Network Support Specialists (0.11)	More than 10 Years (89.15)
LWDA XII – Alexandria/Arlington	2.20	0.62	Computer Occupations, All Other (1.62)	Less than 1 year (18.53)
			Registered Nurses (0.31)	1 Year to 2 Years (0.12)
			Computer Programmers (0.23)	2 Years to 5 Years (3.43)
			Computer Network Support Specialists (0.26)	5 Years to 10 Years (8)
			Software Developers, Applications (0.58)	More than 10 Years (209.39)
LWDA XIII– Bay Consortium	5.32	1.98	Registered Nurses (0.35)	Less than 1 year (76.95)
			Retail Salespersons (2.72)	1 Year to 2 Years (0.23)
			First-Line Supervisors of Food Preparation and Serving Workers (0.76)	2 Years to 5 Years (22.47)
			Customer Service Representatives (14.48)	5 Years to 10 Years (69.04)
			Combined Food Preparation and Serving Workers, Including Fast Food (2.01)	More than 10 Years (2403.08)
LWDA XIV – Greater Peninsula	4.64	2.25	First-Line Supervisors of Food Preparation and Serving Workers (0.52)	Less than 1 year (72.57)
			Registered Nurses (0.54)	1 Year to 2 Years (0.22)
			Retail Salespersons (2.55)	2 Years to 5 Years (19.14)
			Customer Service Representatives (13.45)	5 Years to 10 Years (61.18)
			Driver/Sales Workers (1.72)	More than 10 Years (1562.06)

Region	Candidates Per Job	Unemployed Per Job*	Candidates Per Job of Top 5 Advertised Occupation Groups	Candidates Per job by Work Experience**
LWDA XV – Crater Area	9.87	1.92	Registered Nurses (0.39)	Less than 1 year (90.25)
			First-Line Supervisors of Food Preparation and Serving Workers (1.20)	1 Year to 2 Years (0.49)
			Retail Salespersons (5.46)	2 Years to 5 Years (72.89)
			First-Line Supervisors of Retail Sales Workers (3.96)	5 Years to 10 Years (466.18)
			Combined Food Preparation and Serving Workers, Including Fast Food (3.65)	More than 10 Years (8079.33)
LWDA XVI – Hampton Roads	2.27	2.05	Registered Nurses (0.27)	Less than 1 year (31.63)
			Retail Salespersons (1.77)	1 Year to 2 Years (0.11)
			First-Line Supervisors of Food Preparation and Serving Workers (0.41)	2 Years to 5 Years (7.43)
			Combined Food Preparation and Serving Workers, Including Fast Food (0.88)	5 Years to 10 Years (21.64)
			Customer Service Representatives (8.87)	More than 10 Years (513.81)
LWDA XVII – West Piedmont	10.35	2.88	Registered Nurses (0.49)	Less than 1 year (54.43)
			First-Line Supervisors of Food Preparation and Serving Workers (0.92)	1 Year to 2 Years (0.58)
			Combined Food Preparation and Serving Workers, Including Fast Food (2.19)	2 Years to 5 Years (136.57)
			First-Line Supervisors of Retail Sales Workers (2.98)	5 Years to 10 Years (2581.5)
			Retail Salespersons (5.66)	More than 10 Years (6762.33)

Source: Virginia Employment Commission, Area Labor Market Profiles. Candidate and Job data based on posts in the Virginia Workforce Connection as of September 2020.

*Preliminary Data

**Not all job postings list a work experience requirement.