

ECONOMIC CONDITIONS & EMPLOYMENT OUTLOOK FOR THE OMAHA MSA



INTRODUCTION

This report is the second annual assessment of the Omaha-Council Bluffs Metropolitan Statistical Area (MSA) economy and employment outlook. The MSA is comprised of three Iowa counties (Harrison, Mills, and Pottawattamie) and four Nebraska counties (Douglas, Sarpy, Saunders and Washington). Data was used from a variety of sources such as the U.S. Bureau of Labor Statistics, the U.S. Bureau of Economic Analysis, and the Nebraska Department of Revenue, among others. The report includes the current national economic picture, the current state of the Omaha economy, a national economic forecast from 2022 to 2025, and an Omaha employment outlook over the period 2022 to 2025.

UNO Student Authors: Brandon Bergfalk, Tyler Billings, Jarold McWilliams, Maxwell Rivers, Bryant Robertson, Christina Wagner, Eric Werther, and Blake Zellmer

Advisor: Dr. Christopher S. Decker

Department of Economics
College of Business Administration
University of Nebraska at Omaha

Inside This Report

- i/ Report Highlights
- 1/ U.S. Overview
- 3/ Omaha MSA Overview
- 6/ U.S. Macroeconomic Forecast
- 8/ Omaha MSA Employment Outlook
- 10/ Appendix: Omaha MSA Employment Outlook: Sector Detail

REPORT HIGHLIGHTS

- After growing 5.0 percent in 2021, US Gross Domestic Product is forecast to slow to 3.7 percent in 2022. Between 2022 and 2025, US GDP will average about 2.0 percent per year.
- After enjoying exceptionally low inflation for over a decade, the US economy appears to have entered a “new normal” when it comes to price increases. Labor shortages are pushing wage rates higher and supply chain disruptions are proving to take longer than expected to rectify. As a result, inflation will likely remain high by historical standards. Growth in the Consumer Price Index is expected to grow 3.71 percent in 2022 and stay above 2.0 percent through 2025.
- As a result of this, interest rates are expected increase and remain on the high side. After years at historically low levels, the ten-year bond yield is expected to hover between 4.0 and 5.0 percent through 2025.
- As the Omaha continues to recover from the 2020 COVID-19 recession, job growth in the metro is expected to remain on a slow and steady trajectory. Omaha nonfarm employment will grow 1.1 percent per year on average between 2022 and 2025. While an indication of a healthy economy, this growth pattern does imply that the metro will not reach pre-COVID employment levels until 2023.
- Job growth will be spearheaded by gains in construction as there are several large building projects planned in the next few years. Also, gains will occur in leisure and hospitality, a sector absolutely devasted by COVID, slowly recovers, as the current, and especially large, number of job openings in that sector slowly get filled.
- Long-term employment challenges in durable goods, wholesale trade, and information services are expected to continue through 2025.
- Some evidence indicates that there is some down-side risk to the current forecast. Inflationary concerns are present in the economy, driven primarily by labor shortages, supply chain disruptions, and most recently, the war in Ukraine. If inflation accelerates and continues to outpace wage growth, then it is possible a recession could occur by late 2022 or early 2023. That said, recent data on consumer spending and job formation continue to indicate that there is still a significant amount of post-COVID pent-up demand to support a growth outlook as the baseline forecast.

U.S. OVERVIEW

The national economy has enjoyed a healthy economic recovery following the COVID-19 global pandemic, despite risks such as the Russia/Ukraine military conflict, the on-going challenges with supply-chain disruptions, and significant labor shortages. The most recent data indicate that the economy is experiencing strong post-COVID-19 recovery. Gross Domestic Product (GDP) has grown steadily and consistent job creation has contributed to historically low unemployment rates. The data however does suggest there is some inflationary pressure in the economy as evidenced by a sharp increase in the consumer price index (CPI), wage growth, and very high resignation rates that are reducing the available labor in the economy. There is a notable burden on the Federal Reserve over the next 18 months to facilitate a "Soft Landing" by attempting to curb inflation without causing a recession.

Figures 1a and 1b illustrate the growth pattern for the national economy from 2007 until the start of the COVID-19 pandemic. GDP growth averaged 1.9 percent. However, by the second quarter of 2020 GDP decreased by approximately 31.4 percent (annualized). Despite the sizeable downturn, by the third quarter the economy began registering sustained growth. Fast forward to the fourth quarter of 2021, GDP grew by approximately 7.0%, reaching \$19.8 trillion, a historic high.

Figure 1a: U.S. Real GDP (\$millions)

Source: U.S. Bureau of Economic Analysis

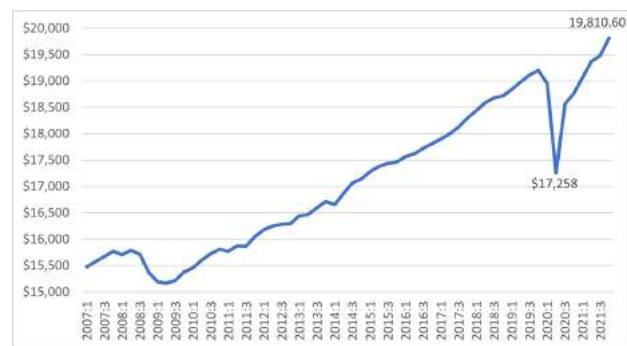
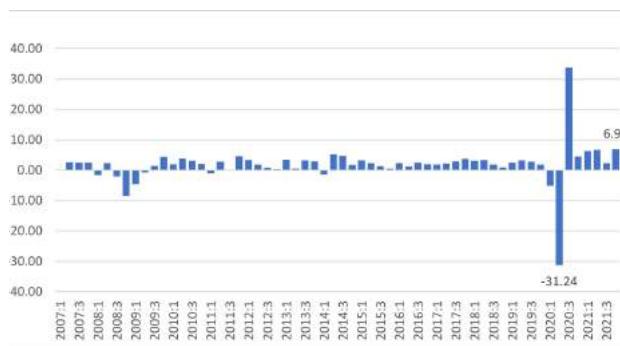


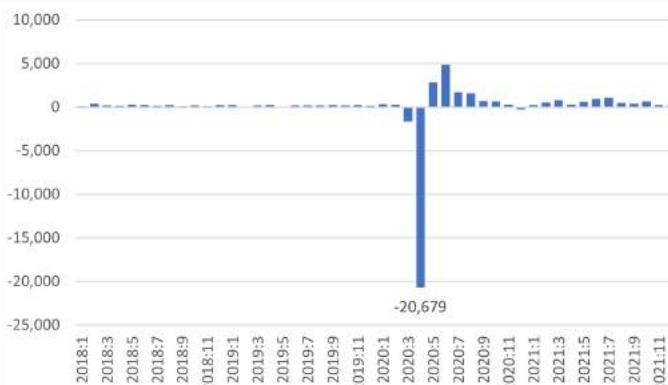
Figure 1b: U.S. Real GDP Growth (percent)

Source: U.S. Bureau of Economic Analysis



Figures 2a and 2b show U.S. Nonfarm Employment growth prior to, and since, the height of the COVID-19 pandemic (March 2020). After the historic 20.7 million decline in jobs in March 2020, job additions have been steady. In the fourth quarter of 2021, the economy added 199,000 jobs. Total jobs added since the shutdown currently stands at 18.8 million. While great headway has been made, the economy still hasn't recovered all the jobs lost in March 2020.

Figure 2a: U.S. Nonfarm Employment Change
Source: U.S. Bureau of Labor Statistics (1,000s)



The economy may struggle to add a substantial number of new jobs going forward. As shown in Figures 3a and 3b, recent data suggest that the nation's labor force is slowing relative to job growth. Moreover, since the depths of the pandemic, the number of people quitting their jobs has accelerated dramatically, reaching historic highs. Possible reasons for this phenomenon are many, ranging from increases in early retirements, people returning to school, to avoiding returning to jobs that don't offer an attractive work-life balance.

Figure 3a: Job & Labor Force Growth
Source: U.S. Bureau of Labor Statistics (1,000s)

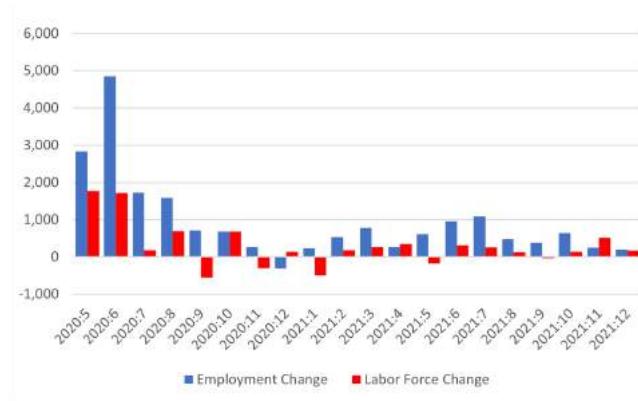
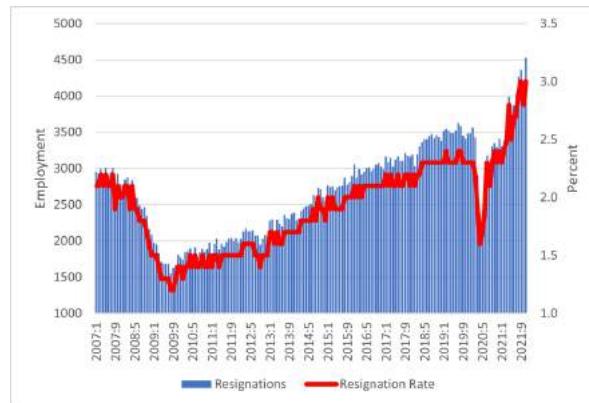


Figure 3b: Resignations (1,000s) and Rates (percent).
Source: U.S. Bureau of Labor Statistics



The increase in job openings, paired with a reluctance to return to the labor force, is contributing to wage growth. When this is combined with continued world-wide supply chain disruptions and escalation in energy prices, driven most recently by the war in Ukraine, overall inflation is on the rise. Figures 4a and 4b illustrate these dynamics.

Figure 4a shows the relationship between inflation (as measured by growth in the overall Consumer Price Index (CPI)) and the nation's unemployment rate. For the 2008 to 2020 period, the economy enjoyed stable prices and declining unemployment rates. Since the pandemic, unemployment initially spiked and rapidly declined. At the same time, prices have increased. Initially, this increase could be attributed to a healthy economic recovery. However, labor shortages, supply chain issues, and international conflict have continued to fuel inflation.

Figure 4b illustrates the potential danger that current inflation rates pose to the economy. As evidenced in the figure, since 2020 the rate of wage growth, is being outpaced by inflation rates. The results is that the "real" purchasing power of consumers is declining. This could significantly slow, or even stall, the economic recovery.

Figure 4a: Inflation and Unemployment (percent)

Source: U.S. Bureau of Labor Statistics

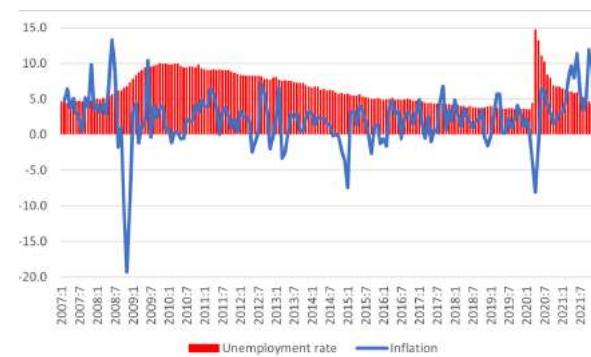


Figure 4b: Wage Growth and Inflation (percent)

Source: U.S. Bureau of Labor Statistics



OMAHA MSA OVERVIEW

Recent evidence illustrating the economic health of the Omaha MSA is provided below. The overall picture is that the MSA is recovering very well from the recession caused by the COVID-19 pandemic. This is evidenced by growth in the metro's housing market and retail sales data.

Figures 5a and 5b illustrate these trends. In Figure 5a we observe that, since the second quarter of 2020, the 12-month moving average of the number of permits issued for new private housing units has steadily increased to about 530 by the end of 2021.

