

Washington Metropolitan Area Transit Authority

Paper 1:

Regional Economic Scenarios

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Dr. Terry Clower, Dr. Brian Hollar, Dr. Keith Waters
Center for Regional Analysis
George Mason University

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Introduction

This paper is the first in a series of three white papers that introduce and examine key issues regarding demand for transit service in the Washington Metropolitan Area Transportation Authority's (Metro) Compact Area. The data and information in the paper series will provide information and insight for Metro's planners and leaders as the Authority responds to short and long-term effects of the COVID-19 pandemic. The papers are sequential and build on the following themes:

1. Anticipated macroeconomic activity within the DC Region and the Metro Compact Area;
2. Sector-by-sector assessment of recovery strength likelihoods and timeframes; and
3. Potential regional changes that will take place both before and after the COVID-19 pandemic ends.

This paper summarizes the research team's preliminary perspectives regarding recent and near future macroeconomic activity in the Washington, D.C. region and the Metro Compact Area.

- First, an overall assessment of economic trends in aggregate as well as consideration of performance differences among major industrial sectors for the nation, the DC region, and the Metro Compact Area is provided.
- Issues and trends regarding work-from-home are then analyzed.
- Industries that experienced substantial business interruptions caused by the pandemic are then examined in more detail.

- Finally, a preliminary market outlook through 2025 is provided. The outlook will highlight selected industry trends in the Metro Compact area as well as the core central business areas of the District of Columbia.

This paper series relies on the support from and interaction with key Metro staff members who have provided data, information, and feedback during the preparation of these papers.

Overall Picture

While the huge presence of the federal workforce and regionally based government contractors typically provides the DC metropolitan area a degree of insulation from cyclical economic downturns, in recent years this region has become more tied to overall US macroeconomic trends. As recently as 2010 it has been estimated that 40 percent of all regional economic activity was directly tied to the federal government. By 2019 that proportion had dropped to about 33 percent – still heavily reliant on federal spending, but more like the rest of the nation than perhaps at any time in modern history. The advent of Amazon HQ2 has the potential to be this region’s watershed moment that forever changes the structure of the economy in the National Capital Region.

Before work from home was forced by the pandemic, there were already signs of significant shifts in the nature of work and the location of work beginning to take shape over the past few years. Employers, in a bid to remain competitive for young talented workers, were “loosening up” control of work location and allowing more flexible schedules and work-from-home options. In addition, other changes in employment structure emerged with increasing shares retail sales through e-commerce channels and a rapid rise in gig work for local transportation (Uber/Lyft), dining (Doordash/Uber Eats), and other personal and business services. These changes impacted demand for transit services even before the pandemic.

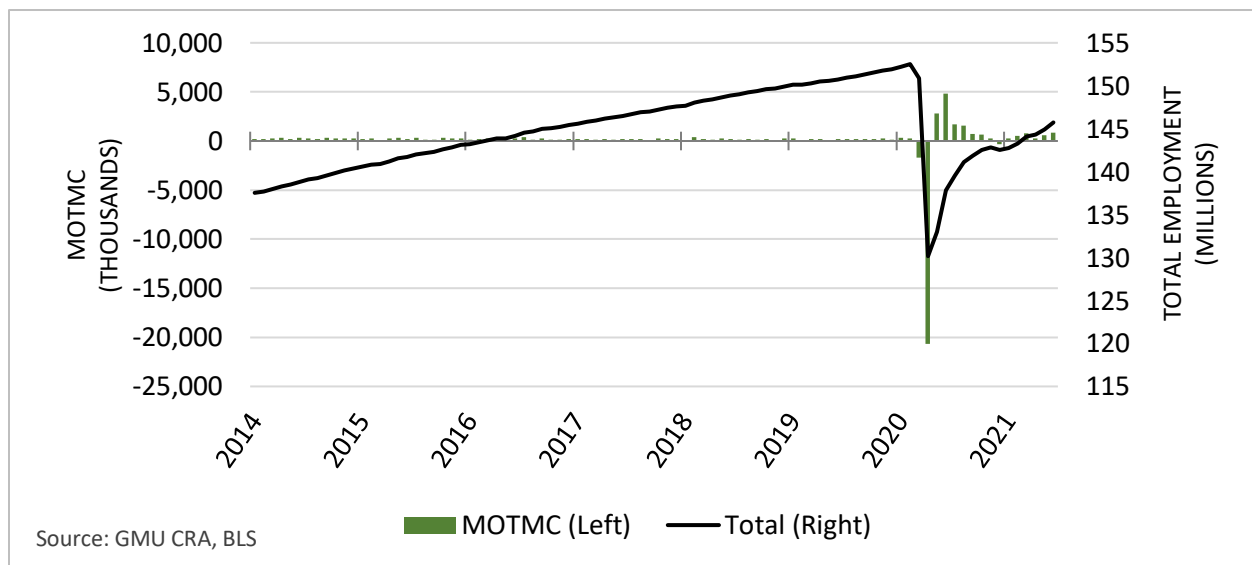
The reader is encouraged to view the content of this and subsequent papers in this series not so much as describing a sea change in direction of the economy caused by a pandemic, but more of a massive, short-term acceleration of existing trends that has occurred so rapidly that the normal economic and labor market feedback systems have been overwhelmed. Included in this accelerated effect is also a widening of existing gaps between economic haves and have-nots. Some have described the economic recovery since the pandemic-sparked business closures, temporary and permanent, as K-shaped. The data are starting to tell us that the pandemic-sparked recession itself was K-shaped, meaning that many in the upper tiers of the economy did not experience any meaningful economic disruptions beyond a few weeks of increased uncertainty, while laborers and households of more modest means have seen their livelihoods disappear, been forced to make choices between pay and personal safety, and the looming specter of eviction from their homes. Importantly for this analysis, while transit system demand has dropped across income cohorts, the economic impacts of the pandemic has fallen mostly on households who rely on public transportation the most.

United States Employment

In the lead up to the current pandemic, job growth in the United States was incredibly consistent. The net month-over-month change (MOTMC) in the number of jobs in the U.S. averaged 202,000 from 2014 through the end of 2019 (Figure 1). Furthermore, the variation in month-over-month net

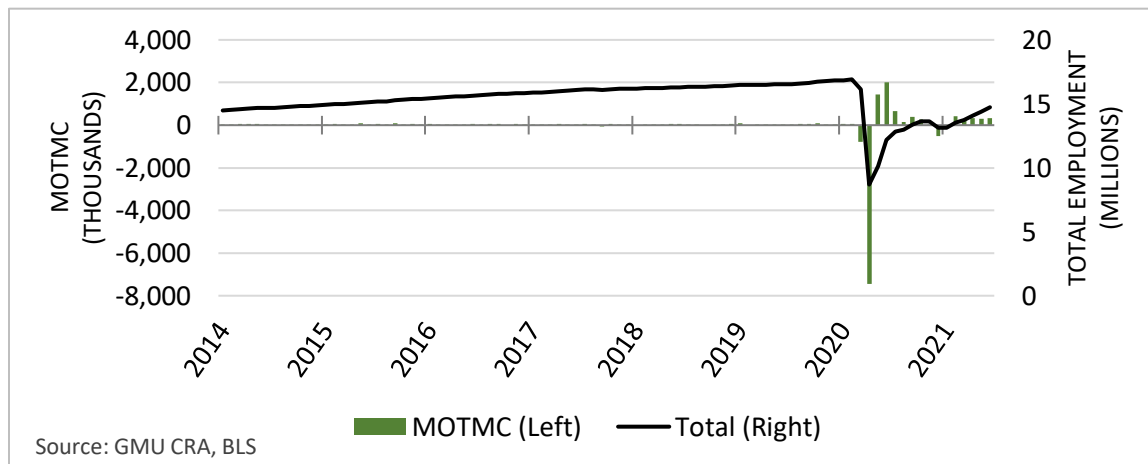
job growth was low, with a standard deviation of 79,000. The onset of the pandemic resulted in a dramatic swing in net job changes. From February 2020 to March 2020, the U.S. recorded a decline of 1.68 million jobs. From March 2020 to April of 2020, the height of the pandemic, the U.S. lost 20.68 million jobs. In April 2020, the U.S. recorded 130.16 million jobs, 22.36 million fewer jobs than the peak of 152.52 million jobs recorded just two months prior in February 2020. In June 2020, the U.S. economy swung back to growth by adding 2.83 million jobs over April. From June to July 2020, the U.S. recovery gained further steam by adding 4.85 million jobs. Following this surge in recovered jobs, however, the recovery began to slow. From July to August, the U.S. gained 1.72 million net jobs, and 1.58 million in September. The monthly gains in jobs continued to slow until turning negative in December 2020 (-306k). Despite the slow winter, the U.S. employment situation began improving again in 2021 with consistent job growth. So far, 2021 monthly job growth has averaged more than 540,000, boost by a strong June jobs number of 850,000 jobs tied in part to a resurgence in leisure travel activity.

Figure 1. U.S. Payroll jobs



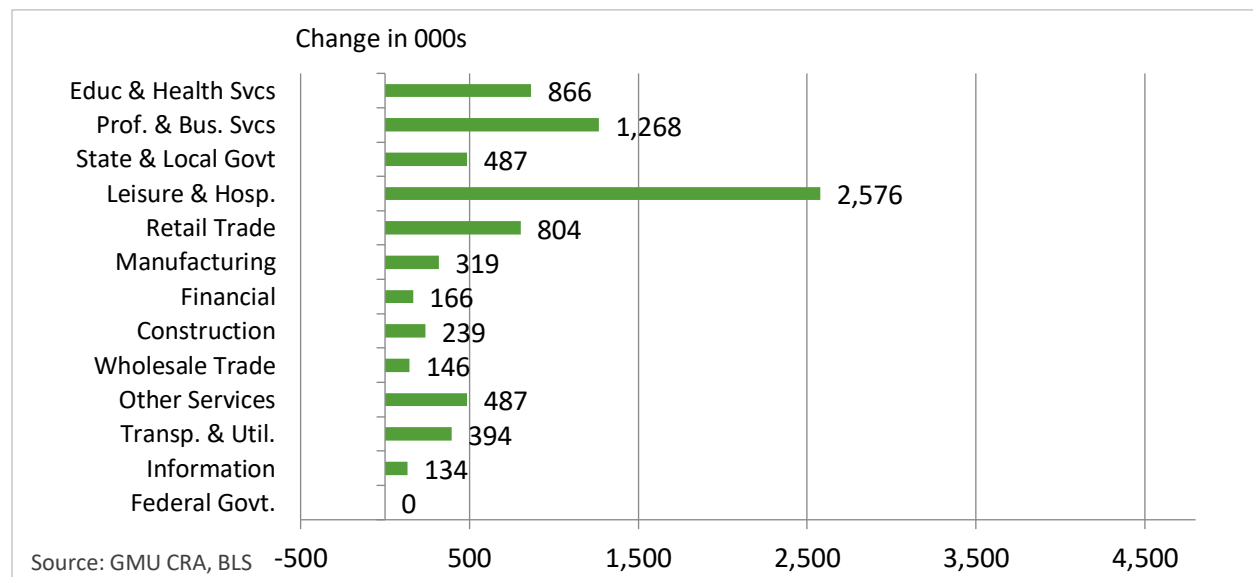
While overall the U.S. employment situation is improving, the various sectors of the economy were not all impacted equally. Service jobs, such as leisure and hospitality, were hit the hardest as people avoided unnecessary social interactions. In general, the U.S. leisure and hospitality sector reflects the overall trend of U.S. employment, with severe declines followed by record gains (Figure 2). In the first half of 2021, the U.S. leisure and hospitality sector proved to be robust, gaining 306,000 jobs from May to June 2021 and 343,000 jobs from June to July 2021. Despite the strong recovery, the leisure and hospitality sector remains well below the pre-pandemic peak. In June 2021, there were 14.7 million leisure and hospitality sector jobs in the U.S., 2.18 million fewer jobs than the peak of 16.9 million in February 2020. Media reports suggest that hiring by leisure and hospitality firms would be even higher but many displaced workers in this sector have not re-entered the labor market.

Figure 2. U.S. Payroll jobs in Leisure and Hospitality



As with leisure and hospitality, the economic recovery is positive in nearly every sector of the economy (Figure 3). Given that leisure and hospitality was the sector that recorded the largest declines in employment, the month-over-year change in employment is the largest (+2.576 million) as the economy recovers. A bright spot in the economy is the professional and business services sector, which added 1.27 million jobs from June 2020 to June 2021. The professional and business services sector is the sector that is most easily performed from home and is the largest employment sector for the DC MSA.

