4th Quarter 2020

Talent Availability and Job Market Reporting and Analysis for the Greater Omaha Area

Prepared for
The Greater Omaha Chamber

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Executive Summary

This report and accompanying on-line dashboard (https://unlbbr.shinyapps.io/goc_talentavailability/) provide detailed information about the count of unemployment insurance claims, available labor and jobs taken within the 10-county Greater Omaha Area. The Greater Omaha Area includes the 8 Nebraska and Iowa counties in the Omaha MSA plus adjacent Dodge and Otoe county Nebraska. Counts are provided for the 4th Quarter of 2020. Projections also are provided for the 4th Quarter of 2021, along with historical data for the 4th Quarter of 2019. The future number of jobs taken determines the projected change in the count of unemployed (i.e., unemployment insurance claims) between the 4th Quarters of 2020 and the 4th Quarters of 2021. In each county, projections are made for over 900 individual occupations and 21 major industry groups. Aggregate counts of unemployment insurance claimants also are provided for each county by zip code and by demographic groups, including by gender, ethnicity, race, age, and veteran's status.

Counts are provided for each of the 10 counties in the on-line dashboard. However, summary results across all 10 counties are provided in this report. The following findings were identified for 10-county Greater Omaha Area:

- While the rate of job growth has moderated in the Greater Omaha Area, growth remains sufficient to continue to significantly reduce claims for unemployment insurance.
- Employment opportunities will be sufficient over the next year to reduce the count of unemployment insurance claims by 37% in the Greater Omaha Area between the 4th Quarter of 2020 and the 4th Quarter of 2021.
- Key findings by occupation for the Greater Omaha Area:
    - The count of unemployment insurance claims is projected to fall dramatically in some moderate skill occupations. Examples include nursing assistants and personal care aides. Unemployed workers in these occupations may prefer to wait for jobs to return to the occupations, rather than seek retraining.
    - The count of unemployment insurance claims is projected to remain high in many other moderate skill occupations. Examples include childcare workers, retail salespersons, packaging and filling machine operators, and laborers and freight movers (hand). Unemployed workers in these occupations may prefer to seek training to enter an alternative occupation.
    - Projections identify a number of higher skill occupations which will require new trained workers by the 4th Quarter of 2021, including construction managers, accountants and auditors, software developers, wholesale and manufacturing sales representatives, plumbers, welders, maintenance or repair workers and truck drivers
- Key findings by demographic group for the Greater Omaha Area:
    - Initial claims for unemployment insurance will fall much more rapidly for men over the next twelve months, falling by 47% compared to 29% for women.
    - Unemployment insurance claims are projected to fall most rapidly for workers age 45 to 64.
    - Initial claims for unemployment insurance are projected to fall more rapidly for Veterans than non-Veterans.

- The count of unemployed workers is projected to fall at a similar rate for Hispanics and non-Hispanics.
- The count of unemployment insurance claims is expected to decline at a similar rate for Whites, African Americans and American Indians. Nonetheless, the unemployment count will continue to be elevated for African Americans, at four times their share of the Greater Omaha Area workforce.

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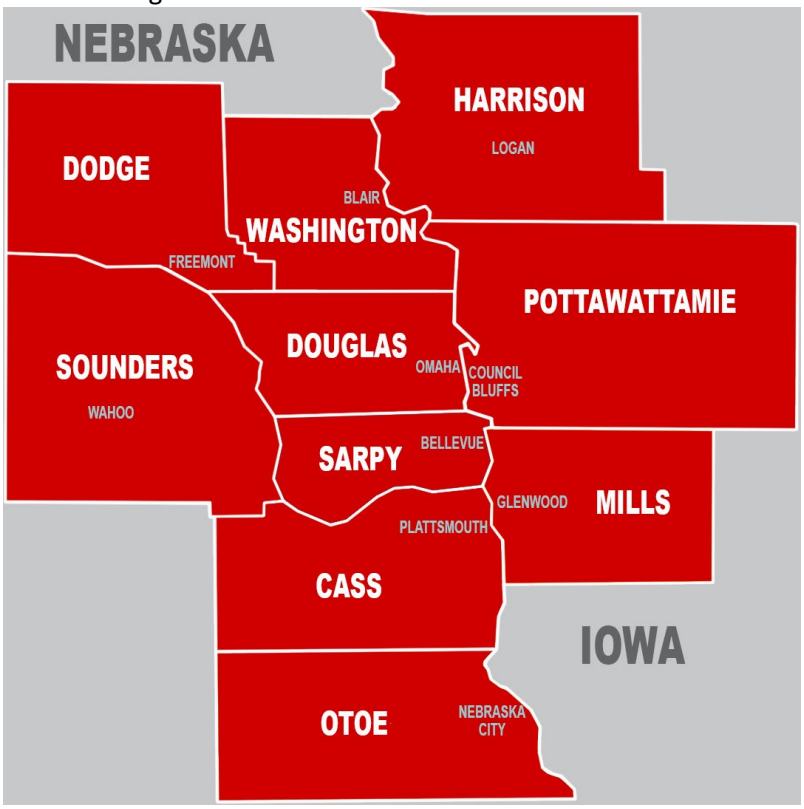
1. Introduction

This report from the UNL Bureau of Business Research provides a written commentary examining Talent Availability and Employment Openings within the Greater Omaha Area. The report is accompanied by an on-line dashboard (https://unlbbr.shinyapps.io/goc_talentavailability/) which provides counts of unemployment insurance claims, available labor and jobs taken by detailed occupation and industry across the Greater Omaha Area. Comparisons between the three measures indicate potential for unemployed workers to find new work. The on-line dashboard also provides summary information for the three measures in each county in the Greater Omaha Area by gender, race, ethnicity, veteran status and age, as well as by zip code. The Greater Omaha area includes the 8 counties of the Omaha MSA and adjacent Dodge and Otoe counties (see Figure 1). Information is provided for the 4th Quarters of 2019, 2020 and 2021.

The count of jobs taken is estimated based on the job openings created when individuals exit the workforce or there is a net increase in employment (net job growth). The count of jobs taken, however, excludes job openings, which are not filled during a quarter. Net job growth refers to the change in employment during a quarter. Net job growth can be measured in aggregate (for example, for all women in the Greater Omaha Area) or in individual occupations and industries. Aggregate exits from the workforce include retirements. Further, from the perspective of individual occupations (or industries), exits also include switching to a new occupation, and changing employers within the same occupation.

