

# Growth and Change In South Dakota's Labor Market

Long-Term Developments Before the Covid-19 Pandemic and Renewed  
Labor Shortages in the Pandemic Recovery

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# Chapter 1

## Labor Market Imbalances and Economic Growth

### Introduction

Economic prosperity in South Dakota, like other states, is dependent on the supply of inputs used and on the productivity of these inputs as they are organized into the production of goods and services by firms. From 2000 through 2014, even as the nation weathered two economic recessions, South Dakota was among the leading states in the pace of economic growth as measured by the value of final output. During this time, the pace of final output growth in South Dakota substantially outpaced the U.S. and most states in the nation. Between 2000 and 2014, the gross state product in South Dakota increased by 51.2 percent; 1.8 times higher than the 28.8 percent rise in the nation's GDP over the same period (Chapter 2).

Since 2014 the pace of economic growth in South Dakota has slowed considerably compared to the U.S. and about two-thirds of states. GDP in South Dakota increased by 7.0 percent during 2014 to 2019, while national GDP rose by 12.9 percent. The slowdown in the rate of growth in economic activity in the state is, in large part, associated with an increasing inability of businesses to expand their levels of payroll employment. The pace of wage and salary employment growth in South Dakota slowed to just half of that observed in the nation between 2014 and 2019 (Chapter 9). However, this economic and employment slowdown was *NOT* the result of diminished demand for final products produced in the state. Rather, it was a consequence of South Dakota reaching the limits of its productive capacity, primarily in the labor market where labor supply became increasingly hard to find relative to employer requirements for additional workers. Job vacancy rates began to reach about 4 percent level by 2016, eventually exceeding 5 percent in 2018 and ranging between 4.5 and 5.2 percent during 2019, even as new hire rates rose sharply; signaling widespread unmet demand for labor in South Dakota (Chapter 10).

Nationwide, the labor market problem of excess unemployment persisted for quite an extended period after the Great Recession as the national economy failed to rebound quickly from the labor market impacts of the Great Recession. Three years after the end of the recession, the national unemployment rate remained quite high, averaging 7.4 percent during 2013 (Chapter 5). Yet during the same year, the South Dakota unemployment rate was less than half that of the

nation, averaging just 3.7 percent during that year. The decline in the state's unemployment rate was accompanied by a sharp increase in the number of unfilled jobs. Unfilled jobs, in some ways, represent the potential output that firms could have produced but was lost because they failed to fill these vacant positions.

## Labor Market Imbalances

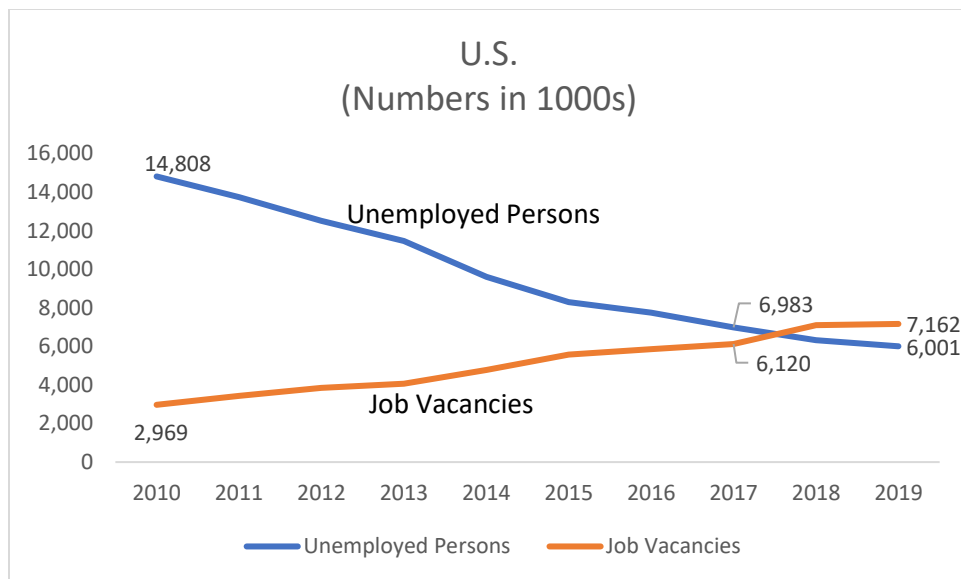
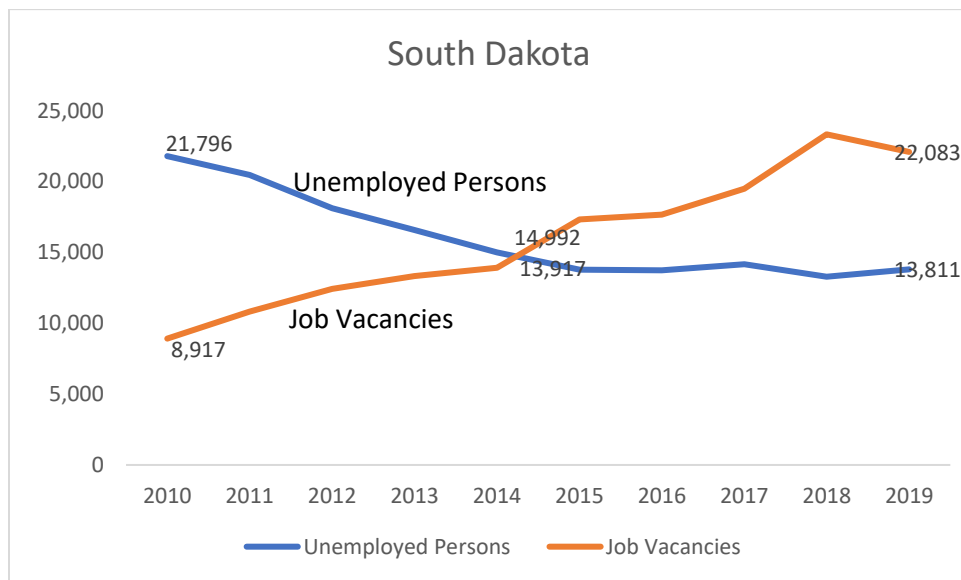
Findings presented in Chart 1 below reveal differences in labor market imbalances that occurred in South Dakota and the U.S. during the recovery from the Great Recession. We compare the relationship between the number of unemployed workers and the number of job openings to assess the degree of imbalance that existed in the South Dakota and U.S. job markets over the recovery period. The findings reveal that in the early stages of the economic recovery, the number of unemployed workers was far greater than the number of vacant jobs in the nation as well as in South Dakota. However, the size of the gap between the number of unemployed workers and the number of vacant jobs was much smaller in South Dakota than the nation.

During 2010, there were 14.8 million unemployed job seekers on average in the U.S. compared to just 2.9 million job openings. This means that the level of demand for labor fell sharply below the level of available labor supply at prevailing wage rates. During the 2010 there were five unemployed job seekers for every one available vacant job. This ratio implies that 80 percent of the unemployment at that time was associated with inadequate demand for labor. This gap resulted in a set of monetary and fiscal policies that were designed to bolster GDP growth and expand the demand for labor with a key objective of reducing unemployment.

The labor market situation in South Dakota was considerably different. A look at the chart for South Dakota reveals that although the state was also experiencing inadequate demand for labor at that time (in 2010), the size of the demand deficiency imbalance in the South Dakota job market was much lower than the U.S. During 2010, on average just under 22,000 South Dakotans were unemployed each month. At the same time, there was an average of 8,900 vacant jobs that employers were ready to fill each month during the year. This means that there were 2.5 unemployed workers per unfilled job vacancy in South Dakota in 2010, indicating that the size of labor demand deficiency in the state was just half of that observed for the nation. The nation's unemployment rate during 2010 was 9.6 percent while South Dakota's was just 5.6 percent. South Dakota had the 3<sup>rd</sup> lowest unemployment rate among all states at that time.

Over the next three years, the gap between unemployed workers and vacant jobs in South Dakota was eliminated. The Beveridge definition of full employment is the approximate equality between the number of unemployed job seekers and the number of vacant jobs. The ratio of unemployed job seekers to vacant jobs (U/V) in the state had fallen to 1.08 in 2014 (107 unemployed workers per 100 vacant jobs) (full employment) and by 2015 the U/V ratio in the state was less than 1 (just 0.8. Thus, sometime in 2014, the South Dakota labor market had

**Chart 1:**  
Trends in the Annual Average Number of Unemployed Persons and Job Vacancies  
in South Dakota and the U.S., 2010 to 2019



reached its full employment level of unemployment rate (an annual average of 3.5 percent). A comparison with the U.S. data reveal that the U.S. labor market was moving much more slowly along the path to full employment with 9.6 million unemployed individuals and just 4.8 million vacant positions by 2014 indicating substantial slack in U.S. labor supply utilization.

From 2014 until the onset of the Covid pandemic, the number of vacant jobs in South Dakota rose quite sharply, while the number of unemployed workers remained essentially unchanged at around 13,000-14,000 in each year. As the recovery swiftly accelerated in South Dakota, the mean monthly number of vacant jobs skyrocketed, from about 13,900 in 2014 to 22,100 by 2019. The result was an increasingly intense and widespread labor shortage in the state. Remarkably, by 2019 there were just 63 unemployed job seekers for every 100 job openings where firms were actively recruiting to make a new hire.

As we will explore below, much of the remaining unemployment in South Dakota was “frictional” in nature. Frictional unemployment is the result of the time required for jobseekers to undertake a solid job search and for employers to engage in effective recruitment and screening. Frictional unemployment, which is associated with job search, is present and part of the overall unemployment rate regardless of overall economic conditions. However, frictional unemployment can account for a substantial share of a state’s overall unemployment when unemployment rates are low. This has been the case in South Dakota since 2013, since the state’s monthly unemployment rate remained in 2.8-3.9 percent range hovering around 3.0 percent from 2015 through 2019.

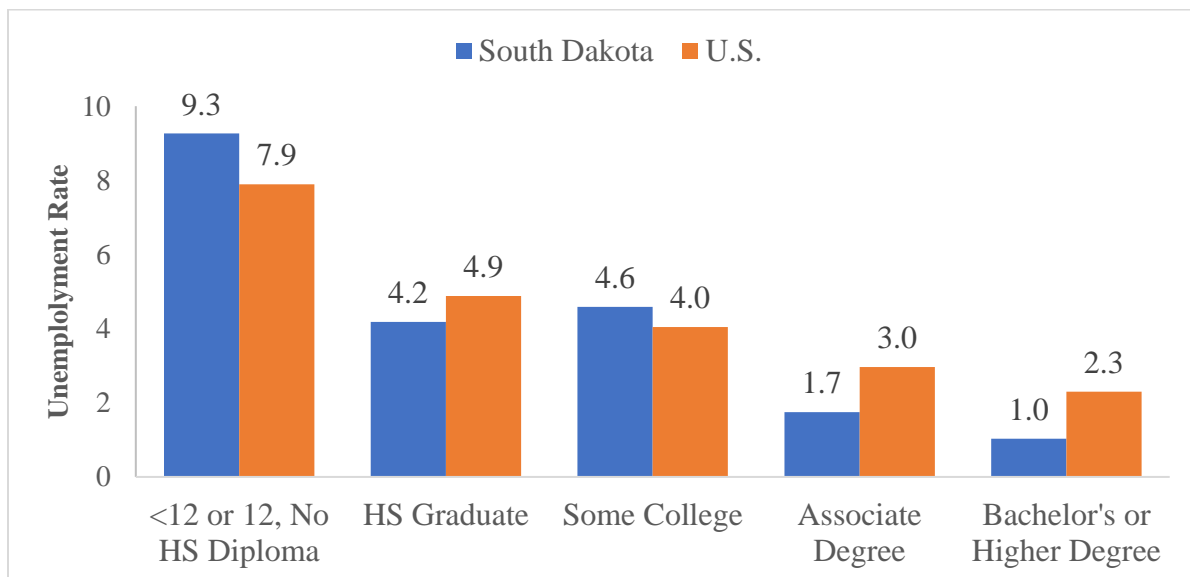
Not all unemployment that remains when a state achieves a full employment unemployment rate is frictional or job search unemployment. Some part of the remaining unemployment is also likely “structural” in nature. Structural unemployment occurs when barriers to employment confront unemployed job seekers. These barriers can include geographic, occupational, and skills mismatches between workers and jobs; but also, other forces that could pose structural barriers to work for unemployed individuals including changes in incentives for jobseekers to find employment quickly.

There is some evidence of structural unemployment in South Dakota during the state’s extended period of full employment. Sharp differences in unemployment rates by the highest level of educational attainment of job seekers are commonly seen as symptoms of structural imbalances in labor markets. Chart 2 provides data on the mean monthly unemployment rate of



labor force participants in South Dakota and the U.S. during 2018-2019. The findings reveal that as the level of educational attainment in the state (and the nation) rises, the likelihood of unemployment declines considerably. High school graduates with no college experience in South Dakota had an average unemployment rate of just 4.2 percent, less than half the 9.3 percent unemployment rate found for high school dropouts. South Dakota residents with college degrees were very unlikely to be unemployed. The unemployment rate of South Dakotans with an associate’s degree was 1.7 percent at that time, while residents with a bachelor’s degree or higher had a remarkably low unemployment rate of just 1.0 percent. These data suggest that educational attainment is an important determinant of the likelihood of unemployment in South Dakota, and low levels of education, especially failure to complete high school, were an important barrier to employment even during the full-employment environment in the years before the Covid pandemic lockdown.<sup>1</sup>

Chart 2:  
Unemployment Rates by Educational Attainment in South Dakota and the U.S.,  
2018-2019 (CPS 2-Year Averages, in Percent)



Related to this are considerable differences in unemployment rates by occupation during the pre-Covid full-employment environment in South Dakota. For example, during 2018-19, the mean unemployment rate among experienced workers in professional and managerial

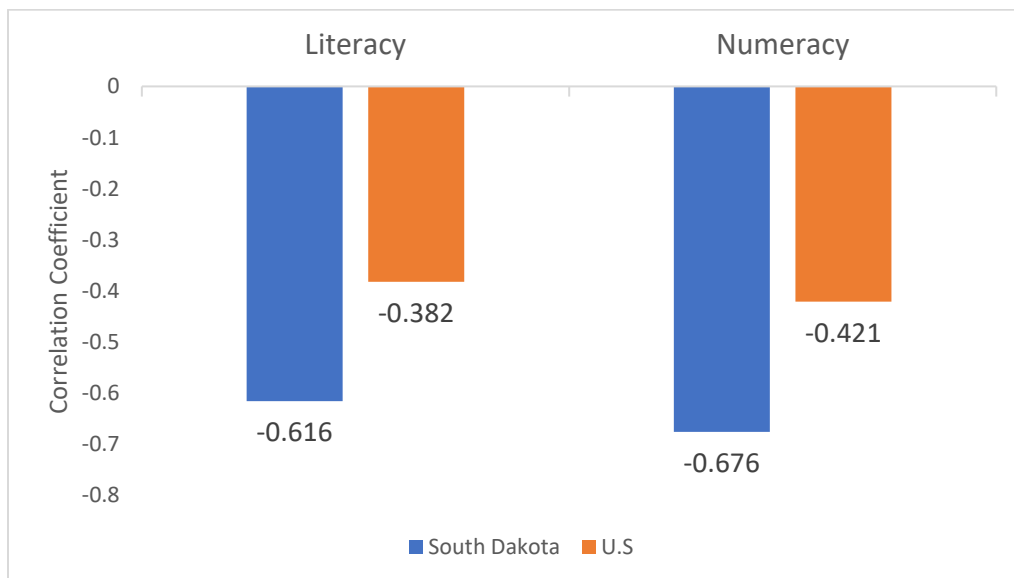
<sup>1</sup> It’s important to note that although high school dropouts in 2018/2019 accounted for a small share of the South Dakota labor force (just under 8 percent), they made up 22 percent of all unemployed persons in the state.

occupations was just 1.4 percent, while experienced workers in the service and low-level sales occupations had an unemployment rate of 6.3 percent. There are sizeable differences in educational requirements between these occupational groups. This suggests that differences in unemployment rates by occupation are related to differences in educational (and related skill) requirements across occupations.

Foundational skills of literacy and numeracy exert considerable influence on the likelihood of employment, unemployment or even participating in the labor market. Poor literacy and numeracy skills are important barriers to employment among job seekers. We analyzed findings derived from the Program for the International Assessment of Adult Competencies (PIAAC) for the U.S. and South Dakota to examine the relationship between literacy and numeracy skills and the labor force status of adults.

Correlations between the incidence of unemployment and literacy and numeracy proficiency scores from the PIAAC study in the U.S. reveal a moderate negative relationship between skills and unemployment at the national level and a stronger negative relationship in South Dakota (Chart 3). National correlations coefficients between literacy and unemployment were -0.382 and for numeracy -0.421, both showing statistically significant negative relationships, but the size of the coefficients suggests only a moderate relationship between foundational skills and unemployment in the U.S.

Chart 3:  
Correlation Coefficients between the Incidence of Unemployment and Literacy and Numeracy Skills in South Dakota and the U.S., 2012-2017



The negative relationship between skills and unemployment was much strong in South Dakota. The correlation coefficient between literacy proficiencies and unemployment in the state was -0.616; 1.6 times that of the nation. Similarly, the correlation coefficient between numeracy proficiencies and unemployment was also 1.6 times the national correlation (-0.676 in SD versus -0.421 in the U.S. (Chart 3). These findings indicate that foundational skills exert a greater influence over unemployment in South Dakota than in the nation. It is important to note that this does not mean that South Dakotans have lower skills than their counterparts in the nation. To the contrary, the mean literacy and numeracy scores of adult residents in the state are higher than the mean scores for the nation as whole. What these finding do mean is that foundational skills deficiencies are a substantially larger barrier to employment in South Dakota than in the nation.

Geographic mismatches also represent barriers to work for the unemployed. Unemployment rates were generally low across South Dakota during the pre-Covid full-employment era but there was some geographic disparity in unemployment rates across the state. During the 2018 to 2019 period, urbanized counties with larger populations tended to have among the lowest unemployment rates in the state. The ten counties with the lowest unemployment rates in the state during those years had an average unemployment rate of 2.5 percent with a very narrow range between 2.3 percent (Lincoln) and 2.6 percent (Douglas, Minnehaha, and Sully). In contrast, the ten counties with the highest unemployment rates were

Table 1:  
Unemployment Rates in the Top 10 and Bottom 10 Counties of South Dakota,  
2018-2019 (2-Year Simple Averages, in percent)

Rank	Ten Counties with the lowest unemployment rates	Unemployment Rate	Ten Counties with the highest unemployment rates	Unemployment Rate
1	Lincoln County	2.3	Bennett County	4.6
2	Hand County	2.4	Corson County	4.6
3	Hughes County	2.4	Walworth County	4.8
4	Jerauld County	2.4	Jackson County	4.9
5	Harding County	2.5	Mellette County	5.0
6	McCook County	2.5	Ziebach County	5.0
7	Tripp County	2.5	Buffalo County	5.9
8	Douglas County	2.6	Todd County	5.9
9	Minnehaha County	2.6	Dewey County	8.0
10	Sully County	2.6	Oglala Lakota County	9.4
	Averages of 10 Counties	2.5	Average of 10 Counties	5.8

smaller rural counties with an average unemployment rate of 5.8 percent; more than twice as high as the 2.5 percent unemployment rate in the ten lowest unemployment rate counties.

The unemployment rate range was wider among counties with the highest unemployment rate, ranging between a low of 4.6 percent (Bennett, Corson) and a high of 9.4 percent (Oglala Lakota). These findings suggest a modest level of geographic mismatch in the South Dakota; but these geographic mismatches are correlated with skills deficiencies. High unemployment counties tend to have populations with sharply below average literacy and numeracy skills, while the population in low unemployment counties have considerably higher foundational skills.

The choice to work is influenced by the opportunity cost of employment. The opportunity cost of work traditionally includes the value of the foregone activities that an individual would undertake during their hours of work (and commuting) as well as out-of-pocket costs associated with employment. Alternative (forgone) activities include educational activities, caring for family members, and volunteer and social activities, to name a few.

Some unemployed persons are eligible to participate in various available benefit programs, primarily in the form of unemployment insurance benefits. These benefits also are part of the opportunity cost of employment. Economists have long recognized the potential disincentive effects of unemployment insurance compensation payments, although there has been considerable dispute about the impact of these benefits on the duration of unemployment and thus on the unemployment rate.<sup>2</sup>

The top-line evidence available for South Dakota provides weak support at best to the view that unemployment insurance benefits served as an important barrier to work among unemployed job seekers. First, it is important to note that most persons classified as unemployed in South Dakota by the Local Area Unemployment Statistics did not receive unemployment insurance benefits during a given month of the 2015 to 2019 period. The state's insured unemployment rate was just 0.5% on average over the five-year full-employment period, just one-third that of the nation.

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<sup>2</sup> During the Covid-19 pandemic, a number of observers have suggested that generous federal benefits resulted in sustained long-term unemployment among a much-expanded eligible population that kept the nation's unemployment rate at an elevated level for many months. We explore the evidence for this hypothesis in South Dakota in more detail in the Covid-19 pandemic discussion later in this chapter.

A large majority of unemployed persons in South Dakota during this period were new entrants or re-entrants into the labor force or had quit their jobs; none of these individuals meet the involuntary job loss criteria that is a central determinant of eligibility for benefits at that time.

Table 2:  
Key Labor Market Indicators from the Unemployment Insurance Compensation System  
in South Dakota and the U.S., Average Values, 2015 through 2019

	South Dakota	U.S.
Mean Unemployment Rate	3.0%	4.5%
Insured Unemployment Rate	0.4%	1.4%
Reciency Rate	13.5%	27.5%
Mean Duration	13.9%	15.4%
Exhaustion Rate	14.6%	36.5%

Source: Employment and Training Administration (ETA), U.S. Department of Labor (DOL), tabulations by authors.

By 2018-19, just one-third of those who were classified as unemployed in the state were job losers including permanent and temporary (seasonal) job losers, the group of unemployed most likely to be eligible for benefits. The state’s mean reciency rate during 2015-2019 was just 13.5 percent. This means that just one in seven unemployed persons received UI benefits during this time.

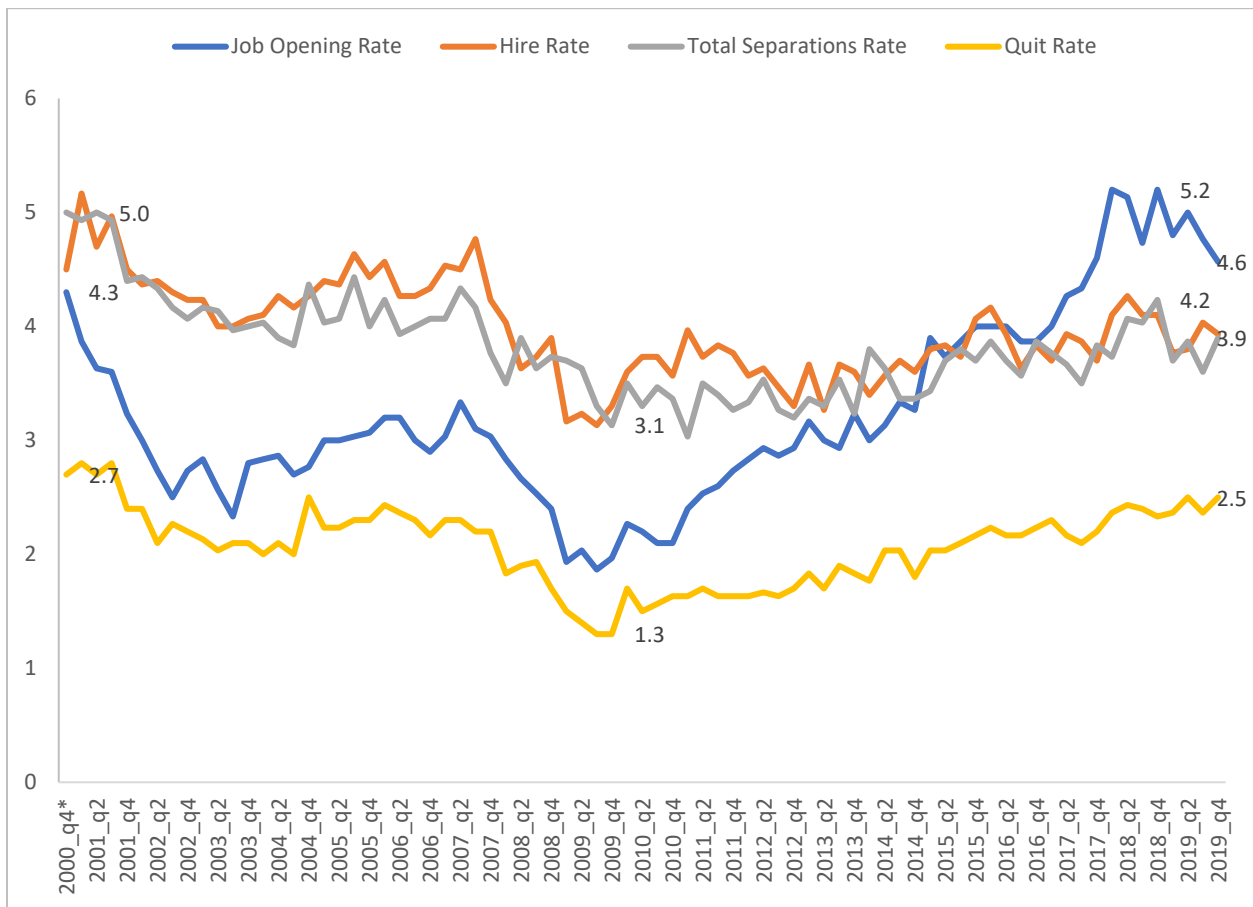
Related to this, the state mean duration of unemployment insurance benefits was modestly below the national average and importantly its exhaustion rate (the share of beneficiaries who collected benefits for every week for which they are eligible) was just 14.6 percent; half the national average exhaustion rate of 36.5 percent. The very low insured unemployment rate in South Dakota (0.5%) was the lowest among all states at that time. A reciency rate of just about one in seven of the insured unemployed, below average duration of benefit receipt, and the lowest exhaustion rate in the nation; all indicate that unemployment insurance benefits had little to do with unemployment in South Dakota during the full-employment era of 2014 to 2019.