Data on retail sales (Figure 5b) for Douglas and Sarpy counties, obtained from the Nebraska Department of Revenue, also supports a healthy recovery. Focusing on the seasonally adjusted series, we see that retail sales bottomed-out at \$871 million in March 2020 then increased to a \$1.2 billion level by August 2021 (the latest data available at the time of this writing).

Figure 5a: New Housing Permits

Source: U.S. Census Bureau

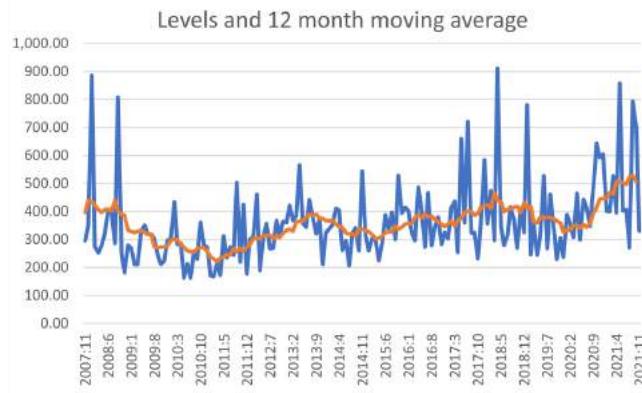
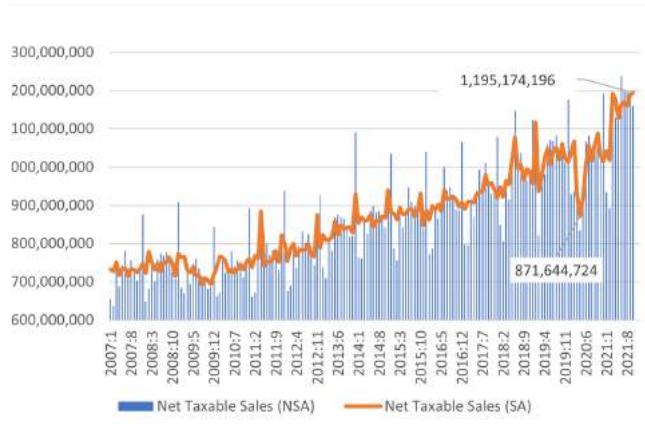


Figure 5b: Net Taxable Sales

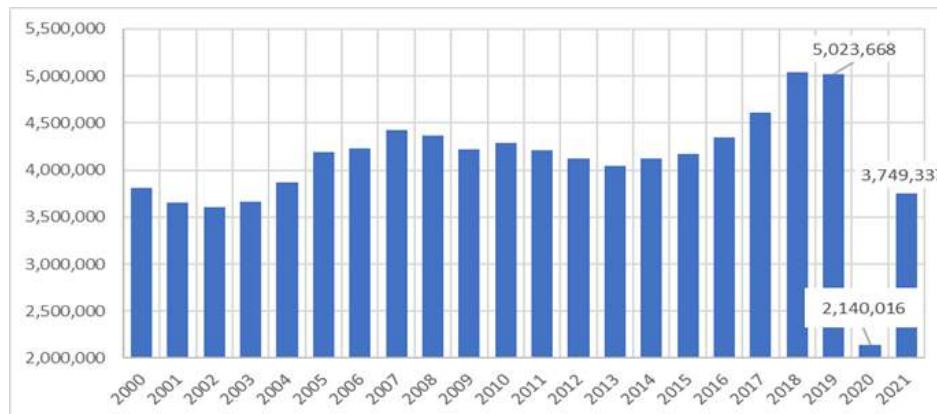
Source: Nebraska Department of Revenue



A useful indicator of economic performance is air traffic at Eppley Airfield. An increase in economic activity typically correlates with an increase in business and personal travel. While data is not as high-frequency as other data series, we have seen total passenger counts increase substantially in 2021 when compared to 2020. In 2020, Eppley recorded 2.1 million total passengers. In 2021, that figure had increased to 3.8 million, a 75 percent jump (Figure 6)!

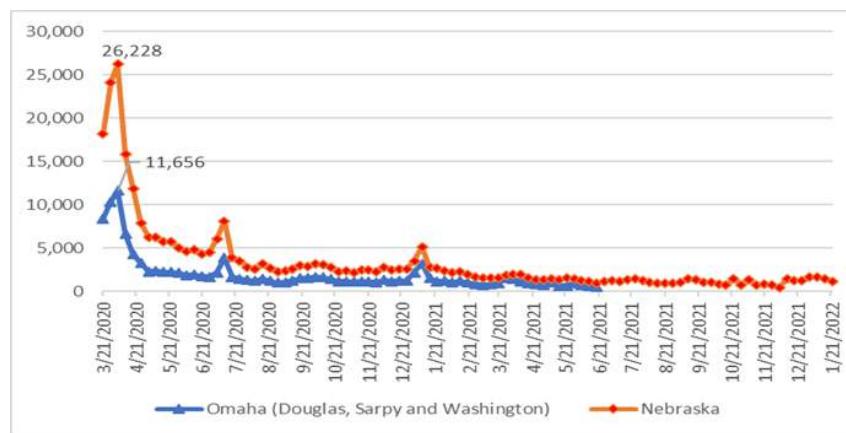
Figure 6: Passengers at Omaha Eppley Airfield

Source: Omaha Airport Authority



Another leading indicator, particularly of future employment growth, is weekly initial claims for unemployment insurance. Higher (lower) values indicate less (more) hiring activity. In Figure 7, we observe in Omaha initial claims reached a historic high of 11,656 claims in March of 2020. Since then, claims have fallen dramatically, currently hovering under 500 claims for the MSA.

Figure 7: Initial Weekly Claims for Unemployment Insurance
Source: Nebraska Department of Labor

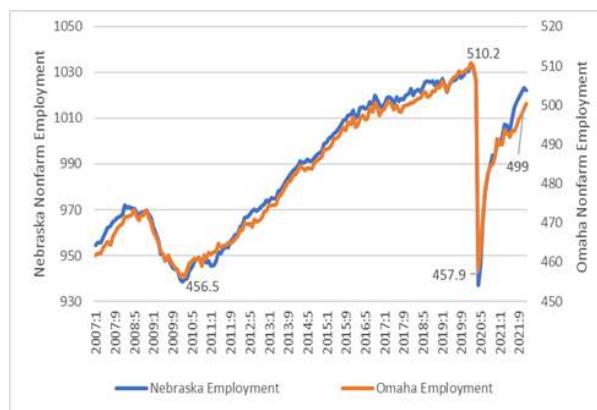


Based on the unemployment claims data, it is not surprising that both Omaha and Nebraska have experienced significant job growth since the pandemic hit. Figures 8a and 8b show seasonally adjusted total nonfarm employment and the corresponding seasonally adjusted unemployment rates for both the state and the MSA.

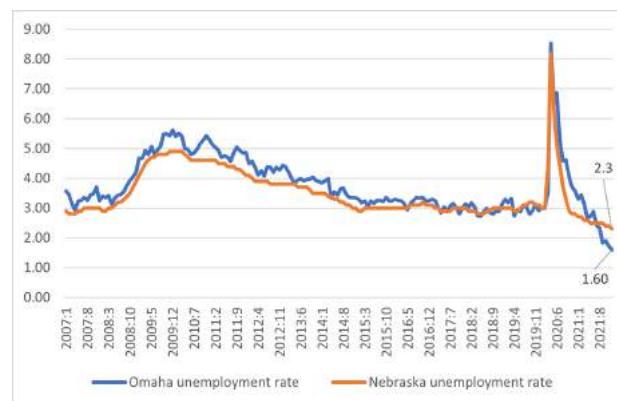
Figure 8a highlights the job gains since the pandemic hit. After losing nearly all the jobs gained since the previous recession in 2009, employment in the metro has rebounded dramatically since the third quarter of 2020. While not yet at pre-COVID shutdown levels (510,200), the metro has regained 42,000 jobs to reach 499,000.

Figure 8b shows the unemployment rate for the Omaha MSA and Nebraska. Both the metro and the state have reached historic lows. Specifically, the state unemployment rate reached 2.3 percent in December 2021. Notably, in December 2021, the MSA's unemployment rate was 1.6 percent, which is lower than the state; a condition that deviates from historical patterns.

**Figure 8a: Nonfarm Employment (1000s),
Omaha & Nebraska**
Source: U.S. Bureau of Labor Statistics



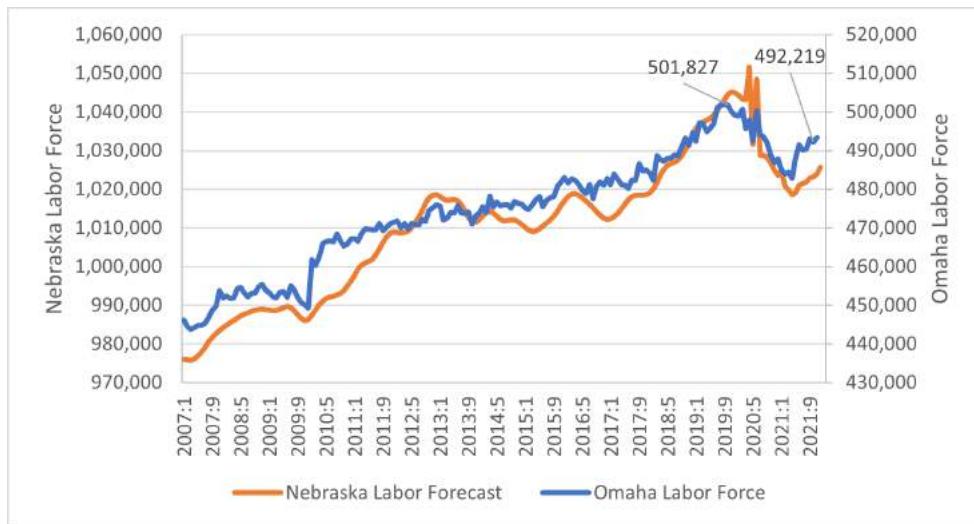
**Figure 8b: Unemployment Rates
(percent)**
Source: U.S. Bureau of Labor Statistics



As suggested earlier, it may be difficult for both the metro and the state to exceed pre-COVID shutdown employment levels soon. The challenge is apparent when looking at MSA's and state labor force figures. Figure 9 illustrates the (seasonally adjusted) labor force patterns for both Nebraska and Omaha. Prior to the COVID-19 pandemic, the number of individuals in the labor force reached 501,827. However, labor force participation in the metro started declining in late 2019 and did not begin to recover until 2021. Labor force participation has continued to increase, and as of November 2021 includes 492,219 individuals; this is still below pre-pandemic levels.

Figure 9: Omaha & NE Labor Force

Source: U.S. Bureau of Labor Statistics



U.S. MACROECONOMIC FORECAST

Table 1 provides an overview of our current US economic forecast from 2022 to 2025. While there are new and increasing risks to economic growth due to inflation, current expectations are that the US economy will still expand over the next four years. There appears to be sufficient post-pandemic pent-up demand and recent and future actions by the US Federal Reserve (Fed) to control inflation are expected.