Figure 1: Counties of the Greater Omaha Area



Source: UNL Bureau of Business Research | bbr.unl.edu | @NebraskaBBR

The number of jobs taken influences which occupations and industries will see a substantial drop in the count of unemployment insurance claimants between the 4th Quarter of 2020 and the 4th Quarter of 2021. However, the change in available labor also will be a factor. For unemployment to fall, the number of jobs taken will need to exceed the increase in available labor due to migration, new workforce entrants (i.e., young people) or changes in the labor force participation rate. Otherwise, these new entrants will only add to the ranks of the unemployed.

Notably, growth in the available workforce will likely be strong in the Greater Omaha Area in the coming twelve months. Labor force participation has declined recently given challenging economic conditions and factors such as on-line learning. Given the difficulty of finding work, some workers have become "discouraged" during a recession and withdrawn from the labor market. Some parents also have left the labor market to supervise on-line learning by their children, either out of concern with sending their children to school during a Pandemic or due to schools curtailing in-person learning on an everyday basis. An estimated 6,500 workers have left the Omaha area workforce as of the 4th Quarter of 2020 due to a temporary decline in the labor force participation rate. Many of these workers will be re-entering the workforce over the next twelve months, making it more difficult to reduce the count of unemployed in the Greater Omaha Area.

Note also that the count of unemployment insurance claimants is not a complete count of the unemployed. Some unemployed individuals who are actively seeking work may have exhausted their eligibility for unemployment insurance, may choose not to apply for unemployment insurance, or may not qualify for such insurance. As an example of this difference, the unemployment rate in the Omaha Metropolitan Statistical Area (MSA) was approximately 3.0% during the 4th Quarter of 2020 according to the U.S. Bureau of Labor Statistics, but the ratio of unemployment insurance claims to workers in the Greater Omaha Area was 0.024[1] (i.e., 2.4%) during that quarter.[2]

There are also practical policy implications from changes to the count of unemployment insurance claims over time. Workers in occupations where unemployment will fall rapidly may have incentive to maintain their current occupation. However, workers in occupations and industries where unemployment counts will remain high through the 4th quarter of 2021 have more incentive to seek training for a new occupation. Training programs can prepare the unemployed for careers in higher-skill occupations where unemployment will be less common.

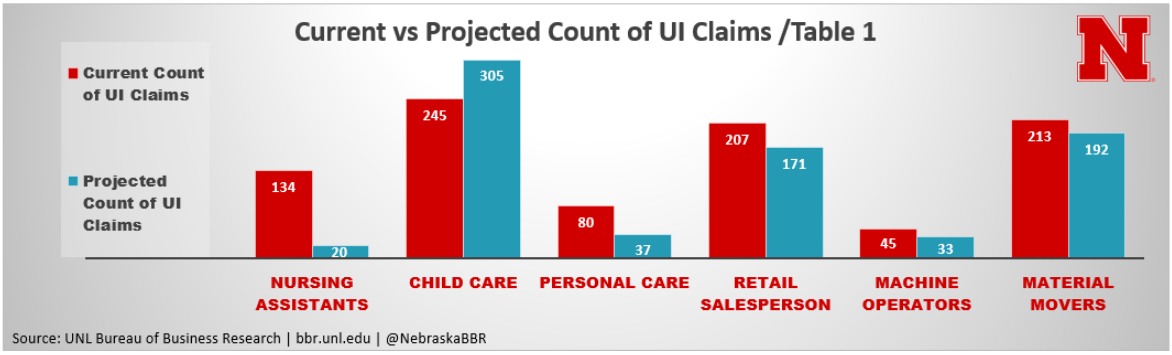
[1] Note that this is not a completely "apples to apples" comparison. The unemployment rate is the ratio of the number of unemployed divided by the number of individuals in the labor market. The number of individuals in the labor market is the number of employment plus the number of unemployed. Further, the Greater Omaha Area includes Dodge and Otoe County, Nebraska as well as the 8 counties of the Omaha MSA.

[2] The gap is even larger when the economy is not in recession. For example, in the 4th Quarter of 2019, the unemployment rate in the Omaha Metropolitan Area was approximately 2.7% but the ratio unemployment insurance claimants to employed workers in the Greater Omaha Area was 0.7%.

2. Findings

The online dashboard (https://unlbbr.shinyapps.io/goc_talentavailability/) provides detailed information about the counts in unemployment insurance claims, available labor, and jobs taken for the 4th Quarters of 2019, 2020 and 2021 in all 10 counties of the Greater Omaha Area. Counts are provided for individual occupations and industries in each county. Aggregate counts (county totals) also are provided for demographic groups including by gender, race, ethnicity, age and veteran's status, as well as by zip code.

Selected results are provided below in Tables 1 through 3 for the 10-county Greater Omaha Area. Table 1 shows the count of unemployment insurance claims and jobs taken in select moderate skill occupations in the Greater Omaha Area during the 4th Quarters of 2020 and 2021. In some occupations, the number of jobs taken is expected to be much larger than the number of entrants to the occupation, and the count of unemployed is expected to fall sharply over the next twelve months. Examples in Table 1 include nursing assistants, and personal care aides. Workers in these occupations may wait for employment to return rather than retraining for work in an alternative occupation.



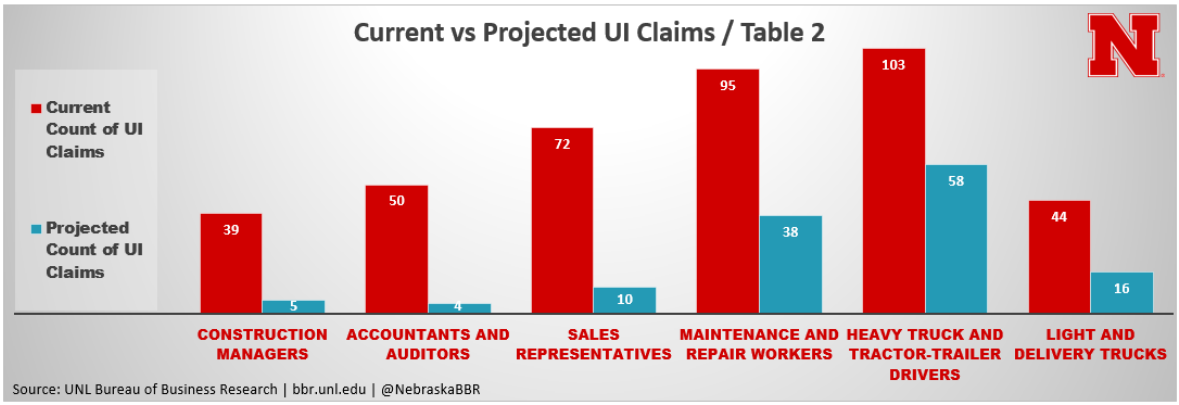
In many other occupations, the count of jobs taken is not (much) larger than the number of entrants, and the projected count of unemployment insurance claims will drop little, or even rise. Examples in Table 1 include child care workers, retail salespersons, packaging and filling machine operators, and laborers and freight movers (hand). Workers in these occupations may be more amenable to retraining for work in alternative occupations. The incentive would be especially strong to retrain for higher-skill, higher pay occupations where jobs are projected to be plentiful when training is complete.

