

Statewide Economic Analysis Report

Division of Economic Information & Analytics
2020-2021 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

Recent Virginia labor market conditions suggest that the economic recovery from the Pandemic continued during the 2020-2021 program year. But as the Commonwealth continued to reopen in 2021, the outlook for Virginia's labor market was roiled by the cross-currents of long-term demographic and technological change and the massive workplace disruption from the Pandemic.

The number of people filing continuing claims for unemployment insurance during the 2020-2021 program year steadily trended downward as filers found jobs, left the labor force, or exhausted benefits. March 2020's historic increase in initial claims showed up in April 2020's equally historic decline in payroll employment, which fell to levels not seen since 2010. In subsequent months, some of those losses were erased but the pace of job recovery moderated during the 2020-2021 program year. From July 2020 to July 2021, payroll establishments in Virginia gained 143,800 jobs, an increase of 3.8%, but not back to pre-Pandemic levels. Helping to offset this, personal income in Virginia increased 54.5 percent at an annual rate in the first quarter of 2021 as economic impact payments associated with the American Rescue Plan Act of 2021 were distributed.

The Pandemic created labor market disequilibrium as employers piled into online job boards desperately seeking workers in the midst of declining labor force participation and high rates of job quitting. In August 2021, according to Census survey data, two thirds reported that small businesses had difficulties hiring employees in the COVID-impacted Accommodation and food service sector. At the same time, July payrolls in that sector remained 60,000 lower than pre-Pandemic levels in the winter of 2020. This dichotomy were evidenced in household employment conditions. While Virginia's unemployment rate trended toward pre-Pandemic levels, the labor force participation rate was barely off of June's historic low and nearly four percentage points lower than during the first quarter of 2020 prior to the Pandemic. At the same time, an estimated 92,000 Virginians quit their jobs—or 2.4% of total payroll employment. Nationwide, that figure reached a record 2.8% in April 2021, as nearly four million workers voluntarily left their jobs.

Those taking part in the reopening economy faced a rapidly changing work environment. Online ordering and delivery services, no-contact pickup with cashless transactions, and automation had been slowly adopted by American establishments and consumers for years, but their use accelerated during the Pandemic as businesses were able to keep operating by instituting these and other changes. As time goes on, this technological change may

continue to encroach into more and more involved work tasks—and ultimately entire jobs in food service, retail, and other sectors. Despite this trend, there are reasons to be optimistic about long-term career prospects for those interested in a career in these industries. This is because there will likely be many job openings at any given time due to the ‘churn,’ or movement of workers into and out of an occupation or hopping from one job to another within an occupation. This is an illustration of how, over the course of the 2020-2021 program year, Virginia labor market conditions continued to recover from the Pandemic, but also reflected how technological change will greatly impact the workplace in the years ahead.

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 2014 and 2019, the most recent data available, the Virginia population for the young professional eligible population aged 20 to 34 years had a 0.6 percent increase. There was a slight decrease in the number of adults of mid working age, with 68.7 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, 2014	Virginia, 2019	US Total, 2019	5-Year Change
Demographics: U.S. Census Bureau, American Community Survey 5-Year Estimates	Total Population	8,185,131	8,454,463	324,697,795	3.3%
	Male	4,022,624 (49.1%)	4,159,173 (49.2%)	159,886,919 (49.2%)	3.4%
	Female	4,162,507 (50.9%)	4,295,290 (50.8%)	164,810,876 (50.8%)	3.2%
	0 to 14 Years	1,547,778 (18.9%)	1,547,465 (18.1%)	60,852,425 (18.7%)	0.0%
	15 to 19 Years	550,376 (6.7%)	555,996 (6.5%)	21,208,186 (6.5%)	1.0%
	20 to 34 Years	1,723,729 (21.1%)	1,733,956 (20.3%)	67,045,523 (20.6%)	0.6%
	35 to 54 Years	2,296,913 (28.1%)	2,239,696 (26.5%)	83,051,451 (25.6%)	-2.5%
	55 to 74 Years	1,619,995 (19.8%)	1,847,865 (21.9%)	71,289,680 (22.0%)	14.1%
	75 Years and Over	446,340 (5.5%)	515,234 (6.1%)	21,241,530 (6.5%)	15.4%
	Median Age	37.6 Years	38.2 Years	38.1 Years	1.6%
	White	5,668,363 (69.3%)	5,717,617 (67.6%)	235,377,662 (72.5%)	0.9%
	Black or African American	1,577,943 (19.3%)	1,621,592 (19.2%)	41,234,642 (12.7%)	2.8%
	American Indian and Alaska Native	23,421 (0.3%)	23,873 (0.3%)	2,750,143 (0.8%)	1.9%
	Asian	475,632 (5.8%)	541,133 (6.4%)	17,924,209 (5.5%)	13.8%
	Native Hawaiian and Other Pacific Islander	5,485 (0.1%)	6,179 (0.1%)	599,868 (0.2%)	12.7%
	Some Other Race	179,166 (2.2%)	223,794 (2.6%)	16,047,369 (4.9%)	24.9%
	Two or More Races	255,121 (3.1%)	320,275 (3.8%)	10,763,902 (3.3%)	25.5%
	Percent of persons under 65 with any disability	7.6%	8.0%	8.6%	5.3%
	Percent of persons under 65 without health insurance	12.0%	8.4%	8.7%	-30%
	Persons 25 and older with a high school diploma or higher	87.9%	89.7%	88.0%	2.0%
	Persons 25 and older with a bachelor's degree or higher	35.8%	38.8%	32.1%	8.4%
Income: U.S. Department of Commerce, Bureau of Economic Analysis	Real GDP (2012 dollars)	\$446.8 Billion	\$489.2 Billion	\$19.1 Trillion	9.5%
	Real GDP per capita (2012 dollars)	\$54,587	\$57,863	\$58,824	6.0%
	Per capita Personal Income	\$50,734	\$59,509	\$56,474	17.3%
	Per capita Disposable Income	\$44,485	\$52,015	\$49,774	16.9%
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%

U.S. Census Bureau, American Community Survey

*Due to data collection constraints, data is presented for 2014 and 2019

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 considered 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 compared to the substantial impact to the region's. 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 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 2000 and 2010, going from 11 percent of statewide employment and total wages in 2000 to 7 percent. Retail Trade has also seen a similar decline. In 2000, Retail Trade accounted for 14 percent of statewide establishments and 12 percent of employment, however, by 2020 the share of establishments had fallen to 9 percent, a 5 percentage point drop, and the share of employment had fallen 2 percentage points to 10 percent. On the other hand, industries like Health Care and Social Assistance saw major gains between 2000 and 2020. Over the last 20 years Health Care and Social Assistance saw a 4 percentage point increase in statewide employment, rising from 9 percent to 13 percent. The industry also saw an increase in statewide establishments and total wages, increasing 9 and 3 percentage points respectively.

Turning to occupations, **Table 2** displays the most recent Occupation and Employment and Wage Statistics (OEWS) 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 that has been expected with 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 2020

Occupation	Employment	Median Salary	Average Annual Growth*	Top Employing Industry (Percent of Occupational Employment)**
Architecture and Engineering	75,730	\$94,480	0.61%	Professional and Business Services (47.31%)
Arts, Design, Entertainment, Sports, & Media	47,210	\$65,300	0.46%	Professional and Business Services (27.56%)
Building and Grounds Cleaning & Maintenance	115,430	\$31,480	0.78%	Professional and Business Services (55.02%)
Business and Financial Operations	294,910	\$88,480	0.94%	Professional and Business Services (42.46%)
Community and Social Services	59,350	\$53,450	1.23%	Education and Health Services (57.05%)
Computer and Mathematical	218,360	\$107,130	1.54%	Professional and Business Services (67.68%)
Construction and Extraction	165,410	\$48,430	0.95%	Construction (71.66%)
Education, Training, and Library	243,810	\$63,080	0.45%	Education and Health Services (91.05%)
Farming, Fishing, and Forestry	5,540	\$36,600	-0.35%	Natural Resource and Mining (35.20%)
Food Preparation and Serving Related	276,330	\$25,950	1.71%	Leisure and Hospitality (82.06%)
Healthcare Practitioners and Technical	212,000	\$84,620	1.30%	Education and Health Services (78.84%)
Healthcare Support	139,490	\$30,330	1.97%	Education and Health Services (88.95%)
Installation, Maintenance, & Repair	150,440	\$53,610	0.46%	Trade, Transportation, and Utilities (26.58%)
Legal	36,600	\$110,960	0.19%	Professional and Business Services (55.25%)
Life, Physical, & Social Sciences	35,350	\$88,860	0.73%	Public Administration (37.60%)
Management	187,740	\$142,170	0.69%	Professional and Business Services (30.82%)
Office and Administrative Support	459,040	\$42,870	-0.06%	Professional and Business Services (25.07%)
Personal Care and Service	71,660	\$31,230	1.89%	Other Services (28.57%)
Production	166,640	\$41,270	-0.45%	Manufacturing (65.78%)
Protective Service	99,160	\$50,600	0.32%	Public Administration (57.18%)
Sales and Related	354,230	\$45,750	0.02%	Trade, Transportation, and Utilities (65.44%)
Transportation and Material Moving	295,780	\$39,160	0.44%	Trade, Transportation, and Utilities (67.91%)
State Total/Average	3,701,220	\$60,160	0.66%	Education and Health Services (21.80%)

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 Industry Occupation Wage Matrix, Virginia Employment Commission. 4-Digit Industry NAICS

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 about 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 the story of 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 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 March 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 decreased slightly over the five year period; however, it is important to note that the labor force participation rate is the annual rate of 2020, so Coronavirus only accounted for part of the years' rate. Both the number of unemployed and the unemployment rate have increased in the five year period showing the impact of COVID-19 on Virginia's workforce.

Table 3: Local Area Unemployment Statistics (Not Seasonally Adjusted)

Unemployment Statistic	July 2017	June 2021	5-Year Actual Change	5-Year Percent Change
Labor Force	4,376,761	4,288,785	-37,976	-0.87%
Number of Employed	4,211,180	4,096,230	-114,950	-2.73%
Number of Unemployed	165,581	192,555	26,974	16.29%
Unemployment Rate	3.8%	4.5%	0.7	18.42%
Labor Force Participation Rate*	65.67%	62.25%		%

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

*Labor Force Participation Rates shown for 2017 and 2020 annual averages, and reflect Bureau of Labor Statistics

Totals may not add due to rounding.

As **Table 4** examines, unemployment insurance claimants in Virginia. There are more women than men in unemployment, 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 78 percent of the Virginia's unemployment claimants. The same group only 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	38,174
Male	16,055 (42.06%)
Female	22,119 (57.94%)
Under 22 Years	1,185 (3.10%)
22 to 24 Years	2,138 (5.60%)
25 to 34 Years	9,779 (25.62%)
35 to 44 Years	8,905 (23.22%)
45 to 54 Years	7,274 (19.05%)

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

55 to 64 Years	6,610 (17.32%)
65 Years and Over	2,283 (5.98%)
8 th Grade or Less**	629 (1.65%)
Some High School**	2,480 (6.50%)
High School Grad/GED**	16,407 (42.98%)
Some College/2-Year Degree**	10,328 (27.06%)
Bachelor's Degree**	5,951 (15.59%)
Some Graduate School**	642 (1.68%)
Post Graduate Degree**	1,731 (4.53%)
Unknown Educational Attainment**	6 (0.02%)

Source: Virginia Employment Commission, Characteristics of the Insured Unemployed – July 2021

*Data from week ending July 31st 2021

In the following 6 tables and figures we will further analyze each of these demographics of unemployment claimants. Initial unemployment benefits saw a dramatic increase at the beginning of the COVID-19 pandemic, and have remained at above average levels in the year and a half that followed. We will evaluate the claims over the last five quarters, beginning with the third quarter of 2020, July 2020 through September 2021. These graphics allow 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 ages of individuals who filed for unemployment benefits during the COVID-19 pandemic. We see that in quarter 3 of both 2020 and 2021, claimants in the youngest two age cohorts, 16-24 and 25-34 years old, accounted for roughly 45% of all initial claims. This is a large increase compared to the three quarters in between where these age cohorts never made up more than 30% of initial claims. Overall, claimants in the 35-44 year old cohort had the most consistent share of initial claims throughout the three five quarters analyzed. This group remained around 19-20% of initial claims in each quarterly period. On the other hand, workers in the youngest cohort, 16-24 years old, saw the most variation in their share of initial claims. This group peaked at 21.0% of initial claims in Q3 2020, but fell to 8.4% by Q2 2021, a change of 12.6 percentage points.

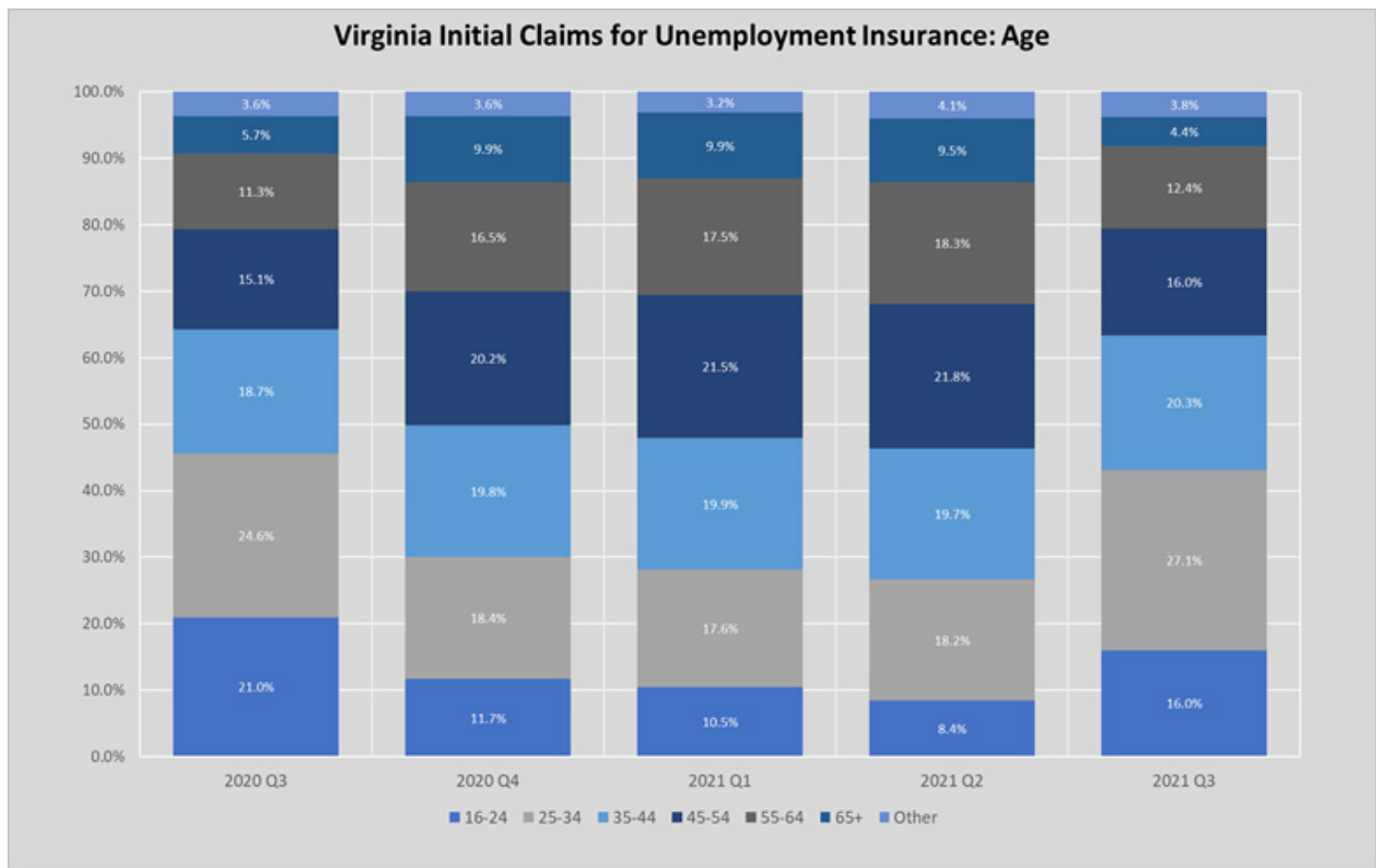


Table 5: Who has been affected by Coronavirus? Age

Virginia Initial Claims for Unemployment Insurance: Age										
	2020 Q3		2020 Q4		2021 Q1		2021 Q2		2021 Q3*	
16-24	49,960	21.0%	21,786	11.7%	29,487	10.5%	14,058	8.4%	9,972	16.0%
25-34	58,667	24.6%	34,286	18.4%	49,761	17.6%	30,454	18.2%	16,877	27.1%
35-44	44,594	18.7%	36,983	19.8%	56,078	19.9%	32,950	19.7%	12,610	20.3%
45-54	35,993	15.1%	37,642	20.2%	60,552	21.5%	36,402	21.8%	9,982	16.0%
55-64	26,905	11.3%	30,766	16.5%	49,459	17.5%	30,586	18.3%	7,736	12.4%
65+	13,601	5.7%	18,529	9.9%	27,809	9.9%	15,920	9.5%	2,736	4.4%
Other	8,663	3.6%	6,799	3.6%	8,924	3.2%	6,807	4.1%	2,339	3.8%