Table 1: Macroeconomic Outlook (\$ millions)

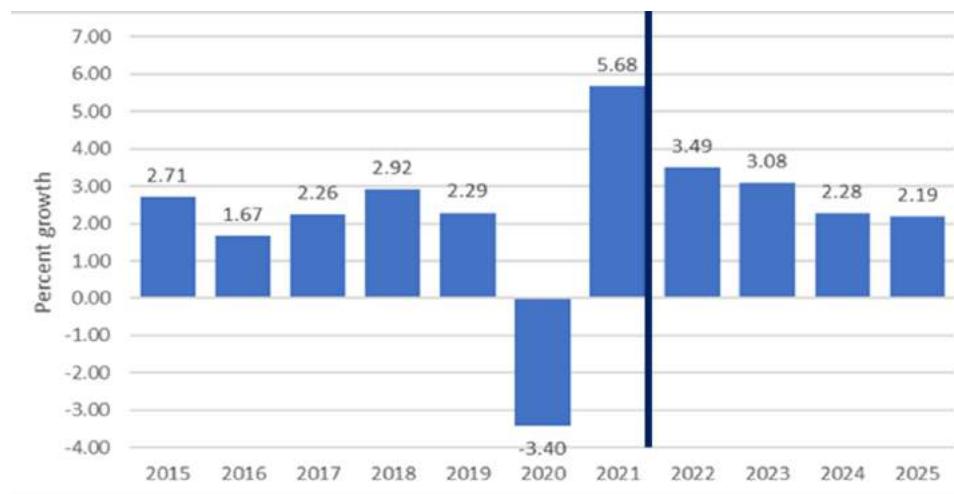
Source: Authors' calculations based on data from U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics and U.S. Federal Reserve

*Real 2012 Dollars (chain-weighted)

	2019	2020	2021	2022	2023	2024	2025
Gross Domestic Product*	\$19,032.7	\$18,384.7	\$19,301.0	\$20,022.1	\$20,492.4	\$20,944.6	\$21,388.1
%Ch		-3.40	4.98	3.74	2.35	2.21	2.12
Consumer Spending*	\$13,126.3	\$12,629.9	\$13,560.2	\$14,137.3	\$14,523.4	\$14,895.9	\$15,252.4
%Ch		-3.78	7.37	4.26	2.73	2.57	2.39
Investment*	\$3,510.6	\$3,316.2	\$3,552.3	\$3,632.2	\$3,711.8	\$3,784.9	\$3,856.4
%Ch		-5.54	7.12	2.25	2.19	1.97	1.89
Exports*	\$2,554.0	\$2,207.6	\$2,279.8	\$2,398.0	\$2,483.4	\$2,570.0	\$2,658.1
%Ch		-13.56	3.27	5.19	3.56	3.49	3.43
Imports*	\$3,459.2	\$3,150.3	\$3,542.2	\$3,636.8	\$3,744.7	\$3,848.4	\$3,950.0
%Ch		-8.93	12.44	2.67	2.97	2.77	2.64
Government Spending*	\$3,279.5	\$3,360.2	\$3,382.1	\$3,388.9	\$3,405.3	\$3,430.5	\$3,459.1
%Ch		2.46	0.65	0.20	0.49	0.74	0.83
Employment (1000s)	150,905	142,186	146,124	150,052	152,813	155,505	157,165
%Ch		-5.78	2.77	2.69	1.84	1.76	1.07
average monthly change (1000s)		-726.58	328.17	327.37	230.03	224.36	138.32
Inflation (%ch CPI)	1.81	1.25	4.69	3.71	2.08	2.67	2.74
Wage growth (% Ch)	2.91	2.77	3.68	3.53	3.00	2.91	2.89
Unemployment Rate (%)	3.70	8.10	5.30	4.32	4.90	4.96	5.00
Ten year Yield (%)	2.14	0.89	1.44	5.88	4.24	4.84	4.91

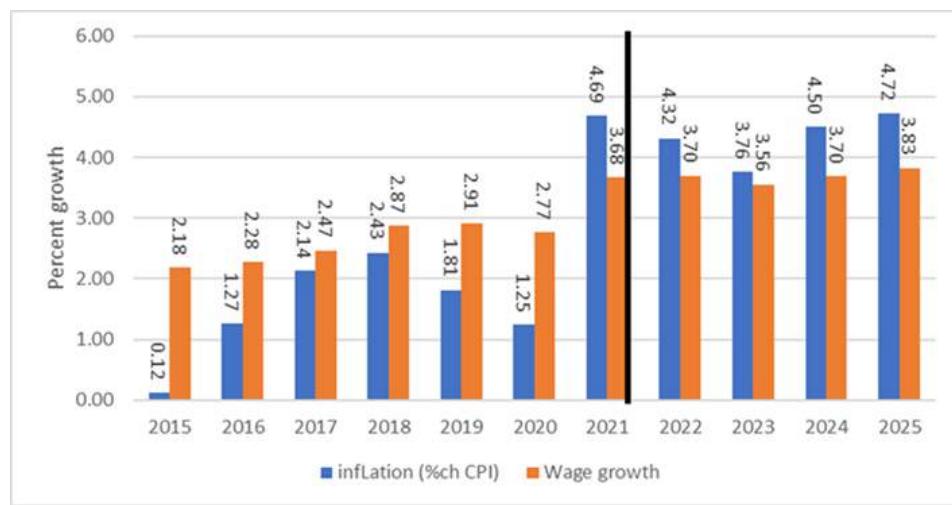
Following a strong 5.7 percent increase in GDP in 2021, growth is expected to continue, albeit at a slower pace. GDP will grow 3.75 percent in 2022 and then gradually return to a long-term rate of 2.0 percent by 2025, in line with the economy's overall inflation-neutral economic potential (Figure 10). Most of this growth is expected to come from consumer spending and exports, particularly as other countries' economies continue to recover from the pandemic-driven recession. Some growth will come from investment spending as well. However, compared to the surge of over 7.0 percent in 2021, investment growth is expected to slow as the Fed ratchets up interest rates which will likely cool the housing market and curb business spending on new plant and equipment.

Figure 10: U.S. GDP Growth (percent)
Source: Authors' calculations



Inflation is likely to be higher than it has been in recent years. However, it is expected to remain steady over the next four years. This will largely be driven by a tighter labor market going forward. Early retirements and slower overall population growth will hinder labor force growth in the next four years, keeping wages higher than their historical average (see Figure 11).

Figure 11: Inflation & Wage Growth (percent)
Source: Authors' calculations



OMAHA MSA EMPLOYMENT FORECAST

Table 2 presents a detailed Omaha MSA employment outlook for the period 2022 to 2025. Detailed discussions of each sector are in this report's Appendix. An overview of the outlook and selected highlights are provided below.

Omaha's total nonfarm employment is expected to grow 1.1 percent over the next four years, reaching pre-COVID levels by late 2023 and clearing 516,000 jobs by 2025. Sources of growth are expected to come from several sectors. Mining, Logging, and Construction is likely to grow at a 2.1 percent clip over the next few years as several major construction projects are expected to begin in 2022. Hospitality and Leisure is expected to regain momentum following devastating losses in 2020. Compared to historical growth rates, the relatively rapid 4.0 percent growth rate is indicative of a sector that is sensitive to both state and national GDP growth and one that will take some time to climb back to its pre-COVID levels.

Table 2: Omaha Employment MSA Outlook (1,000s)

Source: Authors' calculations

	2019	2020	2021	2022	2023	2024	2025	Percent Growth, 2021-2025
Total Nonfarm	507.1	486.1	494.4	500.9	506.6	511.7	516.4	1.10
Percent Change	0.9	-4.1	1.7	1.3	1.1	1.0	0.9	
Mining, Logging, and Construction	30.5	30.4	30.6	31.3	31.9	32.6	33.2	2.06
Percent Change	6.3	-0.3	0.7	2.1	2.1	2.0	2.0	
Durable Goods	11.4	11.1	11.0	10.9	10.8	10.8	10.7	-0.61
Percent Change	-0.9	-2.6	-1.1	-0.6	-0.6	-0.6	-0.6	
Nondurable Goods	22.3	22.1	22.8	23.0	23.1	23.3	23.4	0.68
Percent Change	-0.4	-0.9	3.2	0.7	0.7	0.6	0.7	
Wholesale Trade	16.9	16.6	17.0	16.9	16.8	16.7	16.6	-0.67
Percent Change	1.2	-1.8	2.6	-0.7	-0.7	-0.7	-0.7	
Retail Trade	52.6	50.3	51.4	51.5	51.7	51.8	52.0	0.29
Percent Change	-2.2	-4.4	2.2	0.2	0.3	0.3	0.3	
Transportation, Warehousing, and Utilities	26.6	25.0	25.1	25.0	25.0	25.0	24.9	-0.19
Percent Change	0.8	-6.0	0.4	-0.2	-0.2	-0.2	-0.2	
Information	10.5	9.9	9.7	9.5	9.3	9.1	8.9	-2.13
Percent Change	-6.2	-5.7	-2.0	-2.1	-2.1	-2.2	-2.2	
Financial Activities	46.0	45.5	44.1	44.5	44.9	45.3	45.7	0.90
Percent Change	2.2	-1.1	-3.1	0.9	0.9	0.9	0.9	
Education and Health Services	79.7	78.1	79.9	81.3	82.7	84.1	85.5	1.70
Percent Change	0.0	-2.0	2.3	1.7	1.7	1.7	1.7	
Hospitality and Leisure	52.0	43.3	47.4	50.4	52.6	54.1	55.4	3.94
Percent Change	2.6	-16.7	9.6	6.2	4.3	3.0	2.3	
Professional Services	73.1	70.9	71.9	72.5	73.1	73.7	74.3	0.81
Percent Change	2.0	-3.0	1.4	0.9	0.8	0.8	0.7	
Other Services	18.6	17.7	18.3	18.5	18.6	18.8	19.0	0.96
Percent Change	0.5	-4.8	3.3	1.0	1.0	0.9	0.9	
Government	66.9	65.2	65.1	65.6	66.0	66.4	66.9	
Percent Change	0.6	-2.5	-0.1	0.7	0.7	0.7	0.7	0.67

These growth areas are offsetting continued retrenchment in several sectors that have been experiencing long-term employment declines. These sectors include Durable Goods, Wholesale Trade, and Information, all of which have borne witness to employment declines mainly as a result of technological innovations in production and information, as well as diffusion of internet-based transactions.

Overall, then, the Omaha economy is expected to steadily add jobs over the 2022 to 2025 (Figures 12a and 12b).

However, there are risks to the forecast. For instance, the forecast assumes Omaha will regain some labor force lost during the COVID-19 recession. Second, the forecast is based on overall GDP growth nationally. Should a recession hit the US, perhaps due to uncontrolled inflation, or reductions in trade due to international conflict, the Omaha economy will likely experience a slowdown. However, the present state of the economy, as well as recent trends, suggest the current outlook is the most likely.

Figure 12a: Nonfarm Employment (1,000s)

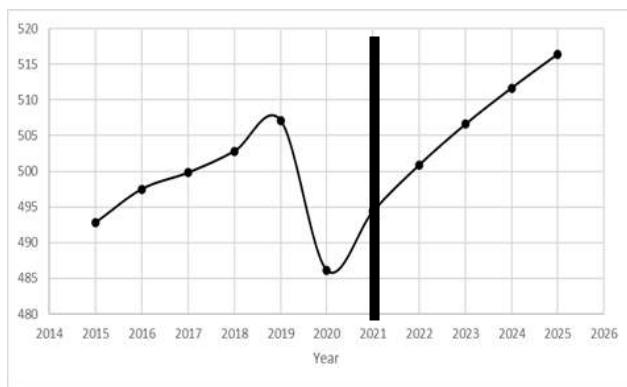
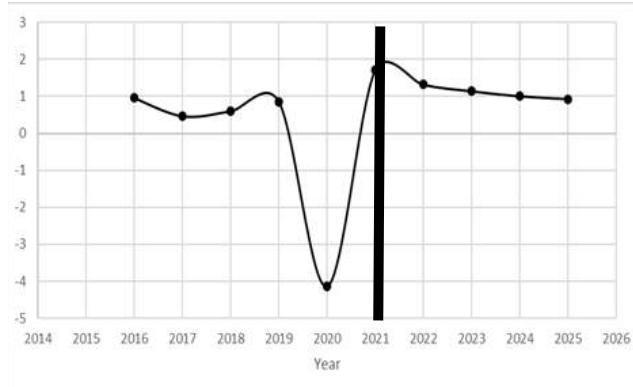


Figure 12b: Nonfarm Employment Growth (Percent)



APPENDIX

THE OMAHA MSA EMPLOYMENT FORECAST: SECTOR DETAIL

Sector	Page
Mining, Logging, and Construction by Christina Wagner and Christopher Decker	11
Durables Goods by Blake Zellmer	13
Non-Durable Goods by Brandon Bergfalk	15
Wholesale Trade by Christina Wagner and Christopher Decker	17
Retail Trade by Jarold McWilliams	19
Transportation, Warehousing, and Utilities by Maxwell Rivers	21
Information by Tyler Billings	24
Financial Activities by Christina Wagner	26
Education and health Services by Eric Werther	28
Leisure and Hospitality by Christina Wagner	30
Professional and Business Services by Bryant Robertson	32
Other Services by Class	34
Government by Tyler Billings	36

MINING, LOGGING, AND CONSTRUCTION

Christina Wagner and Christopher Decker

Historical Patterns

The Mining, Logging, and Construction sector comprises firms that are mining and drilling for oil, gas, coal, metals, and other natural resources, as well as those in the timber harvesting industry and firms in the construction of both commercial and residential structures. For Omaha, nearly all the activity in this sector is in construction. Therefore, the jobs tracked in this sector measure the number of contractors and construction workers in the MSA.