Table 1: Job Openings and Projected Counts of Unemployment Claims for Select Moderate Skill Occupations in the Greater Omaha Area

	Current Quarter (4th Q 2020)			4th Q 2021	
Occupation	Job Count Estimate	Count of UI Claims	Jobs Taken	Projected Count of UI Claims	Jobs Taken
Nursing Assistants	7,148	**134**	360	**20**	266
Child Care Workers	6,188	**245**	533	**305**	252
Personal Care Aides	2,890	**80**	189	**37**	133
Retail Salesperson	15,027	**207**	975	**171**	656
Packaging and Filling Machine Operators and Tenders	2,177	**45**	101	**33**	75
Laborers and Freight, Stock and Material Movers, Hand	7,674	**213**	475	**192**	316

Source: UNL Bureau of Business Research estimates utilized data from NDOL and IWD

Table 2 shows the number of current and projected counts of unemployment insurance claims and jobs taken in select higher skill occupations in the Greater Omaha Area.



For the examples in Table 2, the number of unemployment insurance claims is expected to fall significantly by the 4th Quarter of 2021. Specifically, there are projected to be few construction managers, accountants and auditors, software developers, wholesale and manufacturing sales representatives, plumbers, welders, maintenance or repair workers or truck drivers claiming unemployment insurance by the 4th Quarter of 2021. New workers are training for these occupations in colleges, community colleges and private trade schools. Unemployed workers from moderate skill occupations can join these training programs.

Tables 2: Jobs Taken and Projected Counts of Claims for Unemployment Insurance in Select Higher Skills Occupations in the Greater Omaha Area

	Current Quarter (4th Q 2020)			4th Q 2021	
Occupation	Job Count Estimate	Count of UI Claims	Jobs Taken	Projected Count of UI Claims	Jobs Taken
Construction Managers	1,480	**39**	39	**5**	36
Accountants and Auditors	5,224	**50**	195	**4**	163
Software Developers, Applications	3,206	**30**	119	**1**	98
Sales Representatives, Wholesale and Manufacturing (Except Technical and Scientific Products)	5,454	**72**	248	**10**	180
Plumbers, Pipefitters and Steamfitters	2,473	**37**	91	**8**	87
Maintenance and Repair Workers General	3,926	**95**	118	**38**	121
Welders, Cutters, Solderers, Brazers	1,246	**18**	57	**9**	41
Heavy Truck and Tractor-Trailer Drivers	11,544	**103**	901	**58**	381
Light and Delivery Trucks	2,277	**44**	132	**16**	82

Source: UNL Bureau of Business Research estimates utilized data from NDOL and IWD

The on-line dashboard also projects changes in the count of unemployment insurance claims in zip codes as well as for specific demographic groups within each county. For demographic groups, projections are provided for the count of unemployment insurance claims, jobs taken and available labor by gender, race, ethnic group, age, and veteran's status.

Table 3 provides unemployment insurance counts for the Greater Omaha Area in aggregate in the 4th Quarters of 2020 and 2021, along with the percent change in counts over that twelve-month period. An employment count is also provided for the 4th Quarter of 2020. As seen in Table 3, unemployment insurance claims are expected to decline by 37% between the 4th Quarters of 2020 and the 4th Quarter of 2021 in the Greater Omaha Area, but there are distinct patterns within individual demographic groups.

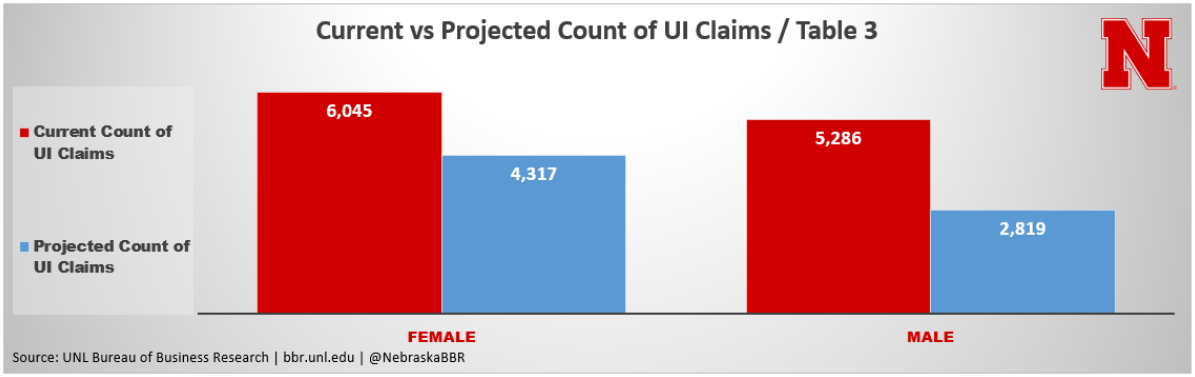
Tables 3: Unemployment Insurance Claims for Greater Omaha Area Demographic Groups