*2021 Q3 only contains data from July and August 2021

Figure A: Who has been affected by Coronavirus? Age



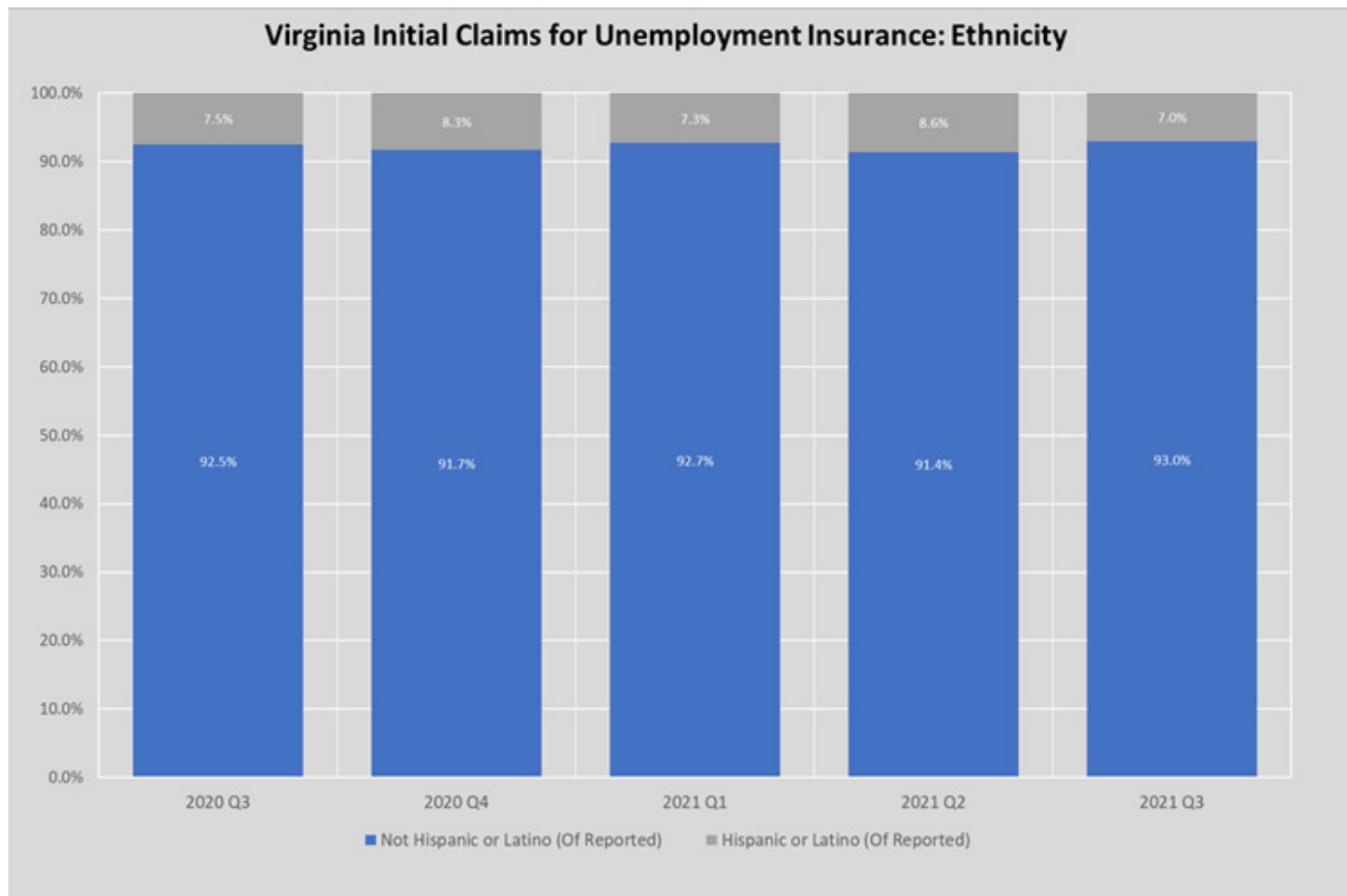
The ethnicity of workers filing for initial unemployment benefits is another important metric to explore. **Table 6** and **Figure B** show the monthly breakdown between claimants who identify as Hispanic or Latino and claimants who do not. Please note that this data does not include those claimants who chose not to respond, so the totals may not match the totals in other tables. The ethnicity breakdown of initial claimants remained relatively consistent throughout the five quarters, with between 7% and 8.5% of claimants identifying as Hispanic or Latino.

Table 6: Who has been affected by Coronavirus? Ethnicity

Virginia Initial Claims for Unemployment Insurance: Ethnicity*										
	2020 Q3		2020 Q4		2021 Q1		2021 Q2		2021 Q3**	
Not Hispanic or Latino (Of Reported)	191,109	92.5%	144,083	91.7%	70,842	92.7%	60,075	91.4%	40,443	93.0%
Hispanic or Latino (Of Reported)	15,476	7.5%	13,059	8.3%	5,595	7.3%	5,634	8.6%	3,065	7.0%

*Totals may not match totals in other initial claims tables
 **2021 Q3 only contains data from July and August 2021

Figure B: Who has been affected by Coronavirus? Ethnicity



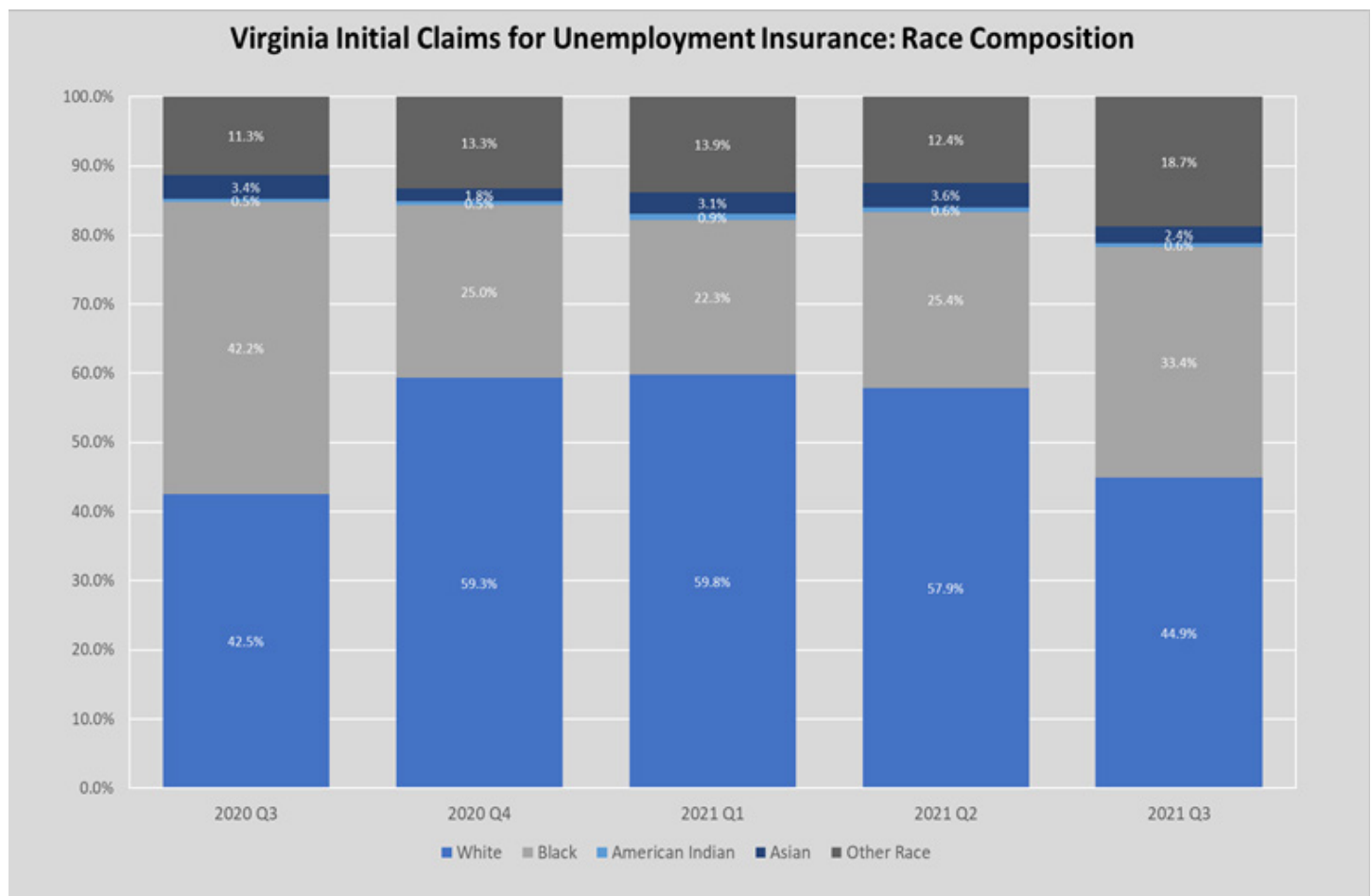
The race of people filing for initial unemployment insurance claims is another variable that should be examined. **Table 7** and **Figure C** show the race breakdown of initial claims over a period of five quarters from July 2020 through August 2021. We can see that the claimants who identify as either white or black make up roughly 80-85% of initial claims in each of the five quarters. The largest share of claimants who identify as white occurred between Q4 2020 and Q2 2021. During these three quarters, white claimants accounted for nearly 60% of all initial claims while black claimants made up between 22% and 25% of claims. In Q3 2020 and Q3 2021 on the other hand, white claimants made up only 42.5% and 44.9% of initial claims respectively. In these quarters black claimants accounted for a higher share of claims than in the other three quarters..

Table 7: Who has been affected by Coronavirus? Race

Virginia Initial Claims for Unemployment Insurance: Race										
	2020 Q3		2020 Q4		2021 Q1		2021 Q2		2021 Q3*	
White	101,376	42.5%	110,798	59.3%	168,760	59.8%	96,795	57.9%	27,971	44.9%
Black	100,643	42.2%	46,747	25.0%	62,831	22.3%	42,530	25.4%	20,763	33.4%
American Indian	1,283	0.5%	1,019	0.5%	2,602	0.9%	1,013	0.6%	369	0.6%
Asian	8,048	3.4%	3,366	1.8%	8,796	3.1%	6,033	3.6%	1,482	2.4%
Other Race	27,033	11.3%	24,861	13.3%	39,081	13.9%	20,806	12.4%	11,667	18.7%

*2021 Q3 only contains data from July and August 2021

Figure C: Who has been affected by Coronavirus? Race



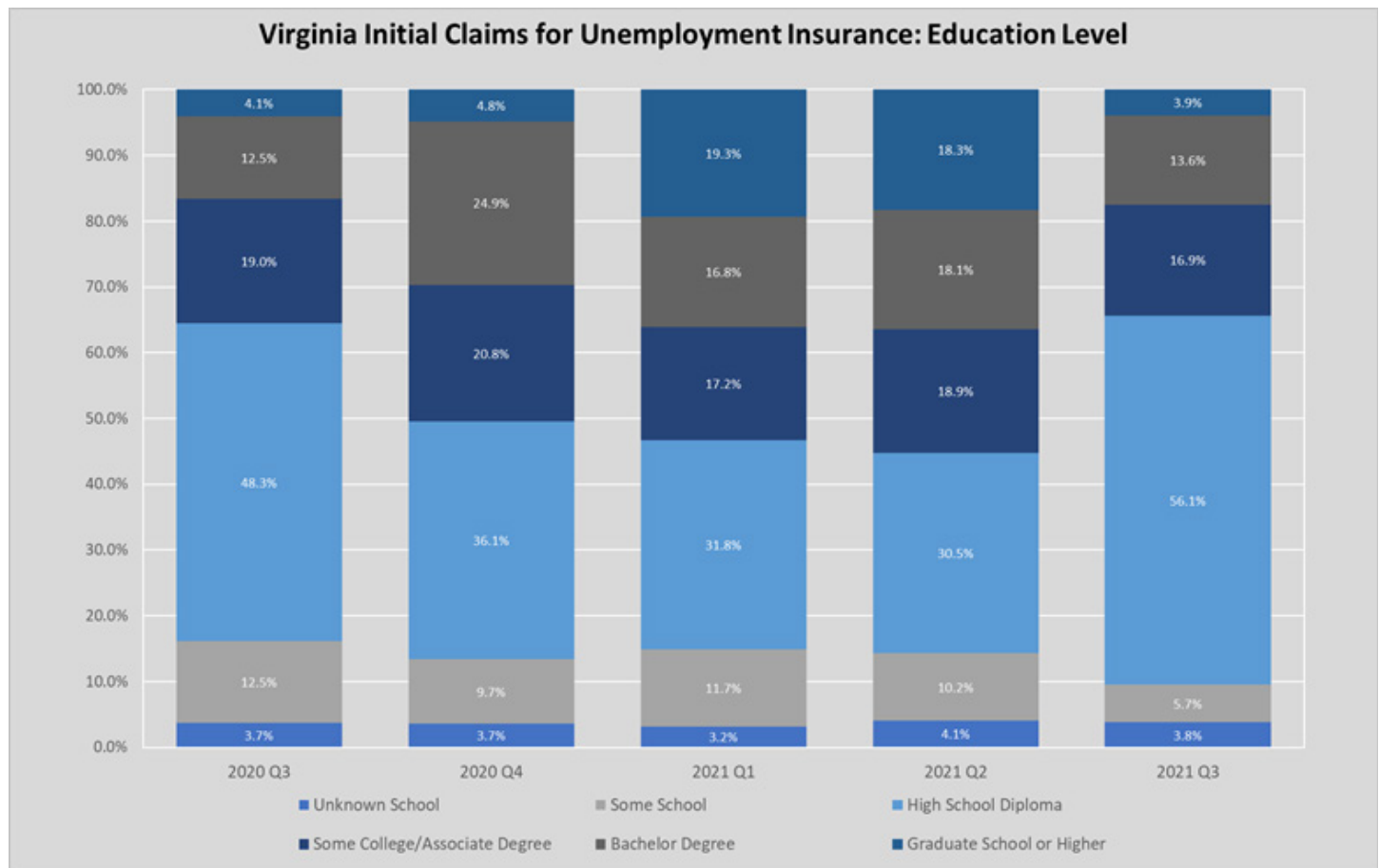
Examining the highest level of education that an initial claimant has received will help determine how the COVID-19 crisis affected different levels of the workforce. **Table 8** and **Figure D** break down the share of initial claimants with different levels of education achieved. From the table we can see that in each of the five quarters, claimants with a high school diploma made up the largest share of claims. Additionally, in all but Q4 2020 claimants with some college experience or an associate's degree made up the second largest share. Looking ahead at **Table 13** we see that two of the occupations with a large share of initial claims throughout the pandemic were 41-0000 (Sales and Related Occupations) and 39-0000 (Personal Care and Service Occupations). Both of these groups have a significant amount of jobs which require either a high school diploma or an associate's degree which backs up the data that we see here.