Frictional unemployment can worsen over time as the rate of labor turnover accelerates. During periods of strong labor demand, voluntary worker separation from employment increases, while involuntary lay-offs and discharges decline. Quit rates also increase for secular reasons if the job content of the economy shifts towards industries and occupations with less stable

employment including more seasonal work or work characterized by low wages and skills that require little investment into workers by employers.

Data on measures of labor turnover and job openings in South Dakota between 2001 and 2019 are provided in the Chart 4. These data provide little evidence that quit rates or the rate of total separations from employment have changed in South Dakota since 2001. While there is

Chart 4:  
Trends in Job Openings and Labor Turnover in South Dakota,  
2001 to 2019, Quarterly Averages of Monthly Rates



Source: Job Openings and Labor Turnover Survey (JOLTS), U.S. Bureau of Labor Statistics, authors tabulations.

Note: Data for 2000\_q4 refer to December 2000 as the JOLTS program data started from December 2000.

clear evidence for cyclical change in both the separation rate and the quit rate, the chart provides no evidence of any sort of secular change in the nature of employment in South Dakota that increased job instability and job churn. Indeed, 2019, when the job vacancy rate reached historic highs, the separation rate in South Dakota remained well below its earlier highs (of 5 percent in 2001) reaching a post-recession peak of 4.2 percent at the end of 2018. Similarly, we find a 2.5

percent quit rate at the end of 2019, slightly lower than its historic peak of 2.7 percent back in 2001. The pace of labor turnover in South Dakota appears unchanged by any secular forces; thus, these findings suggest that the magnitude of frictional unemployment has not been a cause of the worsening labor shortages that characterize the South Dakota labor market.

Since 2014, unemployment problems in South Dakota have been exclusively structural or frictional in nature as the state entered into a sustained period of full employment of labor resources. Cyclical unemployment had entirely disappeared in South Dakota by 2014 and after that date economy wide labor shortages appeared as the number of vacant jobs exceeded the number of unemployed. There is clear evidence of both structural and frictional unemployment in the state during this full employment era, but a key question is whether this was the product of a rise in the barriers to employment. Did skill, educational attainment, occupational and geographic mismatches worsen during this period? Did the unemployed delay accepting a job as the opportunity cost of employment increased?

### [Beveridge Curve Relationships in South Dakota and the U.S.](#)

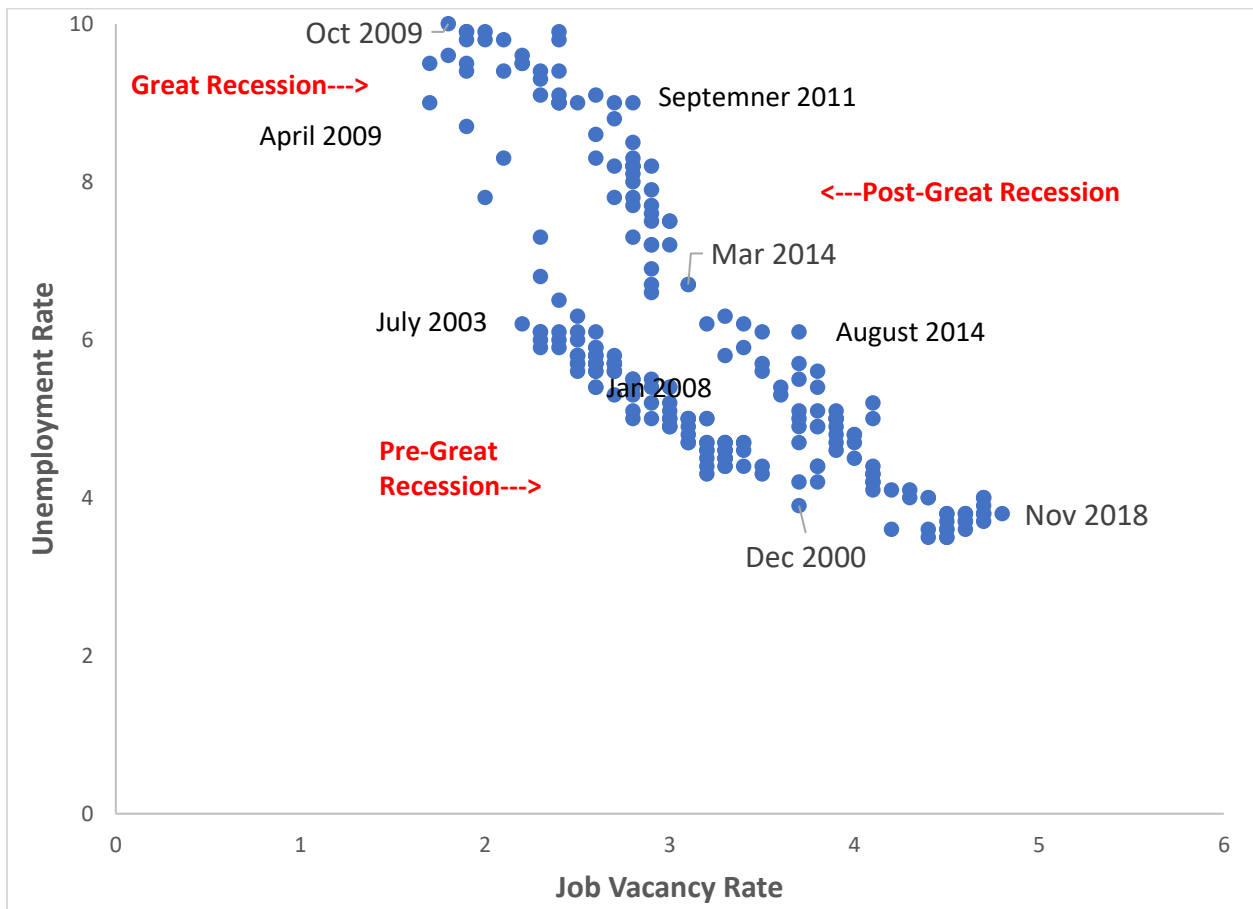
These are important questions since there is considerable evidence that in the U.S. the unemployment rate fell very slowly as the barriers to employment for unemployed individuals became more severe. Even as firms expanded their efforts to recruit and hire workers, the national unemployment rate remained stubbornly high. Chart 5 depicts the relationship between the unemployment rate and the job vacancy rate in the U.S. in each month from December 2000 through February 2020, just before the Covid pandemic lockdowns. The vertical axis of the chart measures the monthly unemployment rate in the U.S and the horizontal axis measures the monthly job vacancy rate.

Chart 5 reveals the expected negative relationship between the unemployment rate and the job vacancy rate indicating that as economic activity slows, and unemployment rate increases while simultaneously the job vacancy rate falls. For example, in December 2000, representing the peak of the 1990s expansion, the unemployment rate was just 3.9 percent, and the vacancy rate was 3.7 percent. But as the dot.com recession gripped the labor market; the unemployment rate rose to 6.3 percent by June 2003 and the vacancy rate declined to 2.2 percent.

The area labeled “Pre-Great Recession” represents the unemployment rate to job vacancy rate (or what is called the Beveridge curve) relationship through early 2008. The onset of the Great Recession marked a dramatic change in the Beveridge curve relationship in the nation that

persisted until the Covid pandemic lockdown in early 2020. The entire Beveridge curve shifted up and to the right. This means that firms had increasing difficulty in filling vacant jobs. The outward shift reveals that for each alternative unemployment rate, the corresponding job vacancy rate was higher in the post-recession period than in the pre-recession period. This suggests that a higher fraction of unemployment in the post-recession period was associated with structural/frictional/incentive barriers to work compared to the pre-recession period.

Chart 5:  
The Outward Shift in Relationship Between Unemployment Rates and Job  
Vacancy Rates in the U.S., December 2000 to February 2020



The Beveridge relationship prior to the Great Recession (labeled pre-Great Recession) is tightly concentrated and includes the period between the end of 2000 through early January/February 2008. After this time as the labor market effects of the economic downturn took hold, we see the upward and outward shift on the second downward sloping scatterplot line labeled Post-Great Recession, that covers most of 2008 until early 2020. The outward shift of the



Beveridge curve indicates a worsening ability of the labor market to match workers and job openings; indicating a considerable increase in the share of unemployment associated with various structural and frictional barriers (including those discussed above).

To illustrate this worsening of barriers to employment we can simply compare the job vacancy rate in two months when the unemployment rate was the same, but where one month lies on pre-recession curve and the other on the post-recession curve. For instance, the unemployment rate in July 2003 (on the pre-recession curve) and August 2014 (on the post-recession curve) was identical at 6.2 percent, but in July 2003 the job vacancy rate was 2.2 percent, whereas in August 2014 the job vacancy rate was 3.7 percent, representing a vacancy rate that was about 1.7 times higher than the vacancy rate in July 2003. Even though the unemployment rate was identical in each of the two months, the higher job vacancy in the post-recession curve meant that the unemployment to vacancy ratio was 2.8:1 in July 2003 and just 1.7:1 in August 2014.

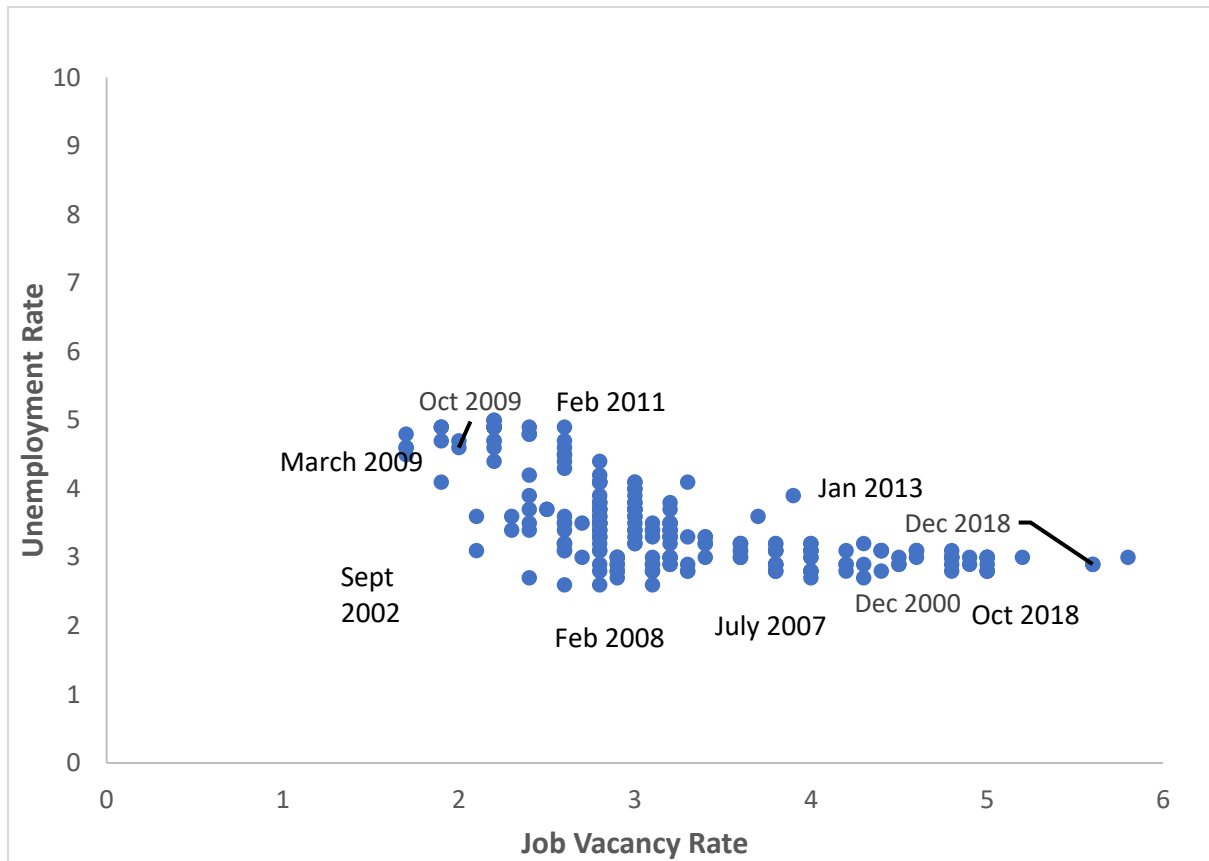
These findings imply that just one-third of all unemployment in July 2003 was the result of some sort of structural or frictional barriers to work, and the remaining two-thirds was the product of poor economic conditions and the resulting inadequate demand for labor. But by 2014, worsening barriers to employment in the U.S. labor market meant that about half of the unemployment at that time was the result of structural/frictional barriers to work and the remaining half due to poor macroeconomic conditions and inadequate demand for labor.

The South Dakota Beveridge curve suggests a much different relationship between the unemployment rate and the job vacancy rate in the state in comparison to the nation. The first and most obvious difference is that unlike the U.S., the Beveridge curve in South Dakota does not shift up and to the right. Instead, the curve has the expected downward slope with no evidence of worsening structural and frictional barriers to employment. A second important difference between the South Dakota Beveridge curve and that of the U.S. is the much narrower range of unemployment rates for the state versus the nation. The monthly unemployment rate over these two decades reached the 5.0 percent level in just 3 months and remained below the 3 percent range for 50 months. In contrast, the U.S. unemployment rate never fell below the 3 percent level and ranged between 3.5 to 4.0 percent level for only 21 months. The U.S. unemployment rate was above 5.0 percent for 149 months over the period, with national

unemployment rates ranging from 9 percent to 10 percent for 30 of those high unemployment months.

The result is that the South Dakota Beveridge curve is quite compact from 2000 through 2013, although the expected rise in unemployment rates and declining vacancy rates during the great recession in 2009 are clear. Beginning in 2013 we see a long rightward moving tail emerge in the South Dakota Beveridge relationship suggesting an unemployment rate floor as job vacancy rates increase. The state's unemployment rate is unable to move below its historic full-employment level of about 3.0 percent even as the job vacancy rate increased well above its historic full-employment level about 3.0 percent into the 5 percent and 6 percent range.

Chart 6:  
The Stable Relationship Between Unemployment Rates and Job Vacancy Rates in South Dakota,  
December 2000 to February 2020



The outward shift of the U.S. Beveridge that is observed from 2009 onward indicates worsening barriers to employment for unemployed job seekers and these barriers are an important source of labor shortages in the U.S. after 2017 as the U/V ratio reached 1:1. The Beveridge curve for South Dakota reveals very different labor market conditions. Barriers to

employment did not become more severe in South Dakota with the onset of the Great Recession. Labor shortages became widespread in 2014 as the U/V ratio approached 1:1 and these labor supply shortages became quite severe over the next five years. In the next section we explore developments in growth and change in the state's working-age population and labor force behavior as a potential source of chronic widespread labor shortages in the state.

## Population and Labor Force Trends in South Dakota

The widespread labor shortages that constrained economic growth in South Dakota in the post-Great Recession period do not seem to be the result of rising barriers to employment either through worsening structural mismatches or an acceleration of labor turnover rates causing a rise in frictional unemployment. Indeed, the South Dakota unemployment rate returned to its pre-recession lows by 2014; something that the U.S. economy has been unable to do. If barriers to employment have not worsened, then the question remains about the source of the large and growing labor market shortages in the state from 2014 to the end of 2019.

The evidence outlined below points to a slowdown in state's labor force growth since 2010 as the primary cause of labor shortages in the state. Employers accelerated their planned pace of hiring in the face of new opportunities for strong growth in output but were unable to expand their payroll employment levels at the pace that they desired; simply put, the pace of growth in the demand for workers outstripped the slower pace of growth in labor supply.

The South Dakota labor market did not become less efficient in matching unemployed job seekers to available jobs as occurred in the nation. Indeed, South Dakota has consistently posted among the lowest unemployment rates among all states during the past two decades. Frictional and structural bottlenecks in the job market were much less severe in South Dakota compared to most other states, as evidenced in our discussion of Beveridge curve relationships in the state and the nation. Labor market imbalances in South Dakota are much more likely the product of insufficient labor supply growth despite large and sustained increases in labor demand from employers who were increasingly willing to expand their payroll employment levels as the recovery from the Great Recession was underway. The result was large, sustained, and growing economy wide labor shortages in the state that served to reduce growth in the level of output, employment, and income in South Dakota.

So, what are the causes of the slowdown in labor force growth in the state? Growth and change in the size of the South Dakota labor force depends on both trends in the size and

composition of the state’s working-age (16 years and older) civilian non-institutional population along with the extent to which different population groups choose to become active participants in the labor market.

The pace of growth in the size of the working-age population in South Dakota has been slightly below that of the nation over the 1999-2000 to 2018-2019 period (Chapter 3). Between 1999-2000 and 2009-10, South Dakota’s resident working-age population increased from 556,000 to 621,000, representing an increase of 65,000 or 11.6 percent over the period. This pace of growth was modestly below that of the nation where the working-age population increased by 12.7 percent. Over the next decade the rate of population growth slowed in both South Dakota and the nation falling to 8.1 percent in the state and 9.1 percent in the U.S. It is useful to note that the pace of in-migration, especially from domestic sources into South Dakota has accelerated in the last year. The result has been that between July 2020 and July 2021 population in the state increased by 0.9 percent, but for the nation rose by just 0.1 percent

Table 3:  
Trends in the Working-Age Population (16+) in South Dakota and the U.S.,  
Selected Years, 1999/2000, 2008/2009, and 2018/2019 (Numbers in 1000s)

Time Period	South Dakota	U.S.	South Dakota Ranking (Highest to Lowest)
1999-2000	556	210,165	
2009-2010	621	236,815	
2018-2019	671	258,483	
<b>Absolute Change</b>			
1999/2000-2009/2010	65	26,650	
2009/2010-2018/2019	51	21,668	
1999/2000-2018/2019	115	48,318	
<b>% Change</b>			
1999/2000-2009/2010	11.6	12.7	25 <sup>th</sup>
2009/2010-2018/2019	8.1	9.1	22 <sup>nd</sup>
1999/2000-2018/2019	19.8	21.8	22 <sup>nd</sup>

Source: U.S. Bureau of the Census, Current Population Survey, public use files, 1999-2000, 2009-2010, and 2018-2019, tabulations by authors.

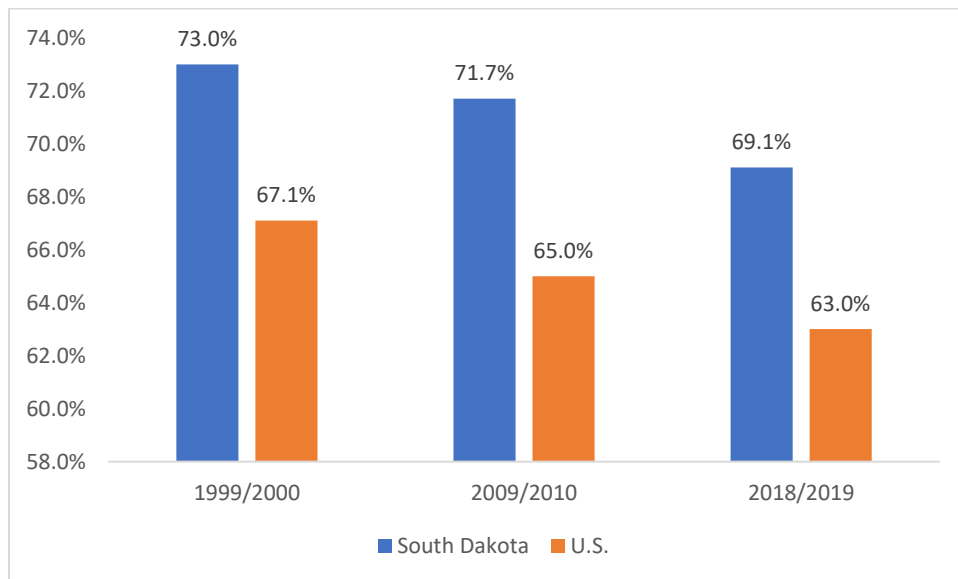
While the South Dakota working-age population has continued to grow, the labor force participation rate (the share of the resident working-age population who are active participants in

the labor market), although high compared to most states in the nation, has declined as the demographic composition of the resident population has changed over the past two decades.

The overall labor force participation rate in South Dakota reached its peak at the end of the 1990s as entire baby-boom population cohort, born between 1945 and 1964, was in the prime-age worker category (25 to 54). Boomers, both by increasing the size of the prime-age population at that time and by the rising labor force participation of married women with children, increased the overall labor force participation rate in both the state and the nation. Yet as the baby-boomers entered their pre-retirement years (aged 55 to 64) in 2000, labor force participation fell modestly in the state over the next ten years to 71.7 percent by 2009-2010. The first of the baby-boomer cohort reached normal retirement age of 65 in 2010 and through 2018-19 the South Dakota labor force participation rate declined another 2 percentage points to 69.1 percent.

Between 2009-10 and 2018-19, while the state’s working-age population increased by 51,000, the 55 and older resident population increased by 43,000 accounting for more than 85 percent of the net change in the size of the working-age population. This aging of the population is accompanied by a lowering of the labor force participation rate due to the lower labor force attachment among older workers compared to prime-age workers.

Chart 7:  
Trends in the Labor Force Participation Rate of the Civilian, Non-Institutional Population in South Dakota, and the U.S., 1999-2000 to 2018-2019



The slowdown in the pace of growth of the working-age population, the aging of the population and the decline in overall labor force participation has meant that the South Dakota labor force has not grown much since the end of the 1990s, especially since the Great Recession. Between 1999-2000 and 2009-10, the South Dakota labor force increased from 406,000 to 446,000, a rise of about 1 percent per year for a net increase over the decade of 40,000 participants. Over the next ten years, the pace of labor force growth fell in half, to an annual increase of about 0.4 percent. Between the 2009-10 to 2018-19 period, the state's labor force increased by fewer than 20,000 participants.

More ominously, it's important to note that the entire net increase in the state's labor force has been among older workers. Indeed, between 2009-10 and 2018-19, the prime-age labor force in South Dakota declined by 4,000, from 278,000 to 274,000. This decline was more than made up for by a rise in the older worker (55+) labor force that increased by about 23,000. By 2018-19, 27 percent of the South Dakota labor force was aged 55 and above, compared to 14 percent in 1999-2000. Older worker participation in the labor force differs from that of prime-age workers in that it is more often associated with part-time and part-year employment resulting in reduced annual hours of work and a decline in the total labor supply. Older workers now compete more intensively for work with teens and young adults in retail trade and leisure and hospitality industries often mixing work with retirement income.