		Unemployment Insurance Claims		
Occupation	Job Count Estimate	4th Quarter 2020	4th Quarter 2021	Percent Change
Total	479,381	11,331	7,136	-37%
Female	229,578	6,045	4,317	-29%
Male	249,803	5,286	2,819	-47%
Hispanic	44,919	1,011	650	-36%
Not Hispanic	434,462	10,320	6,486	-37%
White	426,675	7,365	4,546	-38%
Black or African American	36,005	3,347	2,274	-32%
Asian	14,492	225	65	-71%
American Indian or Alaska Native	1,975	342	212	-38%
Native Hawaiian or Pacific Islander	233	52	38	-27%
Veteran (Nebraska counties only)*	24,271	530	292	-45%
Not a Veteran (Nebraska Counties)*	411,022	10,106	6,455	-36%
Less than 20 Years Old	21,749	194	164	-16%
Age 20 to 24	45,429	909	625	-31%
Age 25 to 34	111,454	2,936	1,946	-34%
Age 35 to 44	102,245	2,771	1,760	-36%
Age 45 to 54	93,284	2,056	1,131	-45%
Age 55 to 59	44,713	985	566	-43%
Age 60 to 64	34,541	749	433	-42%
Age 65 to 74	22,045	619	435	-30%
Age 75 and Over	3,921	111	69	-37%

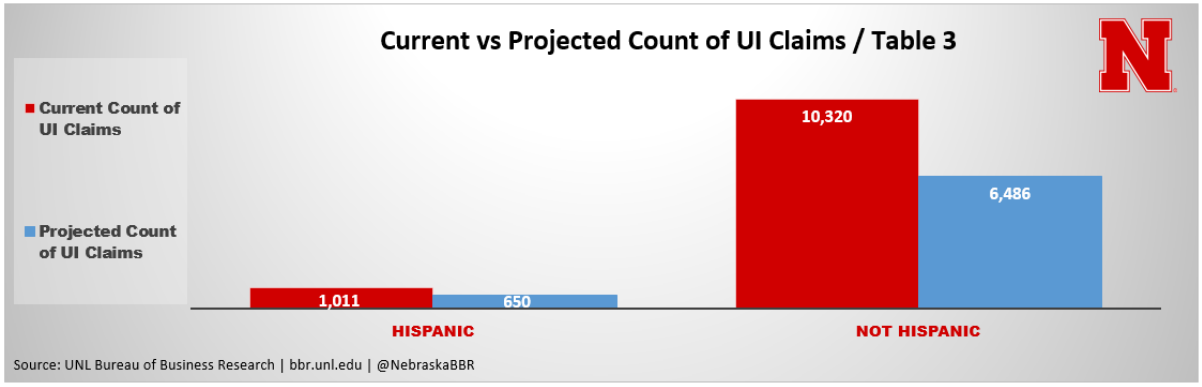
Source: UNL Bureau of Business Research estimates utilizing data from NDOL and IWD

* Note: Veteran's Status is not available for Iowa counties and results reflect data for the 7 Nebraska counties.

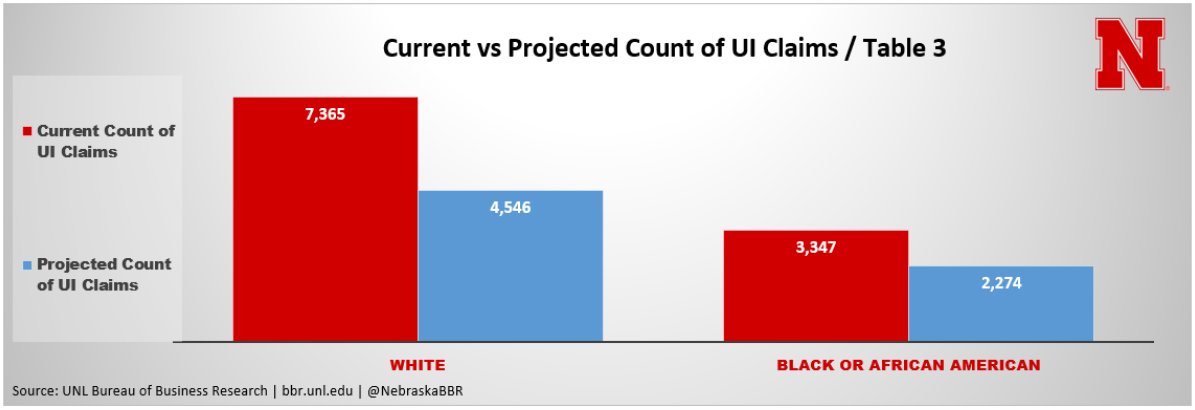
As seen in Table 3, more women than men claimed unemployment insurance in the Greater Omaha Area in the 4th Quarter of 2020. Further, unemployment insurance claims are expected to fall by 29% for women in the Greater Omaha Area between the 4th Quarter of 2020 and the 4th Quarter of 2021. Claims are expected to decline by 47% for men in the region over the same period. There are two reasons for this difference. First, the number of new employment opportunities is expected to be similar for men and women over the next year, implying a smaller percentage decline for women (given that more women are currently unemployed). Second, the rate of labor force participation is expected to rise more quickly for women, as school operations return to normal (or closer to normal) in the fall of 2021.



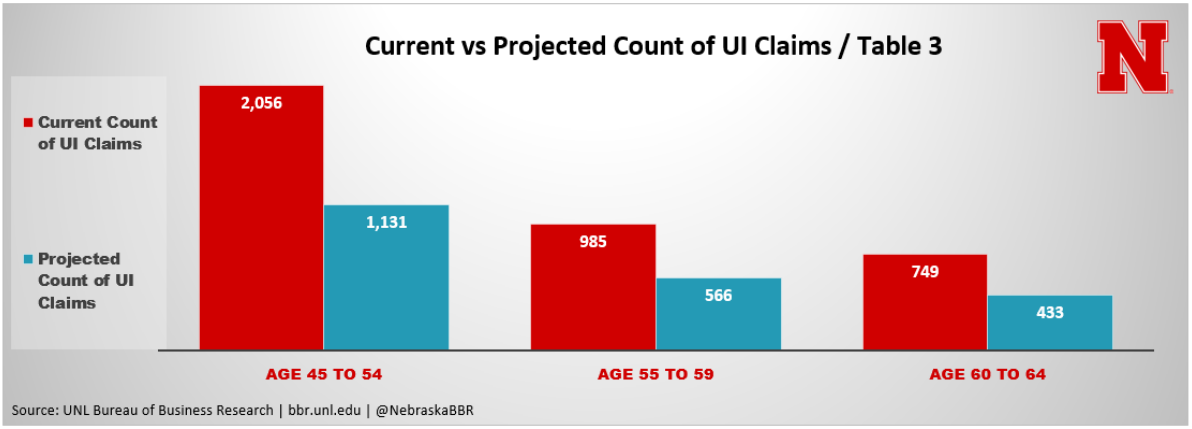
Among other demographic groups, initial claims for unemployment insurance will decline at a similar rate for Hispanics and non-Hispanics. The count of claims is projected to fall by 36% for Hispanics and 37% for non-Hispanics.