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

Virginia Initial Claims for Unemployment Insurance: Education Level										
	2020 Q3		2020 Q4		2021 Q1		2021 Q2		2021 Q3*	
Unknown School	8,733	21.0%	6,830	11.7%	8,917	10.5%	6,819	8.4%	2,355	16.0%
Some School	29,735	24.6%	18,145	18.4%	32,962	17.6%	17,073	18.2%	3,566	27.1%
High School Diploma	115,136	18.7%	67,499	19.8%	89,815	19.9%	50,911	19.7%	34,915	20.3%
Some College/Associate Degree	45,197	15.1%	38,821	20.2%	48,555	21.5%	31,542	21.8%	10,541	16.0%
Bachelor Degree	29,884	11.3%	46,492	16.5%	47,431	17.5%	30,302	18.3%	8,439	12.4%
Graduate School or Higher	9,698	5.7%	9,004	9.9%	54,390	9.9%	30,530	9.5%	2,436	4.4%

*2021 Q3 only contains data from July and August 2021

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



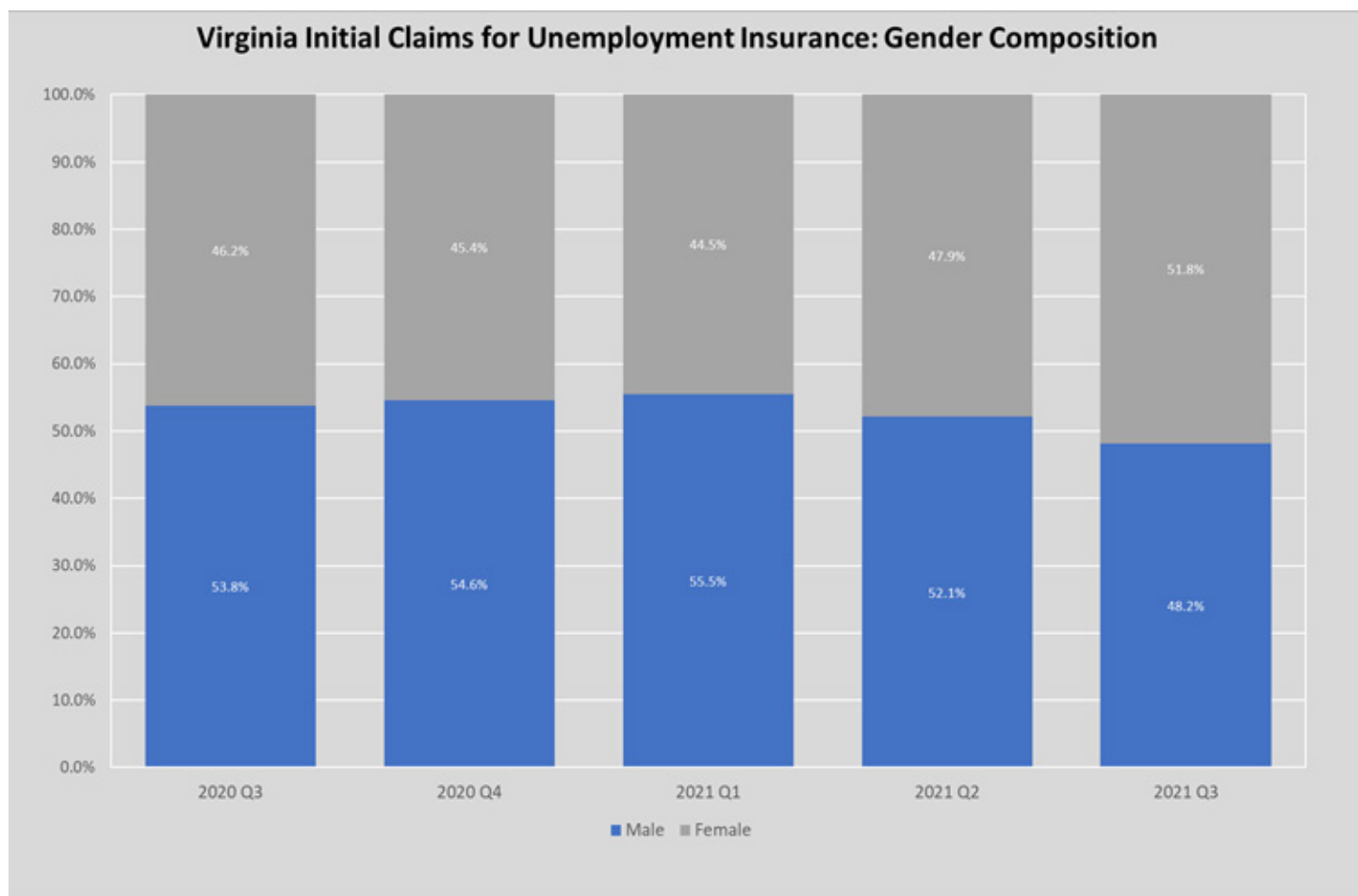
The gender of initial claimants is yet another factor that we should explore. **Table 9** and **Figure E** show the monthly breakdown in the gender of initial claimants. According to estimates from the BLS, approximately 53.0% of Virginia's labor force is male and 47.0% is female. The first four quarters of data from initial claimants show male claimants making up between 52% and 55% of initial claims which is what we would expect considering the BLS estimates. Contrarily, the last quarter of data, Q3 2021, paints a different picture. Of the approximately 62,000 claims through July and August 2021, female claimants have accounted for 51.8% of initial claims. This is 5-6 percentage points higher than the previous four quarters, and significantly different from the BLS estimates.

Table 9: Who has been affected by Coronavirus? Gender

Virginia Initial Claims for Unemployment Insurance: Gender										
	2020 Q3		2020 Q4		2021 Q1		2021 Q2		2021 Q3*	
Male	128,177	53.8%	102,049	54.6%	156,586	55.5%	87,127	52.1%	30,007	48.2%
Female	110,206	46.2%	84,742	45.4%	125,484	44.5%	80,050	47.9%	32,245	51.8%

*2021 Q3 only contains data from July and August 2021

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.

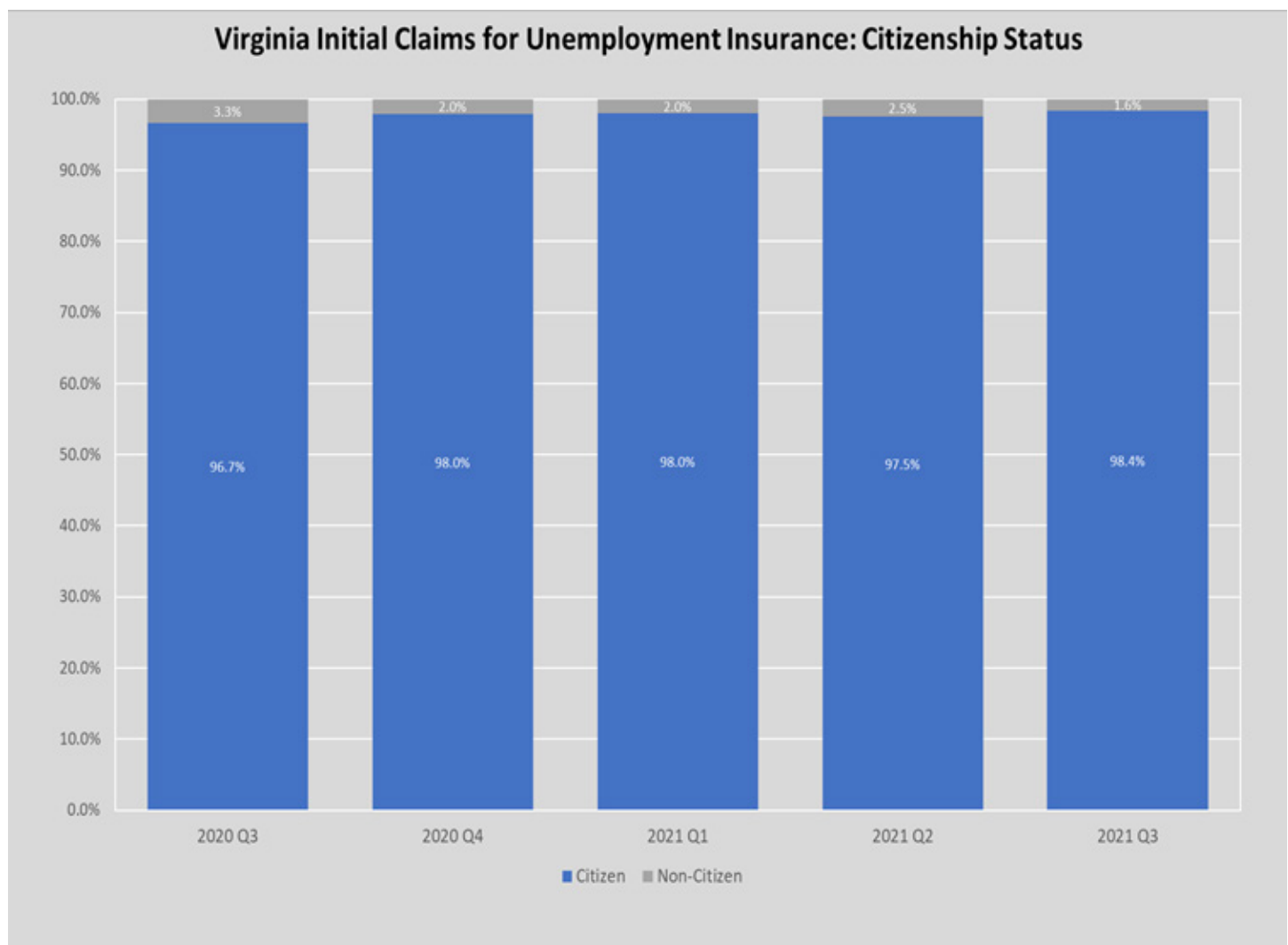
Table 10 and **Figure F** show us the quarterly initial claim breakdowns between citizens and non-citizens. According to a 2018 ACS survey, roughly 94.2% of Virginians are citizens and 5.8% are non-citizens. Throughout the five quarters of data, the share of initial claimants who identify as non-citizens is much lower than we would expect given the ACS survey. The largest share of initial non-citizen initial claimants occurred in Q3 2020 where 3.3% of claimants identified as non-citizens. The smallest share occurred in Q3 2021 with only 1.6% of initial claimants identifying as non-citizens.

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

Virginia Initial Claims for Unemployment Insurance: Citizenship Status										
	2020 Q3		2020 Q4		2021 Q1		2021 Q2		2021 Q3*	
Citizen	230,484	96.7%	182,966	98.0%	276,527	98.0%	163,003	97.5%	61,226	98.4%
Non-Citizen	7,899	3.3%	3,825	2.0%	5,543	2.0%	4,174	2.5%	1,026	1.6%

*2021 Q3 only contains data from July and August 2021

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. About half of the occupations in the top 10 are service and retail focused which has been severely impacted by Coronavirus. Office and Administrative Support occupations make up a little over 20 percent of claimants. The Health Care and Social Assistance is the leading industry by number of claimants, making up 20 percent of all claimants.

Table 11: Top 10 Occupations by Number of Claimants, July 2021

Office and Administrative Support	4,602
Sales and Related Occupations	2,867
Food Preparation and Serving Related Occupations	2,639
Management Occupations	2,600
Production Occupations	2,370
Transportation and Material Moving Occupations	1,778
Healthcare Support Occupations	1,638
Construction and Extraction Occupations	1,524
Education, Training, and Library Occupations	1,247
Business and Financial Operations Occupations	1,160
Total	22,425

Source: Virginia Employment Commission

Table 12: Top 10 Industries by Number of Claimants, July 2021

Health Care and Social Assistance	4,107
Administrative and Support and Waste Management and Remediation	3,914
Accommodation and Food Services	3,498
Professional, Scientific, and Technology Services	2,822
Retail Trade	2,228
Construction	1,769
Other Services (except Public Administration)	1,274
Education Services	1,176
Finance and Insurance	1,103
Wholesale Trade	917
Total	20,358

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: Occupation (2 Digit SOC)										
	2020 Q3		2020 Q4		2021 Q1		2021 Q2		2021 Q3*	
11-0000	15,933	6.7%	23,135	12.4%	43,129	15.3%	27,289	16.3%	3,417	5.5%
13-0000	5,675	2.4%	7,263	3.9%	11,332	4.0%	6,565	3.9%	1,890	3.0%
15-0000	4,590	1.9%	3,094	1.7%	4,071	1.4%	2,698	1.6%	1,579	2.5%
17-0000	3,582	1.5%	4,592	2.5%	5,410	1.9%	2,793	1.7%	667	1.1%
19-0000	1,368	0.6%	894	0.5%	1,015	0.4%	548	0.3%	168	0.3%
21-0000	2,146	0.9%	1,092	0.6%	1,879	0.7%	1,420	0.8%	698	1.1%
23-0000	827	0.3%	721	0.4%	1,241	0.4%	753	0.5%	258	0.4%
25-0000	5,185	2.2%	2,632	1.4%	5,221	1.9%	4,219	2.5%	1,579	2.5%
27-0000	7,798	3.3%	8,024	4.3%	7,428	2.6%	3,832	2.3%	2,837	4.6%
29-0000	5,501	2.3%	3,919	2.1%	6,341	2.2%	5,107	3.1%	3,523	5.7%
31-0000	6,653	2.8%	3,537	1.9%	7,524	2.7%	5,036	3.0%	1,866	3.0%
33-0000	2,680	1.1%	1,587	0.8%	3,431	1.2%	1,916	1.1%	800	1.3%
35-0000	17,117	7.2%	12,376	6.6%	22,835	8.1%	13,435	8.0%	4,244	6.8%
37-0000	12,594	5.3%	5,713	3.1%	9,533	3.4%	7,043	4.2%	1,981	3.2%
39-0000	21,301	8.9%	14,755	7.9%	16,305	5.8%	8,302	5.0%	3,644	5.9%
41-0000	24,606	10.3%	25,202	13.5%	35,484	12.6%	19,971	11.9%	6,112	9.8%
43-0000	21,885	9.2%	15,713	8.4%	21,490	7.6%	15,471	9.3%	6,094	9.8%
45-0000	1,015	0.4%	683	0.4%	2,510	0.9%	1,004	0.6%	349	0.6%
47-0000	15,477	6.5%	10,776	5.8%	16,757	5.9%	7,769	4.6%	5,093	8.2%
49-0000	8,118	3.4%	5,476	2.9%	7,025	2.5%	3,224	1.9%	1,447	2.3%
51-0000	11,250	4.7%	8,067	4.3%	11,660	4.1%	8,518	5.1%	5,243	8.4%
53-0000	16,870	7.1%	12,580	6.7%	15,481	5.5%	7,908	4.7%	3,363	5.4%
55-0000	165	0.1%	168	0.1%	507	0.2%	255	0.2%	172	0.3%
Other	26,047	10.9%	14,792	7.9%	24,461	8.7%	12,101	7.2%	5,228	8.4%

*2021 Q3 only contains data from July and August 2021

The alternative measures of labor underutilization produced by the Bureau of Labor Statistics (BLS) provides six measures of unemployment, each with varying degrees of exclusivity.³ The most recent four-quarter average for the alternative measures of labor underutilization ends with the second quarter of 2021. With the exception of U-1, all measures decreased since the last four-quarter average, surprising, as evidenced in **Table 14**. The decline of the alternative measures signals economic improvement in Virginia. Looking at over-the-year changes, all measures are up significantly. U-1 had the greatest transformation with a 2.1 percentage point increase 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 (2020:III – 2021:II)	Virginia's previous 4 quarter average (2020:II– 2021:I)	National Data (2020:III – 2021:II)	Virginia's 4 quarter average from previous year (2019:III – 2020:II)
U-1	3.0	2.7	3.8	0.9
U-2	3.4	5.9	4.8	2.8
U-3*	5.5	6.9	6.9	4.4
U-4	5.8	7.2	7.3	4.6
U-5	6.6	8.0	8.0	5.2
U-6	10.1	12.2	11.9	8.5

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 28 other states are currently below the national average in every measure. Kentucky is the only neighboring state to outperform Virginia across all six measures. All neighboring states' measures are below the national average.

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, job-seeker discouragement remained steady at 0.3 percent. Job seeker discouragement only rose 0.1 percentage points from this time last year. Our measure of underemployment has declined 0.7 percentage points from last quarter to 3.5 percent, and is up 0.2 percentage points 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 (2020:III – 2021:II)	Virginia's previous 4 quarter average (2020:II– 2021:I)	National Data (2020:III – 2021:II)	Virginia's 4 quarter average from previous year (2019:III – 2020:II)
Underemployment	3.5	4.2	3.9	3.3
Job Seeker Discouragement	0.3	0.3	0.4	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.