### Permanent Labor Shortages?

Chart 8 provides trends in the annual averages of the number of monthly unemployed workers and monthly job vacancies in South Dakota and the U.S. over the entire 18-year period between 2001 and 2019 period. This chart differs from chart 1 that provided the U/V relationship during 2010 to 2019 period representing the post-recession recovery. Chart 8 includes the 2001 to 2009 period allowing a comparison of the U/V relationship prior to and during the Great Recession (and the subsequent shift in the U.S. Beveridge curve) along with U/V imbalances in the labor market during the recovery period from 2010 through 2019.

The findings for South Dakota suggest that at the end of the 1990s expansion, the state had reached full employment and indeed during 2001 had monthly averages of 14,000 job vacancies and 12,400 unemployed workers suggesting widespread labor shortages at that time. Statewide, the unemployment rate averaged just 3.0 percent at that time. As the U.S. economy entered the 2001 recession, South Dakota saw an increase in the number of unemployed persons

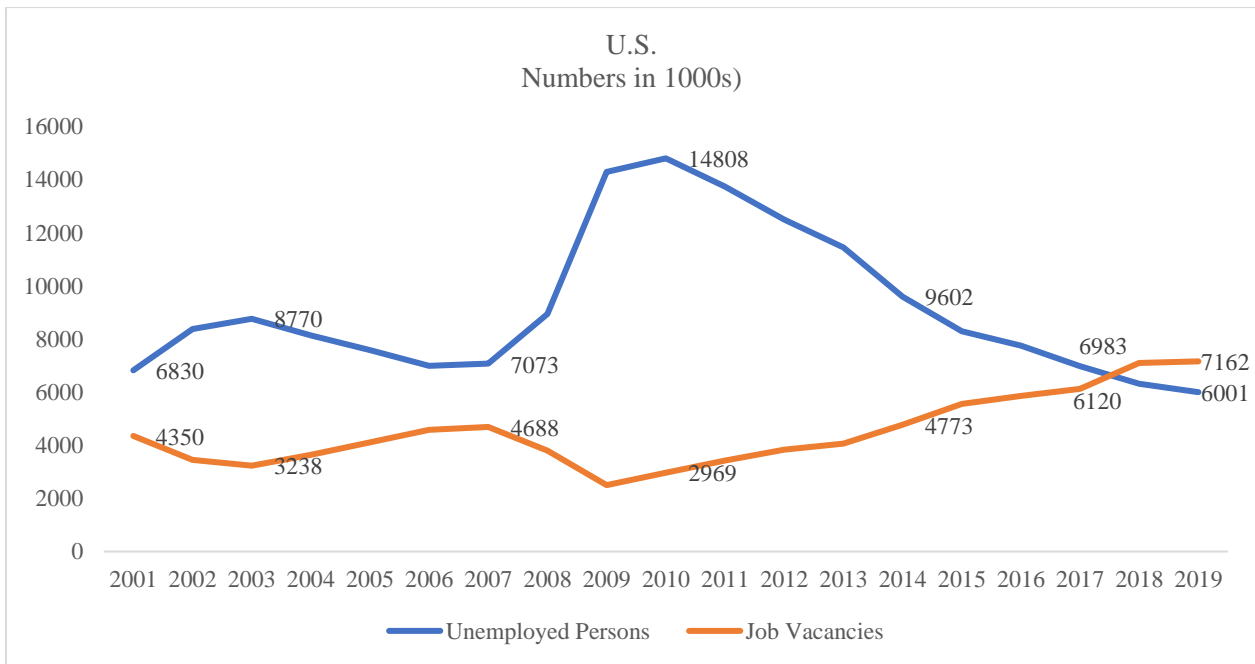
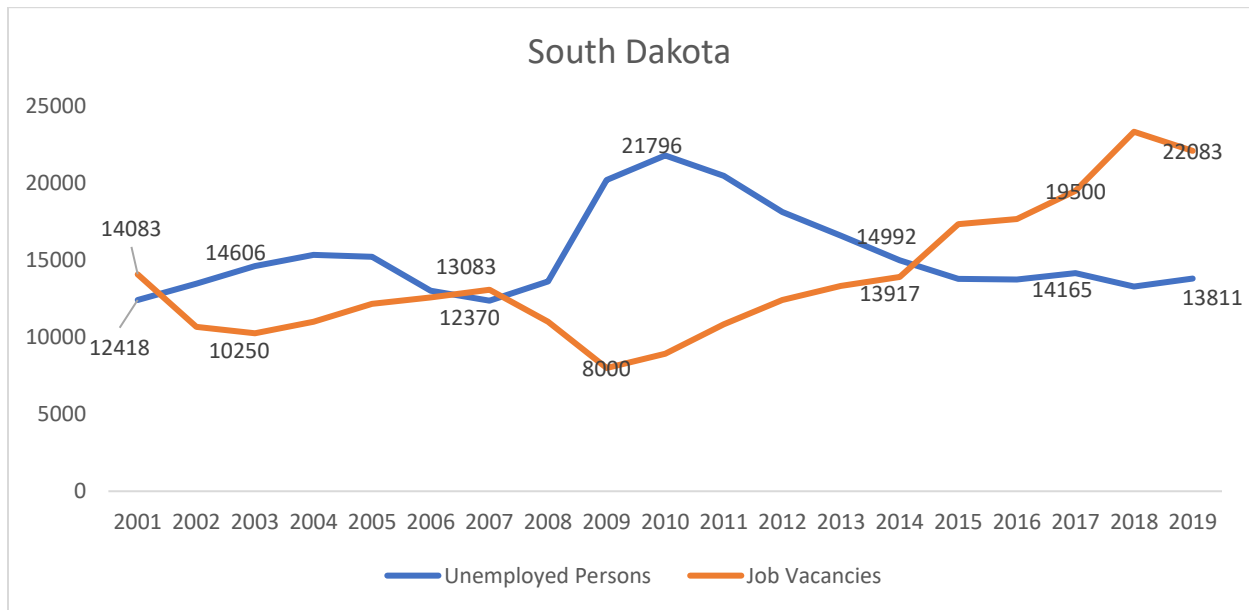
and a decrease in the number of job openings. By 2003, the number of unemployed persons had increased modestly to 14,600 and the mean number of monthly vacancies fell to 10,250, yielding a ratio of 1.4 unemployed workers for each vacant job. By 2007, the South Dakota labor market had returned to a full-employment condition with the number of job openings exceeding the number of unemployed job seekers. However, with the onset of the Great Recession, the spell of widespread labor shortages in South Dakota in 2007 was short-lived as the state entered a period of large and sustained excess unemployment relative to vacant jobs through 2013.

While South Dakota did experience some period of economywide labor shortages, the durations of these shortages were not lengthy. Both national economic recessions, the dot.com downturn and the Great Recession, reduced labor demand relative to available labor supply eliminating labor shortages and, by 2009, causing a modest level of excess unemployment in the state. As we noted earlier in this chapter, South Dakota was able to outpace U.S. economic growth during the 2000 to 2014 period as it avoided much of the job loss and labor underutilization problems experienced by the U.S economy during that time and was able to maintain a modest rate of increase in the size of the state's labor force. The combination of consistently low unemployment and steady, but modest, labor force growth fostered strong economic growth in the state by raising its potential to produce output and more effectively utilizing the available working-age population via both higher rates of labor force attachment and much lower unemployment of available labor supply in the state.

Beginning in 2014 the situation reversed and the pace of economic growth in South Dakota slowed considerably through 2019. Prior to that year, South Dakota had ranked among the top 10 states with the most rapidly growing GDP in the nation dating back to at least 2000. But from 2014 to 2019, the pace of output growth in South Dakota slowed to just two-thirds the rate of national growth; ranking the state just 34<sup>th</sup> in GDP growth in recent years (Chapter 2).

This slowdown in economic growth was the product a slowdown in the growth of labor supply despite rising demand for workers. Limited labor supply in a full/overfull employment environment served as a fundamental constraint on growth in payroll employment and thus on producer output and household income. Large and sustained labor shortage problems that characterized South Dakota were a consequence of the sharp slowdown in the pace of labor force growth. The result is that payroll employment levels could not expand at the pace desired by employers, meaning that potential sales and output could not be realized for want of labor

**Chart 8:**  
Trends in Annual Average Number of Unemployed Individuals and Job Openings  
in South Dakota and the U.S., 2001 to 2019



supply. The authors have prepared projections of labor force growth in South Dakota through 2030 and the forecasts suggest very slow growth in the size of the state’s labor force in the next decade. While the COVID-19 pandemic caused a short but very sharp economic downturn in the nation and to a much lesser extent in South Dakota, the labor market effects of the pandemic



recession were short-lived in South Dakota with labor markets quickly returning to labor shortage conditions.

## Pandemic Recession and Recovery in South Dakota

The COVID-19 outbreak began in February 2020 and resulted in extraordinary consumer caution and in many states widespread government-mandated business closures and household stay-at-home orders that together devastated the U.S. labor market by April 2020 (Chapter 11). In March/April of 2020, payroll employment in the U.S. declined by 22.36 million or 14.7 percent compared to February 2020 when the payroll employment was 152.523 million jobs. The numbers of unemployed increased from 5.717 million in February 2020 to 23.109 million in April 2020, an increase of 17.392 million or 300 percent. The unemployment rate in the U.S. reached 14.8 percent in April 2020, the highest since the Great Depression of the 1930s. New unemployment insurance (UI) claims exploded from about 200,000 per week in the spring of 2019 to 3.2 million per week by the spring of 2020. Weekly regular UI claims paid in the nation increased to a weekly average of nearly 19 million in April and May of 2020, up from 1.6 million a year earlier.

However, the economic effects of the Covid-19 pandemic in South Dakota were much less severe than the nation. Between the 4<sup>th</sup> quarter of 2019 (just prior to the onset of the pandemic) and the 2<sup>nd</sup> quarter of 2020 (when many states issued stay-at-home and business closure orders), total output in the U.S. declined by 10.1 percent. However, in South Dakota output fell by 6.4 percent, less than two-thirds of the rate of output decline in the nation. Only two other states had similarly small declines in output (Idaho and Utah).

These output declines were the product of very large reductions in payroll employment levels with the onset of the Covid-19 pandemic. Payroll employment levels in South Dakota declined by 10 percent or about 44,000 from January/February to April of 2020, while U.S. employment declined by more than 22 million jobs or about 15 percent. Goods-producing industries in South Dakota were largely insulated from the effects of the pandemic with employment falling by just 3 percent in these initial months compared to 12 percent losses on average for the nation.

The impact of the pandemic on South Dakota labor markets has been much more limited than in most other states. South Dakota's payroll employment level had nearly recovered to its pre-pandemic peak of 443,000 jobs by September 2021, when employment levels stood at

438,000, within 1 percent of its pre-pandemic peak. South Dakota ranked 5<sup>th</sup> highest among all states in recovering its pandemic job losses.

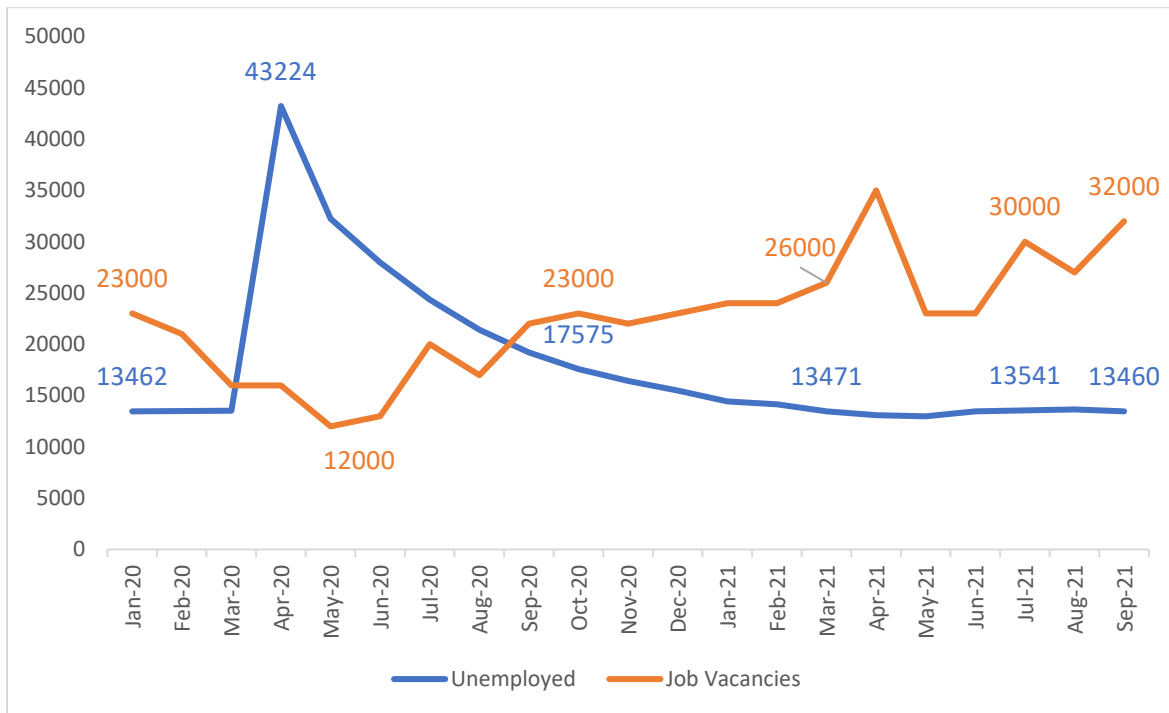
The unemployment rate in South Dakota fell very quickly from its pandemic high in April of 2020. By December 2020, the state's unemployment rate had declined to 3.3 percent (while the national rate was 6.7 percent) and further fell below 3 percent in March of 2021 and has remaining there since. While the size of the labor force in the state did decline modestly through the summer of 2020, it quickly rebounded to pre-pandemic level by the fall of that year. However, since then the size of the state's labor force has remained unchanged. Efforts to expand payroll employment quickly reduced statewide unemployment its full employment level. However, poor labor force growth in the state in the last year has meant the return of very large, widespread, and likely persistent labor shortages in South Dakota.

Findings in Chart 9 reveal that the Covid-19 pandemic resulted in a short-lived respite from the long-term labor shortage problems that characterize a robust, but labor-supply-constrained South Dakota labor market. During the early months of 2020 before the pandemic, the number of job vacancies each month substantially exceeded the number of unemployed job seekers. The size of this worker-deficit was quite large with only 60 unemployed job seekers for every 100 job vacancies. The onset of the pandemic resulted in a sharp rise in unemployment as the number of involuntary separations spiked. The number of unemployed persons rose to over 43,000, while the number of job openings nearly fell in half to 12,000. However, this labor surplus quickly dissipated. By September of 2020, the state's labor market was once again experiencing a substantial shortage of workers.

Over the past year, labor shortages in South Dakota have intensified. By September of 2021, the number of unemployed jobseekers remained at about 13,000, as it had since the spring of 2021 as the state's unemployment dipped below 3 percent reaching full-employment level of unemployment. Undaunted by the lack of workers, South Dakota employers continued to try and expand their payroll employment levels. By September of 2021 the number of job openings increased to a stunning 32,000. Thus, by the early fall of 2021 South Dakota had 2.4 vacant jobs for every unemployed job seeker.

The labor market effects of the Covid-19 pandemic were short lived in South Dakota. Labor shortages re-emerged very rapidly after the historic decline in output and employment and increase in unemployment associated with economic adjustment to the pandemic. This was

Chart 9:  
Trends in the Number of Unemployed Persons and Job Vacancies in South Dakota, January 2020 to September 2021



surely a V shaped recovery in South Dakota. However, this happy outcome also means that the state quickly returned to its long-term labor shortage problem. The chronic labor shortage that inhibits economic growth in South Dakota is the result of slow population, growth, changes in the demographic composition of the labor force, and declining labor force attachment of residents. The state appears to be mired in what we see as a permanent labor shortage condition interrupted by periodic national economic recessions.

### Organization of the Remainder of this Report

The remainder of this paper is composed of 10 chapters that provide detailed analysis in support of the highlights provided in this Chapter. Chapter 2 sets the context of the study by examining economic growth in South Dakota and explores the way that the productive potential of the state is limited by labor supply. Chapter 3 through 8 are broadly focused on labor supply issues including labor force growth, utilization of the labor force, foundational skills and the labor market, and relationships between poverty and labor market behavior in South Dakota. Chapter 3 examines population developments in South Dakota with special attention to migration patterns in and out of the state. This is followed by a discussion in Chapter 4 of trends in labor

market engagement or more formally the labor force participation of the state's working-age population and then connects these trends to population trends to explore growth and change in the size of the South Dakota labor force. Chapters 5 through 8 explore unemployment problems in South Dakota and the nature of barriers to employment in the state including discussions of the connections between poverty and labor market attachment and foundational skills and labor force status.

Chapters 9 and 10 shift our focus to the demand side of the South Dakota labor market with an exploration of trends in employment and changes in the industrial structure of employment over time. This is followed with a discussion of unmet labor demand with new data of state level job openings and labor turnover recently made available by the U.S. Bureau of Labor Statistics.

Chapter 11 explores the pandemic months in South Dakota and highlights the unprecedented deterioration in labor supply demand relationships at the outset of the pandemic, but also the remarkable recovery that ensued and the return to long term labor shortage conditions in the state.

## Chapter 2

# Gross Domestic Product

### Introduction

A state's living standard is ultimately determined by its real GDP performance, that is, its ability to produce output of goods and services and to generate income and employment from the sale of this output. The Gross Domestic Product (GDP) is a core measure of basic productive activity within a state. It measures the total market value of all goods and services produced by the property and labor that is physically located in a state during a calendar year. In other words, GDP is the sum of compensation to employees, property income, indirect business taxes, capital depreciation, and related liabilities.

One important point to note here is that the labor, property, and land inputs are measured by their physical location in the production process not by the residence of the workers or the owners of the capital and land. For example, the output of a South Dakota resident who commutes for work to North Dakota is considered part of the GDP of North Dakota. A North Dakota resident who commutes for work to South Dakota adds to the GDP of South Dakota. This chapter explores developments in GDP and productivity in South Dakota and explores the role of employment and labor productivity in creating prosperity in the state.

The Gross Domestic Product for states is derived from adding together the value of final output originating in all industries (value added) in a region or a state in a calendar year. The concept of "value added" underlies the calculation of GDP. Value-added is derived from the market value of gross output less all intermediate inputs from other industries.

The U.S. Commerce Department's Bureau of Economic Analysis provides time series data on both nominal and real Gross Domestic Product by state.<sup>3</sup> Our analysis is primarily based on the Bureau's latest Gross Domestic Product series for states in constant 2012 prices. For consistency, the U.S. Census Bureau's time series population estimates for each state are used to derive Gross Domestic Product per capita for each year. The U.S. Bureau of Labor Statistics

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<sup>3</sup> To understand concept and methodology underlying estimation of state GDP, see: U.S. Bureau of Economic Analysis (BEA), "Gross Domestic Product by State Estimation Methodology", retrieved from BEA; [https://www.bea.gov/sites/default/files/methodologies/0417\\_GDP\\_by\\_State\\_Methodology.pdf](https://www.bea.gov/sites/default/files/methodologies/0417_GDP_by_State_Methodology.pdf), August 24, 2021.

provides covered employment data for employers in each industry. These wage and salary employment numbers are used in our analyses to derive estimates of GDP per worker.

### Trends in Nominal and Real GDP in South Dakota, 2000-2019

In comparison to other states, the size of the South Dakota economy measured in nominal GDP (unadjusted for inflation) is small. In 2019, the nominal GDP of South Dakota was \$54.941 billion, which ranked 5<sup>th</sup> lowest among the 50 states and D.C. In 2019, South Dakota’s GDP represented 0.26 percent of the total U.S. GDP. Table 1 displays nominal and real GDP in South Dakota and the U.S. for selected years over the 2000-2019 period. South Dakota’s real GDP share of the U.S. GDP has increased from 0.22 percent in 2000 to 0.25 percent in 2019 (Table 1).

Table 1:  
Trends in Total Nominal and Real GDP of South Dakota and the U.S.,  
Selected Years, 2000-2019 (Nominal GDP in Millions of Dollars,  
Real GDP in Millions of Constant 2012 Dollars)

Year	Nominal GDP (Millions of Dollars)			Real GDP (Millions of Constant 2012 Dollars)		
	South Dakota	U.S.	SD Share of U.S. GDP	South Dakota	U.S.	SD Share of U.S. GDP
2000	\$22,669	\$10,252,347	0.221	\$29,399	\$13,130,987	0.224
2007	34,816	14,451,860	0.241	38,204	15,626,029	0.244
2010	37,709	14,992,052	0.252	40,367	15,598,753	0.259
2014	46,370	17,527,258	0.265	44,450	16,912,038	0.263
2019	54,941	21,433,226	0.256	47,560	19,091,662	0.249

Source: U.S. Department of Commerce, Bureau of Economic Analysis, tabulations by authors.

The pace of growth in South Dakota’s real GDP was somewhat mixed between 2000 and 2019 as business cycle conditions varied considerably during this period (Table 2). Between 2000 and 2007, South Dakota’s real GDP increased by 29.9 percent (annualized growth rate of 3.8 percent), a very rapid rate of growth that ranked 6<sup>th</sup> highest among the 50 states. South Dakota’s real GDP growth rate during 2000-2007 exceeded that of the U.S. by 11-percentage points (29.9 percent versus 19 percent).

South Dakota weathered the effect of the Great Recession of 2007-2009 well compared to many states in the nation. South Dakota’s real GDP increased by 5.7 percent during 2007-2010 period when 28 states across the U.S. experienced decline in the value of real GDP over this period. South Dakota was among the 17 states that experienced real GDP growth rate of 1 percent or higher between 2007 and 2010. Indeed, South Dakota’s 5.7 percent growth rate

between 2007-2010 ranked 5<sup>th</sup> highest (among the 50 states and D.C.) in GDP performance during this period of severe economic decline.

During the 2010-2014 early recovery period from the national recession, South Dakota’s real GDP increased by 10.1 percent, which was about 2-percentage points higher than that of the U.S. (8.4 percent). South Dakota’s real GDP growth rate between 2010-2014 ranked 9<sup>th</sup> highest among the states. The U.S. economy exhibited a stellar performance between 2014 and 2019 with rising GDP, employment, wages, and lower unemployment. The real GDP performance of South Dakota between 2014 and 2019, however, fell behind the U.S. and a majority of states as the economic recovery spread to other states over this period. South Dakota’s real GDP increased by just 7.0 percent between 2014 and 2019; a rate of growth that was just under half of the U.S. growth rate of 12.9 percent over that period. South Dakota’s rank for real GDP growth was 34<sup>th</sup> among the states (Table 2). This slowdown in growth in the second half of the decade occurred as the state reached its full employment level of output.

Table 2:  
Growth Rate of Real GP in South Dakota and the U.S.,  
Selected Time Periods, 2000-2019 (Numbers in Percent)

Time Period	South Dakota	U.S.	South Dakota’s Ranking
2000-2007	29.9	19.0	6 <sup>th</sup> Highest
2007-2010	5.7	-0.2	5 <sup>th</sup> Highest
2010-2014	10.1	8.4	9 <sup>th</sup> Highest
2014-2019	7.0	12.9	34 <sup>th</sup> Highest

Source: U.S. Department of Commerce, Bureau of Economic Analysis, tabulations by authors.