Figure 3. Month-Over-Year Change in U.S. Payroll Jobs by Industry – June 2020 to June 2021

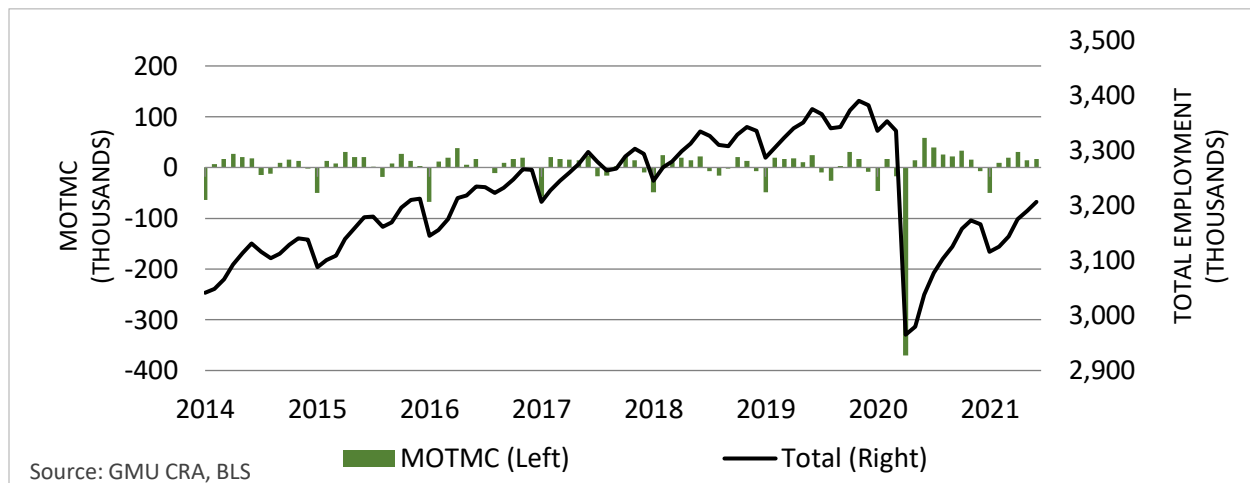


DC MSA Employment

Similar to the overall U.S. employment situation, employment growth in the DC Metropolitan Statistical Area (MSA) was incredibly consistent from 2014 until the pandemic (Figure 4). In January 2014, the DC MSA had 3.04 million payroll jobs. From 2015 to 2019, the annual average

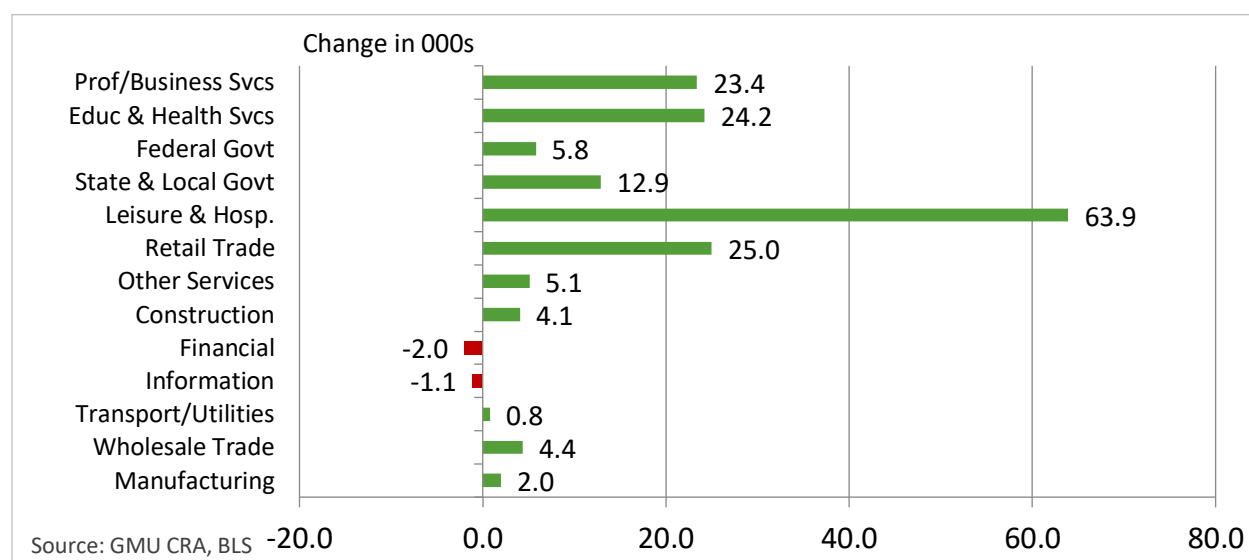
job growth in the DC MSA ranged from 40,200 to 58,800. As with the US, the DC MSA recorded a substantial decline at the outset of the pandemic. The DC MSA lost almost 388,000 jobs in March and April of 2020. Following these severe declines, however, the DC MSA recorded strong month-over-month job growth for most of 2020. The strongest month-over-month job growth was from May 2020 to June 2020 when the DC MSA added 58,400 jobs. While the region lost jobs in December 2020 and January 2021, month-over-month job growth in the region has been positive from February 2021 through June 2021. Despite the string of monthly job gains, however, the region had just 3.21 million jobs in June 2021, 146,000 fewer jobs than in February 2020. The number of jobs in June 2021 is roughly comparable to the number of June jobs in 2016.

Figure 4. Job Change in the DC MSA



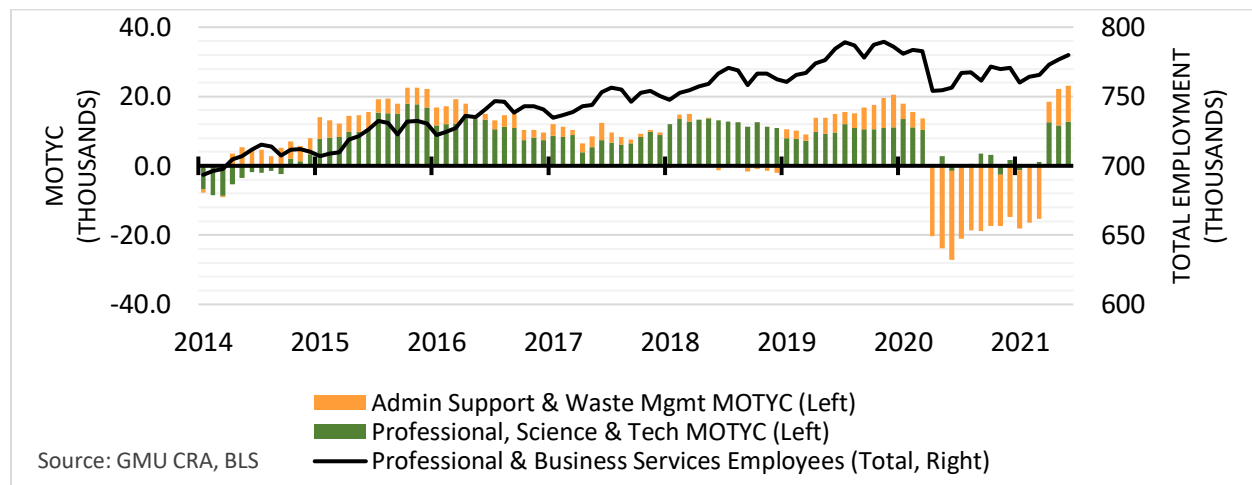
The impact of the pandemic on payroll employment varied dramatically by industry. The hardest hit industry was the leisure and hospitality industry. After reaching 326,400 jobs in February 2020, the leisure and hospitality sector declined to just 158,800 jobs in April 2020, a decline of 167,700 jobs, or over half of total employment in the sector. Since the low in April 2020, leisure and hospitality employment in the DC MSA has recorded notable gains. By August 2020, leisure and hospitality employment increased to 229,700 before job gains slowed over the winter months, declining in December 2020 and January 2021. However, job gains resumed, and leisure and hospitality employment stood at 261,000 in June 2021. The number of leisure and hospitality jobs in the DC MSA increased 63,900 from June 2020 to June 2021, the largest gain among industry sectors (Figure 5). In addition to leisure and hospitality, retail trade, professional and business services, and education and health services have also made notable gains month-over-year.

Figure 5. Month-Over-Year Change in U.S. Payroll Jobs by Industry – June 2020 to June 2021



While leisure and hospitality was the most negatively impacted sector during the pandemic, the professional and business services (PBS) sector is the largest contributor to gross regional product and provides about one-fourth of all regional jobs. In some respect, the PBS sector was minimally impacted by the pandemic. From February 2020 to April 2020, employment in the PBS sector declined 29,500 (Figure 6). While this decline may at first appear severe, the decline was almost entirely limited to the administrative support & waste management services subsector, which includes building services and administrative functions directly affected by lockdowns and remote work protocols. From April 2020 to July 2020, there were 20,300 to 25,700 fewer administrative support & waste management service jobs in the DC MSA than the same month in 2019 (Figure 6). In contrast, the professional, scientific, and technical services subsector simply paused. Note that figure 6 displays month-over-year job change, to clearly show the two responses. Job growth in the professional, scientific, and technical services subsector had been consistently robust since the federal spending reductions sparked by the Budget Control Act had sparked a small regional recession in 2014. As the pandemic-induced business disruptions took hold in the spring of 2020, month-over-year job growth in this subsector slowed dramatically, gaining just 300,000 jobs. However, from April 2020 through March 2021, the number of jobs in the subsector only declined month-over-year in four months, with the largest decline being just 2,500 jobs. Job growth in the professional, scientific, and technical services subsector rebounded in April 2021 and has shown notable growth in subsequent months. The data suggest that while the workers in professional, scientific, and technical services subsector shifted to work-from-home, they kept their jobs. In contrast, workers supporting the work-from-home employees, such as clerical and custodial staff, took nearly all of the employment losses in the PBS sector. Despite employment gains in the administrative support and waste management sub-sector from pandemic lows, there are still approximately 9,000 fewer payroll jobs in that sub-sector than February 2020.

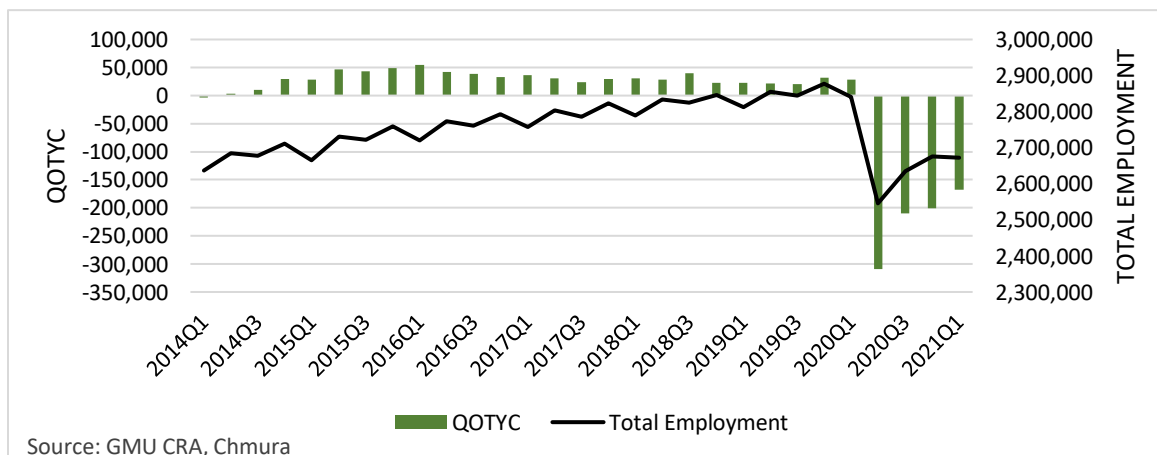
Figure 6. Professional & Business Service Employment in the DC MSA