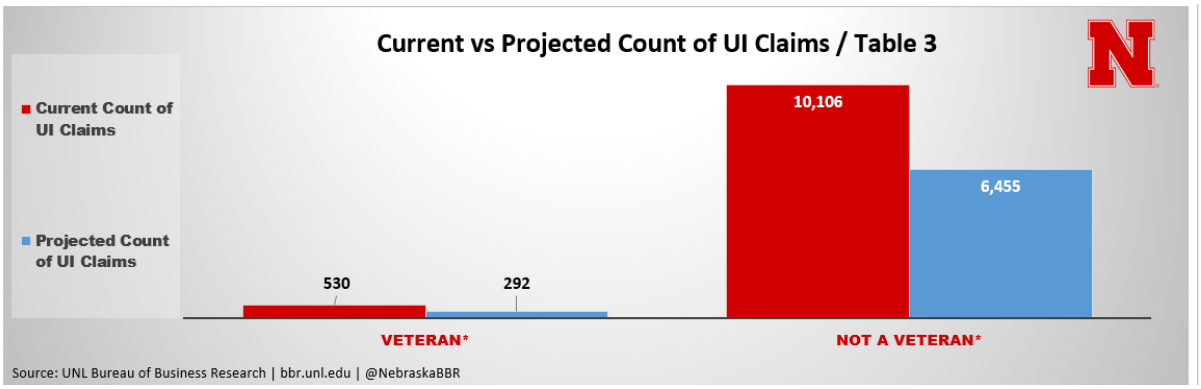
The count of Whites, African Americans, and American Indians claiming unemployment insurance is expected to fall at a similar rate, between 32% and 38%, over the next year. However, the count of unemployed African Americans will remain elevated, at four times their share of the Greater Omaha Area workforce.



In terms of age, unemployment insurance claims are anticipated to fall fastest for workers age 45 to 64.



Initial claims for unemployment insurance are projected to drop more quickly for veterans than for non-veterans. Claims are expected to drop by 45% for veterans and 36% for non-veterans.



Douglas County

Douglas County is the largest and most demographically diverse county in the Greater Omaha Area. In the 4th Quarter of 2020, 71 percent of unemployment insurance claims in the Greater Omaha Area occurred in Douglas County, including 91 percent of claims by African Americans. Unemployment insurance claims are projected to fall at 37 percent in Douglas County, at the same rate as the Greater Omaha Area as whole. Douglas County has a larger share of employment in some industries projected to grow quickly over the next year such as Information but a smaller share of employment in others such as Construction and Nursing and Personal Care facilities (see Appendix Table A.3).

"71% of unemployment insurance claims in the Greater Omaha Area occurred in **Douglas County**, including **91% of claims by African Americans."**

Sarpy County

Sarpy County is the second largest county in the Greater Omaha Area. In the 4th Quarter of 2020, 14 percent of unemployment insurance claims in the Greater Omaha Area occurred in Sarpy County, including 16 percent of claims by Hispanics and 7 percent of claims by African Americans. Unemployment insurance claims are expected to decline (slightly) more slowly in Sarpy County than the full Greater Omaha Area (36% rather than 37%). Sarpy County has a smaller share of employment in industries expected to grow quickly over the next year including Professional and Business Services and Information.

"**14% of unemployment insurance claims** in the Greater Omaha Area occurred in **Sarpy County**, including **16% of claims by Hispanics and 7% of claims by African Americans**."

Pottawattamie County

Pottawattamie County is the third largest county in the Greater Omaha Area. In the 4th Quarter of 2020, 5 percent of unemployment insurance claims in the Greater Omaha Area occurred in Pottawattamie County. Unemployment insurance claims are expected to decline faster in Pottawattamie County than the Greater Omaha Area as a whole (43% rather than 37%). Pottawattamie County has a larger share of employment in industries projected to have solid job growth over the next year including accommodations and construction. The difference also may reflect variation in eligibility for and the counting of unemployment insurance claims in Nebraska and Iowa.

"Unemployment insurance claims are expected to decline faster in Pottawattamie County than the Greater Omaha Area as a whole – **43% rather than 37%."**

Cass, Otoe and Saunders County

Unemployment insurance claims will decline at a more modest pace over the next year in three of the smaller Nebraska counties within the Greater Omaha Area. Between the 4th Quarter of 2020 and the 4th Quarter of 2021, unemployment insurance claims are expected to decline by 18 percent in Cass County, by 24 percent in Otoe County and by 25 percent in Saunders County. These counties have a much smaller share of employment in industries expected to grow rapidly over the next year including the Professional and Business Services and Information industries.

"Between the 4th Quarter of 2020 and 2021, **unemployment insurance claims are expected to decline** by 18 percent **in Cass County**, by 24 percent in **Otoe County and** by 25 percent in **Saunders County."**

Appendix 1: Methodological Approach

A. Summary of the Methodological Approach

This quarterly report and accompanying on-line dashboard provide detailed information about the count of unemployment insurance claims, jobs taken, and labor availability within each county of the Greater Omaha Area. Table 1 lists the 10 counties. Of the 10 Nebraska and Iowa counties that comprise the Greater Omaha Area, eight are within the Omaha MSA: Cass, Douglas, Sarpy, Saunders and Washington County in Nebraska and Harrison, Mills and Pottawattamie County in Iowa. Douglas County contains the City of Omaha while Pottawattamie County includes the City of Council Bluffs. Sarpy County is the second largest county in the Greater Omaha Area and is home to the cities of Bellevue, Papillion and Gretna. The remaining 5 counties in the Omaha MSA have populations of between 15,000 and 35,000. Dodge and Otoe counties are not part of the Omaha MSA but are adjacent to and have significant interactions with the Omaha MSA. Dodge County contains the City of Fremont and is part of the Omaha Consolidated Metropolitan Statistical Area. Nebraska City is located in Otoe County.