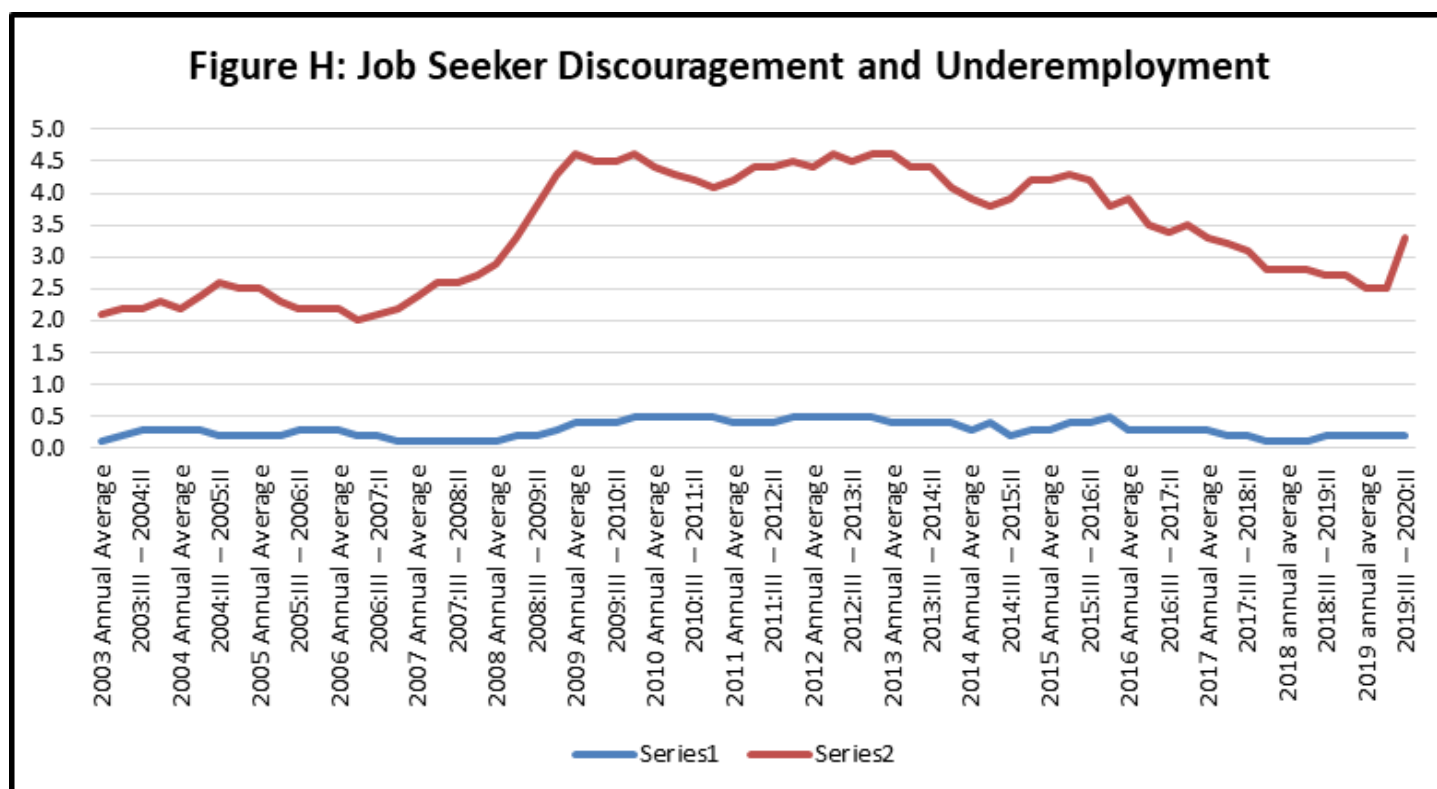
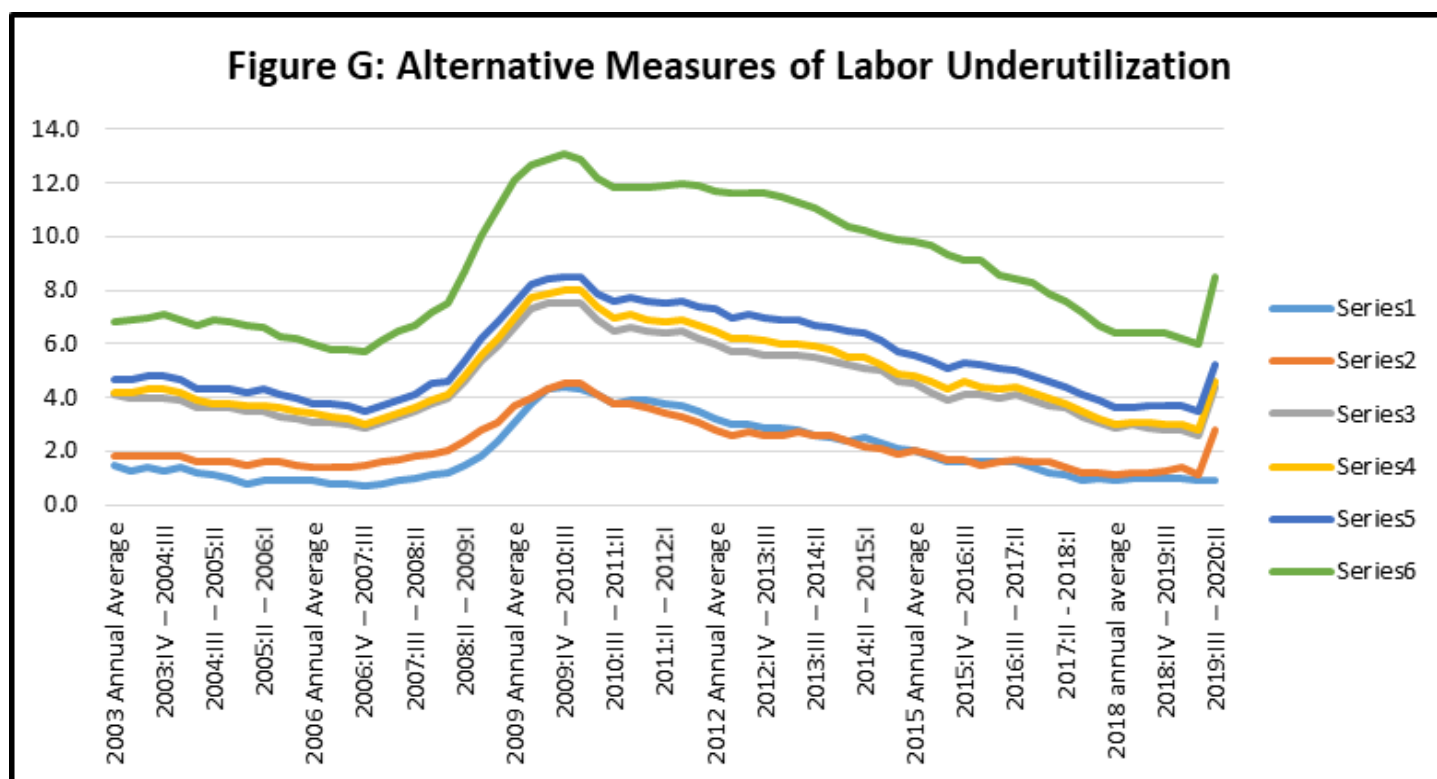


Table 16 builds upon the topic of unemployment by examining the changing poverty rates across the Commonwealth. Many of the populations examined have seen a decrease in the percentage living below the poverty level of the last 5 years. However, the smaller changes in groups such as men and women may 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	2014 Estimate		2019 Estimate	
		Population	Percent Below Poverty Level	Population	Percent Below Poverty Level
Age	Under 18 Years	1,836,803	15.2%	1,836,464	13.9%
	18 to 64 Years	5,067,608	11.0%	5,119,864	10.1%
	65 Years and Over	1,034,921	7.6%	1,245,280	7.5%
Sex	Male	3,867,034	10.3%	3,999,859	9.5%
	Female	4,072,298	12.7%	4,201,749	11.6%
Race	White, not Hispanic or Latino	5,520,140	9.2%	5,565,618	8.5%
	Black or African American	1,501,394	20.1%	1,548,219	17.6%
	American Indian and Alaska Native	22,245	13.9%	22,691	13.0%
	Asian	467,627	8.3%	531,604	7.3%
	Native Hawaiian and other Pacific Islander	4,966	11.0%	5,659	7.6%
	Hispanic or Latino	670,202	15.8%	768,481	14.0%
Educational Attainment	Less than High School	636,381	22.6%	570,783	21.6%
	High School Graduate or GED	1,339,909	11.6%	1,344,891	11.8%
	Some College or Associate's	1,468,928	7.9%	1,533,076	7.8%
	Bachelor's Degree or Higher	1,959,115	3.2%	2,230,590	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 slightly increase. In fact all age cohorts except workers age 55 to 64 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. The 16 to 19 cohort increased 6.72% from 37.2% to 39.7%. The next largest increase was in those 20 to 24 whose

participation rate increased 2.3% from 74.3% to 76.0%. These 2 age cohorts have also seen significant 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	2014 Estimate			2019 Estimate		
	Population	Labor Force Participation Rate	Unemployment Rate	Population	Labor Force Participation Rate	Unemployment Rate
16 to 19 Years	444,447	37.2%	24.2%	445,847	39.7%	16.6%
20 to 24 Years	585,852	74.3%	13.9%	576,327	76.0%	9.1%
25 to 44 Years	2,236,607	84.1%	6.2%	2,274,551	84.6%	4.3%
45 to 54 Years	1,198,183	82.1%	4.9%	1,139,236	82.8%	3.2%
55 to 64 Years	1,005,287	67.1%	4.5%	1,115,720	66.6%	2.6%
65 to 74 Years	614,708	27.6%	3.6%	756,712	28.5%	2.5%
75 Years and Over	446,340	6.5%	4.0%	515,234	7.3%	2.0%
White, not Hispanic or Latino	4,625,989	65.9%	5.7%	4,695,633	64.8%	3.9%
Black or African American	1,234,547	65.5%	11.7%	1,291,833	66.1%	7.3%
American Indian and Alaska Native	19,791	65.4%	8.7%	19,769	65.6%	6.2%
Asian	378,717	70.1%	5.3%	442,047	69.5%	3.3%
Native Hawaiian or Other Pacific Islander	4,500	79.0%	9.1%	4,971	72.2%	6.9%
Hispanic or Latino	485,892	77.1%	7.1%	560,654	76.3%	4.7%
Male*	2,487,766	83.9%	6.6%	2,522,580	84.1%	4.1%
Female*	2,538,163	74.4%	6.2%	2,558,687	75.2%	4.3%
Less than High School**	439,874	60.8%	11.6%	392,543	61.4%	7.2%
High School Graduate or Equivalent**	1,062,241	74.8%	7.5%	1,029,408	73.5%	5.1%
Some College or Associate's Degree**	1,257,344	80.9%	5.9%	1,249,796	80.2%	4.0%
Bachelor's Degree or Higher**	1,680,618	86.9%	3.0%	1,833,193	87.8%	2.3%
With Any Disability	448,709	42.9%	14.9%	472,298	45.5%	9.7%

*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 47 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	1,992 (3.0%)
High School Diploma or Equivalent	25,088 (37.9%)
Vocational School Certificate	2,671 (4.0%)
Associate's Degree	12,936 (19.6%)
Bachelor's Degree	12,773 (19.3%)
Master's Degree	5,143 (7.8%)
Doctorate or Specialized Degree (i.e. MD, DDS)	728 (1.2%)

*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

Education Level	2014 Estimate	2019 Estimate
Less than High School Graduate	\$21,618	\$25,054
High School Graduate or Equivalent	\$29,421	\$31,759
Some College or Associate's Degree	\$36,525	\$39,256
Bachelor's Degree	\$55,637	\$60,520
Graduate or Professional Degree	\$79,473	\$84,670
Average	\$41,263	\$46,012

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 2014. What jumps out most starkly is the strongly declining 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 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 more highly educated than the non-veteran population, which 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 than civilians. 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	2014		2016		2019	
	Veteran	Non-Veteran	Veteran	Non-Veteran	Veteran	Non-Veteran
Population Estimate (18 Years and Over)	718,034	5,496,232	696,685	5,636,748	677,533	5,790,851
Male	87.8%	42.7%	87.1%	43.2%	86.3%	43.6%
Female	12.2%	57.3%	12.9%	56.8%	13.7%	56.4%
18 to 34 Years	12.0%	32.8%	11.5%	32.3%	11.0%	31.6%
35 to 54 Years	32.4%	36.9%	31.9%	35.9%	31.0%	34.4%
55 to 64 Years	21.0%	15.5%	20.0%	16.0%	20.1%	16.5%
65 Years and Over	18.5%	14.8%	36.6%	15.8%	37.9%	17.5%
White, not Hispanic or Latino	75.0%	70.5%	74.3%	69.9%	72.9%	68.8%
Black or African American	20.4%	18.6%	20.7%	18.6%	21.1%	18.7%
American Indian and Alaska Native	0.4%	0.3%	0.4%	0.3%	0.3%	0.3%
Asian	1.6%	6.4%	1.8%	6.7%	2.0%	7.1%
Native Hawaiian and Other Pacific Islander	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Hispanic or Latino	3.9%	7.7%	4.3%	7.9%	5.0%	8.4%
Less than High School	6.4%	13.1%	5.9%	12.3%	4.9%	11.2%
High School Graduate	22.6%	25.6%	21.8%	25.1%	21.1%	24.5%
Some College or Associate's Degree	34.7%	25.8%	34.4%	26.0%	33.8%	25.9%
Bachelor's Degree or Higher	36.3%	35.5%	37.9%	36.6%	40.2%	38.5%
Labor Force Participation Rate	81.8%	76.8%	82.4%	77.0%	83.0%	77.5%
Unemployment Rate	5.1%	7.0%	4.5%	6.0%	3.2%	4.7%

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 2014, it has done so at a modest pace while also maintaining most proportions across age brackets and demographics. The percentage of children living below the poverty level has declined 8.6% over

the last five years. The percentage of children receiving public assistance also declined 7.4% between 2014 and 2019. 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 45.0% 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	
	2014	2019	2014	2019	2014	2019	2014	2019
Children Under 18 Years	1,856,827	1,860,502	1,291,141	1,295,878	117,896	127,555	435,347	422,869
Under 6 Years	33.2%	32.8%	33.5%	33.8%	34.7%	33.6%	32.1%	29.5%
6 to 11 Years	33.5%	33.6%	33.7%	33.4%	31.0%	32.1%	33.4%	34.5%
12 to 17 Years	33.3%	33.6%	32.8%	32.8%	34.3%	34.3%	34.5%	36.0%
White, not Hispanic or Latino	63.3%	61.9%	70.4%	68.6%	63.6%	60.4%	42.0%	41.9%
Black or African American	20.9%	20.0%	12.8%	12.5%	21.7%	20.6%	44.7%	42.7%
American Indian and Alaska Native	0.2%	0.2%	0.2%	0.2%	0.3%	0.5%	0.2%	0.2%
Asian	5.8%	6.0%	7.4%	7.6%	2.5%	3.2%	1.9%	2.0%
Native Hawaiian and other Pacific Islander	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.0%	0.0%
Hispanic or Latino	11.9%	13.7%	11.3%	12.7%	16.6%	20.7%	12.4%	14.5%
Other Race	2.9%	3.7%	2.6%	3.4%	4.5%	6.1%	3.4%	3.8%
With any disability	3.6%	4.0%	2.9%	3.3%	3.4%	3.7%	5.6%	6.3%
Foster or other Unrelated to Householder Child	1.5%	1.7%	0.4%	0.7%	4.1%	3.7%	1.0%	1.1%
Foreign Born	3.7%	3.8%	4.1%	4.2%	3.1%	4.3%	2.4%	2.6%
Enrolled in School**	90.5%	90.6%	91.3%	90.9%	87.2%	87.3%	89.2%	90.6%
Median Income for Families with Children	\$76,610	\$89,973	\$100,096	\$115,403	\$43,747	\$50,662	\$28,620	\$32,929
Public Assistance: Children Living in Households with Supplemental Security Income, Cash Public Assistance Income, or Food Stamp/SNAP benefits	20.3%	18.8%	10.6%	9.6%	27.6%	25.4%	46.7%	44.4%
Income below Poverty Level	15.2%	13.9%	6.2%	5.5%	19.9%	16.1%	40.2%	38.5%

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 (16.6 versus 38.9 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 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 slightly larger than the national share (6.7 versus 6.4 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, 2020

Subject	National ¹	Virginia
Total Homeless	580,466	5,957 (1.0% of National homeless population)
Continuums of Care ²	387	16 (4.1% of National CoC)
Unsheltered Homeless	226,080 (38.9%)	968 (16.6%)
Chronically Homeless ³	110,528 (19.0%)	813 (13.6%)
Veterans	37,252 (6.4%)	395 (6.7%)
Less than 18 Years, Unaccompanied	3,389 (0.58%)	10 (0.17%)*
18 to 24 Years, Unaccompanied	30,821 (5.3%)	234 (3.9%)
Parenting Youth ⁴	7,355 (1.3%)	89 (1.49%)*
Children of Parenting Youth	9,495 (1.6%)	116 (1.95%)*

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: 2020 Annual Homeless Assessment Report to Congress, January 2021, U.S Department of Housing and Urban Development

*Source: HUD 2020 Continuum of Care Homeless Assistance Programs Homeless Populations and Subpopulations: Virginia

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	0.2%	-	-
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 2019. Source: Judicial Mapping Project, FY 2015 - FY 2019 Offender Population Trends, 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 2019 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**, Water Transportation, Support Activities for Agriculture and Forestry and Other Information Services are projected to be the three highest growing industries at the three digit level. On the two digit level, health care and social assistance, transportation and warehousing and information are 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. The top projected declining industry is Wholesale Electronics Markets and Agents and Brokers, projected to decline 2.87% annually until 2028. Among the other declining industries are 11 industries housed under the Manufacturing sector. Manufacturing as a whole has been declining in Virginia in recent years and the decline is likely to continue in the years ahead. Other sectors that are represented in the declining industries include Mining, Quarrying, and Oil and Gas Extraction, Wholesale Trade and Retail Trade.