Metro Compact Area

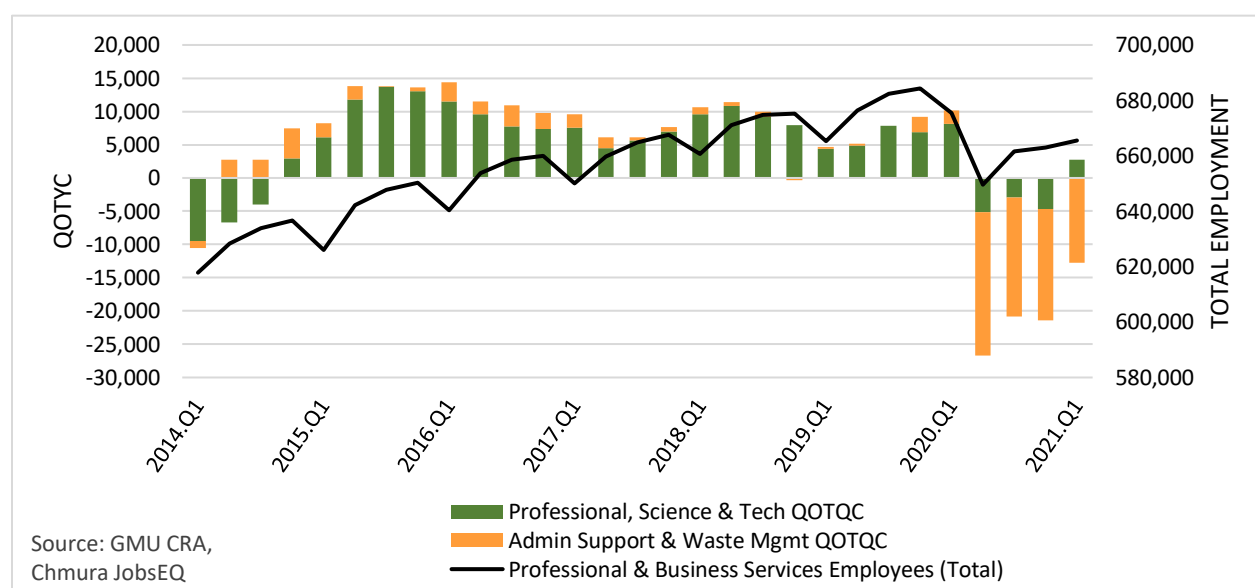
Narrowing in to focus on the Metro Compact Area reveals that the sub-region of the DC MSA is following the same trend as the DC MSA. This is unsurprising given that the Metro Compact Area accounts for the vast majority of employment in the DC MSA. The Metro Compact Area is comprised of DC; Montgomery County, MD; Prince George's County, MD; Arlington County, VA; the City of Alexandria, VA; Fairfax County, VA; the City of Fairfax, VA; Falls Church, VA; and Loudoun County, VA. Given that the Metro Compact Area is a narrower geography, timely estimates are only available quarterly. Quarterly estimates from JobsEQ by Chmura Economics reveal that employment in the Metro Compact Area declined 309,000 from the second quarter of 2019 to the second quarter of 2020. Since the pandemic low of just 2.45 million jobs in the Metro Compact Area in Q2 2020, employment in the sub-region increased to 2.67 million by the first quarter of 2021. However, job gains slowed following the rapid recovery immediately after the stay-at-home orders in April 2020. Jobs in the Metro Compact Area remain below the peak of 2.877 million jobs in the fourth Quarter of 2019.

Figure 7. Job Change in the Metro Compact Area



Focusing on the PBS sector within the Metro Compact Area reveals a similar trend to the overall region (Figure 8). While professional, scientific, and technical services subsector employment growth stalled in the DC MSA, it declined mildly in the Metro Compact Area. Professional, scientific, and technical services subsector employment declined between 2,965 and 5,128 in the Metro Compact Area quarter-over-year for the first three quarters of 2020. While employment in the sub-sector declined, the losses were relatively small. In comparison, employment in the administrative support & waste management services subsector declined between 21,607 and 16,702 in the first three quarters of 2020 in addition to declining 12,418 quarter-over-year in the fourth quarter of 2020. As with the metro area, professional workers retained their jobs while support workers took the bulk of the employment losses.

Figure 8. Professional & Business Service Employment in the Metro Compact Area



The initial job losses from the onset of the pandemic turned into strong job growth in the months following the stay-at-home orders. However, initial job growth weakened and is now relatively modest. As with the metropolitan area overall, the jurisdictions in the Metro Compact Area saw large employment disruptions in the administrative support and waste management services subsectors. Interestingly, these jurisdictions saw job losses in professional, scientific, and technical services that were not experienced in the broader metropolitan region. A detailed look at sub-regional data shows these losses in professional, scientific, and technical services were apparently concentrated in the Maryland suburbs.

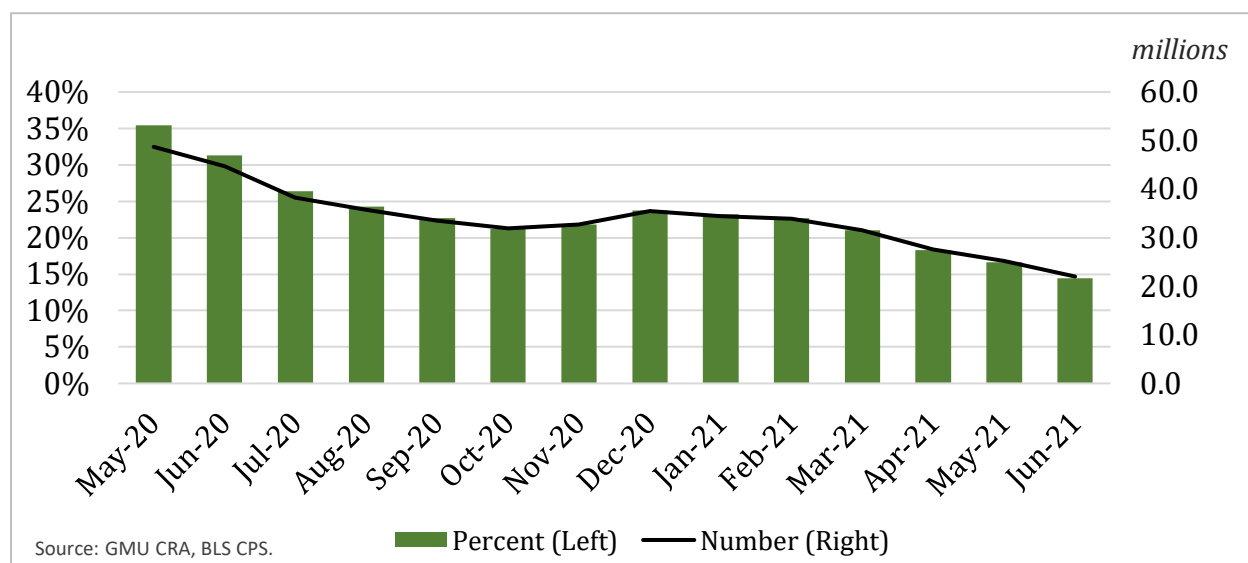
Work-From-Home Trends

The future of the central business district relies in large part on numerous factors. First and foremost is the path of the current pandemic. Next is the response of the labor market to the pandemic. Some jobs are easy to perform from home while others simply cannot be performed remotely. Additionally, the overall labor market will dictate the ability of employers to pull workers into the office. If the labor market is loose, workers can switch to remote jobs if they feel unsafe going into the office. Finally, government support for unemployment will play a role in

how quickly the unemployed return to the labor force. (An assessment of office focused industry performance in downtown DC is provided later in this paper.)

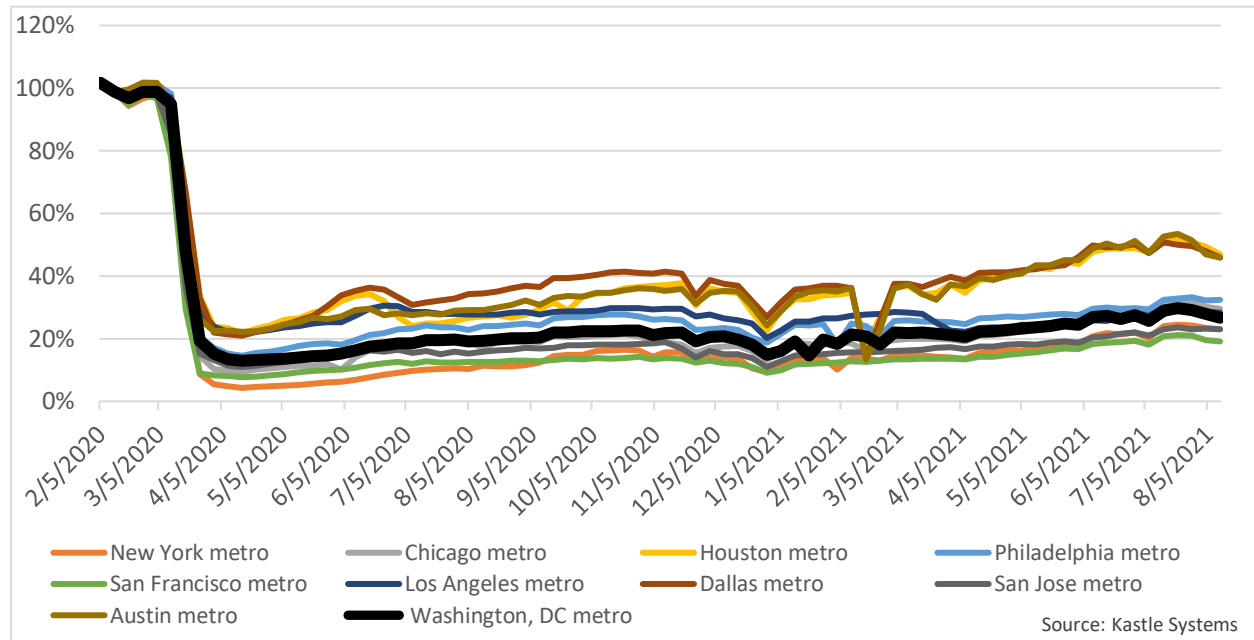
At the onset of the pandemic, there was a spike in the number of paid employees working from home. In May of 2020, 35.4 percent of employed people in the US worked from home over the previous four weeks due to the coronavirus (Figure 9). This amounted to 48.7 million paid employees. Since then, there has been a general decline in work from home. While the number and percent of employed people working from home increased when COVID-19 cases spiked in the winter, it resumed declining following the peak in the spread of the coronavirus. In June 2021, the number of employed people that worked from home in the previous four weeks due to the coronavirus declined to just 14.4 percent, accounting for 22.0 million employed people showing workers are willing or can be incentivized to return to the office. It is not clear how the rapid emergence of the Delta variant will impact this statistic in the coming months.

Figure 9. Paid Employees Who Worked at Home in the Last 4 Weeks Due to the Coronavirus Pandemic in the US



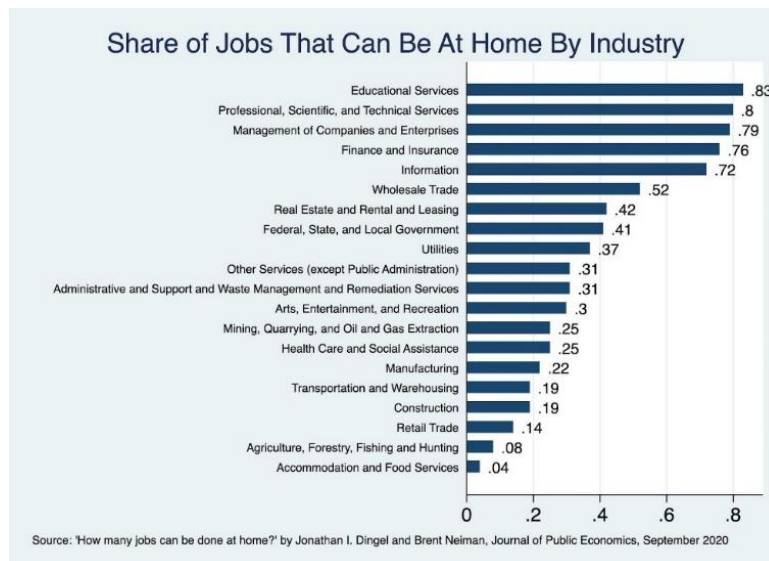
While the national data is illustrative, MSAs vary dramatically in both their willingness and need to return to the office. MSAs that are reliant on in-person work will return more quickly than those whose occupation or industry structure is more conducive to working from home. Kastle security systems releases a weekly “Back to Work Barometer” that succinctly shows where the DC MSA fits in with its peers (Figure 10). The DC MSA is below Top 10 MSA average for return to work. In early August 2021, Kastle data showed that occupancy in DC was at 26.8 percent, 5.3 percentage points below the average of the top ten cities of 32.1 percent (Appendix). The leading MSA for return to work at the end of July was Austin at 45.9 percent. Despite lagging the Top 10 MSA average, the DC MSA is trending towards returning to the office. DC office occupancy increased for the majority of 2020 before pausing in winter as the virus surged. In late February and March 2021, DC MSA office occupancy began to increase again.