Table A1.1: Counties Included in the Greater Omaha Area

County	Status Within Omaha MSA
Cass County, Nebraska	Yes
Dodge County, Nebraska	No (Part of Omaha Consolidated MSA)
Douglas County, Nebraska	Yes
Otoe County, Nebraska	No (Adjacent with Significant Interaction)
Sarpy County, Nebraska	Yes
Saunders County, Nebraska	Yes
Washington County, Nebraska	Yes
Harrison County, Iowa	Yes
Mills County, Iowa	Yes
Pottawattamie County, Iowa	Yes

This report compares current and projected counts of unemployment insurance claims and jobs taken to assess the employment opportunities for residents of the Greater Omaha Area. The report is developed from an economics perspective, and compares available labor and jobs taken within occupations and industries in the Omaha area. Unemployed workers are one component of available labor in an occupation. Equation (1) below shows the other potential sources of available labor in an occupation within a period:

Available Labor = unemployed + labor market entrants + net migration + change in labor force participation + occupation switching + job switching (1)

Unemployed workers are one component of the supply of workers available to fill open jobs.[3] Other components include labor market entrants, or individuals entering the workforce for the first time.

[3] The total supply of labor also includes employed individuals who do not intend to change occupations. These workers, however, are not pertinent to the analysis of filling new job openings within occupations and industries.

Many of these individuals are school leavers who are graduating from (or dropping out of) high school, community college, or college. Some may have worked while in school but may be entering the workforce in a new occupation. Some may take a job in an occupation (or industry) they have trained for while in school, or in a new occupation now that they have time available for full-time employment. The individuals leaving school are therefore new workers from the perspective of the occupation (or industry) they are entering.

Net migration is another source of new labor in the region they are entering. Positive net migration (more in-migrants than out-migrants) will add to the new labor supply while negative net migration will subtract from it. The Greater Omaha Area overall experiences positive net migration.

Change in the labor force participation rate also adds to or subtracts from the new labor. While there is a constant churn of workers into and out of the labor force, a change in the participation rate implies a change in the share of the population who are engaged in the workforce. The participation rate fell throughout the United States with the onset of the Covid-19 Pandemic but should rise in the coming twelve months as the Pandemic wanes and the economy continues to recover. Based on the drop in the Nebraska labor force participation rate,[4] and the decline in the size of Omaha's labor market over the last 12 months (despite a growing population),[5] it is estimated that the regional labor force participation rate fell by 1.3 percent, or the equivalent of 6,500 jobs. Many of these workers will rejoin the workforce in the next 12 months, as elementary and secondary schools resume normal (or close to normal) operations beginning in the fall of 2021, and as "discouraged" workers re-enter the workforce as they perceive that employment opportunities have improved. Given that a significant portion of individuals left the labor force due to parenting responsibilities[6], we anticipate a relatively rapid recovery in labor force participation, with two-thirds of the 6,500 workers returning in the next 12 months.

Occupation switching, or finding a new job in a different occupation, also adds to the supply of workers for the new occupation. The switch does not increase the overall supply of workers in the economy, but does provide an additional worker to that new occupation. From the same perspective, job switching, or changing jobs within the same occupation, also provides a "new" worker.

Of course, occupation and job switching also create vacant positions, which can be taken by another worker. The components of jobs taken are discussed next.

Equation (2) below shows the sources of jobs taken within a period. Note that "jobs taken" relates to job openings, which are filled, but excludes job openings that go unfilled. The distinction is important because some occupations have a large number of job openings, which go unfilled for a long period.

Jobs Taken = net job growth + labor market exits + occupation switching + job switching (2)

Net job growth refers to the change in employment in an occupation during a period. Employment in an occupation can change due to the growth or decline of industries which employ them. For example, an

[4] Federal Reserve Bank of Saint Louis, FRED Database, accessed December 2021.
[5] U.S. Bureau of Labor Statistics, State and Local Unemployment Rates and U.S. Bureau of Census, Population Estimates. Accessed December 2021.
[6] Atkinson, Tyler and Alex Richter, 2020. *Pandemic Disproportionately Affects Women, Minority Labor Force Participation.* Federal Reserve Bank of Dallas (November). Accessed December 2020.

expansion of the health care industry would lead to more job opportunities for nurses. Even if an industry does not grow, employment may increase in occupations which are capturing a larger share of industry employment. For example, the share of employees in computer occupations is growing in most industries. Net job growth in an occupation is the sum of job growth due to industry growth or long-term trends in occupation mix.

Occupation switching and job switching also creates an open position within an occupation (or industry), resulting in another job taken.[7]

Occupation switch and job switching, however, are movements among employed workers, and do not lead to a change in aggregate employment. Equations (1) and (2) therefore should be modified when considering the total available labor and jobs taken for a county or for demographic group totals within a county such as men, women, veterans or non-veterans. In particular, occupation switching and job switching should be dropped leading to Equations (3) and (4) below.

Available Labor = unemployed + labor market entrants + net migration + change in labor force part (3)

Jobs Taken = net job growth + labor market exits (4)

To summarize, Equations (1) and (2) should be used when estimating available labor or jobs taken within a particular occupation or industry, while Equations (3) and (4) should be used when evaluating prospects for unemployment claims for all workers in a county, or for all workers in a county within a demographic group.

B. Detailed Methodology

Counts of unemployment insurance claims, labor availability and jobs taken are gathered for the current quarter or projected for a future quarter by occupation, industry, zip code, and demographic category in all 10 counties in the Greater Omaha Area. These values are estimated utilizing data available from the Nebraska, Iowa and United States Departments of Labor as well as forecasts developed by the UNL Bureau of Business Research. Detailed information about the counts and projections are presented below.

Counts of Unemployment Insurance Claims

Counts of unemployment insurance claims were provided by the departments of labor in Nebraska and Iowa. The Nebraska Department of Labor provided weekly counts of unemployment insurance claims for each county in over 900 detailed occupation categories, 21 major industry groups and at the aggregate county level for demographic categories including gender, race, ethnicity, age and veteran's status. The Nebraska Department of Labor also provided counts of unemployment insurance claims for zip codes. Weekly counts were provided for the months of October and November of 2020 and the first three

[7] If the open position were not taken, then the total employment would fall, which would have been reflected in net job growth.

weeks of December 2020. Weekly data is averaged to produce counts for the 4th Quarter of 2020. Some unemployment insurance claims were not assigned to a specific occupation, industry or demographic category. These unemployed were assigned to a category by the research team. Unassigned individuals were assumed to follow the same pattern as assigned individuals. For example, if 10 percent of unemployed workers who reported veteran's status indicated that they were veterans, then 10 percent of unemployed workers who did not report veteran's status were assumed to be veterans.