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 (ISC)² 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 nearly 38 candidates per opening, 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 desired career choices.

Table 28: Supply and Demand in Virginia

Subject		Job Openings	Potential Candidates	Potential Candidates per Job Opening
	Statewide Total	238,550	66,498	0.28
Top 5 Occupations by Job Openings	Registered Nurses	13,367	199	0.01
	Software Developers, Applications	4,255	252	0.06
	Computer Systems Engineers/Architects	3,629	110	0.03
	Retail Salespersons	3,155	1,068	0.34
	Computer Programmers	2,933	93	0.03
Educational Attainment	High School Diploma or Equivalent	15,133	25,194	1.66
	Vocational School Certificate	384	2,709	7.05
	Associate's Degree	3,234	12,978	4.01
	Bachelor's Degree	21,545	12,823	0.6
	Post-Graduate Degree	2,150	5,909	2.75
Work Experience	Less than 1 Year	1,193	3,458	2.9
	1 to 2 Years	207,357	2,223	0.01
	2 to 5 Years	11,669	5,004	0.43
	5 to 10 Years	5,777	6,508	1.13
	More than 10 Years	1,309	49,305	37.67

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 2021



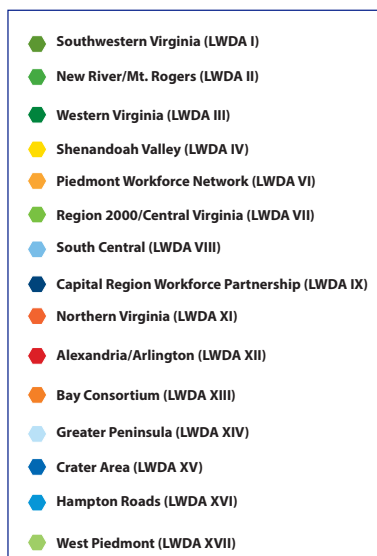
Part II: Substate Analysis



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 59 percent of total employment, and over 68 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)

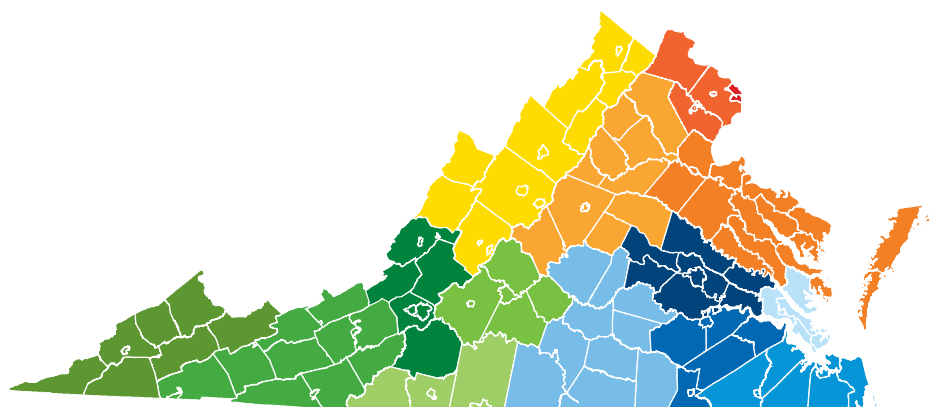


Table 29: Regional Labor Market Snapshot

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 2020 Averages

Table 30: Trends of State and Local Economies

Region	2016 Establishments	2021 Establishments (Share of State Total)	5-Year Trend	2016 Employment	2021 Employment (Share of State Total)	5-Year Trend	2016 Wages	2021 Wages (Share of State Total)	5-Year Trend
I Southwestern Virginia	4,400	3,993 (1%)	-9.3%	41,721	37,706 (1%)	-9.6%	\$345,918,195	\$362,933,887 (1%)	4.9%
II New River/Mt. Rogers	8,685	8,987 (3%)	3.5%	106,527	101,436 (3%)	-4.8%	\$887,965,441	\$1,019,839,216 (2%)	14.9%
III Western Virginia	9,134	9,654 (4%)	5.7%	134,932	128,811 (4%)	-4.5%	\$1,345,277,737	\$1,511,021,209 (3%)	12.3%
IV Shenandoah Valley	13,504	14,287 (5%)	5.8%	177,205	180,080 (6%)	1.6%	\$1,663,796,811	\$2,046,928,735 (4%)	23.0%
VI Piedmont Workforce Network	12,873	13,862 (5%)	7.7%	119,231	118,158 (4%)	-0.9%	\$1,275,731,763	\$1,591,220,607 (3%)	24.7%
VII Central VA	6,866	7,403 (3%)	7.8%	84,056	81,712 (3%)	-2.8%	\$833,299,114	\$961,623,702 (2%)	15.4%
VIII South Central	4,832	5,093 (2%)	5.4%	40,673	38,373 (1%)	-5.7%	\$322,699,836	\$401,571,193 (1%)	24.4%
IX Capital Region Workforce Partnership	32,330	35,100 (13%)	8.6%	456,361	450,028 (15%)	-1.4%	\$6,117,047,510	\$7,436,936,147 (14%)	21.6%
XI Northern Virginia	60,334	63,709 (23%)	5.6%	778,821	795,876 (26%)	2.2%	\$14,578,934,171	\$18,325,449,338 (35%)	25.7%
XII Alexandria/ Arlington	15,174	15,207 (6%)	0.2%	202,091	191,831 (6%)	-5.1%	\$4,020,333,024	\$4,724,631,902 (9%)	17.5%
XIII Bay Consortium	12,126	13,043 (5%)	7.6%	121,521	124,085 (4%)	2.1%	\$1,126,752,334	\$1,501,655,077 (3%)	33.3%
XIV Greater Peninsula	11,085	11,842 (4%)	6.8%	175,125	172,497 (6%)	-1.5%	\$1,890,807,161	\$2,143,631,655 (4%)	13.4%
XV Crater Area	3,668	3,912 (1%)	6.7%	50,717	47,633 (2%)	-6.1%	\$492,782,396	\$542,840,870 (1%)	10.2%
XVI Hampton Roads	27,668	29,665 (11%)	7.2%	386,818	381,227 (13%)	-1.4%	\$4,024,204,193	\$4,892,920,971 (9%)	21.6%
XVII West Piedmont	5,657	6,060 (2%)	7.1%	57,195	52,786 (2%)	-7.7%	\$450,030,771	\$487,065,567 (1%)	8.2%
Virginia, Statewide	245,036	278,961	13.8%	3,026,086	3,061,483	1.2%	\$41,342,628,891	\$51,818,108,476	25.3%

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 (29.5%)	Retail Trade (24.9%)	Health Care and Social Assistance (23.3%)	Utilities (\$2,549)
II New River/Mt. Rogers	Health Care and Social Assistance (26.3%)	Manufacturing (26.3%)	Manufacturing (33.7%)	Professional, Scientific, and Technical Services (\$3,290)

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 (20.0%)	Retail Trade (16.1%)	Manufacturing (15.2%)	Management of Companies and Enterprises (\$3,391)
IV Shenandoah Valley	Health Care and Social Assistance (21.1%)	Manufacturing (19.8%)	Manufacturing (26.5%)	Management of Companies and Enterprises (\$2,465)
VI Piedmont Workforce Network	Health Care and Social Assistance (21.4%)	Retail Trade (17.4%)	Professional, Scientific, and Technical Services (18.1%)	Management of Companies and Enterprises (\$9,038)
VII Region 2000/Central VA	Health Care and Social Assistance (25.7%)	Retail Trade (17.5%)	Manufacturing (24.1%)	Utilities (\$1,891)
VIII South Central	Health Care and Social Assistance (35.7%)	Health Care and Social Assistance (19.8%)	Health Care and Social Assistance (19.5%)	Wholesale Trade (\$15,913)
IX Capital Region Workforce Partnership	Health Care and Social Assistance (20.4%)	Health Care and Social Assistance (16.8%)	Finance and Insurance (20.1%)	Finance and Insurance (\$4,949)
XI Northern Virginia	Professional, Scientific, and Technical Services (25.7%)	Professional, Scientific, and Technical Services (25.8%)	Professional, Scientific, and Technical Services (39.0%)	Management of Companies and Enterprises (\$7,349)
XII Alexandria/Arlington	Other Services (Except Public Administration) (25.9%)	Professional, Scientific, and Technical Services (37.9%)	Professional, Scientific, and Technical Services (51.3%)	Management of Companies and Enterprises (\$7,044)
XIII Bay Consortium	Health Care and Social Assistance (22.4%)	Retail Trade (20.6%)	Professional, Scientific, and Technical Services (22.1%)	Utilities (\$2,013)
XIV Greater Peninsula	Health Care and Social Assistance (18.0%)	Retail Trade (18.8%)	Health Care and Social Assistance (19.8%)	Information (\$14,534)
XV Crater Area	Health Care and Social Assistance (27.0%)	Health Care and Social Assistance (19.3%)	Manufacturing (21.2%)	Utilities (\$4,230)
XVI Hampton Roads	Health Care and Social Assistance (18.2%)	Health Care and Social Assistance (17.6%)	Health Care and Social Assistance (18.0%)	Management of Companies and Enterprises (\$4,278)
XVII West Piedmont	Health Care and Social Assistance (44.3%)	Retail Trade (19.4%)	Manufacturing (24.6%)	Management of Companies and Enterprises (\$2,321)
State	Health Care and Social Assistance (17.6%)	Professional, Scientific, and Technical Services (14.6%)	Professional, Scientific, and Technical Services (25.3%)	Management of Companies and Enterprises (\$3,135)

Source: Virginia Employment Commission, Quarterly Census of Employment and Wages, First Quarter 2021

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. The Northern Virginia and Alexandria/Arlington LWDA's make up a large chunk of Virginia's labor force, but have some of the lowest unemployment rates at just 3.7%, only trailing Shenandoah Valley and Piedmont Workforce Network LWDA's at 3.4%. Meanwhile, the Crater Area and West Piedmont, two LWDA's with significantly smaller labor forces, have the highest unemployment rates among LWDA's at 6.1% and 5.3% respectively.

Table 32: Local Area Unemployment Statistics, July 2021 (Not Seasonally Adjusted)

LWDA Region	Labor Force	Employed	Unemployed	Unemployment Rate
I Southwestern Virginia	68,277	64,719	3,558	5.2%
II New River/Mt. Rogers	174,212	167,550	6,662	3.8%
III Western Virginia	163,566	157,213	6,353	3.9%
IV Shenandoah Valley	273,112	263,746	9,366	3.4%
VI Piedmont Workforce Network	220,648	213,175	7,473	3.4%
VII Region 2000/Central VA	119,780	114,779	5,001	4.2%
VIII South Central	78,296	74,580	3,716	4.7%
IX Capital Region Workforce Partnership	573,184	549,358	23,826	4.2%
XI Northern Virginia	1,143,362	1,101,076	42,286	3.7%
XII Alexandria/Arlington	251,871	242,496	9,375	3.7%
XIII Bay Consortium	257,039	246,851	10,188	4.0%
XIV Greater Peninsula	253,253	240,832	12,421	4.9%
XV Crater Area	72,627	68,169	4,458	6.1%
XVI Hampton Roads	581,928	556,094	25,834	4.4%
XVII West Piedmont	84,601	80,125	4,476	5.3%
State	4,315,758	4,140,764	174,994	4.1%

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. While a majority of localities had an increasing labor force participation rate over the five year period, more localities saw a decrease when compared to the previous year. As a whole, Virginia's labor force participation rate increased by 0.5 percentage points. 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 11 of the 15 areas the top occupation of claimants are those in the food preparation and serving related occupations. Southwest Virginia had 45 the largest proportion of claims in the construction and extraction sector. The New River/Mt. Rogers and West Piedmont areas also differed from the statewide trend with production occupations. For the Crater Area, office and administrative support made 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	1,433	365	176	366	123	488	97	772
II: New River/Mt. Rogers	5,260	1,165	721	1,135	473	937	141	1,708
III: Western Virginia	5,252	1,566	861	919	337	760	236	1,959
IV: Shenandoah Valley	7,655	2,017	1,122	954	530	1,021	231	2,075
IX: Capital Region Workforce Partnership	24,286	7,585	4,516	2,700	1,503	3,874	1,079	6,726
VI: Piedmont Workforce Network	7,281	1,857	1,314	766	413	958	259	2,287
VII: Region 2000/ Central Virginia	3,614	966	497	859	326	795	133	1,158
VIII: South Central	2,083	491	312	317	129	481	49	860
XI: Northern Virginia	36,693	12,667	14,169	4,049	2,206	2,711	1,848	14,758
XII: Alexandria/ Arlington	7,702	2,936	2,267	898	515	572	636	2,513
XIII: Bay Consortium	8,748	2,777	1,896	1,110	468	1,113	352	3,076
XIV: Greater Peninsula	10,260	2,958	1,931	1,535	687	1,749	416	3,528
XV: Crater Area	3,313	1,019	457	516	187	763	117	1,191
XVI: Hampton Roads	23,936	7,752	3,989	3,819	1,262	3,384	1,403	8,101
XVII: West Piedmont	2,546	725	381	609	231	709	91	841

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	406	1,111	951	286	2,357	1,347	1,525	2,291

II: New River/Mt. Rogers	1,782	2,554	2,307	504	8,763	2,681	4,155	5,326
III: Western Virginia	1,962	3,002	3,384	565	9,955	2,816	4,720	6,387
IV: Shenandoah Valley	2,629	3,687	4,110	823	14,850	3,862	6,081	8,845
IX: Capital Region Workforce Partnership	9,624	10,100	10,561	2,569	38,961	10,375	20,933	26,046
VI: Piedmont Workforce Network	2,596	3,435	3,586	756	12,180	2,897	5,784	6,692
VII: Region 2000/ Central Virginia	1,258	2,122	2,638	489	7,009	1,795	3,245	4,449
VIII: South Central	610	992	1,808	572	3,887	1,356	2,089	2,937
XI: Northern Virginia	13,132	13,869	14,434	4,399	49,870	10,842	37,449	44,013
XII: Alexandria/ Arlington	3,380	2,282	2,255	1,203	11,543	2,750	5,547	8,742
XIII: Bay Consortium	2,921	3,732	5,228	1,221	14,317	3,928	8,402	11,332
XIV: Greater Peninsula	3,983	4,853	5,687	1,841	21,687	7,110	10,759	15,536
XV: Crater Area	1,148	1,545	2,487	802	6,384	2,867	3,697	4,900
XVI: Hampton Roads	10,115	11,542	13,069	4,204	49,972	16,031	31,082	36,373
XVII: West Piedmont	883	1,520	2,341	323	4,431	1,613	2,686	3,999

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	2,814	314	3,680	1,542	2,485	1,965	n.d.
II: New River/Mt. Rogers	6,276	448	3,856	3,023	11,608	3,847	n.d.
III: Western Virginia	8,571	245	4,118	2,712	7,198	5,048	43
IV: Shenandoah Valley	9,840	526	5,523	3,644	8,586	6,114	36
IX: Capital Region Workforce Partnership	33,458	484	11,125	7,715	11,560	18,450	131
VI: Piedmont Workforce Network	8,048	439	3,578	2,456	2,948	3,555	45
VII: Region 2000/ Central Virginia	5,816	219	2,568	1,846	4,722	2,934	30
VIII: South Central	3,557	268	2,253	1,287	3,052	2,667	n.d.
XI: Northern Virginia	40,015	541	11,267	9,470	8,731	26,599	258
XII: Alexandria/ Arlington	6,798	155	2,486	1,589	2,010	6,297	87
XIII: Bay Consortium	11,953	1,077	6,212	3,936	4,882	7,411	128

XIV: Greater Peninsula	18,644	654	8,191	5,029	8,655	9,547	234
XV: Crater Area	7,817	197	3,070	1,951	4,859	4,994	68
XVI: Hampton Roads	39,318	975	19,986	11,989	17,104	23,057	651
XVII: West Piedmont	6,054	277	2,406	2,457	9,405	4,555	31

Source: Virginia Employment Commission

n.d. is not disclosed

*Aggregate Initial Claims for March 1, 2020-August 28, 2021

**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. **Appendices F and G** illustrate the top growing occupations for each LWDA, while **Appendix H** 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.