Figure 10. Kastle Systems - Kastle Back to Work Barometer



Perhaps the most critical aspect of MSAs that dictate indices such as the Kastle Return to Work Barometer is the structure of the regional economy. Regions that are dominated by occupations that can be performed at home will not feel the need to return to the office and thus remain at home longer. The DC MSA surely has low office occupancy rates relative to peers because of the structure of the regional economy. As noted, the DC MSA economy is founded on professional and business services. This sector can, with the exception of support staff, be performed well at home. In fact, recent work published in the *Journal of Public Economics* estimated that 80 percent of the jobs in the PBS sector could be performed at home, which is second only to Education Services (Figure 11).

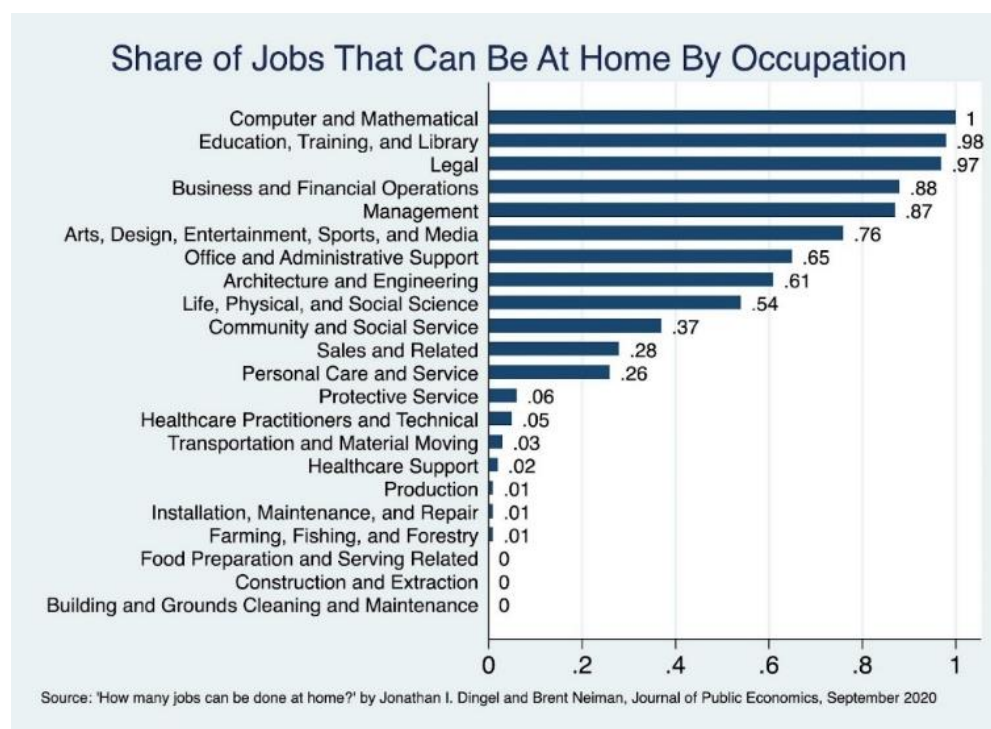
Figure 11. Share of DC MSA Jobs That Can Be at Home - By Industry



While industry sectors are an illustrative way to aggregate data, occupational aggregations can often be more instructive. Analyzing the share of jobs that can be performed at home by occupation, using the same methodology as industry, reveals that many jobs that the DC MSA has high concentrations of can be performed from home. The occupations with the highest share of jobs that can be performed at home include “Computer and Mathematical”, “Education, Training, and Library”, and “Legal”. Nearly 100 percent of all jobs in these three occupations can be performed at home. MSAs with high concentrations of such occupations are thus the least likely to return to office as the risks may outweigh the benefits.

It is worth noting the occupations at the low end of the spectrum. For example, zero percent of “Building and Grounds Cleaning and Maintenance” jobs can be performed at home. Given that such jobs must be performed away from home, it is unsurprising that the DC MSA and Metro Compact Area experience a bifurcation within the PBS sector in which professional jobs recorded nearly no job losses but support and waste management positions recorded heavy job losses (Figure 6 and Figure 8).

Figure 12. Share of DC MSA Jobs That Can Be at Home - By Occupation



The assessment of the potential for work-from-home is explicitly tied to occupations and the nature of work for given occupations. However, forecasting overall employment demand is often better understood when based on industry trends. Therefore, examining differential work-from-home across occupations and industries, and related impacts on labor demand in certain industries tied explicitly to employment centers, it is important to tie the potential shift in workplace for occupations to their representative industries. In the table below, the industry sectors that have the

highest exposure to occupations where at least half of the workers could perform their job duties away from the establishment location are identified. This should be treated as “potential” impacts as the CRA does not expect public sentiment to support permanent shifts to school-from-home within the forecast period for this analysis.

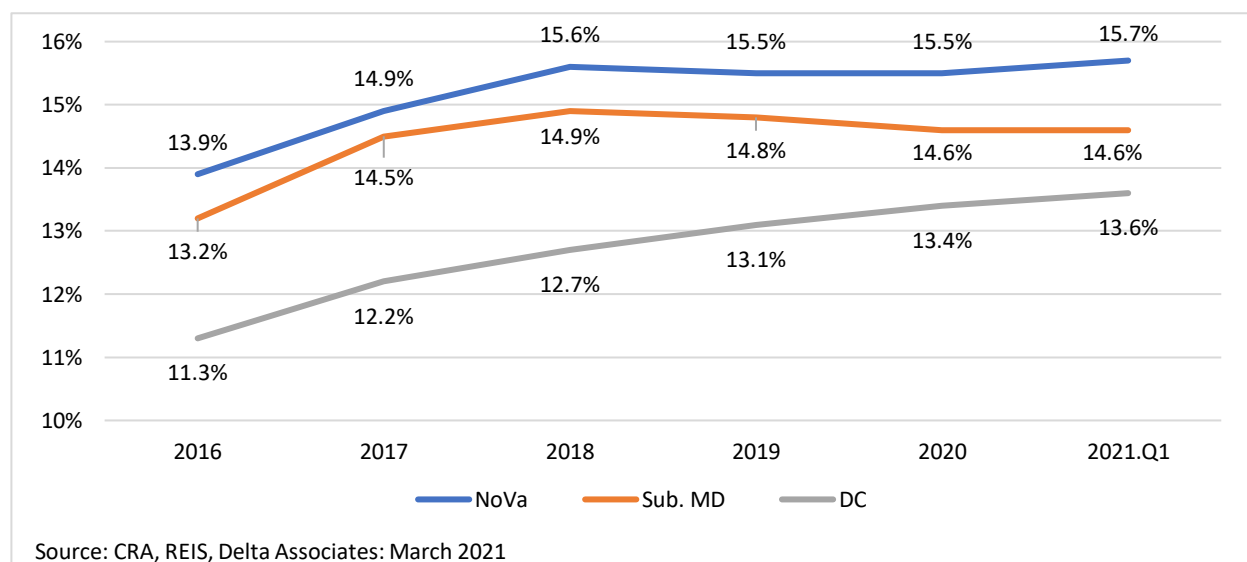
Table 1. Top Industries Employing Occupations That Can Be at Home - Metro Compact Area

Occupation (% Able to Work from Home)	Industry 1 (% of occupation in this industry)	Industry 2 (% of occupation in this industry)	Industry 3 (% of occupation in this industry)	Industry 4 (% of occupation in this industry)
<u>Computer and Mathematical (100%)</u>	Computer Systems Design and Related Services (5415): 47.7%	Management, Scientific, and Technical Consulting Services (5416): 6.3%	Scientific Research and Development Services (5417): 3.2%	Data Processing, Hosting, and Related Services (5182): 3.2%
<u>Education, Training, and Library (98%)</u>	Elementary and Secondary Schools (6111): 57.3%	Colleges, Universities, and Professional Schools (6113): 16.5%	Other Schools and Instruction (6116): 5.5%	Child Day Care Services (6244): 4.3%
<u>Legal (97%)</u>	Legal Services (5411): 50.7%	Justice, Public Order, and Safety Activities (9221): 7.7%	Executive, Legislative, and Other General Government Support (9211): 7.3%	Administration of Economic Program (9261): 7.0%
<u>Business and Financial Operations (88%)</u>	Management, Scientific, and Technical Consulting Services (5416): 14.0%	Computer Systems Design and Related Services (5415): 7.0%	Administration of Economic Program (9261): 6.3%	National Security and International Affairs (9281): 6.1%
<u>Management (87%)</u>	Computer Systems Design and Related Services (5415): 8.4%	Management, Scientific, and Technical Consulting Services (5416): 7.5%	Business, Professional, Labor, Political, and Similar Organizations (8139): 4.0%	Executive, Legislative, and Other General Government Support (9211): 3.8%
<u>Arts, Design, Entertainment, Sports, and Media (76%)</u>	Business, Professional, Labor, Political, and Similar Organizations (8139): 9.5%	Advertising, Public Relations, and Related Services (5418): 6.7%	Independent Artists, Writers, and Performers (7115): 6.7%	Radio and Television Broadcasting (5151): 6.4%
<u>Office and Administrative Support (65%)</u>	Management, Scientific, and Technical Consulting Services (5416): 4.8%	Computer Systems Design and Related Services (5415): 3.5%	Offices of Physicians (6211): 3.4%	Postal Service (4911): 3.4%
<u>Architecture and Engineering (61%)</u>	Architectural, Engineering, and Related Services (5413): 38.5%	Scientific Research and Development Services (5417): 7.3%	Computer Systems Design and Related Services (5415): 5.8%	National Security and International Affairs (9281): 5.2%
<u>Life, Physical, and Social Science (54%)</u>	Scientific Research and Development Services (5417): 24.7%	Management, Scientific, and Technical Consulting Services (5416): 8.8%	Administration of Economic Program (9261): 8.6%	National Security and International Affairs (9281): 8.1%

Source: CRA, JobsEQ, Metro Compact Area, Journal of Public Economics

A forward-looking indicator for return to work very may well be direct office vacancy rates. If companies do not feel that they will be returning to work in the capacity that they were prior to the pandemic, then it is likely that vacancy rates in the DC region would rise. Despite the prospect of enduring work from home policies, there has only been a modest uptick in direct office vacancy rates across the DC MSA, with decline in office vacancy rates in Suburban Maryland (Figure 13). While direct office vacancy rates have been increasing in DC, those increases predate the pandemic. As shown in Figure 13, direct office vacancy rates have been increasing in DC since at least 2016. In contrast, Virginia and Maryland suburbs office markets have been stable. Anecdotally, the so-far muted effects of the pandemic on office vacancy rates may reflect the impact of existing leases and tenant unwillingness to give up space, on average, until more is known about the shape of office demand in a post-COVID labor market. Commercial real estate advisory firm Delta Associates forecasts that office demand will be flat in Northern Virginia and Suburban Maryland and negative in DC in the near terms with little change in rental rates.

Figure 13. Direct Office Vacancy Rate - DC MSA



Potential Trajectories for the Retail and Restaurant Industries

Retail Trade

Overall retail trade employment in the DC MSA and Metro Compact Area has been declining for several years (Figure 14 and Figure 15). Retail trade employment in the DC MSA declined an average of 1,700 per month from the same month a year prior from January 2016 through December 2019. From the seasonal high of 282,300 in December 2019, retail trade employment declined 68,000 to just 214,300 in April 2020 as lockdowns shuttered many retail locations. While employment increased from the April low through December 2020, the longstanding trend of declining retail trade employment was exacerbated, with retail trade employment in the DC MSA at 256,700 in June 2020. At the more local Metro Compact Area, the decline in retail trade employment is similarly visible, even with quarterly data. From the first quarter of 2019 to the first quarter of 2020, retail trade declined in the Metro

Compact Area by 38,855. While retail trade employment increased from pandemic induced lows, the long-running decline was exacerbated and is unlikely to return to even pre-pandemic lows. Some of this trend is not necessarily a reduction in total employment but a shifting of jobs into other employment sectors as retail trade is increasingly online. This shift in industry employment is difficult to track but the data overview suggests that some of these jobs may now appear as wholesale trade, transportation/warehousing, or even some computer services.