### Industrial Composition of Real GDP in South Dakota, 2019

The U.S. Bureau of Economic Analysis (BEA) also produces GDP data for 61 private sector industries and three government sectors (federal, military, and state/local). GDP data are also available for 22 aggregate industry groups. Table 3 displays the 2019 industrial composition of real GDP in South Dakota and the U.S. by aggregate industry groups. South Dakota’s private sector GDP in 2019 equaled \$42.464 billion, accounting for 89.3 percent of the state’s total GDP, a private sector GDP share that was slightly higher than that of the U.S. (88.0 percent). The financial sector of South Dakota had the largest share of state’s GDP. In 2019, more than 13 percent of state’s GDP share was attributable to the finance and insurance sector. In comparison, the share of the finance and insurance sector of U.S. GDP was only 6.3 percent. The presence of

large banks such as Citi Bank, Wells Fargo & Co., and TCF Bank in South Dakota have a strong positive influence on state's GDP. In 2015, South Dakota held 18 percent of U.S. Bank assets.<sup>4</sup>

Table 3:  
Industrial Composition of Real GDP in South Dakota and the U.S., 2019  
(Real GDP in Millions of Constant 2012 Dollars)

Sector	Real GDP (Millions)		Real GDP Share		
	South Dakota	U.S.	South Dakota	U.S.	Difference
All industry total	\$47,560	\$19,091,662	100.0	100.0	--
Private industries	42,464	16,804,174	89.3	88.0	+1.3
Agriculture, forestry, fishing, and hunting	5,002	243,607	10.5	1.3	+9.2
Mining, quarrying, and oil and gas extraction	146	504,316	0.3	2.6	-2.3
Utilities	791	285,691	1.7	1.5	+0.2
Construction	1,614	664,606	3.4	3.5	-0.1
Manufacturing	4,525	2,215,345	9.5	11.6	-2.1
Wholesale trade	3,157	1,092,481	6.6	5.7	+0.9
Retail trade	3,475	1,118,250	7.3	5.9	+1.4
Transportation and warehousing	1,033	575,873	2.2	3.0	-0.8
Information	1,571	1,243,960	3.3	6.5	-3.2
Finance and insurance	6,488	1,211,840	13.6	6.3	+7.3
Real estate and rental and leasing	4,034	2,429,416	8.5	12.7	-4.2
Professional and business services	3,102	2,518,927	6.5	13.2	-6.7
Educational services	296	224,757	0.6	1.2	-0.6
Health care and social assistance	4,756	1,436,140	10.0	7.5	+2.5
Arts, entertainment, and recreation	283	202,159	0.6	1.1	-0.5
Accommodation and food services	1,391	526,451	2.9	2.8	+0.2
Other services (except govt./govt. enterprises)	948	374,031	2.0	2.0	0.0
Government & government enterprises	5,090	2,229,543	10.7	11.7	-1.0

Source: U.S. Department of Commerce, Bureau of Economic Analysis, tabulations by authors.

The second largest share of South Dakota's GDP originated from government and government enterprises. In 2019, 10.7 percent of South Dakota's GDP was attributable to all levels of government. The government sector share of the U.S. GDP in 2019 was 11.7 percent.

<sup>4</sup> See: Cory Allen Heidelberger, "South Dakota Holds 18% of US Bank Assets; Finance Is Biggest SD Industry, Not Agriculture", South Dakota Free Press, Published 06/07/2015, retrieved on 08/25/2021, <https://dakotafreepress.com/2015/06/07/south-dakota-holds-18-of-us-bank-assets-finance-is-biggest-sd-industry-not-agriculture/>



South Dakota's agricultural sector had the third largest share of the state's GDP in 2019 accounting for 10.5 percent of state's total output. In contrast, the agriculture sector's share of in the U.S. was only 1.3 percent of GDP (Table 3). ***The 10.4 percent share of the agricultural sector of South Dakota's GDP ranked first among the 50 states and the District of Columbia.*** The other four states with the highest share of the agricultural sector GDP were Nebraska (8.1 percent), Idaho (7.9 percent), Iowa (7.7 percent), and North Dakota (7.5 percent). Given the substantial size of the agricultural sector in South Dakota's economy, any fluctuations in agricultural prices are likely to have a sizeable influence on the GDP of South Dakota.

Healthcare and social assistance, manufacturing, real estate and rental and leasing, retail trade, wholesale trade, and professional and business services each accounted for 6.5 to 10 percent of South Dakota's GDP in 2019. The remaining sectors of construction, information, accommodation and food services, transportation and warehousing, other services, utilities, educational services, arts entertainment, and recreation, and mining, quarrying, and oil and gas extraction, each accounted for 0.3 to 3.4 percent of South Dakota's GDP in 2019 (Table 3).

As mentioned in the previous section, between 2014 and 2019, the growth rate of South Dakota's GDP fell below the GDP growth rate of the nation and ranked only 34<sup>th</sup> highest among 50 states and D.C. Between 2014 and 2019, the finance/insurance sector output (GDP) with the second largest share of South Dakota's GDP, *declined* by 3 percent in the state, whereas in the U.S., this sector *grew* by 5.3 percent in this sector (Table 4). The third largest sector in South Dakota, agriculture, experienced a growth rate of 8 percent between 2014 and 2019 in the state; however, this growth rate was only a little over one-half of the U.S. growth rate in this sector (15 percent).

Real GDP in the government sector in South Dakota increased by 10.3 percent between 2014 and 2019, more the twice the growth rate of this sector in the U.S over the same period (4.2 percent). In comparison to the U.S., manufacturing and utilities were the only other two sectors where real GDP growth rate between 2014 and 2019 in South Dakota outpaced the respective sectors in the U.S. (Table 4). The real GDP in the other large sector of the South Dakota economy, health care and social assistance, increased by 18.1 percent between 2014-2019, higher than the growth of this sector for the U.S. (16 percent). Real GDP in mining, wholesale trade, finance and insurance, and education service sectors in South Dakota declined over the 2014-2019 period.

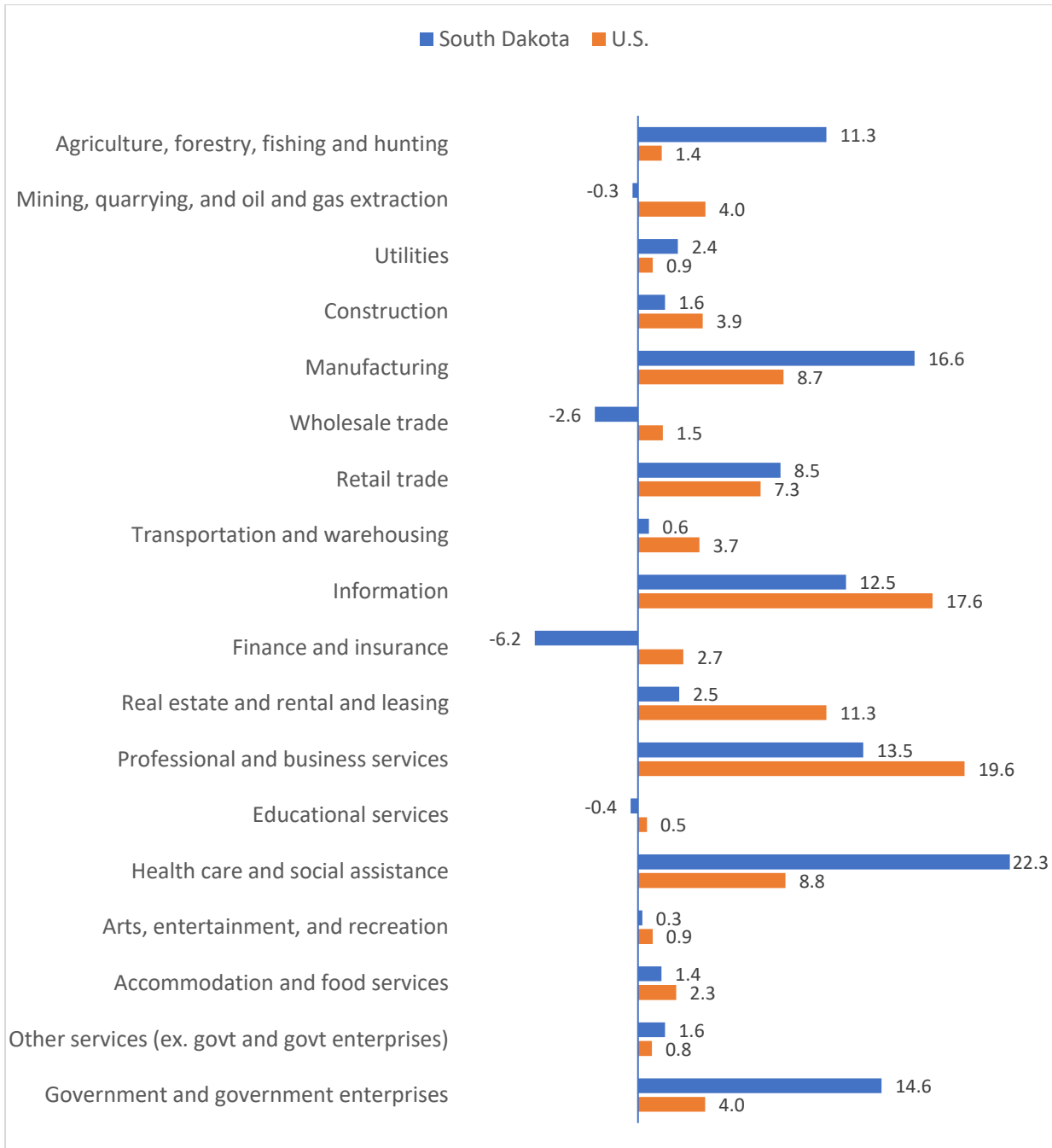
Table 4:  
Growth Rates of Real GDP by Major Industrial Sector, South Dakota, and the U.S., 2014-2019  
(Real GDP in Millions of Constant 2012 Dollars)

Industry	South Dakota (Millions)			U.S. (Millions)		
	2014	2019	% Change	2014	2019	% Change
All industry total	\$44,450	\$47,560	7.0	\$16,912,038	\$19,091,662	12.9
Private industries	39,838	42,464	6.6	14,715,952	16,804,174	14.2
Agriculture, forestry, fishing & hunting	4,633	5,002	8.0	211,758	243,607	15.0
Mining, quarrying, & oil & gas extraction	157	146	-6.9	413,809	504,316	21.9
Utilities	712	791	11.0	265,954	285,691	7.4
Construction	1,562	1,614	3.4	577,747	664,606	15.0
Manufacturing	3,983	4,525	13.6	2,020,172	2,215,345	9.7
Wholesale trade	3,242	3,157	-2.6	1,059,199	1,092,481	3.1
Retail trade	3,195	3,475	8.7	953,881	1,118,250	17.2
Transportation & warehousing	1,012	1,033	2.1	493,633	575,873	16.7
Information	1,164	1,571	35.0	848,622	1,243,960	46.6
Finance and insurance	6,690	6,488	-3.0	1,150,921	1,211,840	5.3
Real estate and rental and leasing	3,953	4,034	2.0	2,176,609	2,429,416	11.6
Professional and business services	2,661	3,102	16.6	2,080,730	2,518,927	21.1
Educational services	311	296	-4.7	212,786	224,757	5.6
Health care and social assistance	4,028	4,756	18.1	1,238,284	1,436,140	16.0
Arts, entertainment, and recreation	274	283	3.1	182,526	202,159	10.8
Accommodation and food services	1,345	1,391	3.4	475,177	526,451	10.8
Other services (excl. govt/govt enterprises)	895	948	5.9	355,358	374,031	5.3
Government & government enterprises	4,613	5,090	10.3	2,139,384	2,229,543	4.2

Source: U.S. Department of Commerce, Bureau of Economic Analysis, tabulations by authors.

Which industrial sectors contributed most to real GDP growth in South Dakota over the 2014-2019 period? Chart 1 displays measures of the share of the increase (or decrease) in real GDP attributable to each major industrial sector for both South Dakota and the U.S. between 2014-2019. Six major industry sectors, agriculture, manufacturing, information, professional and business, healthcare and social assistance, and government sector, accounted for nearly 91 percent of real GDP growth in South Dakota between 2014-2019. In a sharp contrast, the contribution of these six sectors to real GDP growth in the U.S. over the same period was 60 percent.

**Chart 1:  
The Share of Increased Real GDP Between 2014-2019 Generated by Selected Major Industrial Sectors, South Dakota, and the U.S., (Numbers in Percent)**



The agricultural sector’s contribution to real GDP growth between 2014 and 2019 was 11.3 percent in South Dakota compared to only 1.4 percent in the U.S. These GDP growth shares of the agricultural sector in South Dakota and the U.S. correspond with the shares of the 2019

total real GDP in this sector in South Dakota (10.5%) and the U.S. (1.3%). Even though the information sector's share of South Dakota's GDP was only 3.3 percent, its contribution to real GDP growth in the state during the 2014-2019 period was 12.5 percent. The healthcare and social assistance sector was the largest source of GDP growth in South Dakota, accounting for 22.3 percent of the total increase in state GDP between 2014 and 2019. The finance/insurance and wholesale trade sectors in South Dakota had negative contributions to the state's real GDP between 2014 and 2019, as real output in those industries fell over the period (Chart 1).

### Sources of Output Growth in South Dakota: The Role of Employment and Productivity Growth, 2014-2019

The analysis in the preceding section examined the real GDP performance of South Dakota overall and by major industrial sectors over the 2014-2019 period. Knowledge of the economic forces underlying these highly variable growth rates are useful for both understanding the sources of past economic growth and for decision making about future possibilities for growth. Real output in each industrial sector can grow as a consequence of any of the following three factors:

- An increase in the number of employed workers in the industry
- An increase in average annual hours worked per worker in the industry
- A rise in the productivity of workers within the industry, that is, an increase in real output per worker.

To identify the contribution of employment growth to the increase in the overall real GDP growth in South Dakota over the 2014-2019 period, we first examined wage and salary employment data in South Dakota between 2014 and 2019.<sup>5</sup> The Quarterly Census of Employment and Wages (QCEW) survey provides a complete count of wage and salary employment in firms covered by the federal and state unemployment insurance laws. Between 2014 and 2019, total wage and salary employment of South Dakota increased from 410,929 in 2014 to 430,117 in 2019, an increase of 4.7 percent, substantially below the national average employment growth rate of 8.4 percent during the same period (Table 5). South Dakota's 4.7 percent employment growth rate over this period ranked 37<sup>th</sup> highest among the states.

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<sup>5</sup> The U.S. Bureau of Labor Statistics' Quarterly Census of Employment and Wages (QCEW) program publishes a quarterly count of employment and wages reported by employers covered by Unemployment Insurance (UI) Law. The program covers more than 95 percent of U.S. jobs at county, MSA, state and national levels by detailed industry. To understand more about QCEW program, see: <https://www.bls.gov/cew/>

Secondly, we also examined real GDP per worker in 2014 and 2019 in the private sector in South Dakota and the U.S. GDP per worker serves as an indicator of the productivity of workers or labor productivity, which is a widely cited measure of economic efficiency that shows how effectively economic inputs (capital and labor) are converted to output. Labor productivity refers to the relationship between the output and the labor time used in producing that output. The measure of labor productivity reflects not only the efficiency of labor (and its human capital) but also the capital, energy, and other inputs with which labor works. Indeed, labor productivity rises as workers utilize more capital and other non-labor inputs in production. Real GDP per worker in Table 5 is derived by dividing real GDP by QCEW employment. The labor productivity measure used in this report is real annual GDP per worker rather than the commonly reported measure of productivity of output per hour since we lack data on hours of work in each sector. This is the standard partial productivity measure, which captures the combined effects of labor inputs and those of capital, the human capital skills of workers, and technology.

In 2019, the real GDP per worker in the private sector in South Dakota (labor productivity) was \$119,467, much lower than their peers across the U.S. (\$133,126). Among the states, the size of South Dakota's labor productivity in the private sector ranked 26<sup>th</sup> highest in 2019 compared to the 50 states and D.C. South Dakota's labor productivity increased by only 1.7 percent between 2014 and 2019, while the U.S. experienced a 4.4 percent growth in labor productivity during the same period. The rate of growth of the private sector labor productivity in South Dakota over the 2014 to 2019 period ranked 36<sup>th</sup> highest among the states and D.C.

Findings in Table 5 can be used to identify the sources of real GDP growth in South Dakota and the U.S. during the 2014 to 2019 period. How much of the real GDP growth came from increased employment, how much real GDP growth came from improvements in labor productivity, and how much GDP growth came from the interaction of employment and productivity? The level of real GDP in an industrial sector at any point in time is equal to  $E * OPE$ , where  $E$  represents the annual average number of workers and  $OPE$  represents real GDP per worker. The percent change in real GDP over time is equal algebraically to the sum of the following three components:

$$\% \Delta E + \% \Delta OPE + (\% \Delta E * \% \Delta OPE)$$

This equation states that the sources of growth in real GDP within a specific industrial sector over any given time period can be decomposed into three components: growth in employment, growth in labor productivity, and an interaction term between these two variables. The important point to note here is that the relationship between growth in real output and employment and labor productivity growth is a multiplicative one rather than an additive one. The percent growth in real GDP will equal the percentage change in employment plus the percentage change in labor productivity plus the product of these two percentage changes.

Table 5:  
Sources of Private Sector Real GDP Growth in South Dakota and the U.S. During 2014 and 2019  
(GDP in Millions of Constant 2012 Dollars)

	South Dakota	U.S.
<b>Real GDP</b>		
2014	39,838	14,715,952
2019	42,464	16,804,174
(A) % Change	6.6%	14.2%
<b>Employment</b>		
2014	339,117	115,353,806
2019	355,444	126,227,891
(B) % Change	4.8%	9.4%
<b>GDP Per Worker (Labor Productivity)</b>		
2014	117,475	127,572
2019	119,467	133,126
(C) % Change	1.7%	4.4%
(D) Interaction (B*C)	0.08%	0.41%
<b>Contribution to GDP Growth</b>		
From Employment (B/A)	73.0%	66.4%
From Labor Productivity (C/A)	25.7%	30.7%
From Interaction (D/A)	1.2%	2.9%

South Dakota's private sector real GDP grew by 6.6 percent over the 2014-2019 period, representing a compound annual growth rate of 1.3 percent. Employment growth in South Dakota accounted for 73 percent (4.8 percent employment growth/6.6 percent GDP growth) of real GDP growth, whereas labor productivity accounted for 26 percent (1.7 percent real GDP per worker growth/6.6 percent GDP growth), and the interaction term between these two growth rates accounted for 1.2 percent (0.08 percent interaction/6.6 percent real GDP growth).

Employment growth was thus the critical source of real GDP growth between 2014 and 2019 in South Dakota. (Table 5). Findings were similar for the U.S. Between 2014 and 2019, about 66 percent of GDP growth was attributable to employment, 31 percent GDP growth was attributable to labor productivity, and 3 percent GDP growth was attributable to interaction term between labor productivity growth and employment growth.

A more detailed examination of sources of real GDP growth over the 2014-2019 period by major private industrial sectors in South Dakota are presented in Table 6. Between 2014 and 2019, GDP declined in four sectors (mining, wholesale trade, finance and insurance, and educational service sector) and increased in the remaining 14 sectors. Among 7 out of the 14 sectors with positive real GDP growth, the GDP growth in 7 sectors came entirely from employment growth. These seven sectors were agriculture, construction, transportation and

Table 6:  
Sources of Growth of Real GDP in Key Industrial Sectors of South Dakota’s Economy, 2014-2019 (Numbers in Percent)

Industry	Real GDP Growth Rate	Contribution from Employment	Contribution from Labor Productivity	Interaction
Private industries	6.6	73	26	1
Agriculture, forestry, fishing, and hunting	<b>8.0</b>	100+	--	--
Mining, quarrying, and oil and gas extraction	-6.9	--	--	--
Utilities	11.0	--	100+	--
Construction	3.4	100+	--	--
Manufacturing	13.6	45	52	3
Wholesale trade	-2.6	--	--	--
Retail trade	8.7	--	100+	--
Transportation and warehousing	2.1	100+	--	--
Information	35.0	--	100+	--
Finance and insurance	-3.0	--	--	--
Real estate and rental and leasing	2.0	100+	--	--
Professional and business services	16.6	57	39	4
Educational services	-4.7	--	--	--
Health care and social assistance	18.1	54	42	4
Arts, entertainment, and recreation	3.1	100+	--	--
Accommodation and food services	3.4	100+	--	--
Other services (except govt and govt enterprises)	5.9	100+	--	--

Source: U.S. Department of Commerce, Bureau of Economic Analysis, tabulations by authors.

warehousing, real estate and rental and leasing, arts, entertainment, and recreation, accommodation and food services, and other services. Only three sectors' (utilities, retail trade, and information) real GDP growth came entirely from labor productivity. In the remaining three sectors (manufacturing, professional and business services, and healthcare and social assistance), real GDP growth between 2014 and 2019 came from employment, labor productivity, and the interaction of the two (Table 6).

Sources of real GDP growth in South Dakota's private sector between 2010 and 2014 were quite different. Sources of real GDP growth in South Dakota over the 2010-2014 period were as follows: 55.5 percent from employment, 41.6 percent from labor productivity, and 2.9 percent from interaction between employment and labor productivity (Table 7). During the 2014-2019 period, the contribution of labor productivity to real GDP growth declined while the contribution of employment to real GDP growth increased. In contrast to South Dakota's findings, labor productivity's contribution to real GDP growth in the U.S. increased during the 2014-2019 period in comparison to the 2010-2014 period. During the 2010-2014 period, labor productivity's contribution to U.S. real GDP growth was only 4.9 percent while over the 2014-2019 period, this contribution increased to 30.7 percent. Still, employment growth contributed more than labor productivity to real GDP growth rate of the U.S. over the two time periods in our analysis.<sup>6</sup>

Table 7:  
Sources of Private Sector Real GDP Growth in South Dakota  
and the U.S. During 2014 and 2019

<b>South Dakota</b>	2010-2014	2014-2019
Real GDP Growth Rate	12.7%	6.6%
Contribution from Employment	55.5%	73.0%
Contribution from Labor Productivity	41.6%	25.7%
Interaction	2.9%	1.2%
<b>U.S.</b>		
Real GDP Growth Rate	9.3%	14.2%
Contribution from Employment	94.6%	66.4%
Contribution from Labor Productivity	4.9%	30.7%
Interaction	0.4%	2.9%

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<sup>6</sup> Productivity in the government sector can be misleading due to the imputation procedures used by BEA to measure output in this sector. Absent direct measures of output, value added is obtained by summing all wages and salaries paid, and it is assumed that wage increases simply reflect inflation



## Chapter 3

### Population Developments

#### Overall Population Developments, 1960-2020

The potential productive capacity of a state (or nation) is heavily influenced by change in the size of the working-age (16+) resident population, their educational attainment, their literacy, numeracy, and problem-solving skills, and the degree and intensity of their job market attachment. Rapid growth in the size of the working-age population in a state signals rapid expansion in the potential productive capacity of that state. Strong population growth is a broad signal of the potential to increase output, employment, and income, and of potentially higher labor supply to the business community. Of course, not all individuals in the working-age population choose to actively participate in the labor market. People in pre-retirement (55-64) and retirement age groups are less likely to actively participate in the labor market compared to prime-age workers (25-54). Similarly, school-aged persons (16-24) are also generally less likely to engage in the world of work. Thus, changes not only in the size but the age composition of a state's population influences the labor supply potential within a state.

The labor market participation behavior and earnings of residents is also directly linked to their educational attainment and their levels of literacy and numeracy proficiencies.<sup>7</sup> Working-age adults with higher levels of education and higher literacy and numeracy skills tend to have higher labor force participation rates, higher employment rates, and lower likelihood of unemployment spells. Education and skills re-enforce each other. The economic pay-off to educational attainment has consistently increased in the nation and in South Dakota since the mid-1970s. This means that those with fewer years of schooling and lower literacy and numeracy skills are less likely to participate in the labor market than has been the case in the past.<sup>8</sup>

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<sup>7</sup> See: (i) Neeta Fogg, Paul Harrington, and Ishwar Khatiwada, *Skills and Earnings in Full-Time Labor Market*, (Princeton, NJ: Educational Testing Service, 2018), <https://www.ets.org/s/research/pdf/skills-and-earnings-in-the-full-time-labor-market.pdf>; (ii) Neeta Fogg, Paul Harrington, and Ishwar Khatiwada, *Skills and the Earnings of College Graduates*, (Princeton, NJ: Educational Testing Service, 2019), <https://www.ets.org/s/research/pdf/skills-and-the-earnings-of-college-graduates.pdf>; (iii) Neeta Fogg, Paul Harrington, and Ishwar Khatiwada, *Skills and the Earnings in the Part-Time Labor Market*, (Princeton, NJ: Educational Testing Service, 2020), <https://www.ets.org/s/research/pdf/skills-and-earnings-in-the-part-time-labor-market.pdf>

<sup>8</sup> Changes in the industrial and occupational composition of labor demand have favored those with higher levels of educational attainment. Technological change has had especially powerful adverse impacts on those with fewer years of schooling as capital and software have become effective substitutes for labor in many blue collar and

The resident population of South Dakota in 2020 was 886,667, accounting for only 0.27 percent of the national total (Table 1). South Dakota remained the sixth least-populated state in the nation in 2020.<sup>9</sup> Between 2010 and 2020, South Dakota's population rose by 72,487 or 8.9 percent, exceeding the national average pace of population growth for the first time since 1960. The growth rate of 8.9 percent between 2010 and 2010 ranked 17<sup>th</sup> highest among the 50 states and D.C., modestly above the U.S. population growth rate of 7.4 percent.<sup>10</sup>

Over much of the post-World War II period, population growth in South Dakota has been below average. Between 1960 and 2010, the resident population growth rate in South Dakota significantly lagged that of the nation, but the growth rate gap narrowed in each decade (Table 1). During the decade of the 1960s, South Dakota experienced a population loss of 2 percent while the U.S. population increased by 13 percent. North Dakota and West Virginia were the only other states that experienced resident population declines between 1960 and 1970.