The sector is very sensitive to business cycles generally. Construction employment dropped off substantially between 2008 and 2011, a consequence of the housing crisis of the “great recession.” Since 2011, however, job gains have been substantial. Between 2015 and 2019, the sector added nearly 5,000 jobs to the Omaha economy. COVID appears also to have had little impact on construction. Job formation dropped in 2020, but by less than one percent. In 2021, growth returned, albeit at a relatively slow pace.

Forecast Model

Several models were tested to see which one produced the most reliable and credible forecast for this sector. Root mean squared errors and mean error tests were performed on each model, and ex-ante (out of sample) forecasts were generated and evaluated. Based on the data, an exponential smoothing model provided the best fit and was selected as the basis of the forecast. The parameters for the level (L) and trend (T) equations that were found to best predict employment are given in the equations below:

$$L(t) = 1.0*y(t) + 0.0*(L(t-1)+T(t-1))$$

$$T(t) = 0.3*(L(t)-L(t-t)) + 0.7*(T(t-1))$$

Figure: Mining, Logging, and Construction

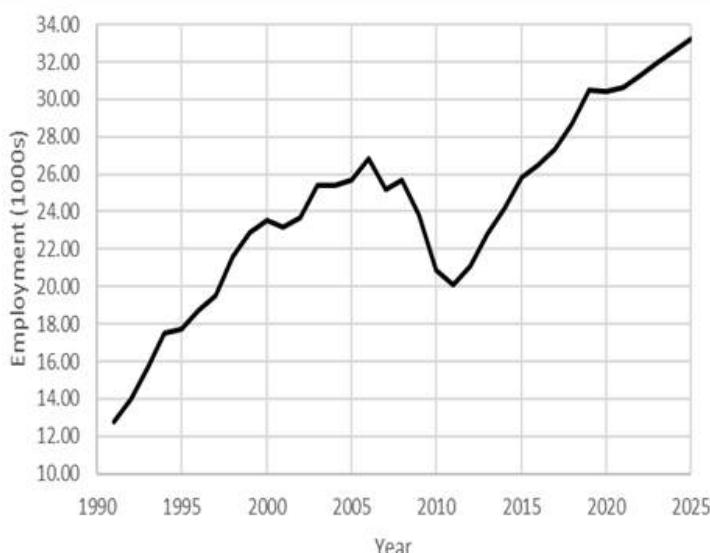


Table: Employment Outlook

year	Employment (1000s)	Growth
2015	25.80	6.61
2016	26.50	2.71
2017	27.30	3.02
2018	28.70	5.13
2019	30.50	6.27
2020	30.40	-0.33
2021	30.62	0.72
2022	31.27	2.13
2023	31.92	2.08
2024	32.57	2.04
2025	33.22	2.00

The Outlook

The above figure table show the forecast. While residential construction, having been reasonably robust in Omaha in 2021, might slow in future years due to expected increases in mortgage rates, a recent forecast from Dodge Data & Analytics (source available upon request) is calling for new construction projects in Omaha to grow 13 percent annually between 2021 and 2023. There are several new stadiums being constructed that will be completed at various times in 2023. As Omaha continues to expand, the city seeks to modernize former industrial and rural areas in addition to increasing walkability. Several sizeable projects are currently underway, totaling more than \$7.9 billion in spending, and span from downtown Omaha to West Omaha. Projects include a new Mutual of Omaha tower, revitalization of the Omaha Riverfront area.

Implementing a downtown streetcar system, constructing various mixed-use developments, turning the Crossroads area into an entertainment district, various renovations around UNMC, and a \$1.5 billion development in West Omaha that will include apartments, dining, and shopping. Employment will continue to grow at a steady pace from 2022 through 2025, hovering around 2% year over year. The forecast indicates employment will increase by approximately 6% by the end of 2025. There are several sizeable construction projects in the Omaha MSA, however growth will moderate compared to historical figures due to materials and labor shortages. Nevertheless, it will be a major engine of job growth for the Omaha economy in coming years.

DURABLE GOODS

Blake Zellmer

Historical Patterns

The Durable Goods sector is comprised mostly of manufacturing of durable goods. For Omaha this is primarily farm equipment. Employment in this sector has been steadily declining, experiencing a significant swing downward in 2009, dropping 12.1 percent due to the “great recession”. After bouncing back 4.4% in 2013, employment has continued to decline steadily, with an average decrease in employment of 1% per year since 2013.

Despite declines, there is evidence that equipment orders are steady and increasing. This, combined with the steady employment declines in Omaha suggest that 1) manufacturing is locating outside of the metro (there is evidence that the state employment declines are slower than Omaha’s), and 2) manufacturing is becoming less labor-intensive as new technologies come online.

The Forecast Model

After testing several models to see which would provide the most reliable and credible forecast for the Durable Goods sector, the Exponential Smoothing (ES) model provided the best result. For all models, both root mean squared error and mean error tests were performed, as well as ex-ante forecasts generated and evaluated. As shown in the forecast below, it predicts a continuation of a steady and slow decline as has been seen in recent years. This is so because the ES model creates a trend which closely follows the most recent observations.

The parameters for the level (L) and trend (T) equations for the ES model that were found to best predict employment are given in the equations below:

$$L(t) = (1.0)y(t) + (0.0)(L(t-1)+T(t-1))$$

$$T(t) = (0.22)(L(t)-L(t-1)) + (0.78)(T(t-1))$$

Figure: Durable Goods

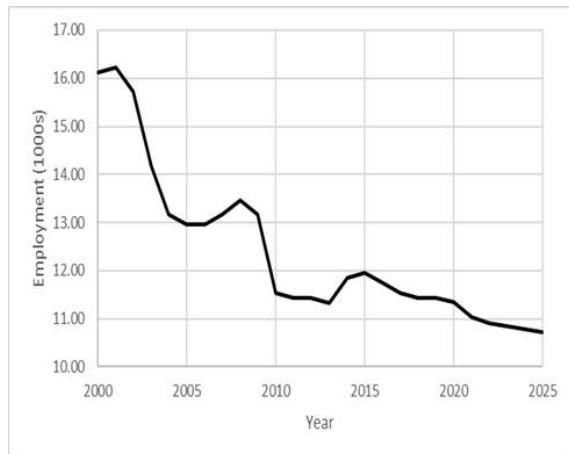


Table: Employment Outlook

year	Employment (1000s)	Growth
2015	11.80	-1.67
2016	11.60	-1.69
2017	11.50	-0.86
2018	11.50	0.00
2019	11.40	-0.87
2020	11.10	-2.63
2021	10.98	-1.06
2022	10.92	-0.60
2023	10.85	-0.61
2024	10.78	-0.61
2025	10.72	-0.62

The Outlook

Above, the table on the right shows the forecast with exact values, the graph on the left is present to better visualize those numbers and trends. As it stands, we expect that the Durable Goods sector will decrease steadily around 0.61 percent for the next four years, dropping to roughly 10,720 jobs by 2025. This rate of decline is slower than averaged in years prior, but over the past decade however, nothing suggests a jobs increase will happen for this sector. It was already on the decline prior to the COVID-19 pandemic. However, declines should slow as orders for new equipment remain healthy.

NONDURABLE GOODS

Brandon Bergfalk

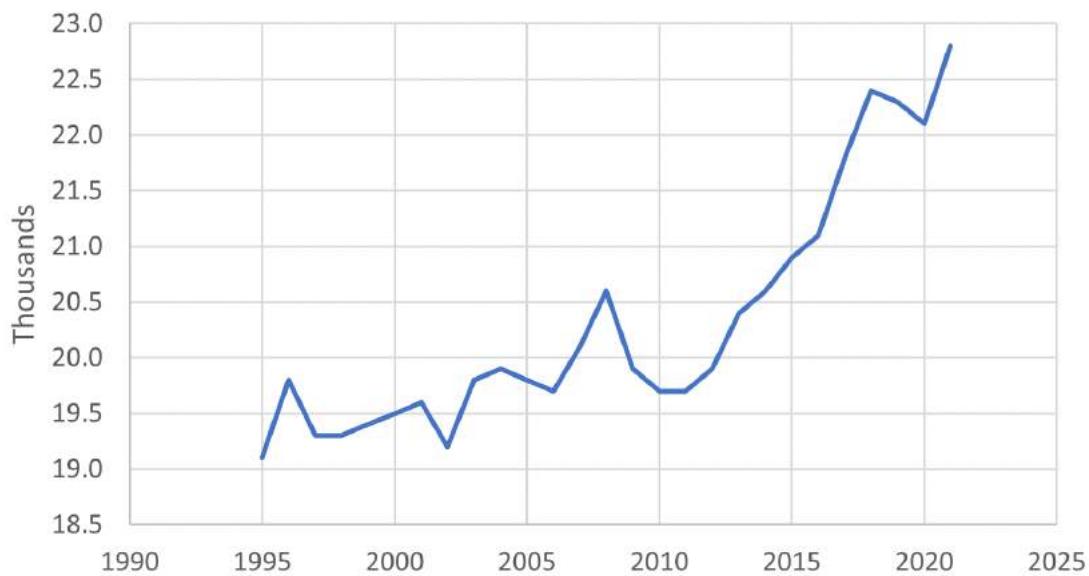
Overview

Nondurable goods are items we consume in a single use. As opposed to durable goods, which persist in their value over time, all the value of nondurables is received at once. Common examples are food, cigarettes, alcohol, toilet paper, and cosmetics. These goods are critical to our everyday lives and the consumption of them underwent notable turbulence during the COVID-19 pandemic.

Historical Patterns

Employment growth in the nondurables sector of Omaha, NE has been slow and steady for the last two decades, interrupted briefly by the Global Financial Crisis (GFC) in 2008 and the pandemic in 2020. The sector grew by 8% from 1995 to 2008 and 11 percent from 2008 to 2021. Downward movement during recessions is expected since nondurable goods are some of the more easily cut out by consumers with less disposable income.

Employment in Nondurables - Omaha



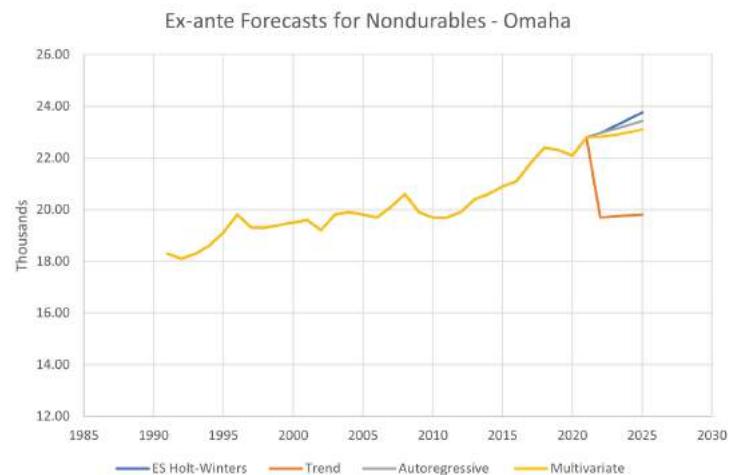
Forecast Model Selection

The downward spike in all employment during the COVID-19 pandemic makes fitting models to the data a challenge. ES Holt-Winters and multivariate approaches gave promising diagnostic results, but may be too optimistic and pessimistic, respectively.

An autoregressive model returned the smallest root mean squared errors (RMSE) and offers the most moderate trend coming out of the pandemic of all models tested. The model's use of the year immediately prior to predict the current year accounts for the upward trend in the nondurables sector without disregarding the recession brought on by the pandemic.