Figure 14. Retail Trade Employment in the DC MSA

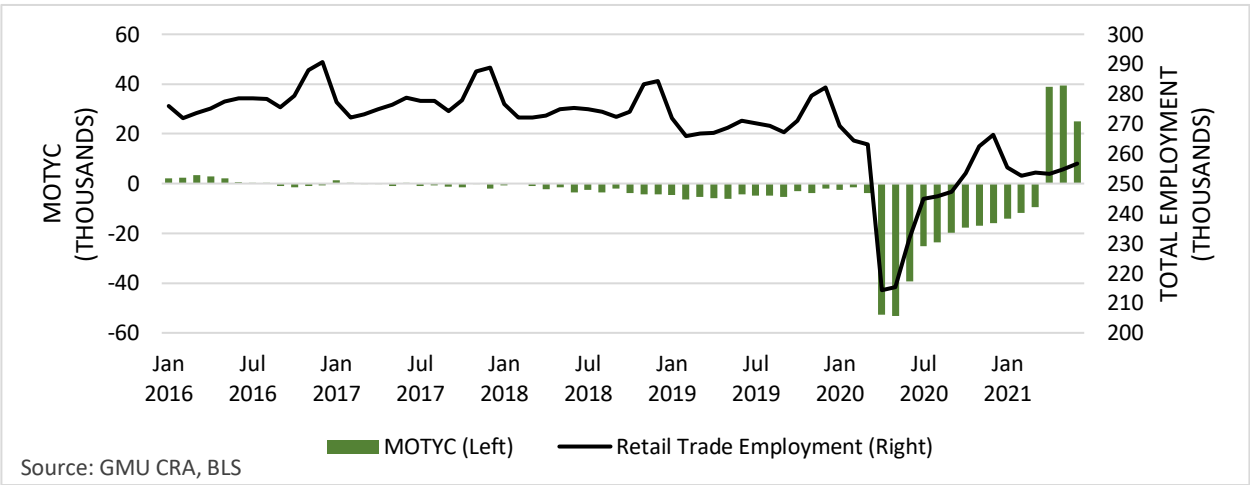
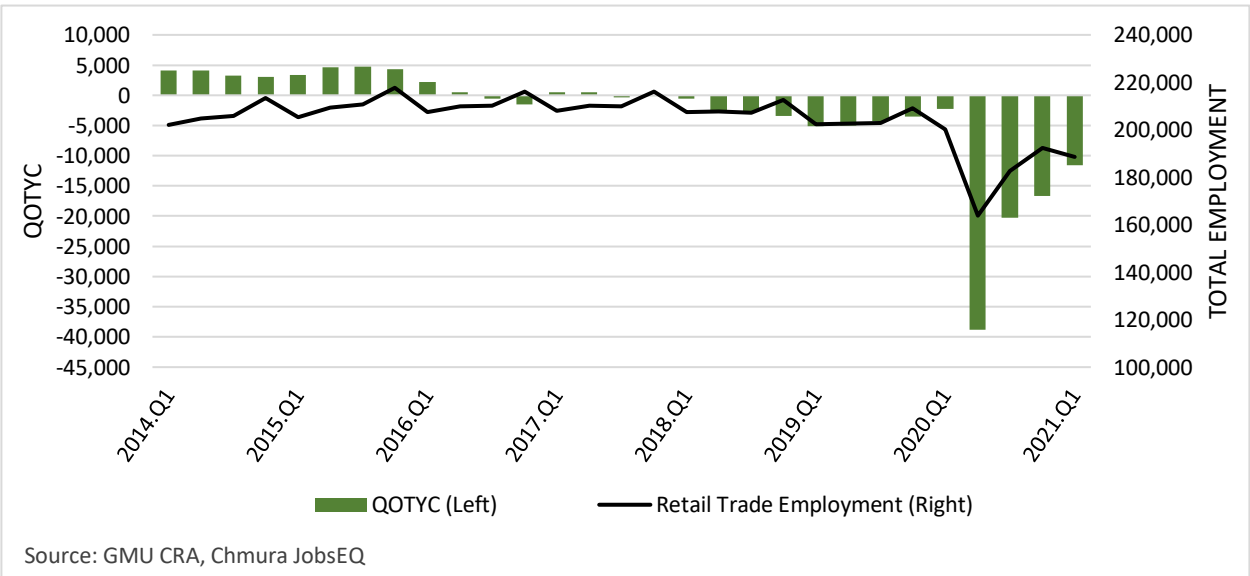


Figure 15. Retail Trade Employment Metro Compact Area



Food and Drinking Establishments

In contrast with retail trade, employment in food services and drinking employment was increasing steadily in the years prior to the pandemic. Food services and drinking employment in the DC MSA increased an average of 4,500 month-over-year per month from January 2016 through December 2019. Despite the steady increase in employment prior to the pandemic, food services and drinking employment was severely negatively impacted by stay-at-home orders and hesitancy to be in public. Employment in the food service and drinking sector sank to 125,400 jobs from 243,900 in April 2019 in the DC MSA to just 118,500 in April 2020. From the April low, employment in the food services and drinking sector has been increasing steadily, even after a brief pause in December 2020 and January 2021. Unlike employment overall, employment in the food services and drinking sector has not dramatically slowed down as the recovery has continued. From February 2021 through June 2021, month-over-month job growth in the sector averaged 5,600 jobs. Examining quarterly data for the Metro Compact Area reveals a similar trend for the DC MSA. Employment in the Metro Compact Area declined by 93,100 from 197,859 in the second quarter of 2019 to 104,763 in the second quarter of 2020. While quarter-over-quarter growth was negative from the first quarter of 2020 to the first quarter of 2021, this includes the monthly decline in January. As second quarter data become available, the Metro Compact Area will likely reflect the data from the DC MSA.

Figure 16. Food Services and Drinking Employment in the DC MSA

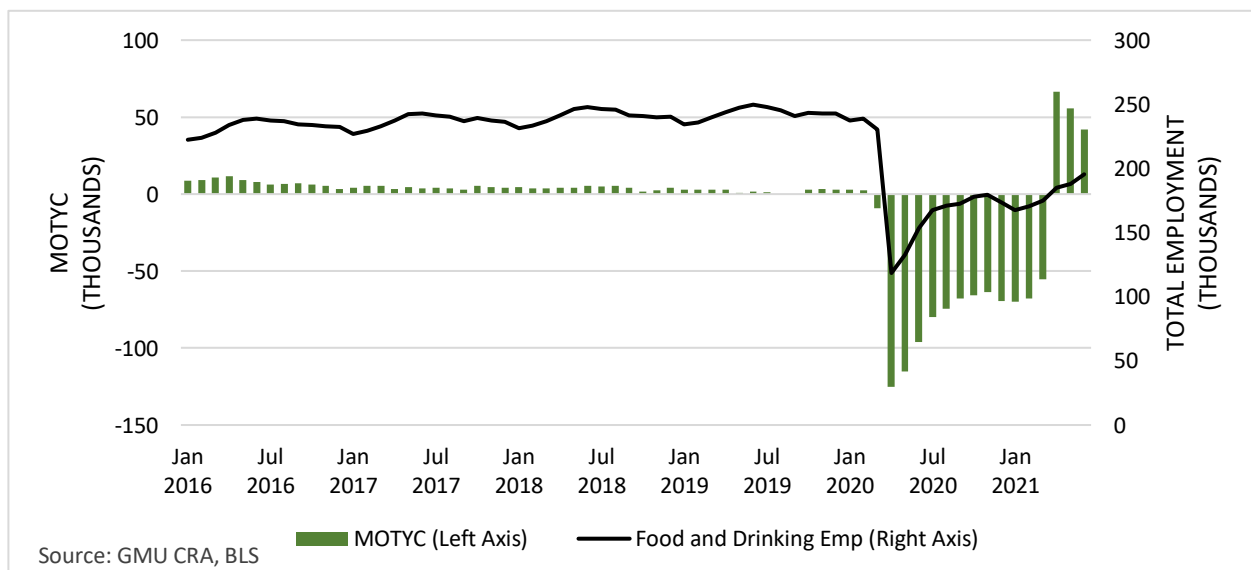
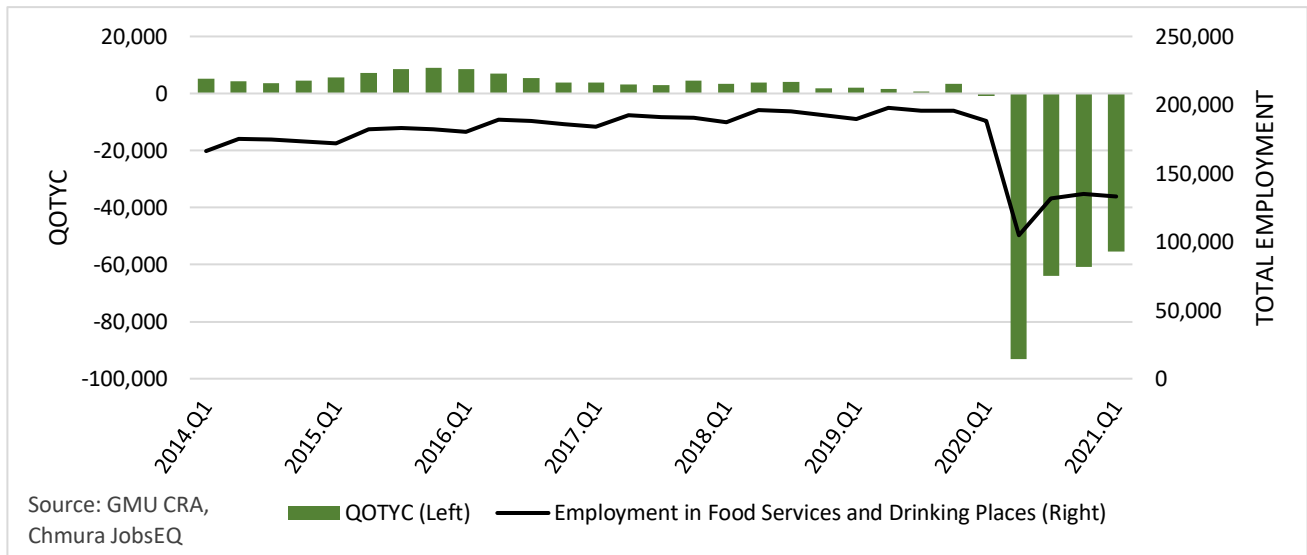
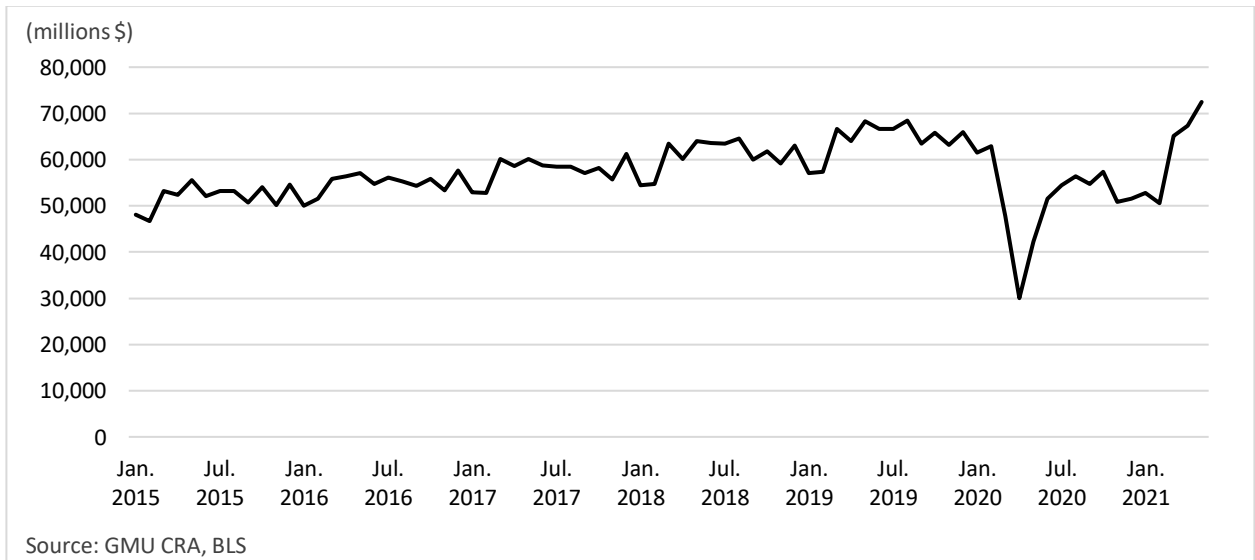


Figure 17. Food Services and Drinking Employment Metro Compact Area



Three underlying forces that will drive local food service and drinking employment are spending at food services and drinking establishments, the comfort of the public to return to bars and restaurants, and the supply of labor willing to work at food services and drinking establishments. While sales at food services had been trending higher over the past several years nationally, it declined markedly during the pandemic. Prior to the pandemic, national spending at food services and drinking establishments peaked at \$68.47 billion in August 2019. This sank to just \$30.0 billion in April 2020. While the recovery in sales bounced back before stabilizing between \$50 billion and \$60 billion, recent data indicate that spending at food services and drinking establishments is above the pre-pandemic peak. These figures are not adjusted for inflation.