Over the following decade, during the 1970s, the population of the state increased, but the rate of growth of the state's population was only a third of the national population growth rate. South Dakota experienced virtually no population growth between 1980 to 1990 (an increase of less than 1 percent) while the nation's population increased by about 10 percent over the same time period. This suggests that for the 30-year period between 1960 and 1990, the productive potential of South Dakota grew only very modestly relative to the nation. With just a 2 percent increase in the population, South Dakota ranked 47<sup>th</sup> among 50 states in the pace of net population increase over the three decades between 1960 and 1990, while the nation's population increased by 39 percent.

In more recent years, the population picture in South Dakota has brightened considerably. Between 2000 and 2010, South Dakota's population increased by 7.9 percent, and the population growth rate ranked in the middle of the pack of states (25<sup>th</sup>), thus, the gap in growth rates between the state and the nation narrowed between 2000 and 2010. The 2020 Census found that population growth in South Dakota outpaced that of the nation, rising by 8.9 percent compared to

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clerical occupations. Frank Levy and Richard Murnane, *The New Division of Labor: How Computers are Changing the Way We Work*, Princeton University Press, 2004.

<sup>9</sup> In 2010 also, South Dakota was the sixth least-populated states among 50 states and D.C. The five other least-populated states in 2020 were Wyoming (576,851), Vermont (643,077), D.C (689,545), Alaska (733,391, and North Dakota (779,094).

<sup>10</sup> See: "Census: South Dakota Population Grew 8.9%", AP News, April 26, 2021 (<https://apnews.com/article/south-dakota-census-2020-united-states-654108b416f834f66d462983d511a98c>).

7.4 percent for the U.S. Over the past 20 years (2000 to 2020), South Dakota’s population rose by 17.5 percent, closely matching the national growth rate of 17.8 percent over the same period, and the state’s population growth rate during this time period ranked 20<sup>th</sup> highest among the 50 states and D.C.

Table 1:  
Trends in the Resident Population of South Dakota and the U.S., 1960-2020

Census Year	South Dakota	United States	South Dakota’s Share (In %)
1960	680,514	179,323,175	0.38
1970	665,507	203,211,926	0.33
1980	690,768	226,545,805	0.30
1990	696,004	248,709,873	0.28
2000	754,844	281,421,906	0.27
2010	814,180	308,745,538	0.26
2020	886,667	331,449,281	0.27
			South Dakota Rank (High to Low)
% Change			
1960-1970	-2.2	13.3	49 <sup>th</sup>
1970-1980	3.8	11.5	41 <sup>st</sup>
1980-1990	0.8	9.8	39 <sup>th</sup>
1990-2000	8.5	13.2	36 <sup>th</sup>
2000-2010	7.9	9.7	25 <sup>th</sup>
2010-2020	8.9	7.4	17 <sup>th</sup>

Source: Decennial Censuses of Population and Housing, 1960, 1970, 1980, 1990, 2000, 2010, and 2020, U.S. Census Bureau, tabulations by authors.

### Population Growth by County, 2010-2020

Population growth between 2010 and 2020 varied widely across South Dakota’s 66 counties. The five counties with the highest population growth rates between 2010 and 2020 were Lincoln County (45.4 percent), Meade County (17.4 percent), Union County (16.8 percent), Minnehaha County (16.4 percent), and Beadle County (10.1 percent) (Table 2). *Two-thirds of population growth in South Dakota between 2010 and 2020 came from growth in Lincoln and Minnehaha counties.* Between 2000 and 2010, the contribution of these two counties to South Dakota’s population growth was even higher (more than 70 percent).<sup>11</sup>

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<sup>11</sup> Lincoln County’s population increased from 24,147 in 2000 to 44,681 in 2010, an increase of 20,681 or 71 percent.

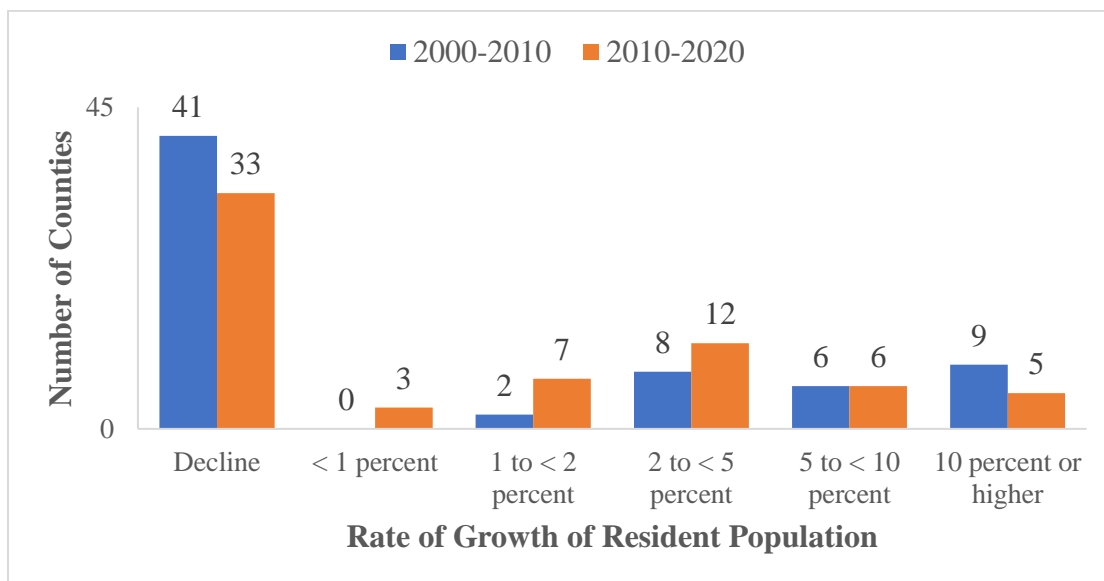
The bottom five counties with the largest population decline between 2010 and 2020 were Jones County (-8.8 percent), Faulk County (-10.1 percent), Hyde County (-11.1 percent), Ziebach County (-13.9 percent), and Jerauld County (-19.7 percent).

**Table 2:**  
**Population Growth in South Dakota’s Top Five and Bottom Five Counties, 2010-2020**

Rank	County	2010	2020	Abs. Chg.	% Chg.
1	Lincoln County	44,828	65,161	20,333	45.4%
2	Meade County	25,434	29,852	4,418	17.4%
3	Union County	14,399	16,811	2,412	16.8%
4	Minnehaha County	169,468	197,214	27,746	16.4%
5	Beadle County	17,398	19,149	1,751	10.1%
	<b>South Dakota</b>	<b>814,180</b>	<b>886,667</b>	<b>72,487</b>	<b>8.9%</b>
62	Jones County	1,006	917	-89	-8.8%
63	Faulk County	2,364	2,125	-239	-10.1%
64	Hyde County	1,420	1,262	-158	-11.1%
65	Ziebach County	2,801	2,413	-388	-13.9%
66	Jerauld County	2,071	1,663	-408	-19.7%

Source: Decennial Censuses of Population and Housing, 2010 and 2020, U.S. Census Bureau, tabulations by authors.

**Chart 1:**  
**Distribution of Counties in South Dakota by the Rate of Growth of the Resident Population, 2000 to 2010 and 2010 to 2020**



Source: Decennial Censuses of Population and Housing, 2000, 2010, and 2020, U.S. Census Bureau, tabulations by authors.

Out of the 66 counties in South Dakota, half (33) experienced a decline in their resident population between 2010 and 2020 (Chart 1) while 5 counties saw a population growth rate of 10 percent or higher. In the prior decade (2000-2010), many more counties (41) in South Dakota experienced a decline in their resident population (Chart 1). Also, over the same decade (2000-2010), many more counties (9) saw a population growth rate of 10 percent or higher. High rates of population growth occurred in more counties between 2000 and 2010 than between 2010 and 2020. Population growth rates of 10 percent or higher occurred in 9 counties between 2000 and 2010; and only 5 counties between 2010 and 2020 in South Dakota. Nearly 80 percent of South Dakota's net population increase was concentrated in these 5 counties.

### Sources of Population Growth, 2000-2020

What drove the more rapid population growth in South Dakota between 2010 and 2020? To answer this question, we examined U.S. Census Bureau's recent annual population estimates by state which are published annually in July.<sup>12</sup> The Census Bureau's population estimate programs reveals that over 40 percent of South Dakota's population growth between 2010 and 2020 was attributable to both international migration (24.2 percent) and domestic migration (17.5 percent), and the remaining 58 percent came from the natural increase (births less death) (Table 3).

The pattern of South Dakota's source of population growth mirrors that of the nation with a large share of population growth over the 2010-2020 time period coming from international migration. Nationwide, about 41 percent of population growth between 2010 and 2020 was attributable to international (in)migration.

Over the 2000-2010 decade, South Dakota was less reliant on migration for population growth (Table 4). Only about 11 percent of the state's population growth was from international migration and about 14 percent from domestic migration. The remaining 71 percent of the state's population growth between 2000 and 2010 was attributable to natural increase.

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<sup>12</sup>For detailed population estimate methodology, See: U.S. Census Bureau, "Methodology for the United States Population Estimates: Vintage 2020: Nation, States, Counties, and Puerto Rico, April 1, 2010, to July 1, 2020", (<https://www2.census.gov/programs-surveys/popest/technical-documentation/methodology/2010-2020/methods-statement-v2020-final.pdf>).

Table 3:  
Components of Total Population Change in South Dakota and the U.S., 2010-2020

	South Dakota	U.S.
Estimate Base 2010	814,198	308,758,105
Population Estimate 2020	892,717	329,484,123
Net Change	78,519	20,726,018
Natural Increase (Births-Deaths)	45,553	12,257,668
International Migration	18,971	8,468,350
Domestic Migration	13,771	--
Net Migration	32,742	8,468,350
Residual	224	--
<b>Share of Net Change:</b>		
Natural Increase	58.0%	59.1%
International Migration	24.2%	40.9%
Domestic Migration	17.5%	--
<b>Ranking of Share Among 50 States and D.C. (Highest to Lowest)</b>		
Natural Increase as a Share of Net Change	24	
International Migration as a Share of Net Change	30	
Domestic Migration as a Share of Net Change	28	

Source: Population and Housing Estimates, 2010-2020, U.S. Census Bureau, tabulations by authors.

Table 4:  
Components of Total Population Change in South Dakota and the U.S., 2000-2010

	South Dakota	U.S.
Estimate Base 2000	754,858	281,424,600
Population Estimate 2010	820,077	309,050,816
Net Change	65,219	27,626,216
Natural Increase (Births-Deaths)	46,155	17,539,616
International Migration	7,071	9,317,445
Domestic Migration	8,992	--
Net Migration	16,063	9,317,445
Residual	3,042	769,155
<b>Share of Net Change:</b>		
Natural Increase	70.8%	63.5%
International Migration	10.8%	33.7%
Domestic Migration	13.8%	--
<b>Ranking of Share Among 50 States and D.C. (Highest to Lowest)</b>		
Natural Increase as a Share of Net Change	22	
International Migration as a Share of Net Change	46	
Domestic Migration as a Share of Net Change	26	

Source: Population and Housing Estimates, 2000-2010, U.S. Census Bureau, tabulations by authors.

Historically, South Dakota has been among those states that have experienced substantial net out-migration. Our analysis of American Community Survey (ACS) data (2015-2019) shows that out of 1.028 million U.S. residents who were born in South Dakota, 474,000 or 46 percent were living in other states, putting South Dakota as fourth highest (out of 50 states) share of those born in a state opting to reside in other states during 2015-2019 (Table 5). The three other highest ranked states with those living in states other than their birth state were North Dakota (51.5 percent), Alaska (51.6 percent), and Wyoming (55.1 percent).<sup>13</sup> Offsetting this outmigration were about 279,000 current residents in South Dakota who were born in other states, accounting for 32 percent of total current resident population of the state. Another 37,500 current residents of South Dakota were foreign-born, accounting for an additional 4.3 percent of current resident population of the state. Thus, of the total current resident of South Dakota, 64 four percent were born in the state, 32 percent moved to South Dakota from other parts of the U.S., and 4 percent were foreign-born. South Dakota’s foreign-born population share is among the lowest in the nation. South Dakota had the 4<sup>th</sup> lowest share of foreign-born residents in its total resident population among all states in the nation.

Table 5:  
Long-Term Migration in South Dakota, 2015-2019

		SD Rank (Highest to Lowest)
Resident Population of South Dakota	870,638	
U.S. Residents born in South Dakota	1,028,050	
Born in South Dakota and live in South Dakota	554,204	
Born in South Dakota, now live in other states	473,846	
Born in other states, but now live in South Dakota	278,887	
Born outside of U.S. states, now live in South Dakota	37,547	
% Born in South Dakota who were living in South Dakota	53.9%	47 <sup>th</sup>
% Born in South Dakota who were living in other States	46.1%	5 <sup>th</sup>
<b>Share of SD Resident Population:</b>		
Born in other states, now living in SD	32.0%	27 <sup>th</sup>
Born outside of U.S. states, now living in SD	4.3%	47 <sup>th</sup>

Source: 5-year American Community Surveys, 2015-2019, public use files, U.S. Census Bureau, tabulations by authors.

<sup>13</sup>About 82 percent of those who were born in D.C. were living in other states during 2015-2019, placing D.C. above the 50 states at rank one.

Despite high rates of long-term out-migration from South Dakota, the resident population of South Dakota has increased by nearly 9 percent between 2010 and 2020. In recent years, South Dakota had the highest fertility rate among 50 states and D.C. In 2015 and 2019, South Dakota’s fertility rate was 78 and 71 (per 1000 women aged 15-44), respectively; 12 to 15 points higher than the U.S. fertility rate for those two years (Table 6).

Table 6:  
Fertility Rate of South Dakota and Its Ranking Among 50 States and D.C., (General fertility rate per 1,000 women aged 15–44), Selected Years, 1985-2019

Year	South Dakota	U.S.	Difference	SD Ranking Among 50 States and D.C. (Highest to Lowest)
1985	79.8	66.3	13.5	5 <sup>th</sup>
1990	73.8	70.9	2.9	10 <sup>th</sup>
1995	66.2	64.6	1.6	11 <sup>th</sup>
2000	65.5	65.9	-0.4	21 <sup>st</sup>
2005	74.7	66.7	8.0	5 <sup>th</sup>
2010	77.5	64.1	13.4	3 <sup>rd</sup>
2015	78.2	62.5	15.7	1 <sup>st</sup>
2019	70.6	58.3	12.3	1 <sup>st</sup>
2020*	NA	55.8	NA	

Source: Vital Statistics Reports, selected publications, National Center for Health Statistics, Center for Disease Control (CDC).

Note: \*Preliminary.

## Population Growth Between 2020 and 2021

Recently released Census Bureau’s population estimates for 2021 show that the resident population in the U.S. increased at the slowest pace on record between 2020 and 2021 due to the impact of the Covid-19 pandemic. Between July 2020 and July 2021, the U.S. population increased only by 393,000 or 0.1 percent, the slowest ever on record.<sup>14</sup> (Table 7). Over the same period, South Dakota’s population increased by 8,300 or 0.9 percent. The 0.9 percent increase in the resident population of the state ranked 10<sup>th</sup> highest among the states.<sup>15</sup>

<sup>14</sup> See: Paul Overberg and Janet Adamy, “Covid-19 Pandemic Drives U.S. Population Growth to Record Low Number of U.S.,” *The Wall Street Journal*, December 22, 2021 (<https://www.wsj.com/articles/viacomcbs-shortens-theatrical-window-for-paramount-streaming-service-11614205163>).

<sup>15</sup> The other nine states with the highest population growth between 2020 and 2021 were Idaho (2.88%), Utah (1.72%), Montana (1.66%), Arizona (1.37%), South Carolina (1.17%), Delaware (1.16%), Texas (1.06%), Florida (0.98%), and Nevada (0.96%).



Between 2020 and 2021, the components of population change for South Dakota was very different from that of the U.S. Domestic migration in South Dakota accounted for more than two-thirds (67.2%) of resident population growth between 2020 and 2021. Natural increase (births less deaths) and international migration, respectively, accounted for 20.2 percent and 12.6 percent of the resident population growth in South Dakota. In a sharp contrast, international migration accounted for 62.3 percent of U.S. population growth between 2020 and 2021. The remaining 37.7 percent of the nation’s population growth between 2020 and 2021 was attributable to the natural increase (births less deaths) (Table 7).

Table 7:  
Components of Total Population Change in South Dakota and the U.S.,  
July 2020 to July 2021

	South Dakota	United States
Population, July 2020	887,099	331,501,080
Population, July 2021	895,376	331,893,745
Net Change	8,277	392,665
% Change	0.9%	0.1%
<b>Components of Change:</b>		
Natural Increase (Births-Deaths)	1,668	148,043
International Migration	1,039	244,622
Domestic Migration	5,564	--
Net Migration	6,603	244,622
<b>Share of Net Change:</b>		
Natural Increase as a Share of Net Change	20.2%	37.7%
International Migration as a Share of Net Change	12.6%	62.3%
Domestic Migration as a Share of Net Change	67.2%	--

Source: Population and Housing Estimates, July 2020-July 2021, U.S. Census Bureau, tabulations by authors.

These most recent findings are encouraging. South Dakota was among only 25 states that experienced population increase over the past year.<sup>16</sup> Far more people moved into South Dakota, than moved out over the year. The increase of net migration between 2020 and 2021 seems quite large compared to the past decade. Between 2010 and 2020 total net domestic migration into South Dakota equaled 13,771, but between 2020 and 2021, the state saw net domestic in-

<sup>16</sup> U.S. Bureau of the Census, *New Vintage 2021 Population Estimates Available for the Nation, States and Puerto Rico*, December 21, 2021 (<https://www.census.gov/newsroom/press-releases/2021/2021-population-estimates.html>).

migration of 5,364. Net domestic migration into South Dakota in the past year was equal to almost 40 percent of net domestic migration that occurred over the past decade. It is too soon to tell if this is a temporary phenomenon or part of a longer-term shift in the pattern of domestic migration that seems to be occurring in the nation in recent years.

### Characteristics of Recent In- and Out-Migrants in South Dakota, 2015-2019

Recent trends in migration patterns and characteristics of migrants can also be examined with American Community Survey (ACS) data. We have examined the characteristics of in-migrants and out-migrants of South Dakota in recent years with 2015-19 ACS public use data files. Findings in Table 8 present the characteristics of in-migrants and out-migrants in South Dakota over the 2015 to 2019 period.

A hallmark of recent migration patterns in South Dakota is that both in-migrants and out-migrants from South Dakota were young; although, in-migrants were younger than out-migrants

**Table 8:**  
Characteristics of In-Migrants and Out-Migrants in South Dakota, 2015-2019 Annual Averages

	In-Migrants	Out-Migrants	Difference
Mean age	30	33	-3
Median age	25	27	-2
<b>Percentage Distribution</b>			
<b>Gender</b>			
Male	49.0%	53.7%	-4.8%
Female	51.0%	46.3%	4.8%
<b>Race-Ethnicity</b>			
White	73.4%	79.8%	-6.5%
Black	8.4%	3.0%	5.3%
Asian	1.6%	2.8%	-1.2%
Hispanic	11.0%	7.2%	3.8%
Other	5.7%	7.2%	-1.5%
<b>Educational Attainment Level</b>			
<12 or 12, no HS Diploma	23.6%	22.3%	1.2%
HS Diploma/GED	19.1%	20.8%	-1.8%
Some College, No Degree	27.3%	23.4%	3.9%
Associate's Degree	7.3%	7.6%	-0.2%
Bachelor's degree	15.9%	17.6%	-1.7%
Master's or higher Degree	6.8%	8.2%	-1.5%

Source: 5-year American Community Surveys, 2015-2019, public use files, U.S. Census Bureau, tabulations by authors.

(Table 8). The median age of in-migrants to South Dakota was 25 years on average over the 2015-2019 period, while the median age of out-migrants was 27 years. Both in-migrants and out-migrants in South Dakota were largely non-Hispanic White persons. Among the out-migrants, the share of non-Hispanic White persons was 79.8 percent while among in-migrants to the state, the non-Hispanic White share was 73 percent. There were differences in the educational attainment of in-migrants and out-migrants in South Dakota. Of those who moved out of South Dakota over the 2015-2019 period, about 26 percent had a bachelor's or higher degree. In contrast, among those who moved into South Dakota during 2015-2019, about 23 percent were college graduates. Thus, South Dakota was a net exporter of college graduates to other states during this period (Table 8).

### Working-Age Population Developments in South Dakota, 1999/2000-2018/2019

As highlighted in the beginning of the report, demographic forces can play an important role in determining both the size and the demographic/human capital characteristics of a state's resident labor force, and therefore the productive potential of the state. Persons who reside in households and are aged 16 and older are included in the measure of an area's working-age population. Changes in the overall size of the state's working-age population and its age/gender/educational composition have important independent influences on the size of its resident labor force and this, in turn, influences the potential output of the state, now and in the future.

This section examines trends in the growth of South Dakota's working-age population over the 1999/2000 to 2018/2019 period. We have used monthly Current Population Survey (CPS) data to examine trends in working-age population growth in South Dakota and the U.S. The CPS is a national monthly survey of about 60,000 households used to estimate the size of the U.S. civilian labor force and its employed and unemployed population. Labor force data are collected for the working-age population, that is, all household members 16 years of age and over. The CPS also interviews members of some group quarters, such as college dormitories and boarding schools, but does not interview persons residing in institutions (for example, jails, prisons, or nursing homes), members of the Armed Forces, or the homeless.<sup>17</sup>

Using monthly CPS public use files available to researchers from the U.S. Census Bureau, we have examined a range of labor market topics such as trends in South Dakota's

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<sup>17</sup> To understand more about monthly CPS Survey, see: U.S. Census Bureau, "Current Population Survey Design and Methodology Technical Paper 77", October 2019 (<https://www2.census.gov/programs-surveys/cps/methodology/CPS-Tech-Paper-77.pdf>).

working-age population, labor force status, including employment and unemployment rates in 1999/2000, 2009/2010, and 2018/2019 for demographic subgroups. These estimates also can help us better understand how this change affects the nature of growth in the size of the state’s labor force and its productive potential, from a job market perspective.

South Dakota’s working-age population rose from 556,000 in 1999/2000 to 621,000 in 2009/2010, an increase of 65,000 or 11.6 percent (Table 9); placing the state at rank 25 in the middle of the state pack. During the same period, the working-age population in the entire U.S. increased by 12.7 percent. Over the 2009/2010-2018/2019 period, South Dakota’s working-age population increased more slowly, rising by 51,000 or 8.1 percent, below the national average growth rate (9.1 percent) and considerably lower than the growth rate that occurred over the 1999/2000-2009/2010 period. South Dakota’s growth rate of 8.1 percent over the 2009/10-2018/19 period ranked 22<sup>nd</sup> highest among the 50 states and D.C. Over the entire 1999/2000-2018/19 period, South Dakota’s working-age population increased by just under 22 percent, slightly lower than the national growth rate of 23 percent during the same period. Still, South Dakota’s growth rate of working-age population over the 1999/2000 to 2018/2019 period ranked 22<sup>nd</sup> highest among 50 states and D.C. (Table 9).