Iowa Workforce Development provided monthly counts of unemployed workers for October through December 2020 by county. Further, demographic detail by gender, race, ethnicity, and age were reported in aggregate for the three Iowa counties in the Greater Omaha Area. The Iowa Department of Labor did not provide counts of unemployed by occupation or veteran's status and provided counts for a limited set of industries. Three-county enumerations of the unemployment insurance claims by gender, race, ethnicity and age were allocated to counties based on fixed proportions. For example, if 55 percent of unemployment insurance claims were female at the three-county level, and a particular county had a count of 100 claims, than that county was assigned a count of 55 unemployed females and 45 unemployed males.

Table 5 summarizes the unemployment insurance claims provided by NDOL for Nebraska counties and IWD for Iowa counties. As was noted earlier, Iowa Workforce Development did not provide counts of the unemployed by veteran's status, occupation or (in sufficient detail) industry. Counts for veteran's status and industry are not provided for Harrison, Mills and Pottawattamie County, Iowa as a result. However, counts of unemployed by occupation are estimated. Counts of unemployed by occupation are critical for estimating unemployment counts by gender, race, ethnicity and age. It was therefore necessary to estimate the number of unemployed workers by occupation in Pottawattamie, Harrison, and Mills counties.

Tables A1.2: Detailed Data available for Nebraska and Iowa Counties in the Greater Omaha Area

Unemployment Count Category	Nebraska (weekly)	Iowa (monthly)
Detailed Categories		
Occupations	Provided	Estimated
Industries	Provided	Not Provided
County Summaries – demographic groups		
Gender	Provided	Provided
Race	Provided	Provided
Ethnicity	Provided	Provided
Age	Provided	Provided
Veterans Status	Provided	Not Provided
Education Attainment	Not Yet Provided	Not Provided
Zip Codes	Provided	Provided

Source: Nebraska Department of Labor and Iowa Workforce Development

Estimation was accomplished by using data from "matched" Nebraska counties. The best available match was used, even though perfect matches were not available. Douglas County, Nebraska was the match for Pottawattamie County, Iowa, while Washington County Nebraska was the match for Mills County, Iowa and Cass County, Nebraska was the match for Harrison County, Iowa. Occupation shares from matched counties were used for Iowa counties. For example, if 5 percent of unemployed workers in Douglas Counties were waiters and waitresses, then 5 percent of unemployed workers in Pottawattamie County, Iowa were assigned to that occupation.

Iowa Workforce Development also provided counts of unemployment insurance claims with the same level of demographic detail for the 4th Quarter of 2019. The Nebraska Department of Labor, however, was only able to provide unemployment insurance claims by occupation, industry, zip code and demographic group for counties back to February of 2020. Information from 3 weeks in February 2020 (from the period before the major impacts of the Covid-19 Pandemic on the state economy) was used to estimate claims for the 4th Quarter of 2019. In particular, the relative unemployment rate (taken from the U.S. Bureau of Labor Statistics) in the 4th Quarter of 2019 compared to February 2020 in each county was used to transform unemployment insurance claims counts from February 2020 into estimates of unemployment insurance claims in the last 3 months of 2019.

County of Jobs Taken

Counts of jobs taken by occupation were estimated based on staffing patterns for Nebraska industries available from the Nebraska Department of Labor and forecasts of industry employment growth produced by the UNL Bureau of Business Research. Data on industry staffing patterns is used to allocate total industry employment to employment by occupation. Employment by occupation in each industry can then be summed across industries to estimate the total number of workers in that occupation in each county.

Growth in employment in each industry in each quarter is likewise allocated to occupations to estimate employment growth by occupation, which is one of the key components of jobs taken (see Equation 2). The change in industry employment between September and December of 2020 is the measure of employment growth for the 4th Quarter of 2020. Historic data for the same months in 2019 is used to estimate industry employment change for the 4th Quarter of 2019. Forecast industry employment for September through December of 2021 is used to estimate the change in industry employment for the 4th Quarter of 2021. More detail about employment forecasts is provided at the end of this section.

Historic and forecast industry employment change is used to estimate occupation employment change using staffing patterns data. The staffing patterns data also include information on long-run trends in occupation mix within the industries over the 10 years. This change in mix is a second source of growth (or decline) in employment in occupations during the 4th Quarters of 2019, 2020 and 2021. Specifically, the change in occupation employment due to occupation mix trends is added to the change in occupation employment due to industry growth to estimate the total change in occupation employment in each quarter.

Jobs taken is also a function of workforce exits, occupation switching and job switching (the remaining components of Equation (2). These three components can be measured using occupation exits and

transfers. Specifically, when added together, occupation exits and transfers capture workforce exits, occupation switching and job switching. To make this estimate, occupation exit and transfer rates (from the U.S. Department of Labor) are applied to the total employment in each occupation. The result is an estimate of total exits and transfers from each occupation.[8]

Jobs taken by occupation are also used to estimate jobs taken by demographic groups, that is, by gender, race, ethnicity, veteran's status and age. Specifically, the United States Department of Labor creates profiles of workers in each occupation using data from the monthly *Current Population Survey.* Survey responses are used to estimate the share of workers in each occupation by gender, race, ethnicity and age category as well as the share who are veterans. Data are also available on education attainments shares and minimum education requirements by occupation. These shares are used to allocate employment in each occupation by demographic category. For example, if there are 100 jobs taken by waiters or waitresses in Douglas County in a particular quarter, *Current Population Survey* data could be used to estimate that (for example) 60 of the workers in this occupation are male versus 40 who are female, o that 75 are white while the remaining 25 are divided among other race groups. An exception is made to this approach for African Americans. The share of African Americans in NDOL/IWD counts of unemployment insurance claims is unusually high by historical standards so it is modeled that African Americans will fill a larger than typical share of jobs taken, so that unemployment insurance claims will drop in line with the pattern seen in past recessions. Once jobs taken are allocated to demographic categories in each occupation, jobs taken are then summed across all occupations to estimate the total number of jobs taken in each county for each demographic group. County totals for jobs taken are available for male and female workers, Hispanic and non-Hispanic workers, African American workers and workers in other racial groups, and by veteran's status and age.

Total county jobs taken are also allocated to zip codes based on county population shares in each zip code.

Industry employment counts in future months are forecast by the UNL Bureau of Business Research. Specifically, employment forecasts for the next 12 months are used to project employment by industry in the Greater Omaha Area in the 4th Quarter of 2021. Industry employment in the 4th Quarter of 2021 is then allocated to occupations as described above. Table A1.3 below shows the forecast rate of "annual" employment growth rate for industries between November 2020 and December 2021.