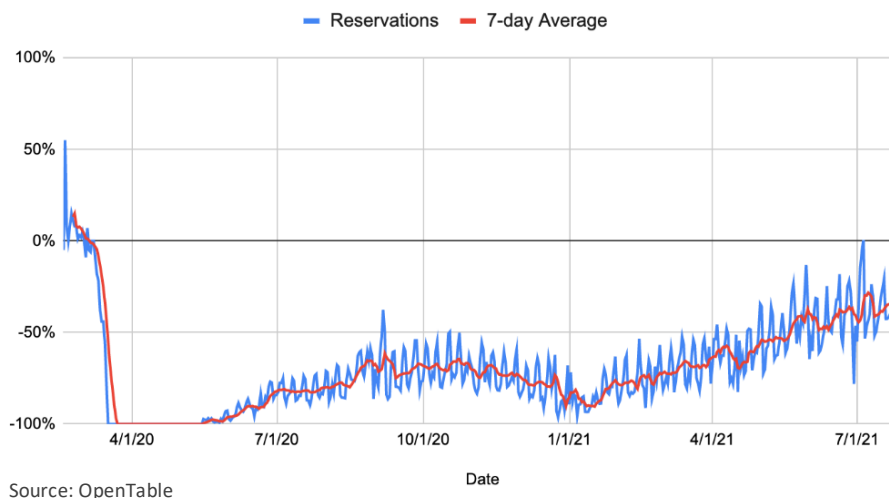
Figure 18. Sales (nominal) - Food Services and Drinking Places



While sales at food services and drinking establishments may be higher, the comfort of the public to return to bars and restaurants appears to be lagging. Data from the reservation company OpenTable for

the DC MSA reveals that reservations are still approximately 40 percent below 2019 levels (Figure 19). While reservations are still down relative to 2019, the trend is rising, which seems to be helped by increasing vaccination rates among the local population as well as changes to restaurants such as outdoor dining options.

Figure 19. DC OpenTable Reservations Relative to 2019



A final aspect that will determine employment in the food services and drinking sector is the supply of labor willing to work in the industry. Anecdotally, labor supply issues are becoming a notable issue, particularly for food services and drinking establishments. There is certainly demand for occupations that work in the food services and drinking (Table 2. Total Job Ads for Food Services and Drinking Occupations (SOC 35) Table 2). There were 1,830 ads in the DC MSA for servers for the year ending July 20, 2021. Additionally, there were over 1,511 ads for dishwashers, 1,339 ads for cooks and 1,205 ads for bartenders. Regarding the location of these ads, 1,695 were advertised for jobs in Washington, DC, with another 666 in Fairfax County (see the Appendix for more details). By employer, the largest number were for chain restaurants such as McDonald's and Starbucks (appendix).

Table 2. Total Job Ads for Food Services and Drinking Occupations (SOC 35) by Job Title

Job Title	Total Ads – DC MSA
Server	1,830
Dishwasher	1,511
Cook	1,339
Line Cook	1,205
Bartender	1,201
Team Member	1,015
Prep Cook	709
Assistant Manager	705
Crew Member	642
Host	629

Source: GMU CRA, JobsEQ RTI. 365-day period ending 7/20 in Washington DC, MSA, in NAICS 35-000

Strengths and Challenges in Hospitality Sector

Overall, the hospitality sector was growing prior to the pandemic, declined dramatically during the pandemic and has been recording slow but steady growth towards pre-pandemic levels. For the US as a whole employment in the accommodation sector grew from around 2 million per year in 2016 to 2.1 million in 2019. This declined to barely over 1 million in May 2020, before slowing gaining ground for the remainder of 2020. Starting in January 2021, accommodation employment started making quicker gains, increasing to 1.75 million in June 2021. The DC MSA recorded a similar trend. Accommodation employment in the DC MSA increased from 40,700 in January 2016 to a peak of 47,400 in June and July of 2019. Following the natural slowdown after the seasonal peak, accommodation employment in the DC MSA sank to just 18,900 in May 2020. While there was only modest growth for the remainder of 2020 and the first quarters of 2021, employment growth in the sector began to increase in April 2021, standing at 27,100 in June 2021. Quarterly data for the Metro Compact Area reveals similar trends as the DC MSA, though the data do not yet reflect the increase in employment growth in the second quarter of 2021.

Figure 20. Accommodation Employment in the US

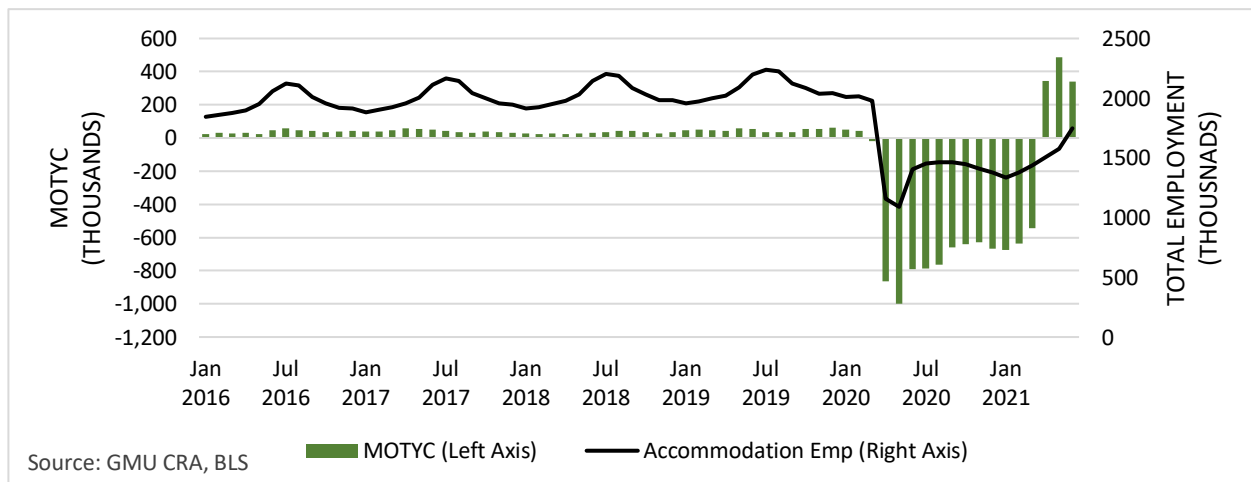


Figure 21. Accommodation Employment in the DC MSA

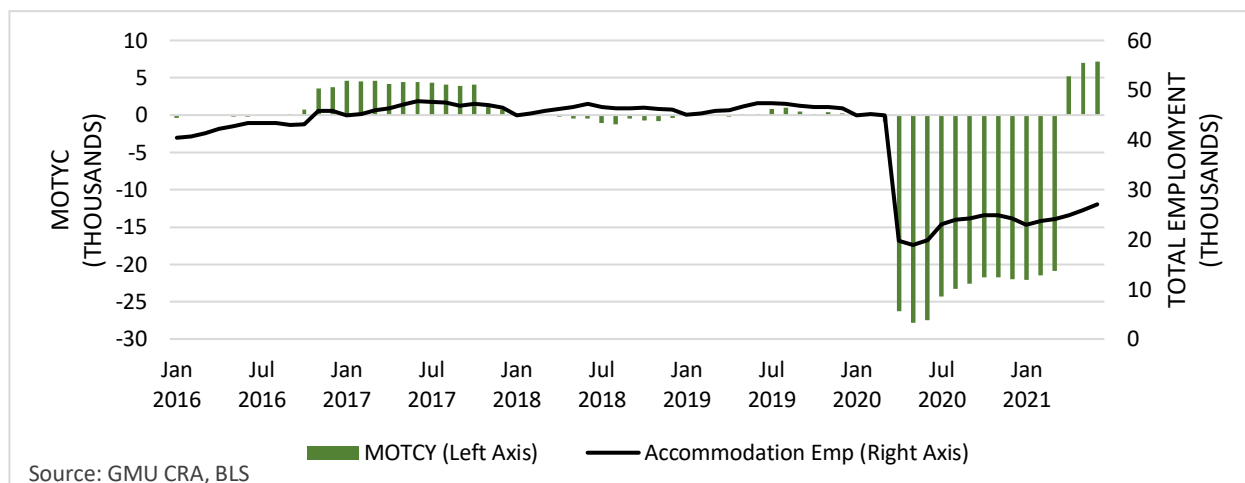
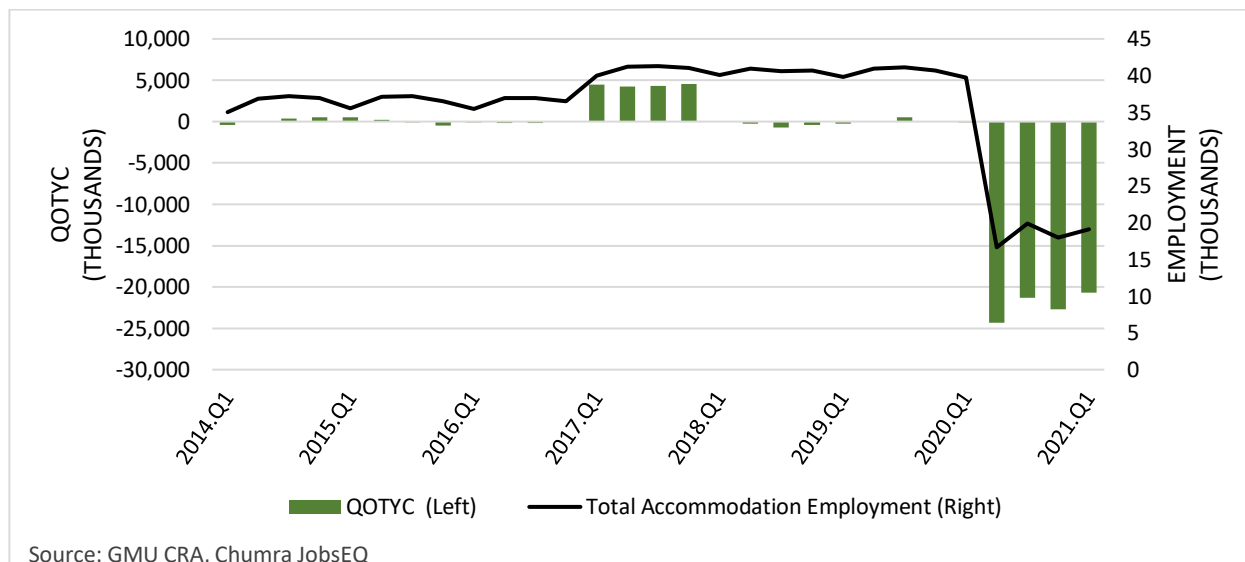


Figure 22. Accommodation Employment Metro Compact Area



Preliminary Market Outlook 2025

The overall assessment of employment growth in the Metro Compact Area through 2025 shows steady recovery, when plotted as annual data. This forecast is based on trend lines and assumes that the economic effects of the pandemic continue to wane. The emergence of the Delta strain of the COVID-19 virus is creating uncertainty, but as of the time of the preparation of this paper, no new restrictions have been placed on business operations. If such restrictions are re-imposed, the projected timeline of the recovery (jobs and economy activity), will be delayed. Importantly, the projections indicate that while there will be economic recovery, total employment in 2025 will remain about 1.2% below 2019 levels (see Figure 24). The timing of subsequent papers in this series means that as more information on the business impacts of the delta variant becomes available, this forecast can be modified if needed.

Forecasting near-term employment by sector inserts additional variability. Based on the current uncertainty regarding potential business disruptions, the total rate of vaccination, and the apparent ability of the delta variant to infect individuals who have received vaccinations, confidence in forecasting employment trends for industries especially susceptible to pandemic induced business disruptions must be judged as moderate. To clearly show patterns of change, Figures 25 and 26 separate the two largest industry sectors, government and professional, scientific, and technical services, from comparably smaller industries. Figure 25 shows that long term growth patterns for professional and technical services and government jobs were barely affected by the pandemic when aggregated into yearly totals. These two sectors of the economy are expected to continue growing, though these are sectors with relatively high potential for continuing work-from-home.