Table 9:  
Trends in South Dakota and the U.S. Working-Age Population (16+), 1999/2000, 2009/2010,  
and 2018/2019 (Numbers in 1000s except Percent Change)

Time Period	South Dakota	U.S.	South Dakota Rank (Highest to Lowest)
1999-2000	556	210,165	
2009-2010	621	236,815	
2018-2019	671	258,483	
<b>Absolute Change</b>			
1999/2000-2009/2010	65	26,650	
2009/2010-2018/2019	51	21,668	
1999/2000-2018/2019	115	48,318	
<b>% Change</b>			
1999/2000-2009/2010	11.6	12.7	25 <sup>th</sup>
2009/2010-2018/2019	8.1	9.1	22 <sup>nd</sup>
1999/2000-2018/2019	20.7	23.0	22 <sup>nd</sup>

Source: U.S. Bureau of the Census, Current Population Survey, public use files, 1999-2000, 2009-2010, and 2018-2019, tabulations by authors.

## Working-Age Population Developments by Race-Ethnicity in South Dakota, 1999/2000-2018/2019

Growth in the size of the working-age population varied by race-ethnicity in South Dakota over the 1999/2000 to 2018/2019 period (Table 10). Between 1999/2000 and 2009/2010, the number of working-age Hispanic residents in South Dakota grew very rapidly, nearly tripling in size. Rapid growth in the number of working-age residents also occurred among Asian (52 percent) and American Indian (39 percent) populations in the state. Much slower growth rates in the number of working-age residents were found among the Black (12 percent) and non-Hispanic White (7 percent) resident populations.

In comparison to 1999/2000-2009/2010, the pace of working-age population growth by race-ethnicity group was quite different during the 2009/2010 to 2018/2019 period. The Black population growth in South Dakota more than doubled between 2009/2010 and 2018/2019 (128 percent increase), followed by rapid growth among by Asian (70 percent), Hispanic (48 percent) and American Indian (35 percent) working-age populations. The non-Hispanic White working-age population increased by just 2 percent. Thus, over the 1999/2000 and 2018/2019 time period, Hispanics, African Americans, and Asians had largest working-age population growth rate in South Dakota (320 percent, 154 percent, and 159 percent, respectively).

**Table 10:**  
**Trends in the Working-Age Population of South Dakota by Race-Ethnicity, 1999/2000, 2009/2010, and 2018/2019 (Numbers in 1000's except Percent Change)**

Race-Ethnicity	1999/ 2000	2009/ 2010	2018/ 2019	% Change		
				1999/2000- 2009/2010	2009/2010- 2018/2019	1999/2000- 2018/2019
White	515	551	565	7.1	2.5	9.7
American Indian	27	38	51	39.3	35.1	88.2
Asian	4	6	10	52.2	70.3	159.3
Black	5	6	13	11.6	127.8	154.2
Hispanic	5	15	23	183.1	48.5	320.5
Total	556	621	671	11.6	8.1	20.7

**Source:** U.S. Bureau of the Census, Current Population Survey, public use files, 1999-2000, 2009-2010, and 2018-2019, tabulations by authors.

Findings on each race-ethnicity group's contribution to the working-age population growth in South Dakota over the past two decades are provided in Table 11. Between 1999/2000 and 2009/2010, the largest source of increase to the size of South Dakota's working-age population was from non-Hispanic Whites who accounted for about 56 percent of the increase.

American Indians accounted for 16.6 percent of the increase followed by Hispanics (15.5 percent), and Asians (3.1 percent). African American’s contribution to the growth in the state’s working-age population was less than 1 percent over this period.

Working-age population developments between the 2009/2010 to 2018/2019 period present a much different picture with respect to the race-ethnicity sources of growth. The non-Hispanic White’s working-age population accounted for only 27 percent of the growth over the decade, despite having the highest share of state’s working-age population (about 84 percent) in 2018/2019. American Indian’s contribution to working-age population growth over the 2009/2010-2018/2019 was about the same as that of non-Hispanic Whites, accounting for 26 percent of the increase despite their low share in overall working-age population in the state (8 percent in 2018/2019). African Americans and Hispanics each contributed 14-15 percent towards working-age population growth in South Dakota over the 2009/2010 to 2018/2019 period. The share of African Americans and Hispanics combined in South Dakota’s working-age population was 5 percent in 2018/2019.

**Table 11:**  
**Contribution to South Dakota’s Working-Age Population Growth by Race-Ethnicity, 1999/2000 to 2009/2010 and 2009/2010 to 2018/2019 (In Percent)**

Race-Ethnicity	Contribution to Working-Age Population Growth		Working-Age Population Share in 2018/2019
	1999/2000-2009/2010	2009/2010-2018/2019	
White	56.3	27.2	84%
Black	0.9	14.2	2%
Asian	3.1	8.1	1%
Hispanic	15.5	14.8	3%
American Indian	16.6	26.3	8%
All Other Races	7.7	9.3	1%
Total	100.0	100.0	100%

Source: U.S. Bureau of the Census, Current Population Survey, public use files, 1999-2000, 2009-2010, and 2018-2019, tabulations by authors.

### Working-Age Population Developments by Age in South Dakota, 1999/2000-2018/2019

South Dakota’s working-age population growth over the 1999/2000 to 2018/2019 period has mostly occurred among people over the age of 55 as the last of the baby-boom generation turned age 55 in 2010. Over the 1999/2000 to 2009-2010 period, the population of 55-to-64-

year-olds in South Dakota increased by 66 percent. During the same period, the population of 65 and older persons in South Dakota increased by 15 percent. During the 2009/2010 to 2018/2019 period, the population of 55-to-64-year-olds increased by 25 percent and 65 and older group increased by 26 percent. The aging of the baby-boomer generation has already had an important on the overall size of the number of persons ready and able to work in the state.<sup>18</sup> In a subsequent section, we will examine the aging of the state’s population and assess its meaning for labor supply growth in South Dakota between 2020 and 2030.

The rapid rise in the size of the pre-retirement aged (55-64) population in South Dakota between 1999-2000 and 2009-2010 was accompanied by a sharp decline in the number of persons in the 35- to 44-year-old age cohort, the ‘birth dearth’ generation born between 1966 and 1978. This cohort is composed of persons born after the baby boomers, but before the echo generation of the boomers that was born between 1979 and 1996. The number of persons aged 35-44 in the state over the entire 1999/2000 to 2018/2019 period declined by 11 percent. Offsetting this decline was a rise in the size of the population of 25- to 34-year-olds in South Dakota that increased by 24 percent over the past 20 years (Table 12). However, the number of working-age teens and young adults (16-24) in the state has barely increased since the end of the 1990s.

Table 12:  
Trends in Working-Age Population of South Dakota by Age, 1999/2000, 2009/2010, and 2018/2019 (Numbers in 1000’s except Percent Change)

Age Group	1999/2000	2009/2010	2018/2019	% Change		
				1999/2000-2009/2010	2009/2010-2018/2019	1999/2000-2018/2019
16-24	102	102	103	0.1	1.0	1.1
25-34	88	104	110	18.2	5.0	24.1
35-44	117	88	104	-24.2	17.7	-10.7
45-54	97	122	98	25.4	-19.5	0.9
55-64	57	94	118	66.0	25.0	107.5
65+	95	110	139	15.2	26.3	45.4
Total	556	621	671	11.6	8.1	20.7

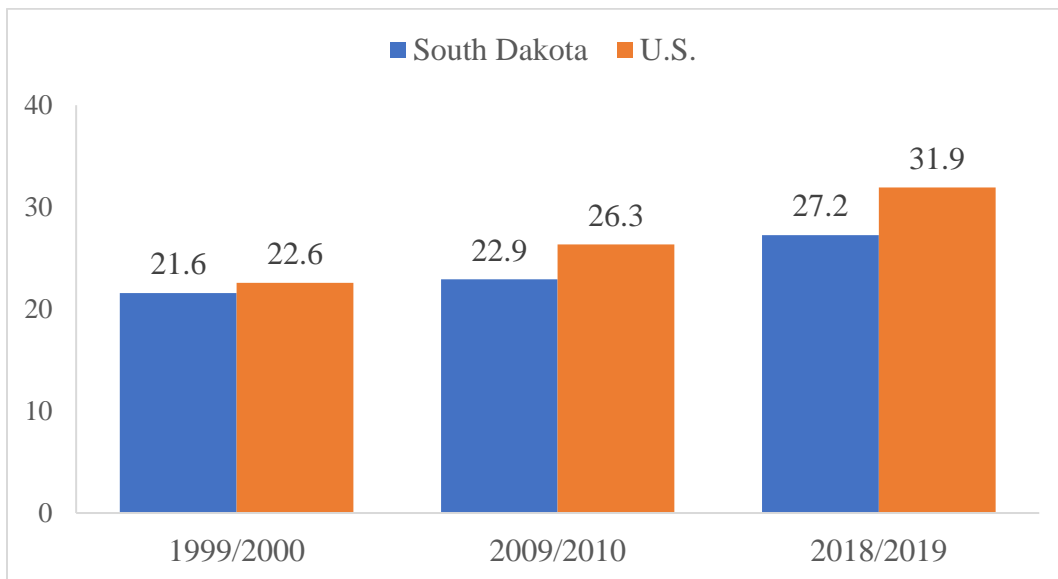
Source: U.S. Bureau of the Census, Current Population Survey, public use files, 1999-2000, 2009-2010, and 2018-2019, tabulations by authors.

<sup>18</sup> The incidence of disability is closely associated with old age. The probability of reporting serious limitations in one or more activities of daily living rises sharply with age, reducing individuals’ willingness and ability to actively engage in some key life activities. See: Neeta Fogg, Paul Harrington and Nancy Snyder, Gray Warnings: Challenges in the Direct Care Workforce, Office of the State Auditor, Commonwealth of Massachusetts, June 2018 ([https://www.mass.gov/files/documents/2018/10/02/Workforce\\_report\\_2018\\_REVISED.pdf](https://www.mass.gov/files/documents/2018/10/02/Workforce_report_2018_REVISED.pdf)).

## Working-Age Population Developments by Educational Attainment Levels in South Dakota, 1999/2000-2018/2019

Even though the share of working-age persons in South Dakota with a Bachelor's or higher degree has increased from about 22 percent in 1999/2000 to 27 percent in 2018/2019, the state has lagged behind the U.S. in its share of college-educated working-age residents (Chart 2). In 1999/2000, South Dakota's share of the working-age population with a bachelor's degree or higher (21.6 percent) was very close to U.S. share (22.6 percent); however, in 2009/2010 and 2018/2019, the share of college degree holders in the state's working-age population was 3-5 percentage points lower than the national average. In 2018/2019, the 27.2 percent share of Bachelor's or higher degree holders in South Dakota's working-age population ranked 14<sup>th</sup> lowest among the 50 states and D.C.

**Chart 2:**  
**Share of Working-Age Population in South Dakota and the U.S. With Bachelor's or Higher Degree, 1999/2000, 2009/2010, and 2018/2019 (In %)**



**Source:** U.S. Bureau of the Census, Current Population Survey, public use files, 1999-2000, 2009-2010, and 2018-2019, tabulations by authors.

Over the 1999/2000 to 2009/2010 period, the number of working-age persons with a Bachelor's degree residing in South Dakota increased by 19 percent, well below the national growth rate of 28 percent during the same time period (Table 13). Over the next decade (2009/2010-2018/2019), South Dakota's working-age population with a Bachelor's degree increased by 23 percent, which was also well below the national growth rate of 28 percent.



Working-age persons in South Dakota with an advanced degree (Master’s or higher degree) also increased at much slower pace than the nation during the 1999/2000 to 2009/2010 period (17.7 percent in South Dakota and 38.4 percent in the U.S.). Over the 2009/2010 and 2018/2019 period, the growth rate of the working-age population in South Dakota with a Master’s or higher degree slightly outpaced the national growth rate (42.8 percent in South Dakota and 39.6 percent in the U.S.). Overall, these findings indicate that the higher education gap between South Dakota and the nation as whole has increased in the past two decades.

**Table 13:**  
**Trends in Working-Age Population of South Dakota by Educational Attainment, Selected Years, 1999/2000, 2009/2010, and 2018/2019 (Numbers in 1000’s except Percent Change)**

Educational Attainment	1999/ 2000	2009/ 2010	2018/ 2019	% Change		
				1999/2000- 2009/2010	2009/2010- 2018/2019	1999/2000- 2018/2019
<b>South Dakota</b>						
<12 or 12, No HS Diploma	92	87	78	-5.5	-10.4	-15.3
HS Graduate	184	195	202	5.8	3.7	9.7
Some College	104	114	106	8.8	-6.3	1.9
Associate Degree	56	83	102	49.5	22.5	83.1
Bachelor's Degree	88	104	129	18.8	23.5	46.7
Masters or Higher Degree	32	38	54	17.7	42.8	68.0
<b>U.S.</b>						
<12 or 12, No HS Diploma	41,837	39,366	34,199	-5.9	-13.1	-18.3
HS Graduate	66,848	71,061	72,121	6.3	1.5	7.9
Some College	39,293	44,087	45,140	12.2	2.4	14.9
Associate Degree	14,753	19,914	24,514	35.0	23.1	66.2
Bachelor's Degree	32,105	41,175	52,905	28.3	28.5	64.8
Masters or Higher Degree	15,329	21,213	29,605	38.4	39.6	93.1

Source: U.S. Bureau of the Census, Current Population Survey, public use files, 1999-2000, 2009-2010, and 2018-2019, tabulations by authors.

## Chapter 4

### Labor Force Participation and Labor Force Growth

#### Trends in Civilian Labor Force Participation Rates in South Dakota, 1979/1980 - 2018/2019

The labor force participation rate is a fundamental measure of the connection of the working-age population to the labor market. The size of the South Dakota labor force is dependent on both the number of working-age residents of the state and the proportion of those residents who are engaged in the labor market. Changes in the size and composition of the working-age population as well as change in the choice to participate in the labor force influence the amount of labor supply available in the state; itself an important determinant of the productive potential of the state. Growth in the size or composition of a state's labor force can have important impacts on its rate of economic growth. States with above average labor force growth are expected to achieve above average rates of growth in output, income, and employment. States with a labor force composed of persons with stronger literacy and numeracy skills and/or higher levels of educational attainment have greater productive capacity than states with a lower skilled and less educated labor force.

In this chapter we use findings from the public use data files of the U.S. Census Bureau's Current Population Survey (CPS), a monthly sample survey of households conducted throughout the nation by the U.S. Bureau of the Census to analyze key labor force participation developments in South Dakota. It is useful to note that the CPS survey is the basis for U.S. Bureau of Labor Statistics' "Employment Situation" monthly release that presents findings on the labor force status of American adults including the monthly unemployment rate.

The labor force participation rate derived from the CPS is a measure of the fraction of the working-age population (those aged 16 and over) that is either employed or unemployed during the reference week of the household survey. Below, we examine trends in the civilian labor force participation rate in South Dakota since 1980 and focus especially on sources of labor force growth/decline in the state since 2000.

Trends in the civilian labor force participation rates of South Dakota's working-age population (16 and older) from 1979/1980 to 2018/2019 are displayed in Table 1. In the late 1970s, the overall labor force participation rate of South Dakota averaged slightly under 68

percent, revealing that two out of every three working-age adults in the state were either working or actively looking for work during a given month. The South Dakota labor force participation rate in 1979/1980 was well above that of the U.S. (4-percentage points higher than that of the entire U.S.) and ranked 10<sup>th</sup> highest among 50 states.

During the 1980s, the annual average participation rate in South Dakota rose to 69 percent by 1989/1990, mainly due to continued increases in the labor force attachment of women. South Dakota’s 69 percent labor force participation rate at that time was about 3 percentage points higher than the national rate (66.5 percent) and ranked 15<sup>th</sup> highest among 50 states. By 1999/2000, the state’s labor force participation rate grew to 73 percent; nearly 6-percentage points higher than the national rate (67 percent) placing the state at the 5<sup>th</sup> highest rank among 50 states.

Table 1:  
Trends in the Civilian Labor Force Participation Rates of Persons (16+) in  
South Dakota and the U.S., Selected Years, 1979/1980 to 2018/2019  
(2-Year Averages, in %)

Year	South Dakota	U.S.	SD – U.S.	South Dakota’s Rank
1979/1980	67.7	63.7	+4.1	10 <sup>th</sup>
1989/1990	69.4	66.5	+2.9	15 <sup>th</sup>
1999/2000	73.0	67.1	+5.8	5 <sup>th</sup>
2009/2010	71.7	65.0	+6.6	3 <sup>rd</sup>
2018/2019	69.1	63.0	+6.1	5 <sup>th</sup>
<b>Change 1979/1980-2018/2019</b>	<b>+1.4</b>	<b>-0.7</b>		

Source: U.S. Bureau of Labor Statistics, Geographic Profile of Employment and Unemployment, selected years 1979 to 2019.

The labor force participation rate in South Dakota remained elevated in the 72 percent range between 2000 and 2008. However, the combination of the adverse effects of the Great Recession of 2007-2009 and slow job market recovery through 2014, combined with the first baby boomers reaching retirement age in 2010, resulted in a decline in South Dakota’s labor force participation rate to 69 percent by 2018-19. Despite this decline South Dakota was still able to maintain a substantial advantage in labor force attachment of its resident population. Indeed by 2018-19, South Dakota had a 6.1 percentage point advantage in its labor force participation rate relative to the nation and had the fifth highest participation rate out of 50 states and D.C. If South Dakota had the same rate of labor force attachment as the nation, then there would have

been more than 42,000 fewer residents participating in the labor force, sharply reducing the potential level employment, output, and income in the state (Table 1).

Men's labor force participation has been declining in the U.S. since the 1960s while women's labor force attachment has been increasing, as married women with children entered the labor market in large numbers. Labor force participation among men in South Dakota followed the national pattern. In 1979/1980, the labor force participation rate of men was 81.4 percent, about 4-percentage points higher than the U.S. rate, and ranked 8<sup>th</sup> highest among 50 states and D.C. During 1980s and 1990s, the labor force participation rate of men in South Dakota stayed around 77-78 percent while the participation rate of men in the U.S. fell slightly and stayed around 75-76 percent. During 1999/2000, men's labor force participation rate in South Dakota was 78 percent, 3.5 percentage points higher than the national average rate and ranked 8<sup>th</sup> highest among 50 states and D.C. From 2000 to 2008, the male labor force participation rate in South Dakota hovered around 78 percent, while the participation rate of men in the U.S. fell by about 2-percentage points.

The Great Recession and its aftermath resulted in the male labor force participation rate decline in South Dakota, even after the recovery from the recession and job market growth, falling from about 76 percent in 2009/2010 to 73.6 percent in 2018/2019, the lowest rate on record since data on labor force participation became available for the state. In the entire U.S., men's labor force participation rate during this time period also fell substantially (Table 2). Despite these declines, South Dakota male labor force participation rate still ranked 8<sup>th</sup> highest in among 50 states and D.C. in 2009/2010 and 2018/2019. Overall, the male labor force participation rate declined by about 8-percentage points between 1979/1980 to 2018/2019 in South Dakota and 8.5 percentage points in the U.S.

Studies examining the potential causes of this trend in the U.S. have identified a number of economic factors as well as social forces that influence the choice to participate in the labor market.<sup>19</sup> Included among these are the technology and international trade-driven decline in jobs

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<sup>19</sup> See: "The Long-Term Decline in Prime-Age Male Labor Force Participation, Council of Economic Advisors, Executive Office of the President of the United States, June 2016 ([https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160620\\_cea\\_primeage\\_male\\_lfp.pdf](https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160620_cea_primeage_male_lfp.pdf)); [https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160620\\_cea\\_primeage\\_male\\_lfp.pdf](https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160620_cea_primeage_male_lfp.pdf).Valletta, Rob and Nathaniel Barlow, "The Prime-Age Workforce and Labor Market Polarization," Federal Reserve Bank of San Francisco, 2018 (<https://www.frbsf.org/economic-research/files/el2018-21.pdf>); Krause, Eleanor and Isabel Sawhill, "What we know and don't know about labor force participation: A Review," Center on Children and

Table 2:  
Trends in the Civilian Labor Force Participation Rates of Men and Women (16+) in  
South Dakota and the U.S., Selected Years, 1979/1980 to 2018/2019  
(2-Year Averages, in %)

Gender/Year	South Dakota	U.S.	SD – U.S.	Ranking Among 50 States
<b>Men</b>				
1979/1980	81.4	77.6	+3.8	8 <sup>th</sup>
1989/1990	77.7	76.4	+1.3	21 <sup>st</sup>
1999/2000	78.2	74.7	+3.5	8 <sup>th</sup>
2009/2010	75.9	71.6	+4.4	8 <sup>th</sup>
2018/2019	73.6	69.1	+4.5	8 <sup>th</sup>
<b>Change 1979/1980-2018/2019</b>	<b>-7.8</b>	<b>-8.5</b>		
<b>Women</b>				
1979/1980	55.1	51.3	+3.8	14 <sup>th</sup>
1989/1990	61.7	57.5	+4.2	14 <sup>th</sup>
1999/2000	67.9	60.1	+7.8	2 <sup>nd</sup>
2009/2010	67.6	58.9	+8.7	3 <sup>rd</sup>
2018/2019	64.7	57.3	+7.4	5 <sup>th</sup>
<b>Change 1979/1980-2018/2019</b>	<b>+9.6</b>	<b>+6.0</b>		

Source: U.S. Bureau of Labor Statistics, Geographic Profile of Employment and Unemployment, selected years 1979 to 2019.

in manufacturing and other goods-producing industries that are typically staffed by men. Permanent employment declines in these sectors of the economy, have resulted in diminished employment opportunities for men, especially those with no postsecondary degree awards. Rapidly rising rates of physical and mental disability and availability of alternative sources of income like earnings of a working wife and expanded participation in benefit transfer programs

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Families, The Brookings Institution, 2017 ([https://www.brookings.edu/wp-content/uploads/2017/05/ccf\\_20170517\\_declining\\_labor\\_force\\_participation\\_sawhill1.pdf](https://www.brookings.edu/wp-content/uploads/2017/05/ccf_20170517_declining_labor_force_participation_sawhill1.pdf)); Michaels, Ryan, “Why are Men Working Less These Days?” Federal Reserve Bank of Philadelphia Research Department, 2017 ([https://www.philadelphiafed.org/-/media/research-and-data/publications/economic-insights/2017/q4/eiq4\\_why-are-men-working-less-these-days.pdf?la=en](https://www.philadelphiafed.org/-/media/research-and-data/publications/economic-insights/2017/q4/eiq4_why-are-men-working-less-these-days.pdf?la=en)); Eberstadt, Nicholas, “Where Did All the Men Go?”, Milken Institute Review, April 2017 (<https://www.milkenreview.org/articles/where-did-all-the-men-go>); Krueger, Alan B., “Where Have All the Workers Gone? An Inquiry into the Decline of the U.S. Labor Force Participation Rate,” Brookings Papers of Economic Activity, Fall 2017 (<https://www.brookings.edu/wp-content/uploads/2018/02/kruegertextfa17bpea.pdf>); Dotsey, Michael, Shigeru Fujita, and Leena Rudanko, “Where is Everybody? The Shrinking Labor Force Participation Rate,” Federal Reserve Bank of Philadelphia Research Department, 2017 ([https://www.philadelphiafed.org/-/media/research-and-data/publications/economic-insights/2017/q4/eiq4\\_where-is-everybody.pdf?la=en](https://www.philadelphiafed.org/-/media/research-and-data/publications/economic-insights/2017/q4/eiq4_where-is-everybody.pdf?la=en)); Litzinger, Patrick J. and John H. Dunn, “The Labor Force Participation Rate: A Re-Examination of the Determinants of Its Decline,” *The Journal of Applied Business Research*, Vol. 31, No. 6, November/December 2015, pp. 2283-2296.

such as food stamps, Medicaid and/or disability benefits have also contributed to declines in participation among prime-age males. Shifts in cultural norms including declining marriage rates and increasing social acceptance of labor force withdrawal among healthy and able-bodied prime-aged men also contributed to these declines. Barriers to finding work among previously incarcerated men also explains some of the decline in the labor market participation of prime-aged men.<sup>20</sup>

In contrast to men, women's labor force participation rate has been rising in the U.S. since the early 1950s when married women with children started to enter the labor market raising their participation rate modestly but steadily each year.<sup>21</sup> The number of women in the labor force especially surged in the 1970s and 1980s as large numbers of baby boomers surged into the labor force. However, growth in the labor force attachment among women peaked around 2000 and their participation rates have declined modestly since then.<sup>22</sup>

A number of forces have influenced the increase in female labor force attachment. Rapid expansion in the nation's service sector meant expanded employment opportunities in a sector of the labor market that is an intensive employer of women. New employment opportunities, particularly associated with an emerging technology sector, resulted in higher wage premiums to high-skill jobs that enticed more women to acquire additional education, dramatically expanding their human capital investments, and increasing their entry into the labor market. Many adult women mixed work and school. Non-economic factors such as rising divorce rates which resulted in more women relying on the labor market for self-sufficiency; improvements in household technology which reduced time costs of home production; and changes in social

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<sup>20</sup> U.S. Congress, Joint Economic Committee, "Inactive, Disconnected and Ailing: A Portrait of Prime Age Men Out of the Labor Force," Social Capital Project, SCP Report No 3-18, September, 2018 (<https://www.jec.senate.gov/public/cache/files/4a929c09-9936-47eb-89e3-a77fd3fcd139/3-18-jec-report-inactive-disconnected.pdf>).