Based on a comparison of these models, it was determined the most reliable model is the autoregressive model. Therefore, the specific equation used to predict employment for the years 2022-2025 was calculated to be:

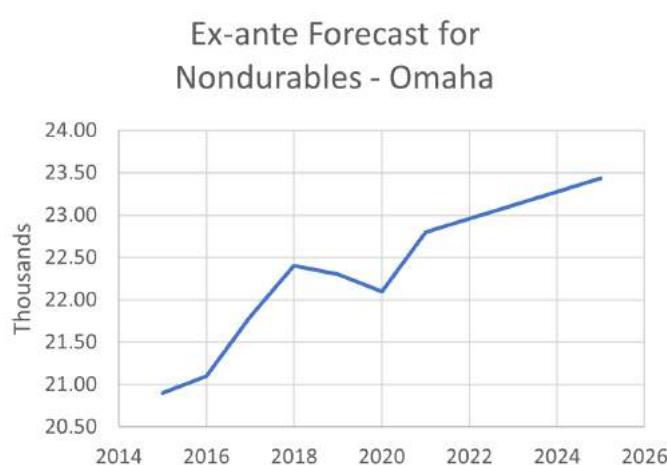
$$y(t) = 0.133 + 1.001*y(t-1)$$



Forecast Outlook

The forecast projects employment in the nondurables sector to grow by 0.7 percent per year through 2025. This would see total nondurables jobs rise from 22,800 to 23,430, an addition of 630 jobs to the sector. Some growth is reasonable to expect as the economy continues to rebound from the pandemic. The tempered prediction also accounts for concerns over continued supply chain disruptions, possible shifts in labor force behaviors, and inflation cutting into disposable income used to consume nondurable products.

Figure and Table: The Forecast



Year	Employment (1000s)	Growth
2015	20.9	1.50
2016	21.1	1.00
2017	21.8	3.30
2018	22.4	2.80
2019	22.3	-0.40
2020	22.1	-0.90
2021	22.8	3.20
2022	22.96	0.70
2023	23.12	0.70
2024	23.27	0.70
2025	23.43	0.70

WHOLESALE TRADE

Christina Wagner and Christopher Decker

Historical Patterns

Jobs in the Wholesale sector involve personnel that serve various roles that facilitate the transfer of goods from manufacturer to retail establishments. These positions largely involve facilitating sales between producer and retailer.

Wholesale trade in Omaha is mainly impacted by trends in Nebraska's agriculture industries. The sector has seen steady declines in employment since 2000, specifically, employment decreased by 24 percent from 2000 to 2021. The downward trend is largely due to increased direct sales occurring between the manufacturer and the end consumer. More direct transactions are made possible by innovations in internet access and online sales platforms.

Moreover, improved methods for managing sales accounts with retailers has allowed for more accounts to be managed by fewer wholesale agents. These scale economies have reduced employment needs. While the overall employment levels have been trending downward, since 2012, number of workers employed in wholesaling has leveled off, hold steady about 16,700, with only minor variations. That said, a strong agricultural sector led to a jump in sales and employment in 2021, both in the state and the metro. This will likely not persist, however.

Forecast Model

Several models were assessed to see which one seemed to produce the most reliable and credible forecast for this sector. Root mean squared errors and mean error tests were performed on each model, and ex-ante (out of sample) forecasts were generated and evaluated. According to this analysis, an autoregressive model of order 1 was selected which implies that wholesale employment depends on last year's wholesale employment value. In the equation as shown below, y_t is the employment level in "wholesale employment":

$$y(t) = 0.202 + 1.005*y(t-1).$$

The Outlook

The above figure table show the forecast. Given long-term historical trends attributable to improved communication and sales management technology, wholesale trade employment is expected retrench from 2021 levels. Overall, employment will decrease from a 2021 high of about 17,000 to a 2025 low of approximately 16,600. This steady decline, of about 0.68 percent, is expected to continue through 2025.

Figure: Wholesale Trade

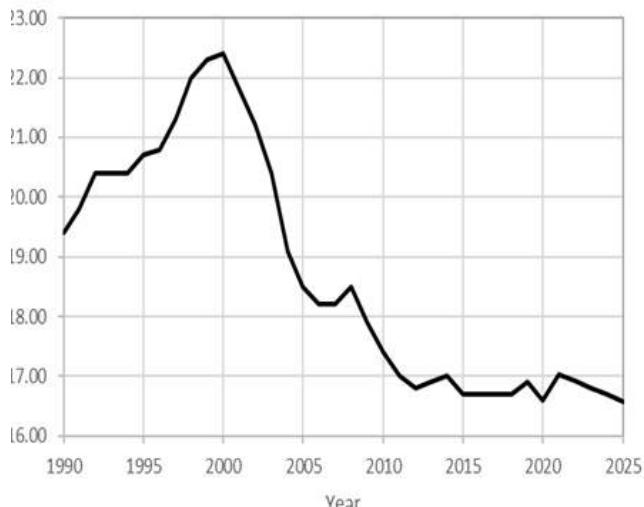


Table: Employment Outlook

year	Employment (1000s)	Growth
2015	16.70	-1.76
2016	16.70	0.00
2017	16.70	0.00
2018	16.70	0.00
2019	16.90	1.20
2020	16.60	-1.78
2021	17.03	2.57
2022	16.92	-0.66
2023	16.80	-0.67
2024	16.69	-0.68
2025	16.57	-0.68

RETAIL

Jarold McWilliams

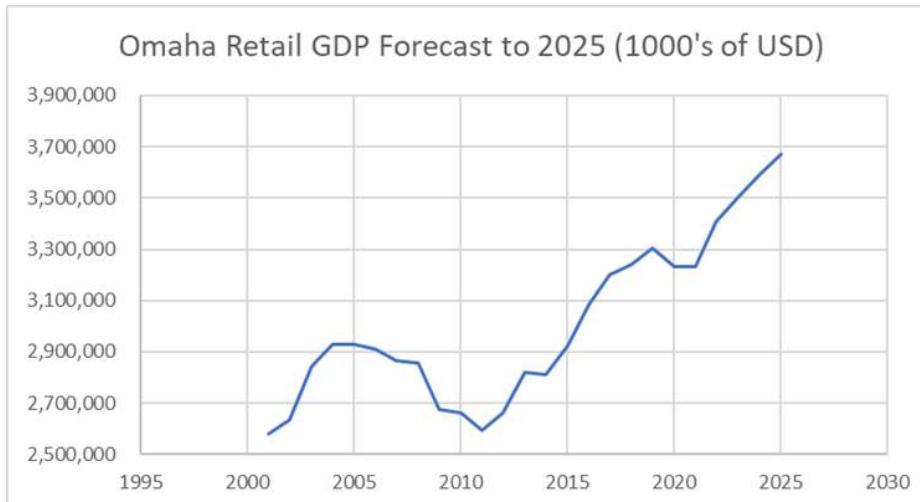
The coverage of this report includes the Omaha metropolitan statistical area (MSA) retail sector. Analysis of the Omaha retail sector includes a forecast of employment and gross domestic product (GDP) in this sector. The retail sector consists of motor vehicle and parts dealers, food and beverage stores, grocery stores, and general merchandise stores. Data is sourced from either Bureau of Labor Statistics (BLS) or Bureau of Economic Analysis (BEA) survey data. The forecast period is from 2021-2025 for GDP data and 2022-2025 for employment data. Forecasts are conducted using authors' calculations based on common econometric forecasting methods. Considering the strong economic recovery period both nationally and locally along with very low unemployment locally, we expect GDP in the Omaha retail sector to continue healthy growth. However, we expect the relatively stagnant long-term trend in retail employment to continue. The following sections will explain our methodology and forecasting results in greater detail.

Historical Patterns

From 1991 to 2001, Omaha retail sector employment grew from approximately 47,000 employees to 55,000 employees. However, following a decline starting in the early 2000s, retail employment has leveled off to around 52,000 employees up to the present day. Omaha retail sector GDP starts at around \$2.6 billion in the early 2000s before rising to nearly \$3 billion by the mid-2000s (Figure 1R). However, the Great Recession period caused retail GDP to fall back to \$2.6 billion from 2009-2012. From 2013 to the present day, there has been a clear growth trend in retail value added, with GDP reaching \$3.3 billion by 2019.

Figure 1R: Omaha Retail GDP Forecast to 2025

Source: US BEA and authors' calculations



Forecast Model

Using this historical data, we constructed forecasting models for Omaha retail employment and GDP to predict future trends out to 2025. For the GDP forecast, we found a multivariate model that incorporated our predictions for national GDP, a lag factor, and trend term to produce the most accurate forecast. We believe the incorporation of predicted national GDP was an important factor in increasing the accuracy of the forecast for the local Omaha economy.

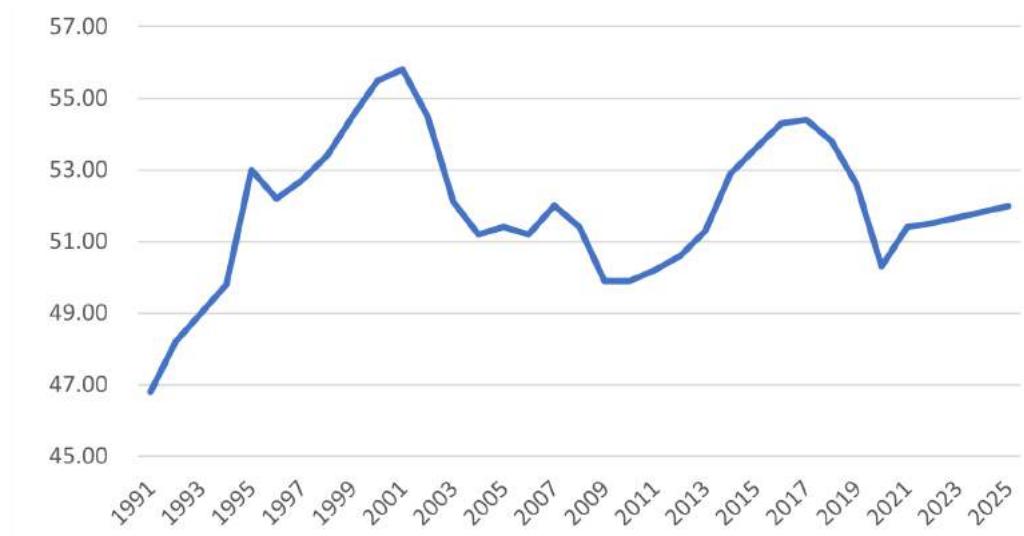
For the employment forecast, we found that two similarly accurate models, one incorporating a trend and the other a multivariate model, predicted different outcomes. While both models had merit, the multivariate model was ultimately selected. It seemed to produce the most viable forecast given current expectations for the sector. The equation is:

$$y(t) = 7.697 + .0802*y(t-1) - 0.111*trend + 0.000304*GDP(t).$$

The Outlook

The forecast period runs from 2021-2025 for GDP data and 2022-2025 for employment data. From our GDP forecast, we expect relatively strong retail GDP growth throughout the forecast period. Strong predicted national GDP growth contributes to the growth in our Omaha retail GDP forecast. We expect Omaha retail economic growth to remain strong as long as the national economy does. Our predicted results expect Omaha retail GDP to reach nearly \$3.7 billion by 2025.

This sector has been challenged by COVID-19. It was hard hit by the pandemic and the subsequent shut-down. Since 2021, jobs have been added. However, people have been hesitant to return to retail jobs and online shopping continues to slow labor demand. That said, given overall growth prospects for the economy and the sector (as evidenced by our GDP forecast for retail), wages will likely increase and flexible hours will be increasingly tolerated by employers, both of which should pull workers back in. Therefore, we expect modest growth through 2025 of about 0.30 percent per year.



TRANSPORTATION & UTILITIES SECTOR

Maxwell Rivers

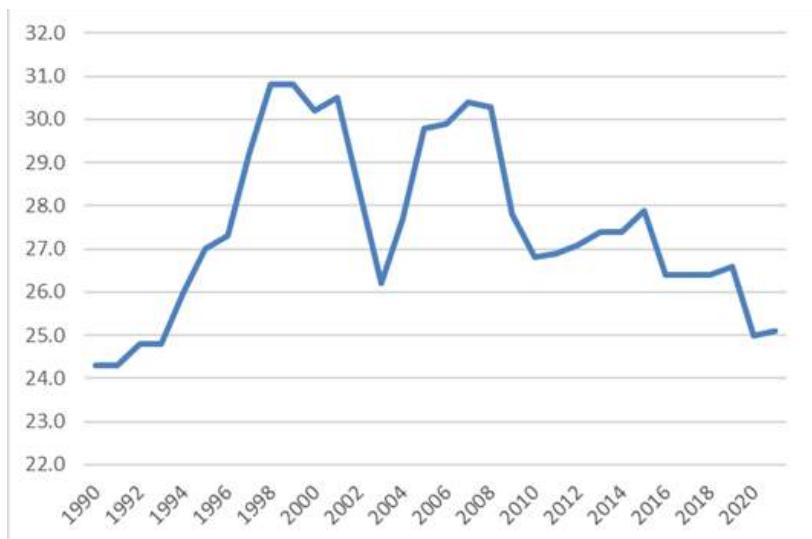
The Transportation and Utilities economic sector includes engagements with wholesale & retail merchandising/distribution, warehousing, and public utilities (i.e electric power, natural gas, water, and sewage).