Figure 24: Total Employment Metro Compact Area 2001-2025

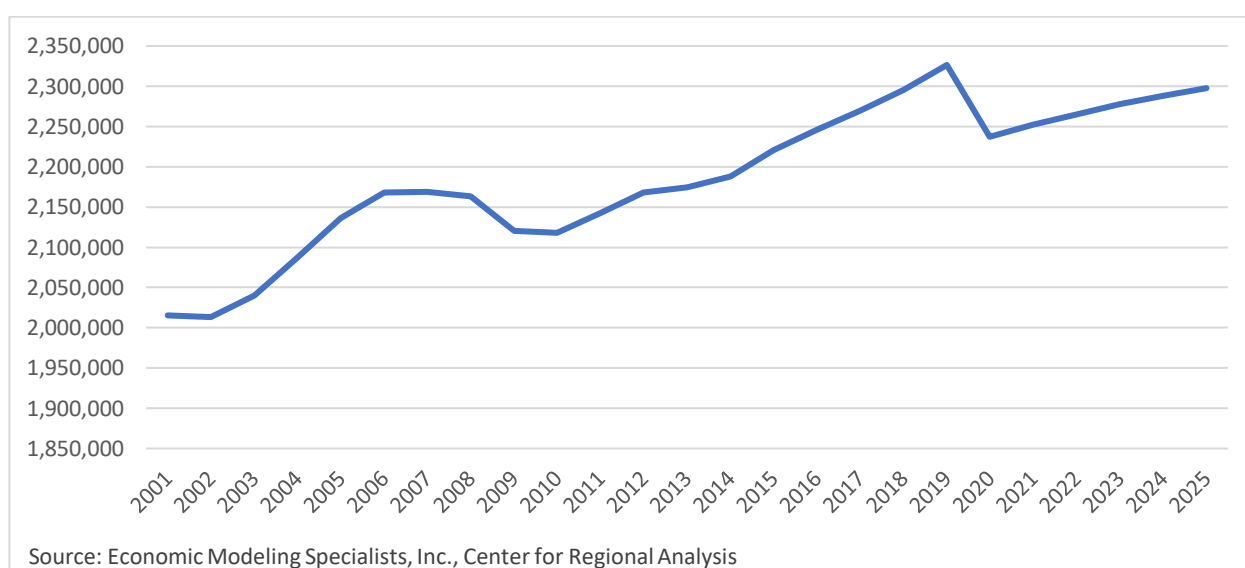


Figure 26, which examines other major sectors of the economy included combined education and health services, administration and building services (including waste management), combined wholesale trade and transportation, construction, retail trade, and leisure and hospitality. The forecasts suggest that both retail trade and leisure and hospitality employment will remain substantially below pre-pandemic levels through 2025. This forecast does not explicitly consider how persistent work-from-home labor conditions may impact total demand to retail and restaurant workers in large employment centers. That will be addressed in subsequent papers in this series.

Figure 25: Total Employment for Government and Professional and Technical Services Industries, Metro Compact Area 2001-2025

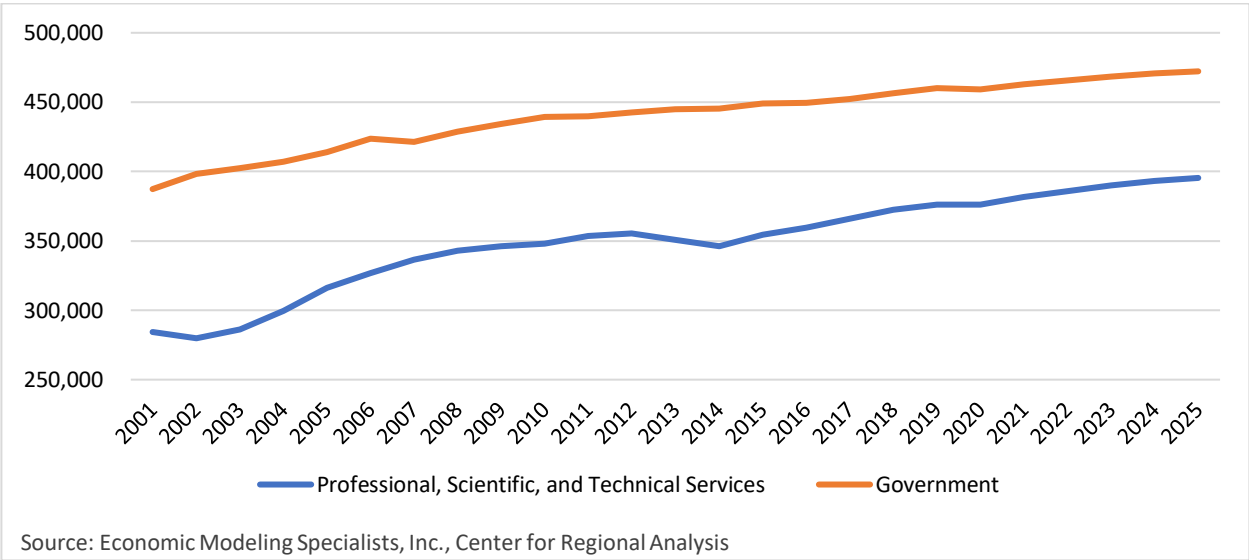
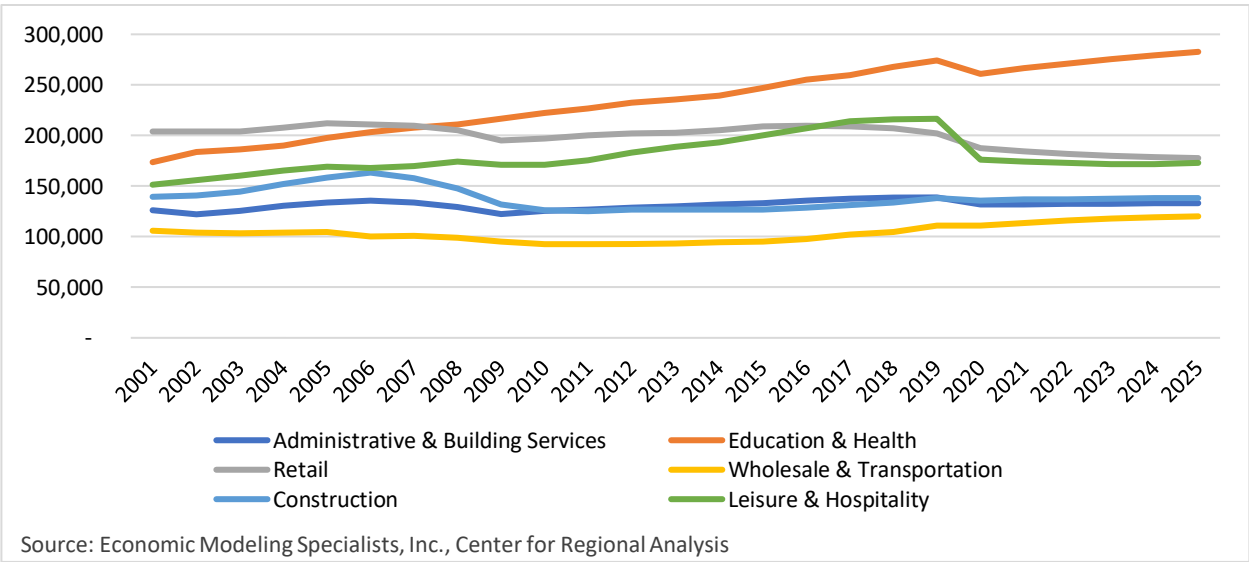


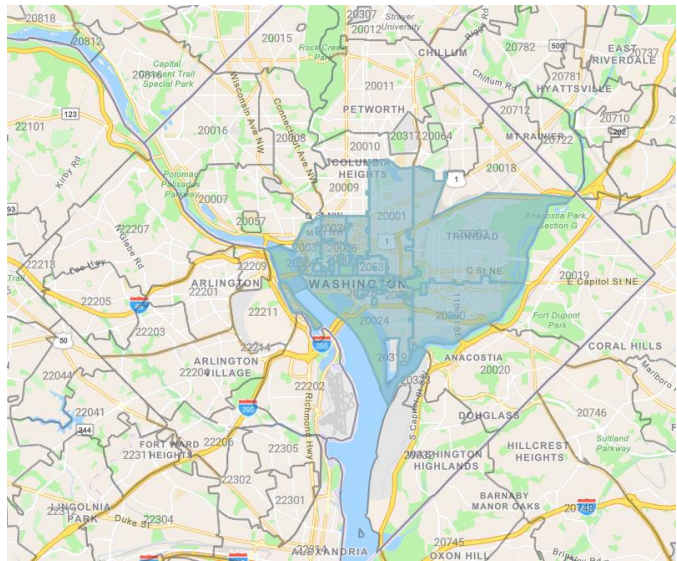
Figure 26: Total Employment for Selected Industries, Metro Compact Area 2001-2025



Downtown DC

The downtown area of the District of Columbia is especially important in assessing demand for services on the Metro system. This section of the paper focuses on industries that are primarily office based located in core employment centers in “downtown” DC. For gathering data on employment trends downtown, this subregion is defined by a collection of zip code areas. Figure 27 shows the zip codes areas used for this analysis. A list of specific zip codes included in the downtown area can be found in the appendix to this paper.

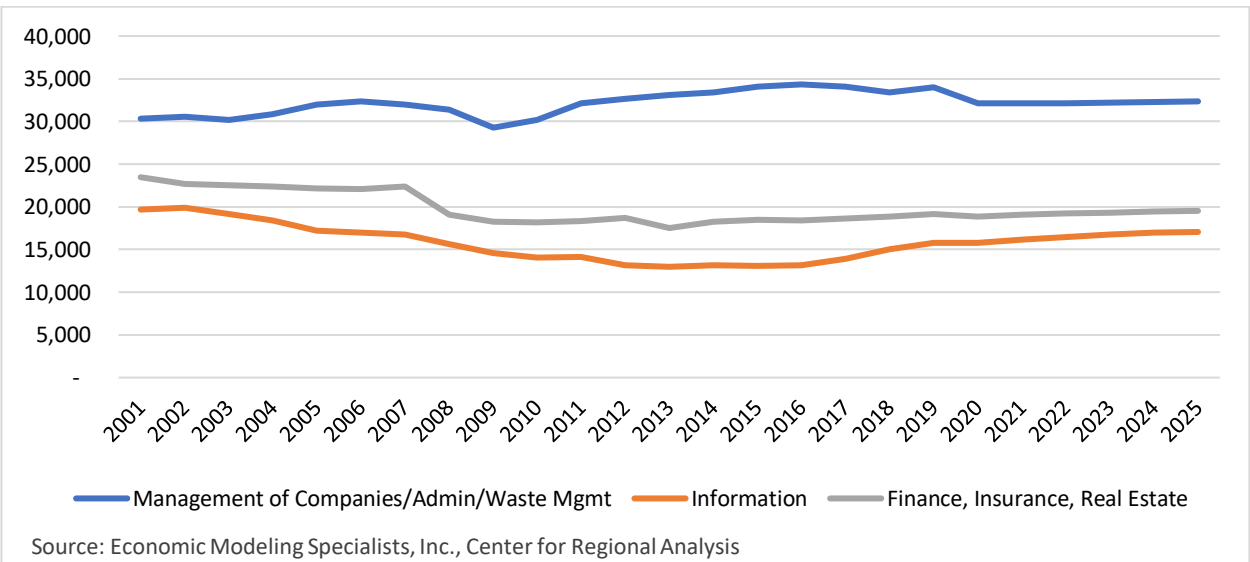
Figure 27: Downtown DC (shaded)