<sup>21</sup> Claudia Goldin, "The Quiet Revolution that Transformed Women's Employment, Education and Family," American Economic Association Papers and Proceedings, May 2006 ([https://scholar.harvard.edu/files/goldin/files/the\\_quiet\\_revolution\\_that\\_transformed\\_womens\\_employment\\_education\\_and\\_family.pdf](https://scholar.harvard.edu/files/goldin/files/the_quiet_revolution_that_transformed_womens_employment_education_and_family.pdf)).

<sup>22</sup> Toossi, Mitra and Teresa L. Morisi, "Women in the Workforce Before, During, and After the Great Recession," Spotlight in Statistics, U.S. Bureau of Labor Statistics, July 2017 (<https://www.bls.gov/spotlight/2017/women-in-the-workforce-before-during-and-after-the-great-recession/pdf/women-in-the-workforce-before-during-and-after-the-great-recession.pdf>).

attitudes about family formation, childbearing, child rearing, and shifts in roles of husbands and wives within the family unit; all contributed to the rising labor force attachment of women.<sup>23</sup>

Women had comparatively high labor force participation in South Dakota during 1979-80, with 55 percent of working-age women participating in the job market at the beginning of the 1980s, a level of labor force attachment well above that of their national counterparts (about 4-percentage points higher) ranking the state's female LFPR 14<sup>th</sup> highest among 50 states and D.C. (Table 2). The decade of the 1980s saw a sharp rise in female labor force attachment in both South Dakota and the nation. By 1989/1990, nearly 62 percent of women (16+) were active in the state's labor force, which was again 4-percentage points higher than their respective peers in the U.S., and the state's female participation rate was still ranked 14<sup>th</sup> highest among all states and D.C.

During the 1990s economic expansion and the labor market boom, women's labor force participation rose substantially in South Dakota considerably outpacing the rate of growth in female job market participation in the U.S. By 1999/2000, nearly 68 percent of working-age women in South Dakota were active members of the labor force. The South Dakota female labor force participation rate in 1999/2000 exceeded the U.S. rate by nearly 8-percentage points and ranked 2<sup>nd</sup> highest among the states. Women's labor force participation rate in South Dakota remained in the range of 67-69 percent between 2000 and 2008.

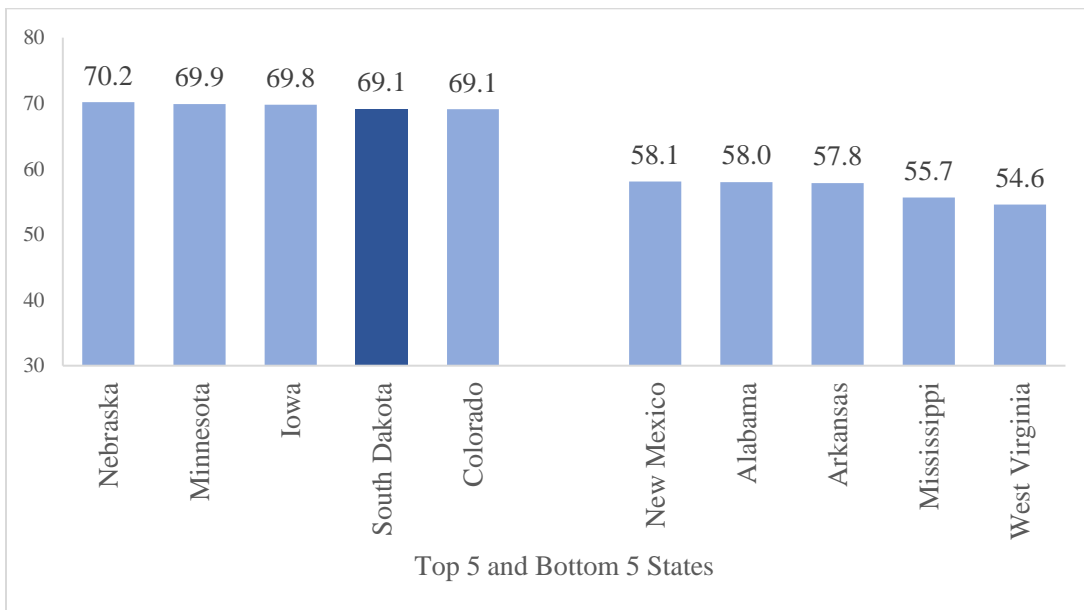
Growth in women's labor force participation rate in South Dakota started to fall beginning with the Great Recession of 2007-2009. By 2018/2019, women's labor force participation rate in South Dakota fell to 64.7 percent, much larger than the drop across the U.S. and substantially below the participation rate that prevailed in the state in the first decade of 21<sup>st</sup> century. Nonetheless women's labor force attachment in the state remained well above that of their counterparts throughout the nation. Overall, over the past 40 years, the labor force participation rate of women in South Dakota has increased by 9.6 percentage points, which was a more than 50 percent higher than the 6-percentage point rise in the participation rate of their respective peers in the entire U.S. over the same 40-year period.

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<sup>23</sup> Juhn, Chinhui and Simon Porter, "Changes in Labor Force Participation in the United States," *Journal of Economic Perspectives*, Vol. 20, No. 3, Summer 2006, pp. 27-46 (<http://www.uh.edu/~cjuhn/Papers/docs/30033665.pdf>); Goldin Claudia and Joshua Mitchell, "The New Life Cycle of Women's Employment: Disappearing Humps, Sagging Middles, and Expanding Tops," *Journal of Economic Perspectives*, Vol. 31, No. 1, Winter 2017, pp. 161-182 (<https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.31.1.161>).

To place South Dakota’s 2018/2019 civilian labor force participation rate in comparative perspective, we have displayed the 2018/2019 labor force participation rates of the top five and bottom five performing states together with that for South Dakota in Chart 1. The labor force participation rates of the top five states ranged from 69 percent in South Dakota and Colorado to about 70 percent in Iowa, Minnesota, and Nebraska. South Dakota’s labor force participation rate of 69 percent was nearly identical with the average of 69.6 percent for the top five states. In contrast, the bottom five states had labor force participation rates ranging from high of 58 percent in New Mexico and Alabama to a low of 55 percent in West Virginia, with an average for the bottom five states of 57 percent (Chart 1). South Dakota’s 2018/2019 labor force participation rate was 12-percentage points above the average of the bottom five performing states in the nation. A very large gap (12.6-percentage points) prevailed between the average participation rates of the top five and bottom five states in the country.

**Chart 1:**  
Civilian Labor Force Participation Rates of Persons (16+) in  
South Dakota and the Top Five and Bottom Five States in 2018-2019  
(2-Year Averages in %)



### Sources of Labor Force Decline in South Dakota Over the Past 20 Years

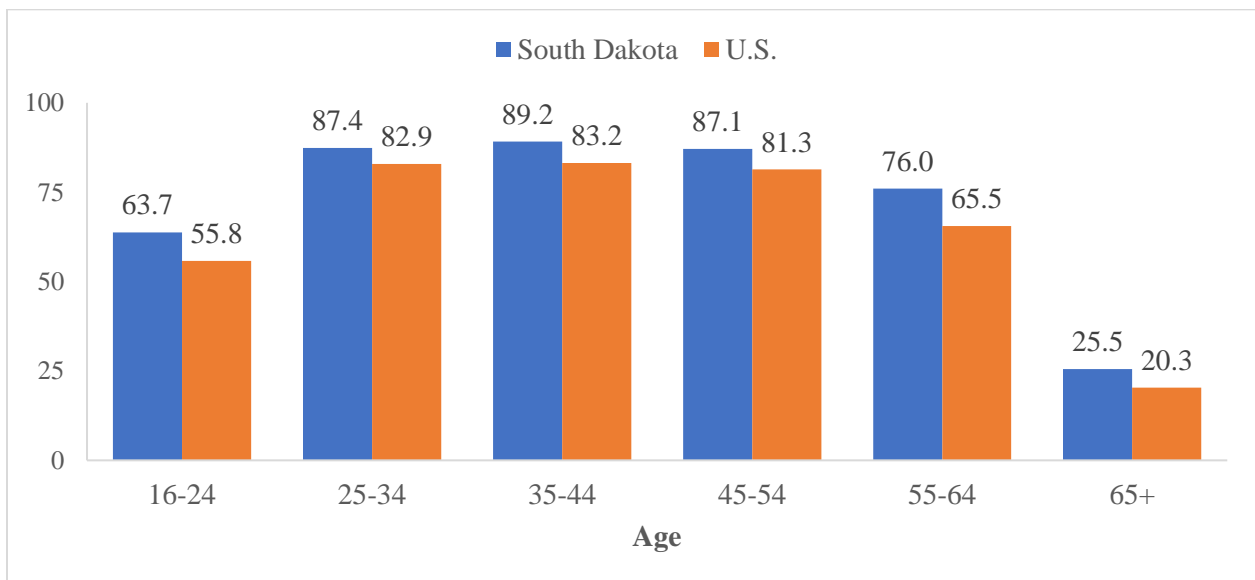
As highlighted in the previous section, labor force participation rate declined in both South Dakota and the U.S. between 2009/2010 and 2018/2019. The drop in the participation rate



was higher among men than among women. The decline in labor force participation rates over this time period was expected as the very large and aging baby boom cohort reached retirement age beginning in 2010. Between 2009-10 and 2018-19, the number of 65-plus years old residents of South Dakota increased sharply, by 26 percent, accounting for 57 percent of the net increase in the state’s working-age population over that time period. However, at the same time, the growth in the resident population (65+) of South Dakota was about 10-percentage points lower than that of the U.S. (36 percent). The result of these changes is a rapidly aging population and labor force.

The labor force participation behavior of working-age individuals varied greatly by age, as primary life activities change from school to work to retirement over the working age lifespan. Chart 2 displays findings on the labor force participation rate of working-age persons (16+) in South Dakota and the U.S. in 2018/2019 by age group. Among adults between the ages of 16 and 64, the lowest labor force participation rate was among teens and young adults between the ages of 16 and 24. The labor force participation rate increases sharply for the prime age persons (25 to 54), and then declines among 55- to 64-year-old persons (pre-retirement years), followed by a more abrupt decline for those in the retirement years (65-plus).

**Chart 2:**  
**Labor Force Participation Rate by Age Group in South Dakota and the U.S., 2018-2019**  
**(2-Year Averages)**



In South Dakota just under 64 percent of young adults (16-24 years old) were active members of the labor force during 2018/2019. The labor force participation rate rose to 87 percent among 25- to 34-year-old persons, peaked to 89 percent among 35- 44-year-olds, and then fell slightly among 45- to 54-year-olds (87 percent). Participation rates were considerably lower (76 percent) for those in their pre-retirement years (55 to 64) and dropped sharply among those aged 65-plus to 25.5 percent. It's important to note that there is no upper age limit for inclusion in the working-age population. This means that as the share of the 65 and older in working-age population continues to increase in South Dakota, the overall labor force participation rate is expected to decline. Declining labor force attachment and slower population growth suggest a further slowdown in the pace of labor force growth in the coming years.

To gain insight into how labor force attachment has changed by age group over the past 20 years in our analysis, we examined the participation rate for the three distinct time periods:

- 1999-2000 when the state was at full employment after a decade of strong job growth,
- 2009-2010 representing a period that includes most of the massive national declines in payroll employment associated with the Great Recession, and
- 2018-2019 representing an extremely tight labor market, with historically low unemployment rates in many states, rising real wages, and labor shortages, just before the global pandemic.

Findings in Table 3 reveal that much of the decline in the labor force participation rate in South Dakota and the U.S. over the past 20 years was not attributable to an aging population, but instead, associated with sharp declines in the labor force attachment among teens and young adults in the state as well as more modest, but still substantial declines in labor force participation among prime-age workers. Like most other states in the nation, there was a substantial increase in the job market attachment of persons aged 55 and above. Indeed, we find that as the rate of labor force attachment of persons under the age of 55 has declined over time, there has been a simultaneous increase in the labor force participation of residents in their pre-retirement and retirement years (Table 3).

As shown in Table 3, over the 1999/2000 and 2018/2019 period, the decline in the labor force participation of young people occurred along with a simultaneous rise in the work activities of older workers. These developments are likely closely related. Older workers, driven by a

variety of economic forces, opted to either return to work, or remain in the labor force full-time, or mix work and retirement income as a hedge against financial risks. Even in entry-level occupations where employers do not assign a high value to experience and content knowledge, older workers have increased their share of employment at the expense of teens and young adults.<sup>24</sup>

Table 3:  
Trends in Labor Force Participation Rate by Age Group in South Dakota and the U.S., Selected Years, 1999/2000-2018/2019 (2-Year Averages)

Age Group	Labor Force Participation Rate			Absolute Change		
	1999/2000	2009/2010	2018/2019	1999/2000-2009/2010	2009/2010-2018/2019	1999/2000-2018/2019
<b>South Dakota</b>						
16-24	74.9	65.9	63.7	-9.0	-2.1	-11.1
25-34	89.5	86.9	87.4	-2.6	0.5	-2.1
35-44	89.7	90.3	89.2	0.6	-1.1	-0.5
45-54	90.2	88.0	87.1	-2.1	-0.9	-3.0
55-64	70.5	73.0	76.0	2.5	3.0	5.5
65+	18.7	28.7	25.5	10.0	-3.1	6.8
<b>U.S.</b>						
16-24	65.9	56.5	55.8	-9.4	-0.8	-10.2
25-34	84.6	82.4	82.9	-2.2	0.5	-1.7
35-44	84.9	83.4	83.2	-1.4	-0.2	-1.7
45-54	82.6	81.4	81.3	-1.2	0.0	-1.2
55-64	59.5	65.0	65.5	5.4	0.5	6.0
65+	13.0	17.4	20.3	4.4	2.9	7.3

Source: Monthly CPS public use files, 1999, 2000, 2009, 2010, 2018, and 2019, U.S. Census Bureau, tabulations by authors.

In South Dakota, the decline in labor force attachment between 1999/2000 and 2018/2019 was largest among teens and young adults (11-percentage points), followed by 45- to 54-year-olds (3-percentage points), 25- to 34-year-olds (2-percentage points), and just under 1 percentage points among 35- to 44-year-olds (Table 3). At the other extreme, over this time period, labor force participation rate in the state rose by 5.5-percentage among 55- to 64-year-olds and about 7-percentage points among individuals who were 65 years or older. Very similar patterns of changes in the labor force participation rate occurred in the U.S. Teens (16-19) and young adults (20-24) experienced the largest decline in participation rates (10-percentage points)

<sup>24</sup> See: Neeta Fogg and Paul Harrington, “Rising Demand for Older Workers Despite the Economic Recession: Accommodation and Universal Design for the New American Workforce,” *Public Policy and Aging Report*, Winter 2011.

while those in pre-retirement years (55-64) and retirement years (65-plus) experienced the largest increase of 6-7 percentage points in participation rates (Table 3).

Research findings suggest that the decline in labor force participation rate among 16- to 24-year-old persons since 2000 are attributable to both demand and supply factors. On the demand side, youth have less education and experience and face increased competition from immigrants and older workers for jobs that require less education. On the supply side, large shares of youth are enrolled in school, particularly in post-secondary institutions, and have opted to reduce their labor market activities. The labor force attachment of in-school teens and young adults is considerably lower than their out of school counterparts. Firms are likely to hire workers with more experience and more availability.<sup>25</sup>

The decline in the labor force attachment of prime age workers, those between the ages of 25 and 54, is primarily thought to be consequence of two important factors:

- Labor force withdrawal associated with massive job losses during the Great Recession and a very sluggish job market recovery since the end of the recession in 2009 until 2014. Evidence shows that among prime-aged men, the labor force participation rate decline over the past 20 years was more pronounced among non-college educated persons.<sup>26</sup> Real wages for prime-aged men without a college degree have deteriorated due to a change in technology and globalization, making it less desirable to participate in the labor force.<sup>27</sup>
- Other researchers attribute much of the decline in participation of prime aged men and women to an increase in the number of people receiving Social Security disability insurance (SSDI) benefits.<sup>28</sup> Overall, about three quarters of labor force decline in the nation has been among persons under the age of 55 - suggesting that most of the decline in job market attachment that has occurred in the nation is not associated with an aging

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<sup>25</sup> See: Adrienne L. Fernandes-Alcantara, "Youth and the Labor Force: Background and Trends," Congressional Research Service, August 20, 2018 (<https://sgp.fas.org/crs/misc/R42519.pdf>).

<sup>26</sup> See: Steven F. Hipple, "Labor force participation: what has happened since the peak?" *Monthly Labor Review*, U.S. Bureau of Labor Statistics, September 2016 (<https://doi.org/10.21916/mlr.2016.43>).

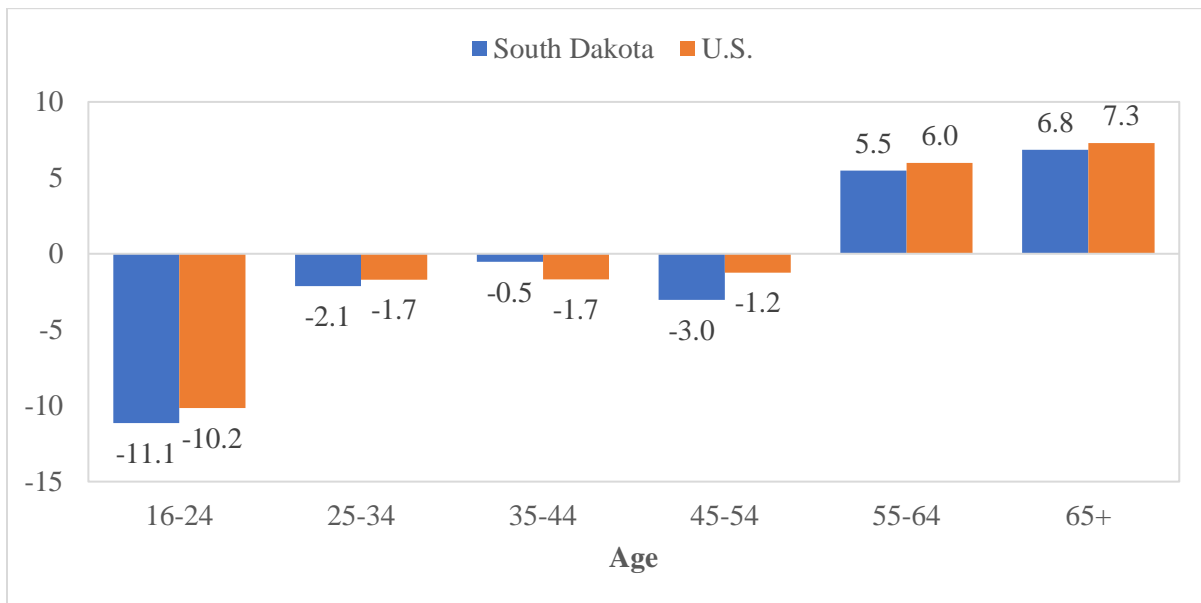
<sup>27</sup> See: (i) David H. Autor and Melanie Wasserman, *Wayward sons: the emerging gender gap in labor markets and education* (Washington, DC: Third Way, April 2013) (<http://economics.mit.edu/files/8754>).

<sup>28</sup> James Sherk, "Not Looking for Work: Why Labor Force Participation Has Fallen During the Recession," Background, The Heritage Foundation, September 2013; (ii) Daniel Aaronson, Hu Luo, Arian Seifoddini, and Daniel G. Sullivan, "Declining Labor Force Participation and Its Implications for Unemployment and Employment Growth", *Economic Perspectives*, Vol. 38, No. 4, 2014 (<https://ssrn.com/abstract=2598524>).

working-age population, but rather choices about participation in the job market among prime age and teen and young adult workers.<sup>29</sup>

The labor force participation rate increase for those 65 years and older is due to a variety of reasons, including the need for continued participation based on financial responsibilities, as well as the willingness and ability to participate given expected longer life spans.<sup>30</sup>

**Chart 3:**  
**Absolute Change in Labor Force Participation Rates, by Age Group,**  
**in South Dakota and the U.S., 1999/2000 to 2018/2019 (2-Year Averages)**



Labor force participation behavior is also linked to race-ethnicity of working-age persons. In 2018/2019, participation rates in South Dakota and the U.S. varied widely by race-ethnicity. Among the four major race-ethnicity groups, American Indian, who represented just under 9 percent of state’s population,<sup>31</sup> had the lowest participation rate in 2018/2019. Only 52 percent of American Indians in South Dakota were active participants in the labor force in 2018/2019. Nationwide, American Indians were also more likely to have a lower participation rate. Low labor force attachment among American Indians is associated with a higher incidence of

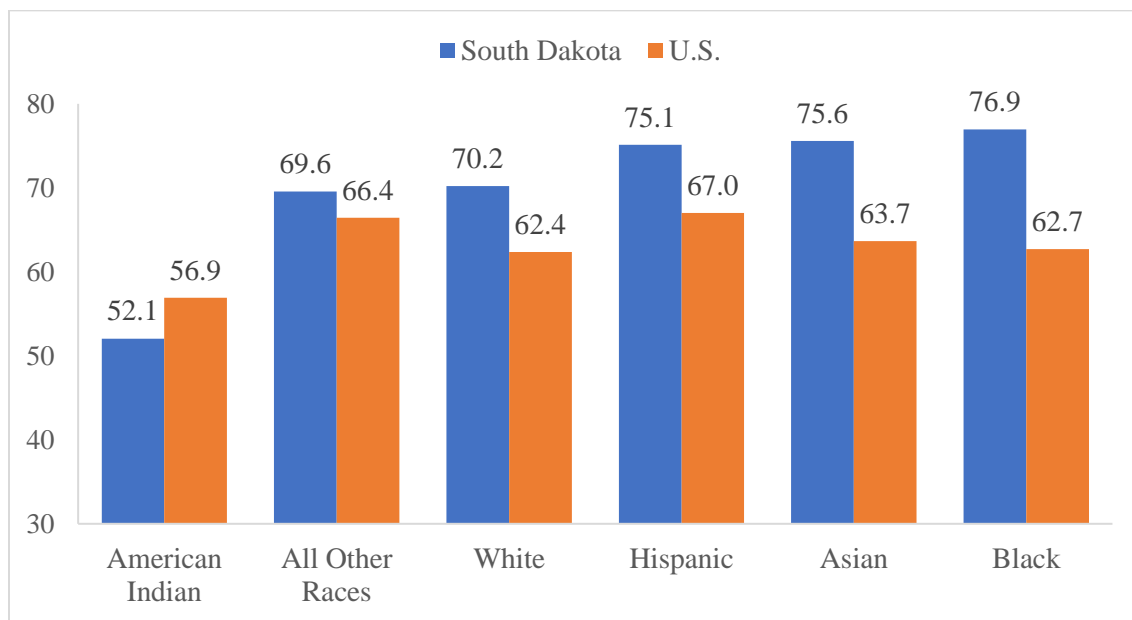
<sup>29</sup> Neeta Fogg, Paul Harrington, and Stephen Zapisek, “Some Findings on the Labor Market Experiences of the Working-Age American Indian Resident Population of South Dakota,” Research Brief, Center for Labor Markets and Policy, Drexel University, Philadelphia, PA, April 2014.