Historical Trends

The Transportation and Utilities sectors are an extremely vital part of every microeconomy. In 2000, the sector comprised 6.7 percent of Omaha, NE employment. Because such a large slice of the sector is built on public utilities with inelastic demand and price-fixing, industry employment as a percentage of total non-farm declined to 5.1 percent or \$25.1 million in 2021 amid broad MSA GDP growth. However, this period of stagnancy was partially offset by the rise eCommerce post-2010, which requires an elevated level of warehousing to sustain operations. Amazon maintains two warehouses in the Omaha area. One in North Omaha was built in the last 10 years and a new Chalco location was completed in 2020. In all, estimated marginal job gain from the warehouses totaled more than 1,000 new jobs with competitive pay and desirable benefits.

It is also important to note that employment declined -by 6.1 percent between year-end 2019 and year-end 2020 due to the COVID-19 Global Pandemic, which was greater than the overall -4.2 percent decline in non-farm GDP for the area. Historical patterns are depicted in the figure below.

Figure: Historical Patterns





Forecast Model Selection

Several models were tested to see which one produced the most reliable and credible forecast for this sector. Root mean squared errors and mean error (RMSE) tests were performed on each model, and ex-ante (out of sample) forecasts were generated and evaluated. Based on the data, an exponential smoothing model provided the best fit and was selected as the basis of the forecast. The model had a low RSME of 0.96, and a smooth growth trend amid the global economic rebound from the COVID-19 pandemic.

A trend model and a multivariate model were also considered due to their low RSME of 0.73 and 0.27, respectively. However, both exhibited a strong deviation from the 2015-2021 trend. While the outlook for both models are possible, a more conservative outlook is more probably given the economic headwinds and uncertainty surrounding the micro and macro markets. Therefore, based on the data, an exponential smoothing model provided the best fit and was selected as the basis of the forecast. The parameters for the level (L) and trend (T) equations that were found to best predict employment are given in the equations below:

$$\begin{aligned} L_t &= (1.0)y_t + (0.0)(L_{t-1} + T_{t-1}) \\ T_t &= (0.03)(L_t - L_{t-1}) + (0.97)(T_{t-1}) \end{aligned}$$



The Outlook

Employment is forecast to decline by 0.19 percent per year. The growth trend is expected to remain constant due to inelastic demand for public utility reductions in demand for truck drivers and warehouse workers resulting from some degree of technological innovation and labor force limitations.

There are some risks to the forecast, both positive and negative. Retail spending could drive an increase in trucking and warehousing demand. Equally as likely, the decline in sector GDP could accelerate due to i) The supply chain issues of 2021 are not fixed, ii) International & geopolitical issues continue to blur the broad economic outlook, iii) Wage gains and consumer spending are offset by inflationary factors or we experience a recession as a result of Federal Reserve efforts to curb inflation, or iv) Another aggressive COVID variant prompts a return to stay-at-home orders.

Figure: Transportation, Warehousing and Utilities

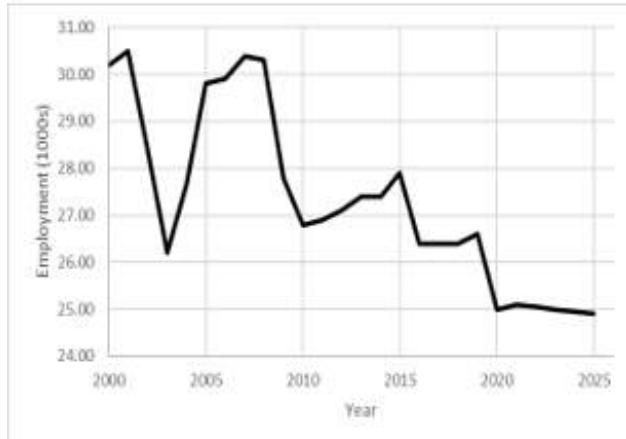


Table: Employment Outlook

year	Employment (1000s)	Growth
2015	27.90	1.82
2016	26.40	-5.38
2017	26.40	0.00
2018	26.40	0.00
2019	26.60	0.76
2020	25.00	-6.02
2021	25.09	0.36
2022	25.04	-0.19
2023	25.00	-0.19
2024	24.95	-0.19
2025	24.90	-0.19

INFORMATION

Tyler Billings

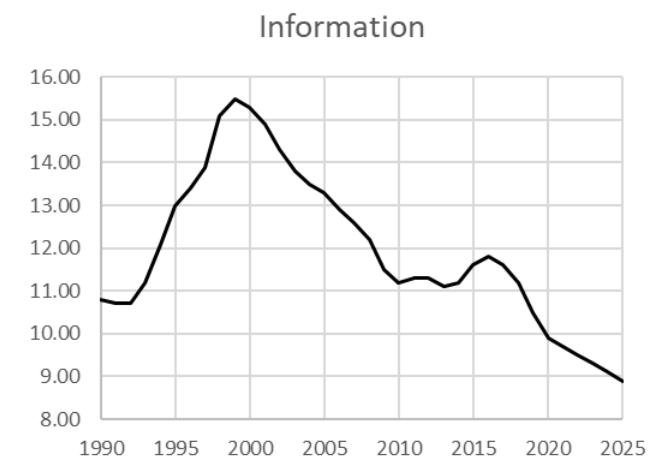
The Computer and Information Technology sector is a high demand and quickly growing field. With projected growth of 13% over the next decade within the U.S., it is growing faster than the average for all other occupations. Additionally, with median wages over twice than all other occupation there is clear labor demand for workers with this skillset.

Background and historical Trends

The Information sector is a broad category of employment which covers any worker or establishment that is involved in the producing and distribution of information, providing the infrastructure to distribute the data, as well as those responsible for processing data. While this sector includes the publishing, motion picture, and sound recording industries, those are not the driving industries in Omaha's information sector. Omaha's primary source of information workers comes from its software engineers, system administrators, network engineers, and data center operators. These positions are existed thanks to Omaha's FinTech companies, financial institutions, and numerous shared and private data centers. This is all added by Omaha's unique location which puts it at the convergence of six national fiber optic networks. This demand for skilled labor is supported by Omaha's numerous educational institutions such as UNO's Peter Kiewit Institute, Creighton's Institute of Information Technology, Metro Community College, and those retiring service members out of Offutt Air Force Base.

As can be seen in the graph to the right, the sector has been in a decline since the tech bubble burst in the early 2000s. Although there was a leveling off in employment during the great recession and even an uptick between 2014 and 2016 the sector continued its decline afterwards.

Overall, we see an average decline of 1.3 percent on an annual basis for the past decade. Like many other industries, the information sector was severely affected by the COVID-19 pandemic where we saw a decrease of over 6 percent in 2020.



Year	Employment (1000s)	Growth
2015	11.60	3.57
2016	11.80	1.72
2017	11.60	-1.69
2018	11.20	-3.45
2019	10.50	-6.25
2020	9.90	-5.71
2021	9.70	-2.02
2022	9.50	-2.06
2023	9.30	-2.11
2024	9.10	-2.15
2025	8.90	-2.20

The Model

Four different models were tested to determine which one possessed the greatest predictive ability for the Information sector. The primary tests for the models' accuracy were the root mean squared errors and the mean error. Additionally, ex-ante (out-of-sample) forecasts were created and evaluated. According to this analysis, the Holt exponential smoothing model was selected. The parameters for the level (L) and trend (T) equations that were found to best predict employment are given in the equations below:

$$L_t = (1.0)y_t + (0.0)(L_{t-1} + T_{t-1})$$
$$T_t = (1.0)(L_t - L_{t-1}) + (0.0)(T_{t-1})$$

The Outlook

The above table shows the forecast for the upcoming four years, including 2022. Under the assumption that the Omaha economy will continue in the same trajectory as in the past, we expect that the information sector will continue its decline of 2% annually with a projected low of 8,900 jobs in 2025. The causes for this decrease can be for several reasons, such as the adoption of cloud technologies which allow for enterprises to run computer infrastructure remotely, allowing those services to be performed in another geographical region. Additionally, Omaha lacks a large enough tech workforce to benefit from the network effect, whereas you get larger groups of individuals in the tech sector they are able to learn and grow from each other and are more likely to spin off new tech companies as is seen so often in California. Without this network effect, there is little incentive for outside funding to support new businesses in this sector. While this is a dire outlook for Omaha's workers and businesses who are heavily involved in the information sector, there is hope that the new data centers opening throughout the Metropolitan area will increase the number of tech workers in the upcoming few years. Otherwise, if this trend holds true then we may find ourselves with a feedback loop, where businesses look to other cities for information and tech workers and the local workers will have to migrate to where the jobs are located.

FINANCIAL ACTIVITIES

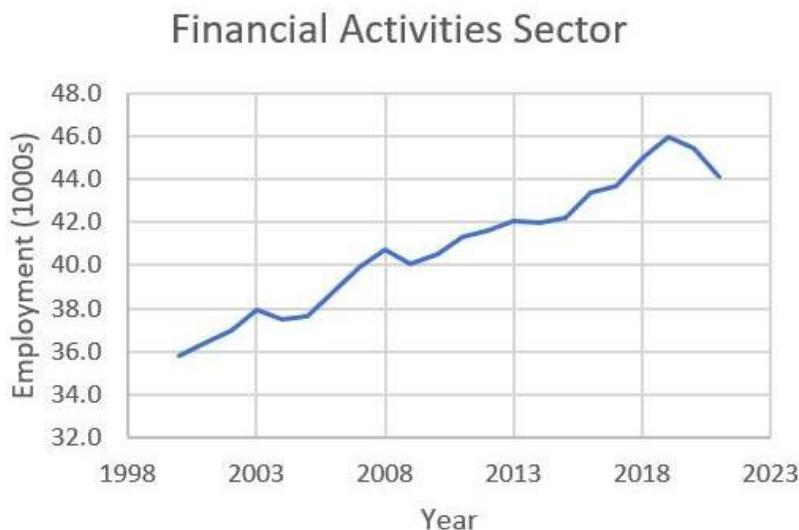
Christina Wagner

Historical Patterns

The financial activities sector includes service industries related to finance, insurance, real estate, and rental leasing. The financial activities sector in Omaha is 70 percent larger than the national average and includes firms such as Blue Cross Blue Shield, PayPal, Mutual, First National Bank, Berkshire Hathaway, Bank of the West, Aetna, and many others.

As shown in the graph below, overall growth has remained steady despite marginal decreases in employment in 2004 to 2005 and a sizeable decrease in 2009 during the Great Recession. Notably, from 2017 to 2019, overall employment in the sector grew by 5.2 percent. In 2020 employment levels decreased by 1 percent, which indicates the financial activities sector fared relatively well throughout the pandemic. This is likely because the occupations in this sector are generally considered essential, and many of the jobs were easy to move to remote working. Furthermore, an increase in lending activity derived from historically low rates and an influx of requests for PPP loans increased the demand for labor within the sector. However, in 2021 overall employment decreased by an additional 3 percent, which nearly took away all of the gains from 2017 to 2019. Considering labor decreased significantly in 2021 compared to 2020, the effects can be attributed to the national labor shortage.

Figure: Financial Activities Employment 2000 to 2021



The Forecast Model

A variety of models were tested including ES Holt, Linear Trend, Autoregressive, and Multivariate. Each model was evaluated using root mean squared errors and mean error tests. Additionally, an ex-ante forecast was generated for each model. The model that best fits the Financial Activities Sector is the autoregressive model of order 1 (Ar 1).

$$y_t = 0.101 + 0.98*y_{t-1}$$

The Outlook

The figure and table below show the forecast through 2025. Since 2015, the growth rate in the sector has been relatively stable. The model predicts employment growth will continue to rise slowly over the next four years, never exceeding 1.0 percent. Additionally, the forecast does not predict a full recovery to pre-pandemic levels. Employment peaked in 2019 at 46,000 jobs, however by 2025 employment will be around 45,710 jobs for the sector.