Strong annual employment growth is forecast in many industries reflecting the expectation that there will be a robust economic recovery in 2021 as the Covid-19 Pandemic begins to wane. Food Services, Other Services (personal services, repair services and associations), Information, Professional and Business Services and Construction in particular will experience rapid employment growth. Slow growth is expected in transportation, utilities, social assistance (which has already grown rapidly in recent months), agriculture, manufacturing and public education.

[8] This calculation is made for each occupation within each industry and then summed across all industries. This approach allows for variation in the exit and transfer rate by industry.

Tables A1.3: Forecast Employment Growth Rates by Industry for the Greater Omaha Area

Occupation	"Annual" Job Growth Rate
Agriculture, Forestry and Mining	1.0%
Construction	3.0%
Manufacturing	1.0%
Wholesale Trade	1.7%
Retail Trade	2.4%
Transportation and Warehousing	0.0%
Private Utilities	0.3%
Information	5.7%
Financial Activities	2.2%
Professional and Business Services	3.6%
Private Education	3.0%
Ambulatory Health Care Services	2.5%
Hospitals	2.5%
Nursing and Residential Care Facilities	5.0%
Social Assistance	0.0%
Accommodations	2.5%
Arts, Entertainment and Recreation	2.5%
Food Service and Drinking Places	7.5%
Other Services	7.5%
Government, Except Public Education	3.3%
Public Education	1.0%

Source: UNL Bureau of Business Research projections
Note: The information industry includes businesses which process data or produce and distribute, or provide the means to distribute, information and cultural products.

Count of Available Labor

Counts of available labor reflect the stock of unemployed (i.e., the count of unemployment insurance claims) plus the flow of new workers into the economy from labor market entry (among the existing population), net migrants and the change in the labor force participation rate. As was noted earlier in the report, approximately 4,200 new workers (two-thirds of 6,500) are expected to rejoin the Greater Omaha Area workforce due to an increase in the labor force participation rate between the 4th Quarter of 2020 and the 4th Quarter of 2021. ‘

Data on net migrants to the Greater Omaha Area were gathered from Components of Population Change data from the U.S. Bureau of Census. County migration patterns between July 2018 and July 2019 were assumed to hold in 2020 and 2021. Annual estimates of net migration were divided by 4 to estimate quarterly net migration.

Counts of labor market entrants were based on: 1) high school completion, dropout and college (and community college) attendance and completion rates included in the *Annual Report of the Nebraska Commission on Post-Secondary Education*, and 2) college and community college graduate counts (by

major) which are maintained for area colleges by the United States Department of Education. College and community college graduate counts and estimates of high school graduates, high school dropouts and college non-completers (given Omaha's pre-college population age 15 to 17 and relevant rates from the *Annual Report* cited above) were summed to estimate annual workforce entrants. Annual workforce entrants were divided by 4 to determine quarterly entrants.

College and community college graduates were assigned to occupations based on area of major. High school graduates, high school dropouts and college non-completers are assigned to occupations that do not typically require a college degree based on demand. Net migrants and labor market re-entrants (based on an increased labor force participation rate) are assigned to all occupations based on demand. Specifically, these workers expected to enter occupations with a larger number of job openings in a particular quarter.

Appendix 2: About the Bureau of Business and Principal Investigators

The Bureau of Business Research

The UNL Bureau of Business Research is a leading source for analysis and information on the Nebraska economy. The Bureau conducts both contract and sponsored research on the economy of Nebraska and its communities including: 1) economic and fiscal benefit analysis; 2) models of the structure and comparative advantage of the current economy; 3) economic, fiscal, and demographic outlooks, and 4) assessments of how economic policy affects industry, labor markets, infrastructure, and the standard of living. The Bureau also competes for research funding from federal government agencies and private foundations from around the nation and contributes to the academic mission of the University of Nebraska-Lincoln through scholarly publication and the education of students.

Dr. Eric Thompson – Principal Investigator

Dr. Eric Thompson will be the principal investigator on this project. Dr. Thompson is the Director of the Bureau of Business Research and an Associate Professor of Economics at the University of Nebraska-Lincoln as a monthly leading economic indicator reports and the monthly Survey of Nebraska Business report. He has conducted a variety of economic impact studies for Nebraska industries such as the agriculture, insurance, heritage tourism and horseracing and Nebraska attractions and events such as the Sandhill Cranes migration, the Omaha Zoo, Omaha Performing Arts, the Omaha Symphony, the Lincoln Children's Zoo, and Husker Harvest Days. He also has conducted numerous studies for the Lincoln, Omaha, and State Chambers of Commerce as well as the Nebraska Department of Economic Development and the Nebraska Department of Labor. Dr. Thompson also has conducted numerous studies on the economic benefit and relative costs and benefits of transportation investments. He is currently developing reports on *Under-Investment in Rural Highways* and *Trends in Rural Transportation Finance and the Role of Private Investment* for the U. S. Department of Transportation. Dr. Thompson's research has received support from the National Science Foundation, the U. S. Department of Labor, the U.S. Department of Agriculture, the U.S. Department of Transportation and the Robert Wood Johnson Foundation. In his previous employment, Thompson served as the Director of the Center for Business and Economic Research at the University of Kentucky. Dr. Thompson received his Ph.D. in agricultural economics from the University of Wisconsin-Madison in 1992. His research fields include regional economics, economic forecasting, and state and local economic development. His research has been published in *Regional Science and Urban Economics*, the *Journal of Regional Science*, and the *American Journal of Agricultural Economics*.

Dr. Mitchel Herian – Co-Principal Investigator

Dr. Mitchel Herian serves as Project Director at the Bureau of Business Research. Dr. Herian also serves as a faculty fellow at the University of Nebraska Public Policy Center, and an adjunct professor in the Political Science department at UNL. Dr. Herian has worked extensively with agencies in Nebraska and the region. He has conducted applied research for federal agencies such as the U.S. Air Force, the U.S. Army, the National Aeronautics and Space Administration (NASA. His research has received support from agencies including the Bureau of Justice Assistance, the National Science Foundation and the National Institute of Justice. Dr. Herian's research has been published in a variety of peer-reviewed journals including the *Journal of Public Administration Research and Theory*, *American Review of Public Administration*, *Policy Studies Journal*, *State and Local Government Review*, and *Ecology & Society*.