Appendices I and J 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 candidates than job opportunities at the state level, regionally, the supply is not being met. There tends to be a mismatch between skills and job opportunities. This shows the underemployment phenomenon discussed in the previous section. For example, in the Alexandria/Arlington and Northern Virginia Areas about 15 percent or more of job candidates have a Master's degree or higher, while only 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

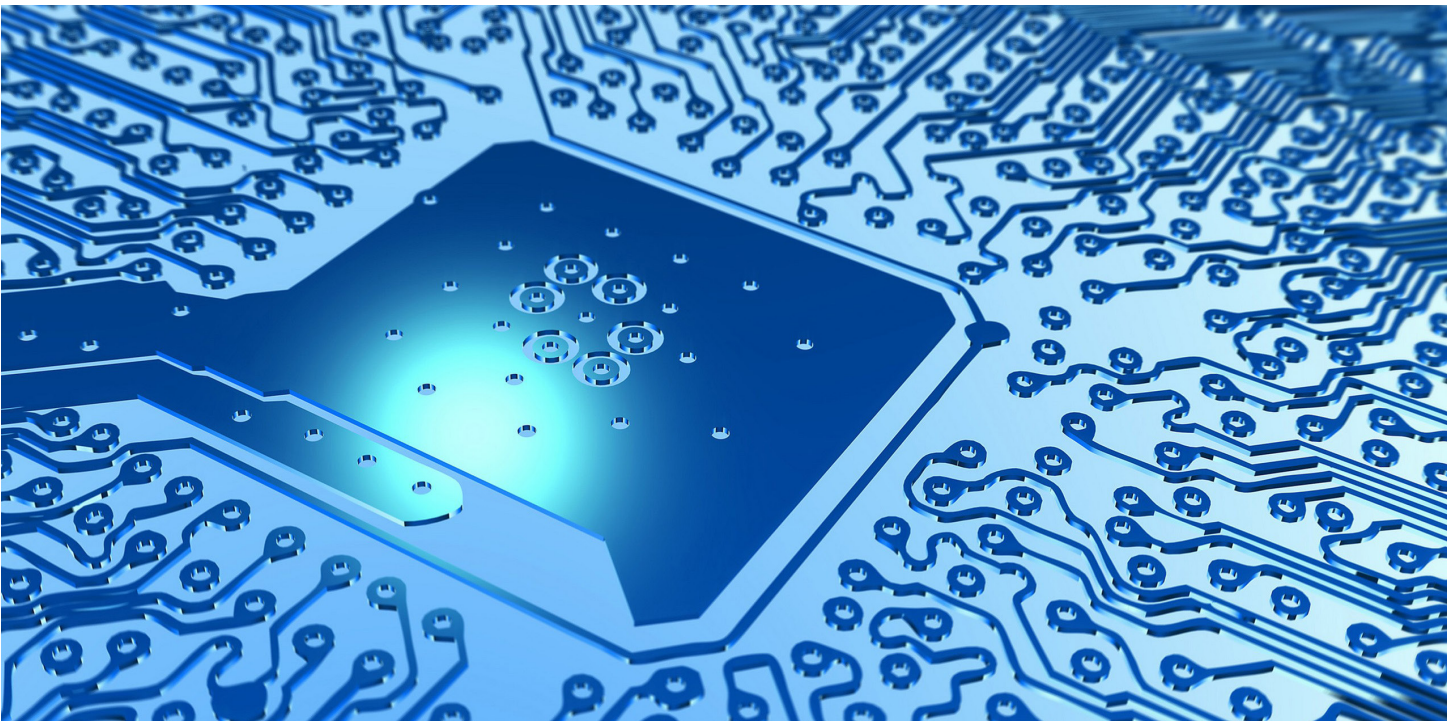
Existing Demand and Industry Sector Overview

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	2020 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: 0.93 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: 1.01 Wages: 1.06	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: 0.37 Wages: 0.36	-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: 0.94 Wages: 0.67	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: 1.04 Wages: 0.96	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: 0.8 Wages: 0.7	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: 0.87 Wages: 0.78	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: 0.82 Wages: 0.8	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: 0.89 Wages: 0.76	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	2020 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: 1.11 Wages: 0.81	-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: 1.48 Wages: 1.41	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: 0.42 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: 0.29	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: 0.65 Wages: 0.52	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: 1.13 Wages: 1.4	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: 1.28 Wages: 1.26	-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: 0.23	-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: 1.3	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: 1.12 Wages: 1.07	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: 1.7 Wages: 1.47	-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: 1.26 Wages: 1.74	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: 0.97 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	2020 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: 1.72 Wages: 1.8	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: 1.57	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: 0.82 Wages: 0.68	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: 1.41 Wages: 1.54	0.32%	Civil Engineers
	Computer Systems Design and Related	Employment: 149,909 Wages: \$4420.3	Employment: 169,438Wages: \$5,742.5	Employment: 13.0% Wages: 29.9%	Employment: 3.00 Wages: 3.18	Employment: 2.86 Wages: 2.79	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: 0.82 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: 2.02 Wages: 2.25	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: 1.52	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: 1.27 Wages: 1.01	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: 0.55	-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	2020 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: 0.7	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: 1.18 Wages: 0.73	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: 0.46 Wages: 0.38	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 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: 0.77 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: 0.51 Wages: 0.48	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: 1.11 Wages: 0.83	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: 4.68 Wages: 5.45	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: 4.39 Wages: 4.01	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: 0.97 Wages: 0.87	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: 0.72	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: 0.73	-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, First Quarter 2020

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	2020			2010			2000		
	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
Agriculture, Forestry, Fishing and Hunting	1%	0%	0%	1%	0%	0%	1%	0%	0%
Mining, Quarrying, and Oil and Gas Extraction	0%	0%	0%	0%	0%	0%	0%	0%	0%
Utilities	0%	0%	1%	0%	1%	1%	0%	1%	1%
Construction	8%	6%	5%	10%	5%	5%	12%	6%	6%
Manufacturing	2%	7%	6%	3%	7%	7%	3%	11%	11%
Wholesale Trade	4%	3%	4%	5%	3%	4%	6%	3%	5%
Retail Trade	9%	10%	5%	11%	11%	6%	14%	12%	7%
Transportation and Warehousing	2%	4%	3%	3%	3%	3%	3%	4%	4%
Information	2%	2%	3%	2%	2%	4%	2%	4%	7%
Finance and Insurance	4%	4%	6%	5%	3%	5%	5%	4%	5%
Real Estate and Rental and Leasing	4%	1%	1%	4%	1%	1%	4%	2%	1%
Professional, Scientific, and Technical Services	15%	12%	21%	15%	11%	20%	13%	9%	14%
Management of Companies and Enterprises	1%	2%	4%	1%	2%	4%	1%	2%	4%
Administrative and Support and Waste Management and Remediation Services	5%	6%	5%	5%	6%	4%	5%	6%	4%
Educational Services	1%	9%	7%	1%	10%	8%	1%	8%	7%
Health Care and Social Assistance	16%	13%	11%	12%	12%	11%	7%	9%	8%
Arts, Entertainment, and Recreation	1%	1%	1%	1%	2%	1%	1%	2%	1%
Accommodation and Food Services	6%	7%	2%	7%	8%	3%	6%	7%	3%
Other Services (except Public Administration)	10%	3%	3%	10%	4%	3%	12%	4%	3%
Public Administration	2%	7%	9%	2%	7%	10%	N/A	N/A	N/A

Source: Virginia Employment Commission, Quarterly Census of Employment and Wages, Annual 2020

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"> • 7.59% of VA Jobs • 11,028 Openings • 19,273 Employers • \$13.38 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. Positive Attitude 3. Conflict Management 4. Food Preparation 5. Cash Handling 	<ol style="list-style-type: none"> 1. ServeSafe 2. CPR 3. ServSuccess 4. First Aid 5. State Food Safety
Administrative Support and Waste Management	<ul style="list-style-type: none"> • 6.43% of VA Jobs • 12,294 Openings • 9,926 Employers • \$21.97 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. Interpersonal Skills 4. Attention to Detail 5. Work Independently 	<ol style="list-style-type: none"> 1. Nursing Credentials and Certifications 2. CPR and First Aid 3. Commercial Drivers License (CDL) 4. ISC 5. CompTIA
Agriculture, Forestry, Fishing and Hunting	<ul style="list-style-type: none"> • 0.09% of VA Jobs • 123 Openings • 1,442 Employers • \$20.24 Average Hourly Wage • Top advertised Tool or Technology: Tractors 	<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. Attention to Detail 2. Customer Service 3. Self Motivated 4. Watering 5. Problem Solving 	<ol style="list-style-type: none"> 1. Commercial Drivers License (CDL) 2. Institute of Electrical and Electronics Engineers Computer Society 3. American Association for Laboratory Animal Science 4. Entomological Society of America 5. ISC
Arts, Entertainment and Recreation	<ul style="list-style-type: none"> • 1.07% of VA Jobs • 1,829 Openings • 5,625 Employers • \$18.67 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. Positive Work Ethic 5. Ability to Empathize 	<ol style="list-style-type: none"> 1. CPR 2. First Aid 3. American Sports and Fitness Association 4. State Food Safety 5. Aerobics and Fitness Association of America

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"> • 5.41% of VA Jobs • 4,280 Openings • 20,808 Employers • \$26.94 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. Interpersonal Skills 	<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"> • 9.66% of VA Jobs • 15,194 Openings • 7,007 Employers • \$30.36 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. Attention to Detail 3. Work Independently 4. Problem Solving 5. Interpersonal Skills 	<ol style="list-style-type: none"> 1. CPR 2. Nursing Credentials 3. First Aid 4. Behavior Analyst Certification 5. Council for Professional Recognition
Finance and Insurance	<ul style="list-style-type: none"> • 3.87% of VA Jobs • 6,056 Openings • 12,508 Employers • \$37.63 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. Risk Management 4. Decision Making 5. Time Management 	<ol style="list-style-type: none"> 1. FINRA Financial Securities Professionals 2. Moody's Analytics 3. Nursing Credentials 4. Information Systems Audit and Control 5. American Institute of CPAs
Health Care and Social Assistance	<ul style="list-style-type: none"> • 12.14% of VA Jobs • 29,341 Openings • 39,230 Employers • \$27.83 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. Critical Thinking 4. Decision Making 5. Flexibility 	<ol style="list-style-type: none"> 1. Nursing Credentials 2. CPR and First Aid 3. American Association of Medical Assistants 4. National Registry of Emergency Medical Technicians 5. American Society of Phlebotomy
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"> • 2.24% of VA Jobs • 1,703 Openings • 3,455 Employers • \$44.52 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<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. Problem Solving 2. Customer Service 3. Flexibility 4. Attention to Detail 5. Discharge Planning 	<ol style="list-style-type: none"> 1. Nursing Credentials 2. CPR and First Aid 3. Social Worker Credentials 4. National Board for Respiratory Care 5. International Board of Lactation Consultant Examiners
Manufacturing	<ul style="list-style-type: none"> • 6.25% of VA Jobs • 9,494 Openings • 6,678 Employers • \$26.52 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. Attention to Detail 4. Decision Making 5. Flexibility 	<ol style="list-style-type: none"> 1. ISC 2. Cisco Associate 3. Commercial Drivers License (CDL) 4. CompTIA 5. GIAC Security Certifications – Cyber Defense
Mining, Quarrying, and Oil and Gas Extraction	<ul style="list-style-type: none"> • 0.15% of VA Jobs • 237 Openings • 258 Employers • \$26.98 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<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. Preventative Maintenance 5. Industrial Maintenance 	<ol style="list-style-type: none"> 1. Commercial Drivers License (CDL) 2. American Institute of CPAs 3. ISC 4. American Concrete Institute Project Management Institute
Other Services (Except Public Administration)	<ul style="list-style-type: none"> • 3.06% of VA Jobs • 3,182 Openings • 38,804 Employers • \$26.92 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. Attention to Detail 3. Problem Solving 4. Work Independently 5. Organizational Skills 	<ol style="list-style-type: none"> 1. CPR 2. Nursing Credentials 3. Commercial Drivers License (CDL) 4. Licensed Massage Therapist 5. First Aid
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"> • 9.74% of VA Jobs • 4,885 Openings • 7,956 Employers • \$36.68 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"> • 1.45% of VA Jobs • 2,652 Openings • 13,119 Employers • \$26.76 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"> • 10.34% of VA Jobs • 19,415 Openings • 32,852 Employers • \$16.96 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 and Warehousing	<ul style="list-style-type: none"> • 3.93% of VA Jobs • 4,342 Openings • 5,491 Employers • \$25.12 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"> • 0.30% of VA Jobs • 375 Openings • 286 Employers • \$41.47 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"> • 2.87% of VA Jobs • 4,767 Openings • 6,662 Employers • \$31.82 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. Candidate and Job data based on posts in the Virginia Workforce Connection as of September 2021.