Figure: Financial Activities Employment

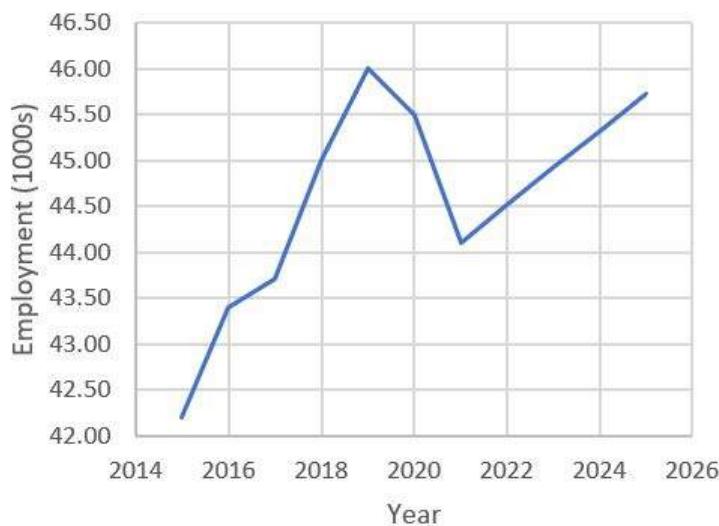


Table: Financial Activities Outlook

Year	Employment (1000s)	Growth
2015	42.20	0.48%
2016	43.40	2.84%
2017	43.70	0.69%
2018	45.00	2.97%
2019	46.00	2.22%
2020	45.50	-1.09%
2021	44.10	-3.08%
2022	44.51	0.93%
2023	44.92	0.91%
2024	45.32	0.89%
2025	45.71	0.87%

The primary driver of the decrease in employment in the financial activities sector is the absence of labor force participation. Additionally, as employees within the sector continue to pursue remote work opportunities, the employment levels for one given geographic location may tend to fluctuate less as the location will not determine the availability of the work opportunity.

EDUCATION AND HEALTH SERVICES

Eric Werther

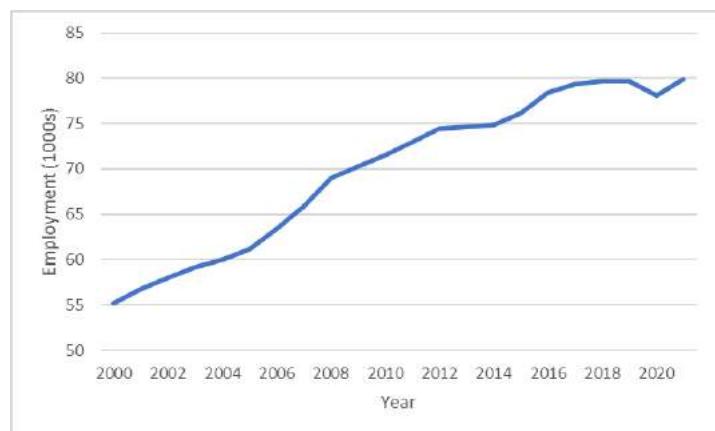
The Education and Health Services sector in Omaha covers several industries, including educational services, health care and social services, ambulatory health care services, hospitals, and nursing and residential care facilities.

Historical Patterns

Figure 1 shows the employment in the Education and Health Services sector in the Omaha metropolitan area from 2000 through 2021. This sector is generally driven by demographics. As the population ages, there is increased demand for medical services. Additionally, increases in school-aged populations necessitate more teachers. The sector there is not subject to business cycles the way others are. As a result, it has maintained slow and stable growth over the years. There have been no notable spikes during this time, and only a small decrease in 2020. On average, between 2000 and 2021, sector employment has grown 1.87 percent annually.

Figure 1

Source: BLS and author's calculations



Forecast Model

Several models were assessed to see which one seemed to produce the most reliable and credible forecast for this sector. Root mean squared errors and mean error tests were performed on each model, and ex-ante (out of sample) forecasts were generated and evaluated. The model selected was an autoregressive model of order 1 (AR 1):

$$y(t) = 1.52 + 0.998*y(t-1).$$

While some models predicted faster growth, given the challenges associated with labor force in both education and health services, the sector is likely going to grow more slowly than historical rates would suggest.

The Outlook

Figure. Employment

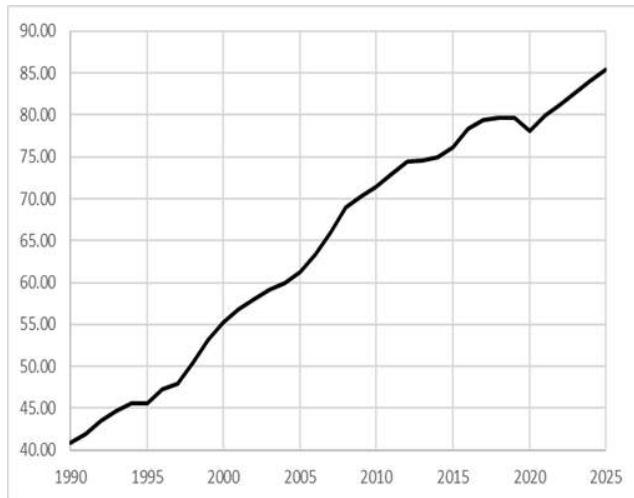


Table. Employment

year	Employment (1000s)	Growth
2015	76.10	1.60
2016	78.40	3.02
2017	79.40	1.28
2018	79.70	0.38
2019	79.70	0.00
2020	78.10	-2.01
2021	79.90	2.30
2022	81.30	1.75
2023	82.69	1.72
2024	84.08	1.68
2025	85.47	1.65

The model predicts that, if Omaha's economy continues to grow, that the Education and Health Services sector will continue to grow by a rate of approximately 1.7 percent per year. This growth is somewhat slower than historic trends would suggest. However, both health services and education have experienced substantial challenges in filling vacant positions. The supply of available labor will likely make it a bit more difficult to hire in the next few years. That said, as the economy continues to recover from the pandemic, the sector can be expected to continue to grow and expand.

LEISURE AND HOSPITALITY

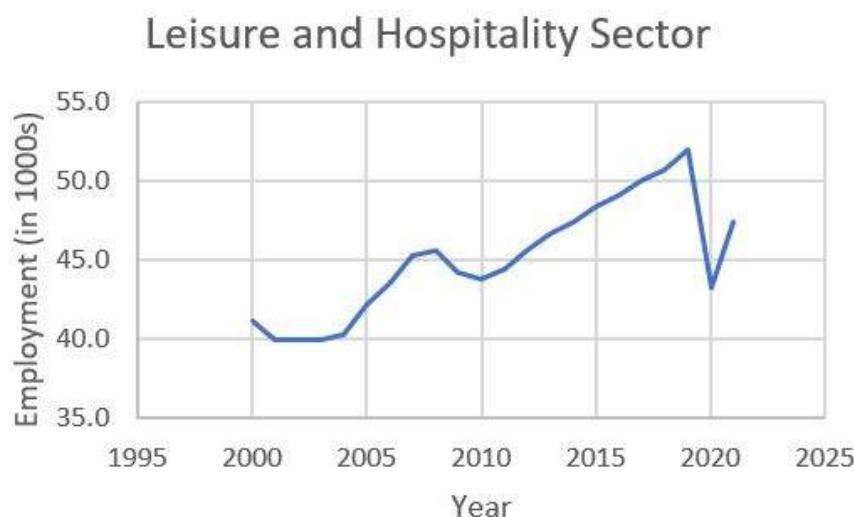
Christina Wagner

Historical Patterns

The Leisure and Hospitality sector includes a wide variety of service industries including restaurants, lodging, recreation, event centers, theme parks, transportation and other tourism related services. Omaha has a high level of restaurants and bars per capita and is home to several major event centers such as Baxter Arena, CHI Health Center, and Ralston Arena. Additionally, Omaha hosts several large events, such as the College World Series and the annual Berkshire Hathaway Shareholders Meeting. Lastly, the Henry Doorly Zoo, which is consistently ranked one of the best zoos in the US attracts 2 million guests each year.

As shown in the graph below, the leisure and hospitality industry is sensitive to recessions. In 2001 employment decreased by 2.67 percent, which is commensurate with the 9-11 terrorist attacks and subsequent reduced travel. Additionally, the United States experienced a short recession from March through November of that year. During the Great Recession, overall employment in the sector decreased by approximately 4 percent from 2008 to 2010. However, it only took two years for employment to fully recover, as observed by the employment levels in 2012. After the Great Recession, the Leisure and Hospitality sector increased rapidly, yielding 14% growth from 2012 to 2019. However, in 2019 the gains were lost and employment returned to 2008 levels, observed as a decrease in employment by 16.73 percent. Fortunately, in 2021 the sector reclaimed some of the lost gains as employment increased by 9.55 percent. This indicates the sector is recovering from the COVID-19 pandemic. While the sector is far from pre-pandemic levels, it is trending upward at a rapid pace.

Figure: Leisure and Hospitality Employment 2000 to 2021



The Forecast Model

A variety of models were tested including ES Holt, Linear Trend, Autoregressive, and Multivariate. Each model was evaluated using root mean squared errors and mean error tests. Additionally, an ex-ante forecast was generated for each model. The model that best fits the Leisure and Hospitality Sector is the Multivariate model.

$$y_t = 6.84 + 1.005*y_{t-1} - 0.03*Trend + 0.0009*GDP_{national}$$

The Outlook

In January and February 2022, Eppley Airfield reported an increase in the number of enplaned and deplaned passengers compared to the same months in 2021. January data noted an increase of 85.4 percent for enplaned passengers and 76.4 percent for deplaned passengers. Similarly, in February the number of enplaned passengers increased by 83.6 percent and deplaned passengers increased by 89.3 percent. Overall, there is a year-to-date net gain of 83.6 percent. These numbers support the high level of predicted growth for 2022.

Given anticipated growth in the Omaha economy, the sector will still observe growth as there are two new venues being constructed in metro: Steel House in downtown Omaha and Astro Theatre in LaVista. Steel House is scheduled to open mid-2023 and Astro Theater is scheduled to open January 2023. The venues will compare in size to Ralston Arena, which can seat 4,200 patrons. Specifically, Steel House will be able to hold 1,500 to 3,000 guests and Astro Theatre will have a maximum capacity of 2,500 people indoors and 5,000 outdoors.

The figure and table above show the forecast through 2025. In 2021, the leisure and hospitality sector began to recover from the losses during the pandemic, as COVID-19 restrictions decreased and major events such as the College World Series and the annual Berkshire Hathaway Shareholders meeting returned to Omaha. Employment will continue to increase at a rapid pace for the next two years and will recover to pre-pandemic levels by the end of 2023. Employment will continue to grow steadily after recovery, reaching just over 55,000 jobs in 2025.