Source: Economic Modeling Specialists, Inc., Center for Regional Analysis

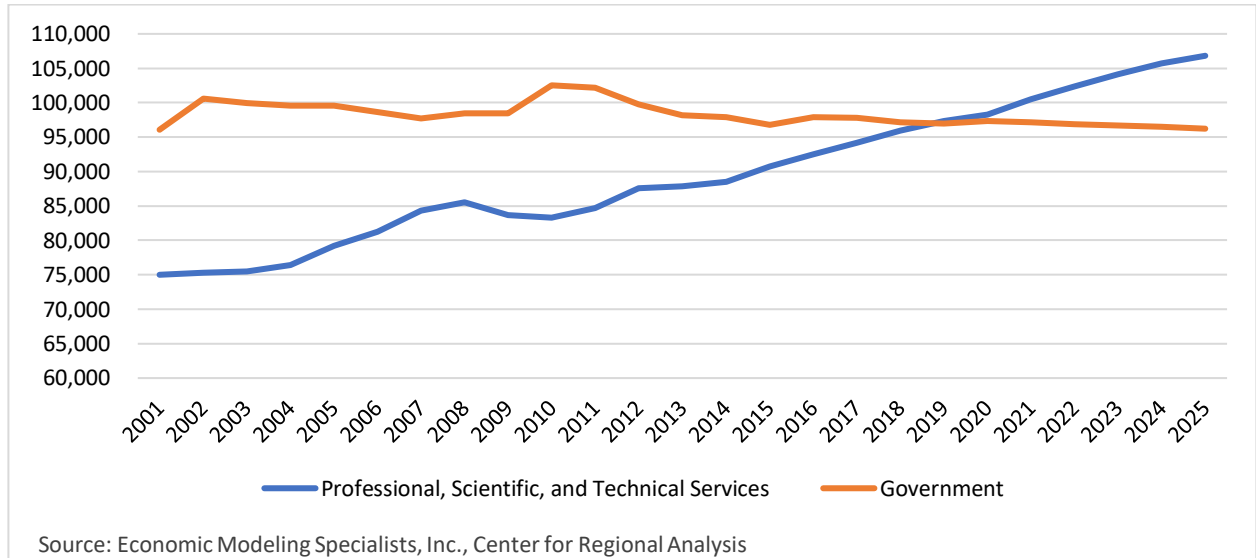
For purposes of this assessment, industries characterized as office based include Professional and Technical Services; Information; the industry cluster including Finance, Insurance, and Real Estate; Management of Companies grouped with Administrative and Waste Management Services (includes services to buildings); and Government. Figures 28 and 29 show past and expected employment trends through 2025 by sector/group. As in the previous example, there are two figures to enhance readability because of the differences in magnitude of employment for government and professional and technical services versus other included industries. Employment in these sectors showed little impact from the pandemic. However, these also represent jobs that mostly continued but as work-from-home. Subsequent papers will address the issue of the potential impacts of fully in-office, hybrid, or fully remote workers employed in these industry sectors.

Figure 28: Total Employment for Selected Industries, Downtown DC 2001-2025



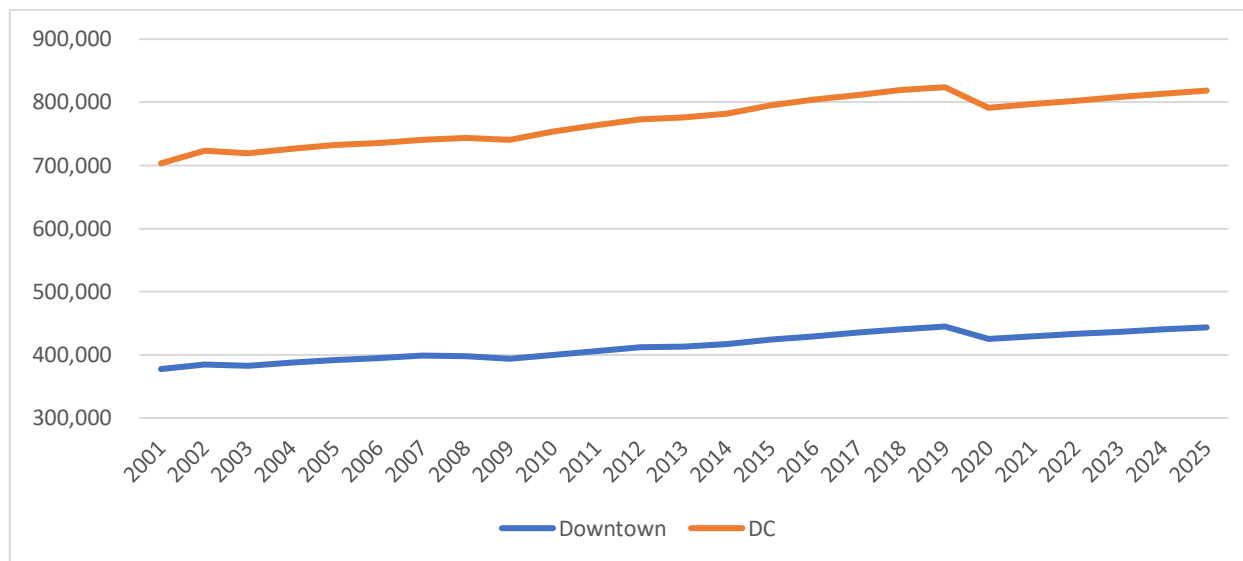
Source: Economic Modeling Specialists, Inc., Center for Regional Analysis

Figure 29: Total Employment for Government and Professional Services, Downtown DC 2001-2025



A data issue also needs to be considered. Government employment data resources do not offer zip code level datasets for recent time periods. The Department of Commerce County Business Patterns will eventually release zip code level data (18 month to 24-month lag), but the data will show number of establishments, not employment by sector. Therefore, this analysis uses third party data estimates from Chmura Economics and Economic Modeling Specialists. Both entities offer estimates of data that are not provided publicly by federal agencies. However, their analytical baselines are still Bureau of Labor Statistics or Census data. When comparing total employment for the District of Columbia versus the downtown core, the CRA finds little difference in the pattern of employment trends, which may suggest that the zip code level estimates use a control total approach that may not reflect specific small area reality (see Figure 30). Therefore, while the CRA is reasonably confident in the overall finding that total employment trends for office sectors are reasonable, planners should use caution against making planning decisions based wholly on the estimates of employment by industry in the downtown core.

Figure 30: Total Employment District of Columbia and Downtown DC 2001-2025



Source: Economic Modeling Specialists, Inc., Center for Regional Analysis

Conclusions

The Washington, DC region overall, and the communities that are members of the Metro Compact Area, experienced substantial negative impacts in key industries, especially those related to leisure and hospitality services. The long-term decline in retail trade employment accelerated during the pandemic and consumers readily shifted to online purchases. However, due to the presence of the federal government and government contractors, the regional economy proved to be relatively resilient. However, this initial assessment does not illustrate the disproportionate impacts the pandemic has had on jobs and economic wellbeing of lower income workers and communities – many of whom rely on public transportation as a primary mode for their journey to work. In addition, research has shown that the structure of the regional economy emphasizes employment sectors that can most easily shift to full or partial work from home schedules. While this potential shift on workplace characteristic is not widely indicated in office market statistics, there is widespread expectation that the days of 5-day, in-office work assignments may not become the “norm” again anytime soon – if ever. This will have direct effects on total demand for transit services and on the timing of transit service demand. There will also potentially be indirect effects as demand for restaurant, retail and personal services shifts away from employment centers as workers commute fewer days in the work week. Subsequent papers in this series will more closely assess the direct and indirect effects of the work-from-home and shop-from-home phenomena.

Appendix

Supplemental data and information.

Kastle Back to Work Barometer

	Wed 7/21	Wed 7/28	Wed 8/4	Wed 8/11	% Change
Washington, DC metro	29.7%	29.2%	28.0%	26.8%	-1.2%
New York metro	24.5%	24.2%	23.4%	22.9%	-0.5%
Chicago metro	31.8%	31.9%	30.1%	29.5%	-0.6%
Houston metro	51.6%	50.7%	49.3%	46.8%	-2.5%
Philadelphia metro	32.8%	33.1%	32.2%	32.5%	0.3%
San Francisco metro	21.2%	21.0%	19.6%	19.2%	-0.4%
Los Angeles metro	29.7%	28.8%	28.6%	28.2%	-0.4%
Dallas metro	50.1%	49.6%	47.9%	46.0%	-1.9%
San Jose metro	23.6%	23.0%	23.3%	22.9%	-0.4%
Austin metro	53.5%	51.4%	47.0%	45.9%	-1.1%
Average of 10	34.8%	34.3%	32.9%	32.1%	-0.8%

Source: Kastle Systems

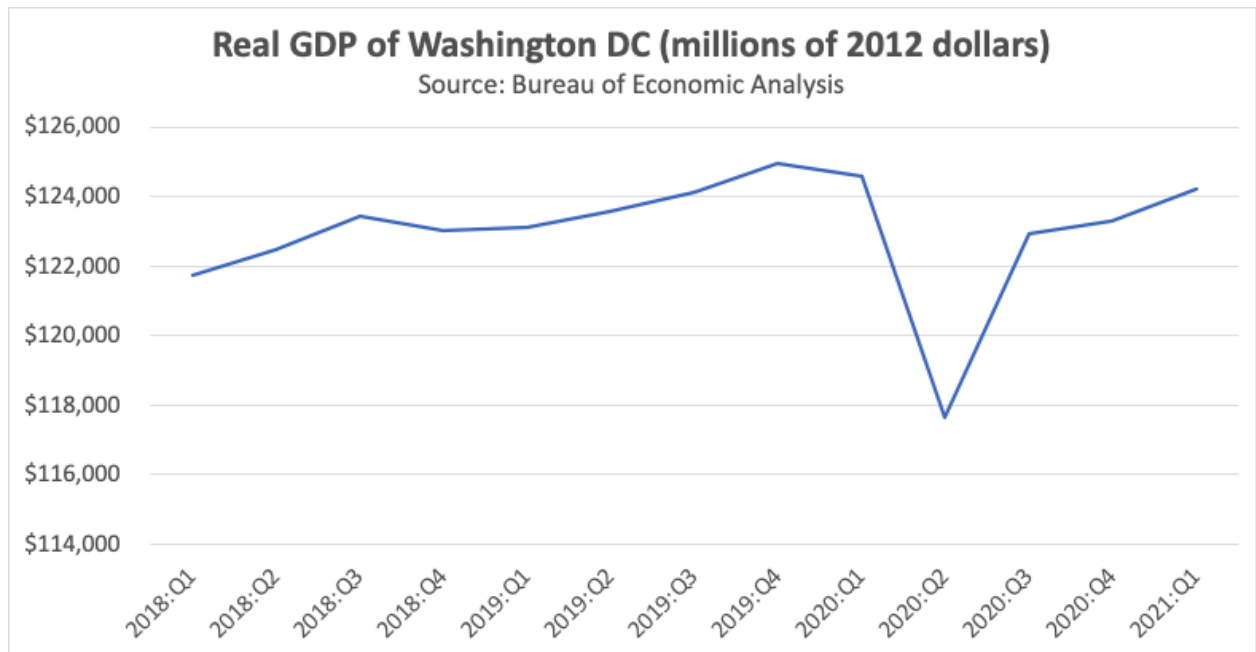
Data on Job Ads in the Restaurant Industry

Location	Total Ads - DC MSA
Washington, District of Columbia	1,695
Fairfax, Virginia	666
Arlington, Virginia	530
Alexandria, Virginia	517
Fredericksburg, VA 22401	514
Frederick, Maryland	461
Fredericksburg, Virginia	428
Manassas, Virginia	427
Bethesda, Maryland	392
Bowie, MD 20716	382

Source: GMU CRA, JobsEQ RTI. 365-day period ending 7/20 in Washington DC, MSA, in NAICS 35-000

Employer Name	Total Ads – DC MSA
McDonald's	930
BJ'S Restaurant & Brewhouse	836
Carrols Corporation	788
Delhaize America Food Lion	730
Starbucks	712
Noodles & Company	632
Whole Foods	598
Blooming Brands Inc	591
Panera Bread	588
Wegmans Food Markets	549

Source: GMU CRA, JobsEQ RTI. 365-day period ending 7/20 in Washington DC, MSA, in NAICS 35-000



Downtown DC Zip Codes

ZCTA 20001	ZCTA 20053	ZCTA 20506
ZCTA 20002	ZCTA 20202	ZCTA 20510
ZCTA 20003	ZCTA 20204	ZCTA 20520
ZCTA 20004	ZCTA 20228	ZCTA 20540
ZCTA 20005	ZCTA 20230	ZCTA 20551
ZCTA 20006	ZCTA 20240	ZCTA 20553
ZCTA 20024	ZCTA 20245	ZCTA 20560
ZCTA 20036	ZCTA 20260	ZCTA 20565
ZCTA 20037	ZCTA 20405	ZCTA 20566
ZCTA 20045	ZCTA 20418	