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"> · 13,607 Openings · 199 Candidates · \$71,870 Average Wage 	<ul style="list-style-type: none"> · Critical Thinking · Customer Service · Interpersonal Skills · Must be Flexible · Positive Attitude 	<ul style="list-style-type: none"> · Nursing Credentials and Certifications · AHA CPR & First Aid Certifications · Nephrology Nursing Certification Commission · National Registry of Emergency Medical Technicians · Competency & Credentialing Institute 	<ul style="list-style-type: none"> · Associate's Degree · Bachelor's Degree · 1 to 2 years experience
Software Developers, Applications	<ul style="list-style-type: none"> · 4,466 Openings · 252 Candidates 	<ul style="list-style-type: none"> · Software Development Experience · Problem Solving · Developing Web Based Applications · Must be Flexible · Software Design 	<ul style="list-style-type: none"> · Cisco Associate Certifications · (ISC)² Certifications · (IAAPA) · GIAC Security Certifications - Cyber Defense 	<ul style="list-style-type: none"> · Bachelor's Degree
Computer Systems Engineers/Architects	<ul style="list-style-type: none"> · 3,941 Openings · 109 Candidates 	<ul style="list-style-type: none"> · Problem Solving · Must be Flexible · Risk Management · System Design · Work Independently 	<ul style="list-style-type: none"> · (ISC)² Certifications · CompTIA Certifications · Cisco Associate Certifications · Information Systems Audit and Control Association (ISACA) · GIAC Security Certifications - Cyber Defense 	<ul style="list-style-type: none"> · Bachelor's Degree · Master's Degree · 2 to 5 years experience
Retail Salespersons	<ul style="list-style-type: none"> · 3,308 Openings · 1,064 Candidates · \$28,450 Average Wage 	<ul style="list-style-type: none"> · Customer Service · Honesty · Stock Merchandise · Check-In Merchandise · Verbal communication Skills 	<ul style="list-style-type: none"> · None Widely Requested 	<ul style="list-style-type: none"> · High School Diploma (Or Equivalent) · Entry Level
Computer Programmers	<ul style="list-style-type: none"> · 3,064 Openings · 93 Candidates · \$92,530 Average Wage 	<ul style="list-style-type: none"> · Developing Web Based Applications · Problem Solving · Work Independently · Shell Scripting · Agile Software Development 	<ul style="list-style-type: none"> · Retail Pro International (RPI) Certifications · Cisco Associate Certifications · (ISC)² Certifications · CompTIA Certifications · ServiceNow Certifications 	<ul style="list-style-type: none"> · Bachelor's Degree · 2 to 5 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
Customer Service Representatives	<ul style="list-style-type: none"> · 2,711 Openings · 4,157 Candidates · \$36,190 Average Wage 	<ul style="list-style-type: none"> · Customer Service · Problem Solving · Organizational Skills · Decision making · Greeting customers 	<ul style="list-style-type: none"> · None Widely Requested 	<ul style="list-style-type: none"> · High School Diploma (Or Equivalent) · 1 to 2 years experience
Network and Computer Systems Administrators	<ul style="list-style-type: none"> · 2,484 Openings · 270 Candidates · \$92,720 Average Wage 	<ul style="list-style-type: none"> · Problem Solving · Conflict Management · Customer Service · Work Independently · Root Cause Analysis 	<ul style="list-style-type: none"> · Cisco Associate Certifications · CompTIA Certifications · (ISC)² Certifications · GIAC Security Certifications - Cyber Defense · Red Hat Certifications 	<ul style="list-style-type: none"> · Bachelor's Degree · 2 to 5 years experience
Licensed Practical and Licensed Vocational Nurses	<ul style="list-style-type: none"> · 1,896 Openings · 230 Candidates · \$46,070 Average Wage 	<ul style="list-style-type: none"> · Customer Service · Medication administration · Critical thinking · Decision making · Problem solving 	<ul style="list-style-type: none"> · Nursing Credentials and Certifications · AHA CPR & First Aid Certifications · American Red Cross - First Aid Certifications · American Association of Medical Assistants Certifications · American Professional Certification 	<ul style="list-style-type: none"> · Vocational School Certificate · High School Diploma (Or Equivalent) · 1 to 2 years experience
First-Line Supervisors of Food Preparation and Serving Workers	<ul style="list-style-type: none"> · 1,863 Openings · 238 Candidates · \$36,560 Average Wage 	<ul style="list-style-type: none"> · Customer Service · Inventory management · Restaurant management · Food preparation · Leadership development 	<ul style="list-style-type: none"> · None Widely Requested 	<ul style="list-style-type: none"> · High School Diploma (Or Equivalent) · Entry Level
Nursing Assistants	<ul style="list-style-type: none"> · 1,778 Openings · 872 Candidates · \$29,400 Average Wage 	<ul style="list-style-type: none"> · Customer Service · Must be flexible · Catheter care · Blood draws · Attention to detail 	<ul style="list-style-type: none"> · Nursing Credentials and Certifications · AHA CPR & First Aid Certifications · American Association of Medical Assistants Certifications · National Registry of Emergency Medical Technicians 	<ul style="list-style-type: none"> · High School Diploma (Or Equivalent) · Entry Level · 1 to 2 years experience

¹ Monthly Job Count for September 2021. 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 2021.

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	2016	2020	Change
Virginia	61.7%	62.2%	0.5%
Accomack County	60.0%	63.1%	3.1%
Albemarle County	69.2%	70.6%	1.3%
Alexandria City	77.9%	79.8%	1.9%
Alexandria/Arlington (LWDA XII)	78.5%	80.0%	1.5%
Alleghany County	53.5%	54.3%	0.8%
Amelia County	60.7%	60.0%	-0.7%
Amherst County	60.1%	57.7%	-2.4%
Appomattox County	57.0%	54.8%	-2.2%
Arlington County	79.0%	80.2%	1.2%
Augusta County	63.0%	64.1%	1.1%
Bath County	67.8%	73.0%	5.2%
Bedford City	#N/A	#N/A	#N/A
Bedford County	60.8%	58.0%	-2.8%
Bland County	54.6%	58.0%	3.4%
Botetourt County	64.2%	61.8%	-2.4%
Bristol City	54.4%	52.7%	-1.7%
Brunswick County	52.5%	48.9%	-3.6%
Buchanan County	37.1%	37.5%	0.4%
Buckingham County	53.1%	53.3%	0.3%
Buena Vista City	66.5%	77.6%	11.1%
Campbell County	58.2%	56.0%	-2.3%
Capital Region Workforce Partnership (LWDA IX)	67.2%	66.1%	-1.1%
Caroline County	69.0%	69.7%	0.8%
Carroll County	53.2%	54.3%	1.1%
Charles City County	61.4%	60.0%	-1.4%
Charlotte County	53.9%	54.8%	0.9%
Charlottesville City	67.6%	70.9%	3.2%
Chesapeake City	67.4%	68.6%	1.2%
Chesterfield County	70.5%	69.6%	-0.9%
Clarke County	64.4%	64.1%	-0.3%
Colonial Heights City	64.1%	64.2%	0.1%
Covington City	53.7%	53.7%	0.0%
Craig County	56.9%	53.0%	-4.0%
Culpeper County	63.7%	62.9%	-0.8%
Cumberland County	58.3%	56.0%	-2.3%
Danville City	58.7%	60.5%	1.8%
Dickenson County	38.0%	39.9%	1.8%
Dinwiddie County	60.3%	59.8%	-0.5%
Emporia City	53.5%	59.8%	6.3%
Essex County	61.7%	61.7%	0.0%
Fairfax City	69.1%	73.0%	3.9%
Fairfax County	71.4%	71.5%	0.1%
Falls Church City	76.2%	76.9%	0.7%
Fauquier County	67.5%	66.8%	-0.8%
Floyd County	64.8%	61.1%	-3.7%
Fluvanna County	66.5%	67.9%	1.4%
Franklin City	55.3%	59.6%	4.3%

Area	2016	2020	Change
Franklin County	58.5%	56.4%	-2.2%
Frederick County	70.3%	68.9%	-1.4%
Fredericksburg City	68.3%	68.8%	0.6%
Galax City	56.1%	60.9%	4.7%
Giles County	59.0%	56.3%	-2.6%
Gloucester County	63.9%	63.9%	0.0%
Goochland County	61.9%	59.7%	-2.2%
Grayson County	60.3%	65.7%	5.5%
Greene County	66.6%	69.4%	2.9%
Greensville County	63.5%	65.5%	2.0%
Halifax County	53.2%	55.7%	2.5%
Hampton City	63.3%	64.6%	1.3%
Hampton Roads (LWDA XVI)	66.2%	67.6%	1.4%
Hanover County	71.4%	69.9%	-1.5%
Harrisonburg City	65.9%	64.6%	-1.3%
Henrico County	70.9%	70.0%	-0.9%
Henry County	52.2%	57.1%	4.8%
Highland County	66.6%	60.3%	-6.3%
Hopewell City	57.2%	57.8%	0.7%
Isle of Wight County	65.3%	64.9%	-0.4%
James City County	59.8%	61.1%	1.3%
King and Queen County	61.2%	64.8%	3.6%
King George County	65.0%	66.8%	1.8%
King William County	69.0%	68.0%	-1.0%
Lancaster County	54.6%	60.0%	5.5%
Lee County	44.3%	43.5%	-0.8%
Lexington City	60.7%	52.3%	-8.5%
Loudoun County	76.8%	75.4%	-1.4%
Louisa County	66.7%	68.0%	1.4%
Lunenburg County	56.3%	55.7%	-0.6%
Lynchburg City	65.0%	63.2%	-1.7%
Madison County	68.7%	69.7%	1.0%
Manassas City	70.4%	70.5%	0.1%
Manassas Park City	71.0%	72.2%	1.1%
Martinsville City	49.4%	59.1%	9.7%
Mathews County	54.1%	52.2%	-1.9%
Mecklenburg County	49.7%	49.4%	-0.4%
Middlesex County	56.1%	59.8%	3.7%
Montgomery County	67.8%	65.8%	-2.0%
Nelson County	59.3%	61.0%	1.7%
New Kent County	72.2%	71.7%	-0.5%
New River/Mt. Rogers (LWDA II)	59.2%	59.3%	0.1%
Newport News City	70.1%	71.6%	1.5%
Norfolk City	76.3%	79.5%	3.3%
Northampton County	61.3%	56.2%	-5.1%
Northern Virginia (LWDA XI)	72.5%	73.0%	0.5%
Northumberland County	51.3%	53.4%	2.0%
Norton City	52.7%	55.7%	3.0%
Nottoway County	66.3%	65.9%	-0.4%
Orange County	59.6%	61.5%	1.8%
Page County	59.5%	62.0%	2.5%

Area	2016	2020	Change
Patrick County	53.3%	48.4%	-4.9%
Petersburg City	54.3%	56.5%	2.2%
Piedmont Workforce Network (LWDA VI)	65.0%	66.1%	1.1%
Pittsylvania County	59.0%	59.0%	0.0%
Poquoson City	64.6%	65.4%	0.8%
Portsmouth City	63.3%	65.3%	2.0%
Powhatan County	60.8%	59.8%	-1.0%
Prince Edward County	64.7%	65.3%	0.6%
Prince George County	61.3%	60.1%	-1.2%
Prince William County	72.2%	71.9%	-0.4%
Pulaski County	59.8%	57.1%	-2.6%
Radford City	66.7%	67.5%	0.8%
Rappahannock County	59.3%	58.1%	-1.2%
Region 2000/Central VA (LWDA VII)	60.2%	56.9%	-3.3%
Richmond City	68.4%	68.0%	-0.4%
Richmond County	64.6%	68.5%	3.9%
Roanoke City	63.3%	63.4%	0.1%
Roanoke County	66.4%	64.5%	-1.9%
Rockbridge County	55.1%	58.1%	2.9%
Rockingham County	66.1%	64.8%	-1.4%
Russell County	49.2%	49.6%	0.4%
Salem City	67.6%	67.1%	-0.5%
Scott County	53.3%	50.8%	-2.6%
Shenandoah County	60.2%	63.7%	3.5%
Shenandoah Valley (LWDA IV)	64.0%	64.9%	0.9%
Smyth County	54.5%	54.3%	-0.2%
South Central (LWDA VIII)	56.9%	56.5%	-0.4%
Southampton County	66.9%	67.4%	0.6%
Southwestern Virginia (LWDA I)	45.6%	46.2%	0.6%
Spotsylvania County	65.3%	64.8%	-0.4%
Stafford County	68.4%	67.5%	-0.9%
Staunton City	62.5%	66.0%	3.6%
Suffolk City	65.2%	65.4%	0.2%
Surry County	64.5%	65.3%	0.8%
Sussex County	48.3%	53.2%	4.9%
Tazewell County	46.4%	46.9%	0.5%
Virginia Beach City	70.2%	70.3%	0.1%
Warren County	65.7%	65.9%	0.2%
Washington County	61.0%	59.8%	-1.2%
Waynesboro City	60.9%	64.1%	3.2%
West Piedmont (LWDA XVII)	54.5%	56.8%	2.3%
Western Virginia (LWDA III)	60.5%	60.2%	-0.3%
Westmoreland County	62.5%	64.7%	2.3%
Williamsburg City	73.2%	75.0%	1.9%
Winchester City	68.7%	68.3%	-0.5%
Wise County	43.7%	45.6%	1.9%
Wythe County	57.5%	57.5%	0.0%
York County	65.7%	65.5%	-0.2%

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 Occupations by Employment

Workforce Area	Occupation	Employment	Median Annual Salary	Growth Rate (%)
LWDA I – Southwestern Virginia	Cashiers	2,240	\$21,453.37	-1.06
	Customer Service Representatives	1,600	\$31,372.68	0.29
	Correctional Officers and Jailers	1,510	\$41,091.56	-1.20
	Fast Food and Counter Workers	1,290	\$19,342.08	0.26
	Stockers and Order Fillers	1,130	\$24,872.83	-0.89
LWDA II – New River/ Mt. Rogers	Fast Food and Counter Workers	4,670	\$20,057.88	0.50
	Cashiers	4,460	\$20,955.66	-0.70
	Retail Salespersons	3,210	\$26,405.12	-0.52
	Office Clerks, General	2,810	\$30,885.45	-0.80
	Stockers and Order Fillers	2,670	\$25,285.58	0.04
LWDA III – Western Virginia	Fast Food and Counter Workers	4,350	\$20,216.37	0.59
	Registered Nurses	4,300	\$66,987.13	0.79
	Retail Salespersons	4,210	\$27,031.75	-0.61
	Stockers and Order Fillers	3,670	\$25,749.79	0.18
	Customer Service Representatives	3,370	\$34,577.50	-0.28
LWDA IV – Shenandoah Valley	Fast Food and Counter Workers	7,560	\$21,542.30	0.91
	Cashiers	7,400	\$24,381.52	-0.28
	Retail Salespersons	5,420	\$27,290.65	0.03
	Laborers and Freight, Stock, and Material Movers, Hand	5,070	\$32,159.19	0.31
	Heavy and Tractor-Trailer Truck Drivers	4,870	\$46,491.04	0.66
LWDA VI – Piedmont Workforce Network	Cashiers	4,470	\$23,977.85	-0.04
	Registered Nurses	4,300	\$70,863.21	0.98
	Office Clerks, General	4,070	\$36,336.01	-0.27
	Retail Salespersons	4,060	\$28,063.10	0.21
	Fast Food and Counter Workers	4,030	\$23,770.49	1.08
LWDA VII – Central Virginia	Fast Food and Counter Workers	3,720	\$19,707.75	1.05
	Cashiers	3,060	\$21,844.35	-0.43
	Registered Nurses	2,320	\$66,501.47	0.93
	Retail Salespersons	2,220	\$25,666.48	-0.12
	Laborers and Freight, Stock, and Material Movers, Hand	2,200	\$27,571.63	-0.06
LWDA VIII – South Central Virginia	Cashiers	1,290	\$22,088.45	-0.74
	Fast Food and Counter Workers	1,140	\$19,142.15	0.76
	Heavy and Tractor-Trailer Truck Drivers	1,120	\$41,696.60	0.68
	Correctional Officers and Jailers	1,110	\$40,301.18	-0.76
	Office Clerks, General	1,050	\$25,313.09	-0.72
LWDA IX – Capital Region Workforce Partnership	Retail Salespersons	15,250	\$26,010.97	-0.04
	Cashiers	14,960	\$24,015.90	-0.17
	Customer Service Representatives	12,840	\$36,853.94	-0.09
	Fast Food and Counter Workers	11,910	\$21,449.07	1.06
	Office Clerks, General	11,360	\$35,778.16	-0.42

LWDA XI – Northern Virginia	Software Developers and Software Quality Assurance Analysts and Testers	45,650	\$119,843.25	2.11
	Retail Salespersons	24,150	\$29,625.98	0.18
	Cashiers	22,870	\$26,561.52	0.44
	Fast Food and Counter Workers	22,310	\$28,769.68	1.70
	Management Analysts	19,510	\$107,548.87	1.43
LWDA XII – Alexandria/Arlington	Management Analysts	10,880	\$102,793.56	1.72
	Software Developers and Software Quality Assurance Analysts and Testers	9,230	\$124,185.60	1.99
	Project Management Specialists and Business Operations Specialists, All Other	8,340	\$103,817.03	1.25
	General and Operations Managers	7,690	\$159,505.43	1.05
	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	6,040	\$147,224.73	0.65
LWDA XIII – Bay Consortium	Cashiers	6,340	\$25,044.08	0.13
	Fast Food and Counter Workers	4,140	\$23,497.02	1.27
	Retail Salespersons	3,680	\$28,499.53	0.02
	Customer Service Representatives	3,490	\$38,868.34	-0.03
	Stockers and Order Fillers	3,480	\$29,430.53	0.38
LWDA XIV – Greater Peninsula	Retail Salespersons	7,970	\$24,564.33	-0.64
	Fast Food and Counter Workers	7,950	\$21,387.96	0.82
	Cashiers	7,410	\$22,828.15	-0.54
	Stockers and Order Fillers	5,180	\$30,232.35	0.16
	Office Clerks, General	4,910	\$33,896.82	-0.52
LWDA XV – Crater Area	Cashiers	3,330	\$23,238.16	-0.84
	Stockers and Order Fillers	1,770	\$26,531.02	0.15
	Correctional Officers and Jailers	1,650	\$40,308.43	-0.77
	Retail Salespersons	1,520	\$22,526.99	-0.67
	Nursing Assistants	1,370	\$29,521.74	1.44
LWDA XVI – Hampton Roads	Fast Food and Counter Workers	16,460	\$21,566.13	0.88
	Retail Salespersons	11,980	\$25,606.25	-0.49
	Cashiers	11,320	\$23,830.97	-0.32
	Office Clerks, General	10,540	\$31,581.49	-0.54
	Registered Nurses	10,290	\$70,969.32	0.87
LWDA XVII – West Piedmont	Cashiers	4,240	\$21,400.53	-1.19
	Fast Food and Counter Workers	2,360	\$19,179.44	0.05
	Retail Salespersons	1,840	\$27,442.81	-1.18
	Stockers and Order Fillers	1,720	\$26,325.16	-0.52
	Laborers and Freight, Stock, and Material Movers, Hand	1,350	\$29,908.12	-0.47

Source: Virginia Employment Commission, Occupational Employment and Wage Rates Program
Growth based on 2018-2028 Long-term Occupational Projections, Virginia Employment Commission.