Figure: Leisure and Hospitality Employment

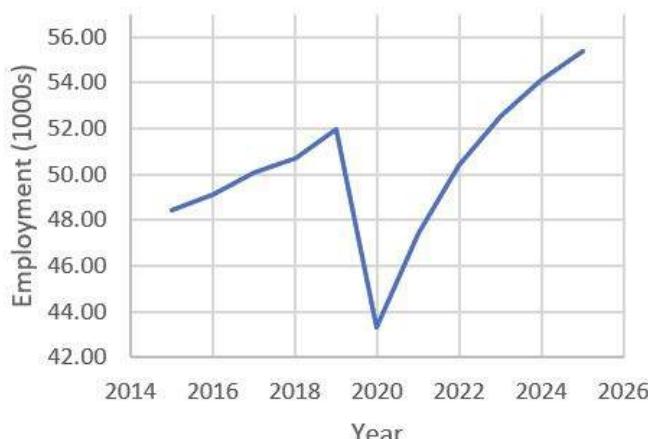


Table: Leisure and Hospitality Outlook

Year	Employment (1000s)	Growth
2015	48.40	2.11%
2016	49.10	1.45%
2017	50.10	2.04%
2018	50.70	1.20%
2019	52.00	2.56%
2020	43.30	-16.73%
2021	47.44	9.55%
2022	50.40	6.25%
2023	52.55	4.26%
2024	54.12	2.99%
2025	55.38	2.32%

PROFESSIONAL SERVICES

Bryant Robertson

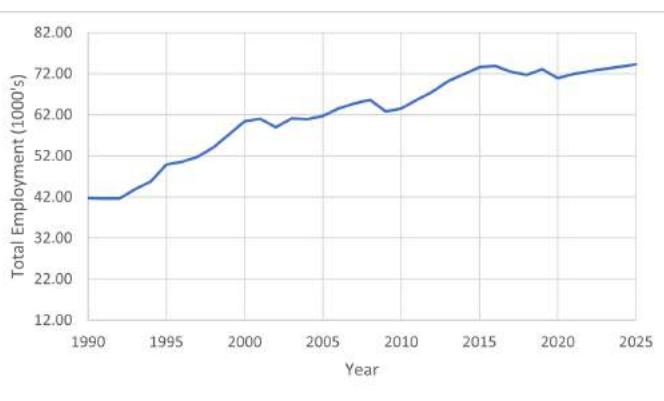
Historical Patterns

The Professional Services sector contains mostly jobs that would be considered “white collar” in nature. This sector consists of lawyers, doctors, financial advisors, engineers, teachers, and architects. When looking at the below figures, we can see that these professions tend to be susceptible to fluctuations in the economy. This sector took large hits in the 2002 “dot com” recession and again in the Great Recession of 2009, with employment growth rates of -3.44 percent and -4.27 percent respectively. These are the two largest drops in employment for professional services over the last 20 years including the recession caused by COVID in 2020.

After 2009 the sector saw solid growth up until 2016 when there was a decrease in total employment that picked up again in 2019. In 2020 we see another large decrease in total employment of about 3 percent due to the closing of the economy for COVID-19. The professional services sector seemed to be hit harder during the great recession, which can probably be attributed to the fact that most of these jobs can be moved to work from home, while sectors that were hit harder during COVID-19 were not. Growth for this sector picked up once again during 2021 hitting 1.44 percent.

The Forecast Model

Figure : Total Employment Forecast
Source: Authors' Calculations



Multiple models were tested to determine which one could produce the most realistic and reasonable projections for the next five years for the “Professional Services” sector. After testing all models used using root mean squared errors and mean error tests, an ex-ante forecast was generated for each model and evaluated to determine which model would produce the most accurate projection. An autoregressive model with a lag of 1 (AR 1) was determined to be the most accurate and reasonable model and is what was used to produce the numbers below along with the equation produced by the model to create our projections.

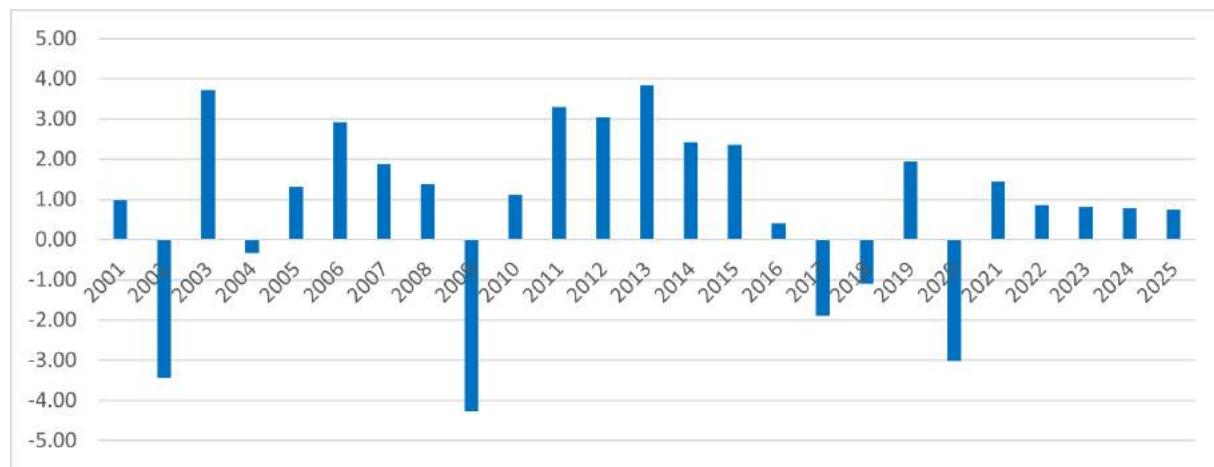
$$\text{Projection Equation: } y(t) = 3.44 + 0.961y(t-1)$$

The Outlook

When looking at the above figures we can see how the model projects the years 2022, 2023, 2024, and 2025. The model predicts that the Professional Services sector in Omaha will see steady growth through all four years. This growth will hover just below 1.00 percent, declining as the years continue. With these growth rates, Omaha should see the sector reach pre-pandemic levels by 2023 and continue to grow afterwards. We may even see a sharper increase in growth once these years are realized as with previous recessions, negative growth rates were met with relatively sharp increases in growth in the year or two following them.

Figure : Employment Growth Rates by Year

Source: Authors' calculations



OTHER SERVICES

Class

Historical Patterns

The “Other Services” sector in Omaha comprises firms in a diverse set of industries which include: Automotive repair and maintenance, computer repair, household repair and maintenance, barber shops/salons, dry cleaning, pet care, and other personal care services as well as business associations and labor union personnel. As shown in the graph below, the sectors are generally insulated from major swings in the business cycle. Indeed, employment in this sector grew 2.35 percent in 2009 and another 2.30 percent in 2010, arguably the most difficult years of the so-called “great recession”.

Since 2010, employment in the sector has averaged 0.67 percent, which indicates a relatively slow-growing sector. As was the case with most service industries across the nation, this sector took a major hit from the COVID-19 shutdown in 2020, dropping nearly 5 percent from its 2019 peak of 18,600. Jobs in the sector bounced back in 2021 as it grew by 3.29 percent. Still, employment in 2021 reached 18,280, still substantially below from its peak of 18,600 in 2019. There is still room to grow depending on how the economy will fare.

Forecast Model

Several models were tested to see which one seemed to produce the most reliable and credible forecast for the “Other Sectors”. Root mean squared errors and mean error tests were performed on each model, and ex-ante (out of sample) forecasts were generated and evaluated. According to this analysis, an autoregressive model of order 1 was selected which implies that other services employment depends on last year’s other services employment value. In the equation as shown below, y_t is the employment level in “other services”:

$$y(t) = 0.274 + 0.995*y(t-1).$$

The Outlook

The above figure table show the forecast. Under the assumption that the Omaha economy will continue to grow steadily, we expect that other services employment will grow just under 1.0 percent per year for the next four years, reaching nearly 19,000 jobs by 2025. While this growth rate is sharper than the previous decades which may be difficult to maintain if labor force growth continues to perform poorly, nevertheless, there is still room to grow before reaching pre-COVID job levels. Moreover, with supply chain challenges and the potential for higher inflation, demand for repair and maintenance services will likely remain strong. Overall, these growth rates imply that this sector will finally recover to its pre-COVID employment levels by 2023 and grow steadily thereafter.

Figure: Other Services

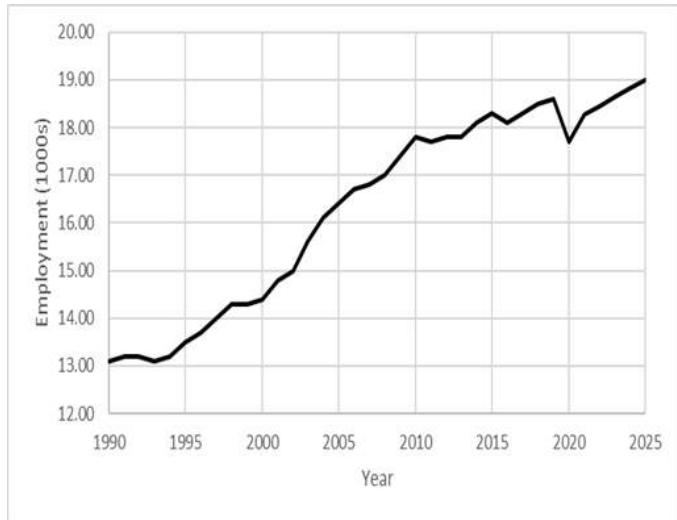


Table: Employment Outlook

Year	Employment (1000s)	Growth
2015	18.30	1.10
2016	18.10	-1.09
2017	18.30	1.10
2018	18.50	1.09
2019	18.60	0.54
2020	17.70	-4.84
2021	18.28	3.29
2022	18.46	0.98
2023	18.64	0.96
2024	18.81	0.95
2025	18.99	0.93

GOVERNMENT

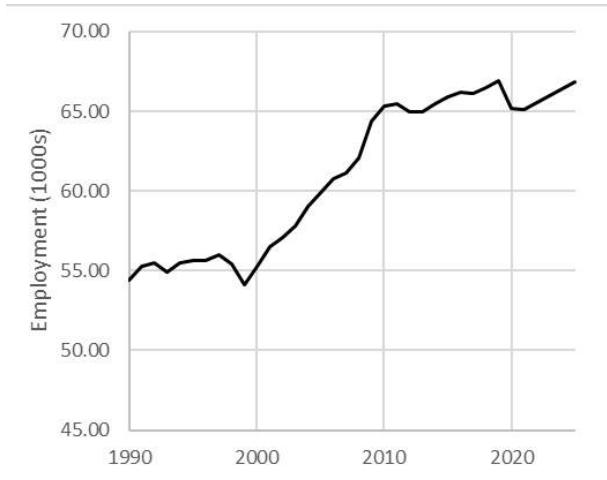
Tyler Billings

In the Omaha metropolitan area, the government sector is the third largest industry by workforce in 2021. The government sector is comprised of all three levels of government: Federal, State, and Local. As shown in the graph below we see that the government sector has been steadily growing over the years with a large increase during the first decade of the millennium. This is likely driven by an increase in military spending during the initial years of the Iraq and Afghanistan wars causing an increase in employment at Offutt Airforce Base, home of U.S. Strategic Command (STRATCOM).

Historical Patterns

For the decade starting in 2010, the sector experienced a slower, but more steady growth with an average of .39% annually. As was the case with most sectors, there was a sharp drop in employment in 2020 due to COVID-19 restrictions, dropping 2.54 percent from its peak in 2019 and continued with another small drop of .14 percent in 2021.

While we did see a drop in the government sector it is not likely due to a decrease in labor demand since government positions are less reliant on the business cycle and are instead dictated by federal and state funding, instead it was likely due to individuals leaving the workforce to care for children or taking an early retirement due to health concerns. It is likely that we will return to previous government employment levels, although not quickly as the hiring process can be longer than the private sector due to federal and state hiring processes and requirements.



The Forecast Model

Four different models were tested to determine which one possessed the greatest predictive ability for the Government sector. The primary tests for the models' accuracy were the root mean squared errors and the mean error to evaluate ex-ante (out-of-sample) forecasts. Additionally, the forecasts for the next four years were evaluated against the overall Omaha and U.S. economic recovery. According to this analysis, an "autoregressive" model of order 1 (AR 1) was selected, implying that future employment in this sector is dependent on the previous year's employment. Below is the forecasting model, where

y_t is the prediction and y_{t-1} is the previous year's employment level.

$$y_t = 0.402 + 1.00 * y_{t-1}$$

Year	Employment (1000s)	Growth
2015	65.90	0.61
2016	66.20	0.46
2017	66.10	-0.15
2018	66.50	0.61
2019	66.90	0.60
2020	65.20	-2.54
2021	65.11	-0.14
2022	65.55	0.67
2023	65.98	0.67
2024	66.42	0.66
2025	66.86	0.66

The Outlook

The above table shows the forecast for the upcoming four years, starting in 2022. Under the assumption that the Omaha economy will continue in the same trajectory as in the past, we expect that the government sector will continue its slow growth of between 0.6 and 0.7 percent annually, surpassing the previous peak of 66,900 in 2019. While this growth seems mild it is likely to maintain this steady growth thanks to the presence of STRATCOM, in fact there is strong potential for accelerated growth as seen in the early 2000s due to recent geopolitical instability which may cause an increase in funding to STRATCOM and Offutt Air Force Base.