*Higher Level of SOC code used

Appendix H

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 I

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	54 (2.68%)	0 (N/A)
	High School Diploma or Equivalent	180 (8.95%)	5,381 (35.38%)
	Vocational School Certificate	6 (0.30%)	592 (3.89%)
	Associate's Degree	15 (0.75%)	2,747 (18.06%)
	Bachelor's Degree	41 (2.04%)	3,191 (20.98%)
	Master's Degree	13 (0.65%)	1,578 (10.38%)
	Doctorate Degree	1 (0.05%)	187 (1.23%)
LWDA II – New River/Mt. Rogers	No Minimum Required	389 (4.54%)	0 (N/A)
	High School Diploma or Equivalent	634 (7.39%)	6,415 (36.70%)
	Vocational School Certificate	20 (0.23%)	686 (3.92%)
	Associate's Degree	62 (0.72%)	3,208 (18.35%)
	Bachelor's Degree	263 (3.07%)	3,526 (20.17%)
	Master's Degree	25 (0.29%)	1,689 (9.66%)
	Doctorate Degree	15 (0.17%)	199 (1.14%)
LWDA III – Western Virginia	No Minimum Required	94 (3.83%)	0 (N/A)
	High School Diploma or Equivalent	291 (11.84%)	5,977 (35.17%)
	Vocational School Certificate	5 (0.20%)	681 (4.01%)
	Associate's Degree	56 (2.28%)	3,132 (18.43%)
	Bachelor's Degree	75 (3.05%)	3,625 (21.33%)
	Master's Degree	9 (0.37%)	1,715 (10.09%)
	Doctorate Degree	0 (N/A)	202 (1.19%)
LWDA IV – Shenandoah Valley	No Minimum Required	454 (4.17%)	0 (N/A)
	High School Diploma or Equivalent	1,118 (10.26%)	6,330 (35.57%)
	Vocational School Certificate	34 (0.31%)	736 (4.14%)
	Associate's Degree	125 (1.15%)	3,117 (17.51%)
	Bachelor's Degree	403 (3.70%)	3,859 (21.68%)
	Master's Degree	42 (0.39%)	1,847 (10.38%)
	Doctorate Degree	7 (0.06%)	219 (1.23%)
LWDA VI – Piedmont Workforce Network	No Minimum Required	298 (2.36%)	0 (N/A)
	High School Diploma or Equivalent	1,274 (10.08%)	6,513 (32.70%)
	Vocational School Certificate	44 (0.35%)	813 (4.08%)
	Associate's Degree	240 (1.90%)	3,593 (18.04%)
	Bachelor's Degree	1,067 (8.44%)	4,718 (23.69%)
	Master's Degree	89 (0.70%)	2,176 (10.93%)
	Doctorate Degree	54 (0.43%)	266 (1.34%)
LWDA VII – Central Virginia	No Minimum Required	73 (1.85%)	0 (N/A)
	High School Diploma or Equivalent	251 (6.37%)	5,991 (35.71%)
	Vocational School Certificate	7 (0.18%)	679 (4.05%)
	Associate's Degree	11 (0.28%)	3,090 (18.42%)
	Bachelor's Degree	115 (2.92%)	3,507 (20.90%)
	Master's Degree	7 (0.18%)	1,691 (10.08%)
	Doctorate Degree	0 (N/A)	201 (1.20%)
LWDA VIII – South Central Virginia	No Minimum Required	94 (3.83%)	0 (N/A)
	High School Diploma or Equivalent	291 (11.84%)	5,977 (35.17%)
	Vocational School Certificate	5 (0.20%)	681 (4.01%)
	Associate's Degree	56 (2.28%)	3,132 (18.43%)
	Bachelor's Degree	75 (3.05%)	3,625 (21.33%)
	Master's Degree	9 (0.37%)	1,715 (10.09%)
	Doctorate Degree	0 (N/A)	202 (1.19%)

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	1,268 (3.80%)	0 (N/A)
	High School Diploma or Equivalent	2,152 (6.45%)	8,099 (34.87%)
	Vocational School Certificate	34 (0.10%)	919 (3.96%)
	Associate's Degree	884 (2.65%)	4,440 (19.11%)
	Bachelor's Degree	1,525 (4.57%)	5,030 (21.65%)
	Master's Degree	172 (0.52%)	2,217 (9.54%)
	Doctorate Degree	14 (0.04%)	247 (1.06%)
LWDA XI – Northern Virginia	No Minimum Required	3,771 (4.49%)	0 (N/A)
	High School Diploma or Equivalent	3,420 (4.07%)	7,085 (28.59%)
	Vocational School Certificate	85 (0.10%)	943 (3.81%)
	Associate's Degree	721 (0.86%)	4,430 (17.88%)
	Bachelor's Degree	10,420 (12.40%)	6,654 (26.85%)
	Master's Degree	588 (0.70%)	3,169 (12.79%)
	Doctorate Degree	127 (0.15%)	349 (1.41%)
LWDA XII - Alexandria/Arlington	No Minimum Required	1,396 (5.67%)	0 (N/A)
	High School Diploma or Equivalent	731 (2.97%)	5,660 (28.77%)
	Vocational School Certificate	11 (0.04%)	766 (3.89%)
	Associate's Degree	215 (0.87%)	3,393 (17.25%)
	Bachelor's Degree	5,018 (20.39%)	5,227 (26.57%)
	Master's Degree	462 (1.88%)	2,585 (13.14%)
	Doctorate Degree	68 (0.28%)	294 (1.50%)
LWDA XIII – Bay Consortium	No Minimum Required	403 (4.31%)	0 (N/A)
	High School Diploma or Equivalent	711 (7.61%)	7,688 (32.73%)
	Vocational School Certificate	12 (0.13%)	976 (4.15%)
	Associate's Degree	87 (0.93%)	4,321 (18.39%)
	Bachelor's Degree	499 (5.34%)	5,482 (23.34%)
	Master's Degree	30 (0.32%)	2,483 (10.57%)
	Doctorate Degree	7 (0.07%)	277 (1.18%)
LWDA XIV – Greater Peninsula	No Minimum Required	433 (3.75%)	0 (N/A)
	High School Diploma or Equivalent	1,073 (9.30%)	7,123 (34.52%)
	Vocational School Certificate	34 (0.29%)	896 (4.34%)
	Associate's Degree	188 (1.63%)	4,018 (19.47%)
	Bachelor's Degree	557 (4.83%)	4,318 (20.93%)
	Master's Degree	126 (1.09%)	2,056 (9.96%)
	Doctorate Degree	34 (0.29%)	232 (1.12%)
LWDA XV – Crater Area	No Minimum Required	161 (3.44%)	0 (N/A)
	High School Diploma or Equivalent	370 (7.91%)	6,465 (35.50%)
	Vocational School Certificate	16 (0.34%)	747 (4.10%)
	Associate's Degree	115 (2.46%)	3,346 (18.38%)
	Bachelor's Degree	161 (3.44%)	3,857 (21.18%)
	Master's Degree	14 (0.30%)	1,825 (10.02%)
	Doctorate Degree	4 (0.09%)	211 (1.16%)
LWDA XVI – Hampton Roads	No Minimum Required	1,041 (3.97%)	0 (N/A)
	High School Diploma or Equivalent	2,008 (7.66%)	8,061 (34.73%)
	Vocational School Certificate	75 (0.29%)	977 (4.21%)
	Associate's Degree	485 (1.85%)	4,617 (19.89%)
	Bachelor's Degree	1,631 (6.22%)	4,858 (20.93%)
	Master's Degree	130 (0.50%)	2,165 (9.33%)
	Doctorate Degree	33 (0.13%)	231 (1.00%)
LWDA XVII – West Piedmont	No Minimum Required	181 (4.86%)	0 (N/A)
	High School Diploma or Equivalent	477 (12.81%)	5,864 (35.73%)
	Vocational School Certificate	9 (0.24%)	662 (4.03%)
	Associate's Degree	55 (1.48%)	3,059 (18.64%)
	Bachelor's Degree	139 (3.73%)	3,355 (20.44%)
	Master's Degree	16 (0.43%)	1,628 (9.92%)
	Doctorate Degree	0 (N/A)	191 (1.16%)

*Not all job postings list an educational requirement

Source: Virginia Employment Commission. Area Labor Market Profiles, September 2021

Appendix J

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	7.56	1.12	Registered Nurses (0.23)	Less than 1 year (37.62)
			Physicians and Surgeons, All Other (N/A)	1 Year to 2 Years (0.46)
			Licensed Practical and Licensed Vocational Nurses (0.97)	2 Years to 5 Years (88.77)
			Customer Service Representatives (16.74)	5 Years to 10 Years (N/A)
			First-Line Supervisors of Food Preparation and Serving Workers (1.09)	More than 10 Years (2,897.67)
LWDA II – New River/Mt. Rogers	2.04	0.54	Registered Nurses (0.07)	Less than 1 year (18.62)
			Retail Salespersons (1.41)	1 Year to 2 Years (0.11)
			Licensed Practical and Licensed Vocational Nurses (0.53)	2 Years to 5 Years (15.4)
			Combined Food Preparation and Serving Workers, Including Fast Food (0.91)	5 Years to 10 Years (94.38)
			Customer Service Representatives (6.87)	More than 10 Years (1,335.75)
LWDA III – Western VA	1.76	0.42	Registered Nurses (0.05)	Less than 1 year (32.93)
			Customer Service Representatives (6.73)	1 Year to 2 Years (0.09)
			Nursing Assistants (1.45)	2 Years to 5 Years (6.75)
			Retail Salespersons (1.43)	5 Years to 10 Years (74.13)
			Licensed Practical and Licensed Vocational Nurses (0.57)	More than 10 Years (831.62)
LWDA IV – Shenandoah Valley	1.63	0.54	Registered Nurses (0.10)	Less than 1 year (13.11)
			Retail Salespersons (0.89)	1 Year to 2 Years (0.09)
			Heavy and Tractor-Trailer Truck Drivers (0.97)	2 Years to 5 Years (8.49)
			Customer Service Representatives (5.95)	5 Years to 10 Years (48.06)
			Janitors and Cleaners, Except Maids and Housekeeping Cleaners (0.96)	More than 10 Years (786.36)

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	1.58	0.39	Registered Nurses (0.06)	Less than 1 year (11.39)
			Licensed Practical and Licensed Vocational Nurses (0.38)	1 Year to 2 Years (0.08)
			Nursing Assistants (1.17)	2 Years to 5 Years (4.71)
			Social Science Research Assistants (0.11)	5 Years to 10 Years (20.71)
			Retail Salespersons (1.35)	More than 10 Years (243.93)
LWDA VII – Central VA	4.28	0.73	Registered Nurses (0.39)	Less than 1 year (0)
			Retail Salespersons (2.67)	1 Year to 2 Years (4.32)
			Physicians and Surgeons, All Other (N/A)	2 Years to 5 Years (0.03)
			First-Line Supervisors of Retail Sales Workers (2.10)	5 Years to 10 Years (0.01)
			Customer Service Representatives (16.33)	More than 10 Years (0)
LWDA VIII – South Central VA	7.14	1.04	Registered Nurses (0.23)	Less than 1 year (25.69)
			Licensed Practical and Licensed Vocational Nurses (1.07)	1 Year to 2 Years (0.4)
			Customer Service Representatives (19.53)	2 Years to 5 Years (41.66)
			First-Line Supervisors of Retail Sales Workers (3.15)	5 Years to 10 Years (164.57)
			Physical Therapists (0.13)	More than 10 Years (2,092.2)
LWDA IX – Capital Region	0.69	0.44	Registered Nurses (0.03)	Less than 1 year (11.91)
			Customer Service Representatives (3.06)	1 Year to 2 Years (0.03)
			Retail Salespersons (0.84)	2 Years to 5 Years (2.32)
			Computer Occupations, All Other (1.37)	5 Years to 10 Years (13.32)
			Computer Programmers (0.10)	More than 10 Years (48.06)

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	0.29	0.34	Computer Occupations, All Other (0.20)	Less than 1 year (7.75)
			Registered Nurses (0.03)	1 Year to 2 Years (0.01)
			Software Developers, Applications (0.07)	2 Years to 5 Years (0.44)
			Computer Programmers (0.02)	5 Years to 10 Years (0.92)
			Network and Computer Systems Administrators (0.11)	More than 10 Years (30.32)
LWDA XII – Alexandria/Arlington	0.8	0.24	Software Developers, Applications (0.11)	Less than 1 year (39.37)
			Computer Occupations, All Other (0.57)	1 Year to 2 Years (0.05)
			Management Analysts (0.43)	2 Years to 5 Years (0.81)
			Registered Nurses (0.14)	5 Years to 10 Years (1.77)
			Computer Programmers (0.08)	More than 10 Years (52.01)
LWDA XIII– Bay Consortium	2.56	0.7	Registered Nurses (0.14)	Less than 1 year (22.73)
			Computer Occupations, All Other (3.03)	1 Year to 2 Years (0.11)
			Retail Salespersons (1.84)	2 Years to 5 Years (6.7)
			Customer Service Representatives (8.66)	5 Years to 10 Years (17.98)
			Physical Therapists (0.04)	More than 10 Years (402.75)
LWDA XIV – Greater Peninsula	1.78	0.69	Registered Nurses (0.13)	Less than 1 year (32.55)
			Retail Salespersons (1.05)	1 Year to 2 Years (0.09)
			Customer Service Representatives (7.24)	2 Years to 5 Years (5.27)
			First-Line Supervisors of Food Preparation and Serving Workers (0.41)	5 Years to 10 Years (24.91)
			Nursing Assistants (1.45)	More than 10 Years (895.33)

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	4.01	0.64	Registered Nurses (0.09)	Less than 1 year (21.41)
			Retail Salespersons (2.39)	1 Year to 2 Years (0.21)
			Nursing Assistants (3.06)	2 Years to 5 Years (14.06)
			First-Line Supervisors of Retail Sales Workers (2.23)	5 Years to 10 Years (77.73)
			Customer Service Representatives (19.20)	More than 10 Years (1,658.57)
LWDA XVI – Hampton Roads	0.88	0.64	Registered Nurses (0.07)	Less than 1 year (14.74)
			Retail Salespersons (0.81)	1 Year to 2 Years (0.04)
			Customer Service Representatives (3.86)	2 Years to 5 Years (2.16)
			Nursing Assistants (0.95)	5 Years to 10 Years (6.28)
			Computer Occupations, All Other (1.64)	More than 10 Years (211.79)
LWDA XVII – West Piedmont	4.46	0.79	Registered Nurses (0.16)	Less than 1 year (24.6)
			Retail Salespersons (2.97)	1 Year to 2 Years (0.27)
			First-Line Supervisors of Retail Sales Workers (2.14)	2 Years to 5 Years (22.21)
			Licensed Practical and Licensed Vocational Nurses (1.02)	5 Years to 10 Years (396.33)
			Physicians and Surgeons, All Other (N/A)	More than 10 Years (2,446.5)

Source: Virginia Employment Commission, Area Labor Market Profiles. Candidate and Job data based on posts in the Virginia Workforce Connection as of September 2021.

*Preliminary Data

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