<sup>30</sup> See: Michael V. Leonesio, Benjamin Bridges, Robert Gesumaria, and Linda Del Bene, "The Increasing Labor Force Participation of Older Workers and its Effect on the Income of the Aged," *Social Security Bulletin*, Vol. 72, No. 1, 2012, <https://www.ssa.gov/policy/docs/ssb/v72n1/v72n1p59.html>

<sup>31</sup> According to Census 2020, just under 9 percent of South Dakota’s resident population was American Indian.

disability, and lower levels of educational attainment.<sup>32</sup> Among South Dakota’s non-Hispanic White working-age population, the participation rate was 70 percent, 8-percentage points higher than their peers nationwide. Minority groups in South Dakota, with the exception American Indians, had much higher labor force participation rates in comparison to non-Hispanic Whites. Persons of Asian, African American, and Hispanic race-ethnicity had labor force participation rate of 75-77 percent in 2018/2019. Similar findings prevailed for the U.S. (Chart 4).

**Chart 4:**  
**Labor Force Participation Rate by Major Race-Ethnicity Group in South Dakota and the U.S., 2018-2019 (2-Year Averages)**



Findings in the previous section revealed that the labor force participation rate in South Dakota over the past 20 years fell among all working-age population groups. However, the pace of decline did vary considerably by race-ethnicity. American Indians in South Dakota experienced the largest decline in labor force participation rate over the 1999/2000 and 2018/2019 period. The participation rate among American Indians in the state declined from 63 percent in 1999/2000 to 52 percent in 2018/2019, an absolute decline of 11-percentage points. Since American Indians are the second largest race/ethnic group in South Dakota, a sharp decline in the job market attachment of this group depresses the size of the state’s labor force. However, these

<sup>32</sup> See: Mary Dorinda Allard and Vernon Brundage Jr., "American Indians and Alaska Natives in the U.S. labor force," *Monthly Labor Review*, U.S. Bureau of Labor Statistics, November 2019 (<https://doi.org/10.21916/mlr.2019.24>).

findings of declining job market participation for American Indians are not unique to South Dakota. Similar reductions in American Indian labor force participation took place over the past 20 years nationwide; falling from 63 percent in 1999/2000 to 57 percent in 2018/2019 (Table 4). The larger loss in force attachment of American Indians in South Dakota and the nation, relative to the overall decline in the rate of labor force participation are not well understood. We might speculate that part of the observed decline in the labor force participation of American Indians in South Dakota may be associated with geographic mismatches between jobs and the residence of the American Indian working-age population in the state, but much more research needs to be undertaken to understand the underlying sources of the sharp decline in labor force participation of American Indians in the state and nation.

Table 4:  
Trends in Labor Force Participation Rate by Major Race-Ethnicity Group in South Dakota and the U.S., Selected Years, 1999/2000-2018/2019 (2-Year Averages)

Race-Ethnicity	Labor Force Participation Rate			Absolute Change		
	1999/2000	2009/2010	2018/2019	1999/2000-2009/2010	2009/2010-2018/2019	1999/2000-2018/2019
<b>South Dakota</b>						
White	73.3	73.6	70.2	0.3	-3.4	-3.1
Black	78.8	81.1	76.9	2.3	-4.1	-1.9
Asian	76.1	78.6	75.6	2.4	-3.0	-0.6
Hispanic	75.1	68.0	75.1	-7.1	7.2	0.0
American Indian	63.2	44.0	52.1	-19.2	8.0	-11.2
All Other Races	--	66.4	69.6	--	3.1	--
<b>U.S.</b>						
White	67.3	65.1	62.4	-2.2	-2.7	-4.9
Black	65.8	62.5	62.7	-3.3	0.2	-3.1
Asian	67.0	65.5	63.7	-1.5	-1.8	-3.4
Hispanic	68.9	67.9	67.0	-1.0	-0.9	-1.9
American Indian	63.3	56.4	56.9	-6.9	0.5	-6.4
All Other Races	--	65.4	66.4	--	1.0	--

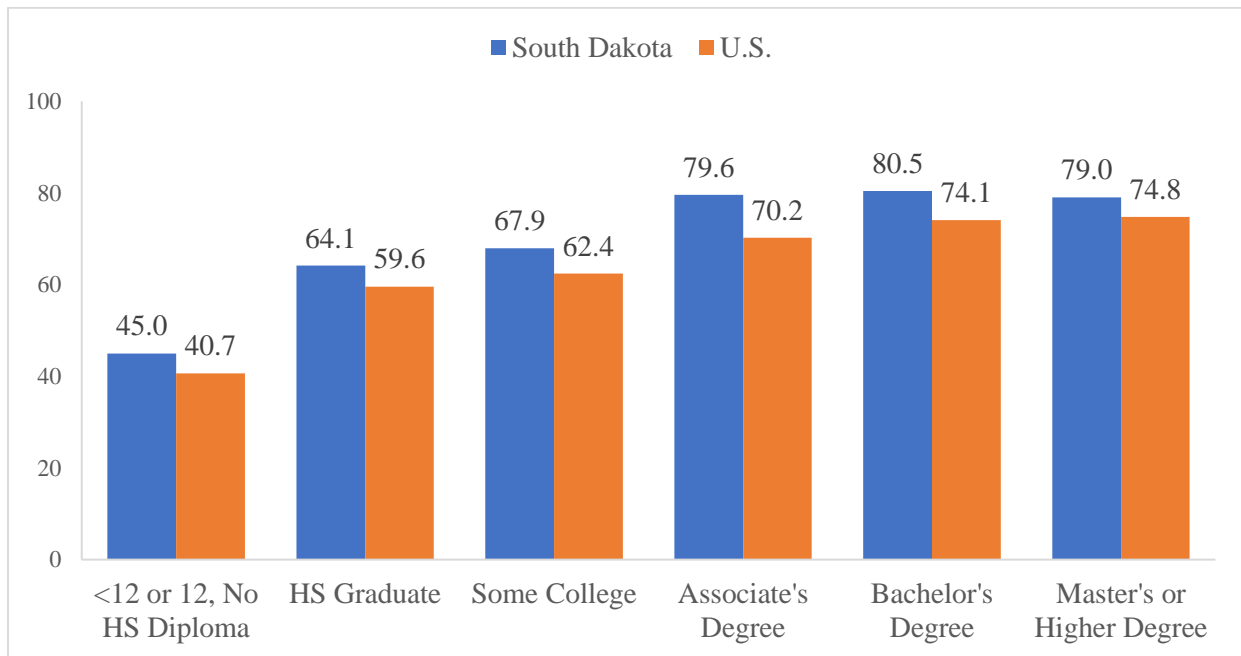
Source: Monthly CPS public use files, 1999, 2000, 2009, 2010, 2018, and 2019, U.S. Census Bureau, tabulations by authors.

Note: In CPS public use files for 1998 through 2002, only four categories of major race are available- White, Black, American Indian/Aleut/Eskimo, and Asian/Pacific Islander. In monthly CPS public use files starting 2003, more than 21 categories of race-ethnic groups were available. Asians were stand-alone category beginning 2003 and mix race groups and all other race groups from 2003 in our analysis is assigned “All Other” race category.

The labor force participation rate of the working-age population in South Dakota also varied widely by educational attainment. The state’s labor force participation rate in 2018/2019 ranged from lows of 45 percent among those without a high school diploma and 64 percent among those with a high school diploma, but no college enrollment, to highs of 79-80 percent

among bachelor’s degree and Master’s or higher degree recipients. South Dakota’s labor force participation rate for all six educational attainment categories exceeded that for the nation by 3-10 percentage points (Chart 5).

**Chart 5:**  
Labor Force Participation Rate by Educational Attainment in South Dakota and the U.S.,  
2018-2019 (2-Year Averages)



Labor force participation rates of each educational category in both South Dakota and the U.S. declined between 1999/2000 and 2018/2019; however, the sizes of these declines varied across educational subgroups. The largest decline in participation rate was among high school graduates (-9.3 percentage points), followed by those with some college (-7.8 percentage points), those with no high school diploma (-4.6 percentage points), Bachelor’s degree holders (-3.1 percentage points), and those with a master’s or a higher degree (-2.6 percentage points) (Table 5). Nationwide, the participation rate decline in each of the six educational groups was largest among those with some college (-9.6 percentage points), followed by Associate’s degree recipients (-8.3 percentage points), those with or without a high school diploma (-5 to -7 percentage points), and those with Bachelor’s or higher degree (-5 to -6 percentage points) (Table 5).



Table 5:  
Trends in Labor Force Participation Rate by Educational Attainment Level in South Dakota and  
the U.S., Selected Years, 1999/2000-2018/2019 (2-Year Averages)

Educational Attainment	Labor Force Participation Rate			Absolute Change		
	1999/ 2000	2009/ 2010	2018/ 2019	1999/2000- 2009/2010	2009/2010- 2018/2019	1999/2000- 2018/2019
<b>South Dakota</b>						
<12 or 12, No HS Diploma	49.6	43.9	45.0	-5.7	1.1	-4.6
HS Graduate	73.4	70.6	64.1	-2.8	-6.5	-9.3
Some College	75.7	71.9	67.9	-3.9	-4.0	-7.8
Associate Degree	82.3	84.5	79.6	2.2	-4.9	-2.7
Bachelor's Degree	83.6	83.8	80.5	0.2	-3.4	-3.1
Master's or Higher Degree	81.6	79.1	79.0	-2.5	-0.1	-2.6
<b>U.S.</b>						
<12 or 12, No HS Diploma	45.5	42.1	40.7	-3.4	-1.5	-4.9
HS Graduate	66.5	62.9	59.6	-3.6	-3.3	-6.9
Some College	72.0	67.4	62.4	-4.6	-5.0	-9.6
Associate Degree	78.6	75.7	70.2	-2.9	-5.4	-8.3
Bachelor's Degree	79.4	77.3	74.1	-2.2	-3.2	-5.4
Master's or Higher Degree	81.0	77.6	74.8	-3.4	-2.8	-6.2

Source: Monthly CPS public use files, 1999, 2000, 2009, 2010, 2018, and 2019, U.S. Census Bureau, tabulations by authors.

### Trends in the Size of the Labor Force in South Dakota Over the Past 20 Years

The size of the labor force in South Dakota increased from 405,000 in 1999/2000 to 465,000 in 2018/2019, an increase of 59,000 or 14.6 percent. The 14.6 percent increase in the state’s labor force during the period was slightly below the nation’s labor force growth rate of 15.8 percent, and the state ranked 32<sup>nd</sup> (tied with New Mexico) among the 50 states and D.C. (Table 6). Men’s labor force growth rate (16.5 percent) surpassed women’s in the state (12.5 percent) and accounted for 59 percent of the increase in the size of the South Dakota labor force over the 1999/2000 to 2018/2019 period. In contrast, only 50 percent of labor force growth rate in the U.S. over the past twenty-year was attributable to men. In South Dakota, above average growth in the size of the male population combined with slower declines in the male LFPR relative to the nation led to males accounting for a higher share of total labor force growth.

Table 6:  
Trends in the Size of the Labor Force in South Dakota and the U.S., 1999/2000, 2009/2010, and  
2018/2019, Total and by Gender, (2-year Averages, Numbers in 1000s)

Gender	1999/2000	2009/2010	2018/2019	Absolute Change, 1999/00-2018/19	Relative Change, 1999/00-2018/19 (%)
<b>South Dakota</b>					
All	405	445	465	59	14.6
Male	212	232	247	35	16.5
Female	194	213	218	24	12.5
<b>U.S.</b>					
All	141,248	154,262	163,548	22,300	15.8
Male	75,546	82,182	86,680	11,134	14.7
Female	65,735	72,115	76,892	11,158	17.0

Source: Monthly CPS public use files, 1999, 2000, 2009, 2010, 2018, and 2019, U.S. Census Bureau, tabulations by authors.

The growth in the size labor force in South Dakota between 1999/2000 and 2018/2019 varied immensely by the major race-ethnicity group. Even though 85 percent of state’s labor force comprised of non-Hispanic White residents, their labor force increased only by 19,000 or 5 percent over the past 20 years. Only one-third of South Dakota’s labor force growth over the past 20 years was attributable to an increase in non-Hispanic White labor force participants. In the U.S., the size of the non-Hispanic White labor force declined by just under 2 percent between 1999/2000 and 2018/2019.

Hispanics have played an increasingly important role in South Dakota labor markets. The Hispanic labor force in South Dakota tripled over the past 20 years, increasing by 321 percent in the state and accounting for 22 percent of the net labor force growth in the state. In the U.S. the size of the Hispanic labor force increased by 84 percent and Hispanics accounted for about 60 percent the net growth in the size of the nation’s labor force. African American and Asian labor force participants each accounted for a 2 percent or lower share of South Dakota’s labor force in 2018/2019, but their presence in the labor force increased rapidly rising by 148 and 157 percent, respectively, over the past twenty years (Table 7). About 18 percent of labor force growth in South Dakota over the past 20 years was attributable to African Americans and Asians combined.

The number of American Indians participating in South Dakota labor markets increased by 9,000 or 55 percent over the past 20 years and their contribution to state’s net labor force growth was 16 percent (Table 7). This rise occurred as a result of very rapid growth in the size of the American Indian working-age population even as labor force participation among this group declined sharply.

Table 7:  
Trends in the Size of the Labor Force in South Dakota and the U.S., 1999/2000, 2009/2010, and 2018/2019, by Race-Ethnicity, (2-year Averages, Numbers in 1000s)

Race-Ethnicity	1999/ 2000	2009/ 2010	2018/ 2019	Absolute Change, 1999/00- 2018/19	Relative Change, 1999/00- 2018/19 (%)
<b>South Dakota</b>					
White	377	406	397	19	5.1
Black	4	5	10	6	148.2
Asian	3	5	8	5	157.4
Hispanic	4	10	17	13	320.6
American Indian	17	17	27	9	54.9
All Other Races	--	3	7	7	--
<b>U.S.</b>					
White	102,898	104,516	101,147	-1,751	-1.7
Black	15,909	17,158	19,374	3,465	21.8
Asian	5,726	7,071	10,001	4,275	74.7
Hispanic	15,700	22,610	28,889	13,188	84.0
American Indian	1,047	820	1,135	88	8.4
All Other Races	--	2,122	3,027	3,027	--

Source: Monthly CPS public use files, 1999, 2000, 2009, 2010, 2018, and 2019, U.S. Census Bureau, tabulations by authors.

The labor force growth by age group over the 1999/2000 to 2018/2019 period was characterized by more nuanced developments. Labor force in South Dakota declined among 16- to 24, 35- to 44, and 45- to 54-years-olds while increasing sharply among 55 and older persons. Over the past 20 years, the 55 and older population in the state increased by 104,300, accounting for 91 percent of the entire rise in the size of the state’s working-age population, a much higher contribution from this age group in comparison to their share of the increase in the working-age population of the U.S. (78 percent).

The decline in young adult labor force (16-24) in South Dakota over the past twenty years was twice as large as that of the nation (14 percent versus 6 percent). Among 25- to 34-year-olds in the state, the labor force increased by 21 percent, which was 7-percentage points higher than the rate of labor force growth of this age group in the U.S. (Table 8). This growth reflected a surge in births that occurred between 1984 and 1995 (the Millennial generation) from baby boomers and younger members of Generation X. This surge in the number of children of baby boomers and younger generation X entering the labor force and helped offset what would have been very large declines in the size of the prime-age labor force in the state.

**Table 8:**  
**Trends in the Size of the Labor Force in South Dakota and the U.S., 1999/2000, 2009/2010, and 2018/2019, by Age Group, (2-year Averages, Numbers in 1000s)**

Age	1999/2000	2009/2010	2018/2019	Absolute Change, 1999/00-2018/19	Relative Change, 1999/00-2018/19 (%)
<b>South Dakota</b>					
16-24	77	67	66	-11	-14.0
25-34	79	91	96	17	21.1
35-44	105	80	93	-12	-11.2
45-54	87	107	85	-2	-2.5
55-64	40	69	89	49	123.6
65+	18	32	35	18	98.7
<b>U.S.</b>					
16-24	22,485	21,352	21,121	-1,364	-6.1
25-34	32,443	33,451	37,075	4,632	14.3
35-44	37,749	33,800	33,916	-3,833	-10.2
45-54	30,228	36,086	33,245	3,016	10.0
55-64	14,077	22,918	27,634	13,557	96.3
65+	4,298	6,689	10,581	6,283	146.2

**Source:** Monthly CPS public use files, 1999, 2000, 2009, 2010, 2018, and 2019, U.S. Census Bureau, tabulations by authors.

The state's 35- to 44-year-old labor force declined by 11 percent between 1999/2000 and 2018/2019, as baby boomers aged out of the prime age and were replaced by a much smaller birth cohort born between 1975 and 1984. The small cohort, called Generation X (born between 1965 and 1980), was a result of a substantial decline in birth rate in the U.S. since 1965 after a post WWII baby boom. Similar size declines in labor force for this age group occurred in the

U.S. The number of labor force participants aged 45 to 54 also declined slightly in South Dakota (2.5 percent) between 1999/2000 and 2018/2019 but increased in the U.S. by 10 percent over the same period.

The number of pre-retirement age individuals in the labor force has increased very substantially in both South Dakota and the U.S. Between 1999/2000 and 2018/2019, the number of 55- to 64-year-olds in the South Dakota labor force increased by 49,000 or 124 percent, accounting for 83 percent of net labor force growth in the state over this period. The number of 65 and older persons in the state’s labor force nearly doubled (98.7 percent increase) over the past 20 years (Table 8). In 1999/2000, only one in seven labor force participants was 55 and older. By 2018/2019, older workers accounted for more than one in four participants in South Dakota’s labor force.

Individuals who were foreign-born<sup>33</sup> accounted for a relatively small share of the South Dakota labor force, just 5.4 percent during 2018/2019. In contrast, 18 percent of the U.S. labor force comprised of individuals born abroad. South Dakota’s 5.4 percent foreign-born labor force share was the 6<sup>th</sup> lowest among the 50 states. However, the size of foreign-born labor force has increased sharply from this small base (264 percent) over the past 20 years and has become an important contributor to labor force growth in the state. The increase of 18,000 in the number of

Table 9:  
Trends in the Size of the Labor Force in South Dakota and the U.S., 1999/2000, 2009/2010, and 2018/2019, by Nativity Status, (2-year Averages, Numbers in 1000s)

Nativity Status	1999/2000	2009/2010	2018/2019	Absolute Change, 1999/00-2018/19	Relative Change, 1999/00-2018/19 (%)
<b>South Dakota</b>					
Native-Born	399	428	440	41	10.3
Foreign-Born	7	18	25	18	264.0
<b>U.S.</b>					
Native-Born	122,741	129,314	134,195	11,455	9.3
Foreign-Born	18,540	24,983	29,377	10,837	58.5

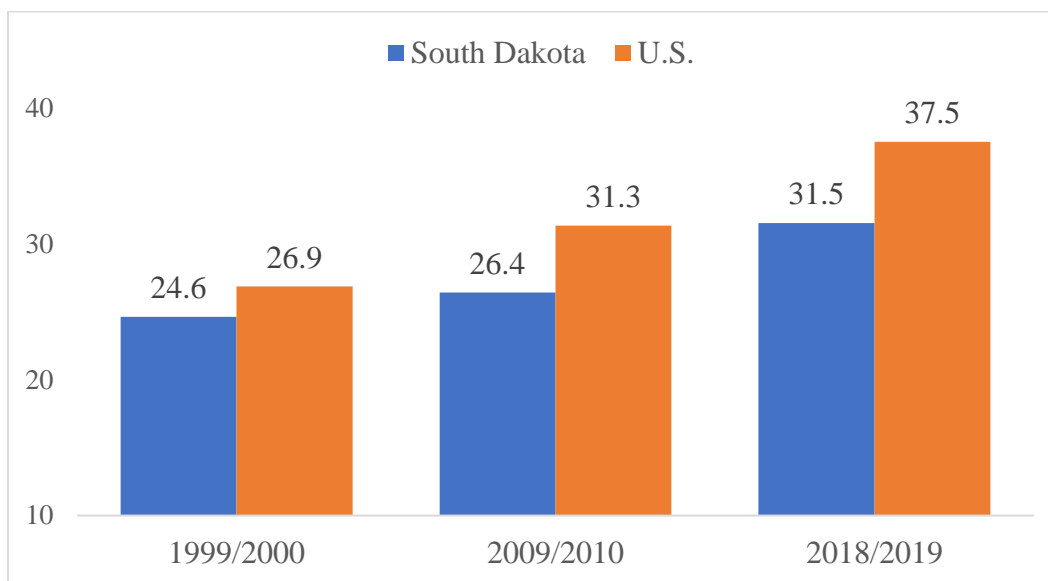
Source: Monthly CPS public use files, 1999, 2000, 2009, 2010, 2018, and 2019, U.S. Census Bureau, tabulations by authors.

<sup>33</sup> Foreign-born persons in our analysis are defined as those born outside of the U.S. 50 states and D.C., but exclude persons born from Americans parents abroad. Persons born in Puerto Rico and other outlying areas are defined as foreign-born persons because their educational and labor market outcomes are no different than the foreign-born persons.

foreign-born labor force participants in South Dakota over the past 20 years accounted for nearly one-third of the net labor force growth in the state over the same time period. In the U.S., the size of the foreign-born labor force increased by 58 percent over the past 20 years and accounted for nearly half (49 percent) of the labor force growth in the country. The size of the native-born labor force increased only by 10 percent in South Dakota, which was nearly identical to the native-born labor force growth in the entire U.S. (9 percent) over the past 20 years.

The share of South Dakota's labor force with a bachelor's or higher degree has increased over the past 20 years from just under 25 percent in 1999/2000 to 31 percent in 2018/2019. However, the state's share of the labor force with a college education lagged behind the nation over the past two decades (Chart 6). In 2018/2019, 31 percent of South Dakota's labor force (16+) had bachelor's or higher degree awards compared to a 37 percent share in the nation.

**Chart 6:**  
Share of Persons in the Labor Force (16+ Years Old) With a Bachelor's or Higher Degree, South Dakota and the U.S., 2018-2019 (2-Year Averages)



The size of the non-college educated labor force has declined over the past 20 years in both South Dakota and the U.S. with the larger reductions occurring among those without a high school diploma. The number of labor force members without a high school diploma in South Dakota dropped by 23 percent over the 1999/2000 to 2018/2019 period, a smaller decline than that observed nationwide (-27 percent) (Table 10). The number of South Dakota labor force participants with a high school diploma declined by 4.2 percent, a slightly larger decline than the

nation (3.3 percent). The number of labor force participants with some college education below the Associate’s degree level fell by about 8 percent in South Dakota and just 0.4 percent in the U.S.

Reductions in the number of labor force participants without a college degree in South Dakota was more than offset by the rise in the number of college graduates active in the state’s labor markets. The number of college graduates participating in the state’s labor force increased by 81,000 between 1999-2000 and 2018-2019, a relative increase of 55 percent. The number persons with an Associate’s degree rose by 35,000 or 77 percent, bachelor’s increased by 30,000 persons or 41 percent, and master’s plus recipients increased by 16,000or 63 percent (Table 10). The overall rate of growth in the college-educated labor force in U.S. was similar to South Dakota, 55 percent growth; however, compared to South Dakota, the rate of labor force growth in the nation was lower among Associate’s degree holders (49 percent vs. 77 percent) but was higher among both Bachelor’s degree recipients (54 percent vs. 41 percent) and masters or higher degree recipients (78 percent vs. 63 percent).

**Table 10:**  
Trends in Size of Labor Force in South Dakota and the U.S., 1999/2000, 2009/2010, and 2018/2019, by Educational Attainment Levels, (2-year Averages, Numbers in 1,000s)

Educational Attainment	1999/2000	2009/2010	2018/2019	Absolute Change, 1999/00-2018/19	Relative Change, 1999/00-2018/19 (%)
<b>South Dakota</b>					
<12 or 12, No HS Diploma	45	38	35	-11	-23.2
HS Graduate	135	138	130	-6	-4.2
Some College	79	82	72	-7	-8.6
Associate Degree	46	70	81	35	77.1
Bachelor's Degree	74	88	104	30	41.2
Master's or Higher Degree	26	30	43	16	62.6
<b>U.S.</b>					
<12 or 12, No HS Diploma	19,050	16,583	13,903	-5,147	-27.0
HS Graduate	44,448	44,682	42,965	-1,483	-3.3
Some College	28,273	29,698	28,166	-107	-0.4
Associate Degree	11,593	15,070	17,221	5,628	48.5
Bachelor's Degree	25,506	31,808	39,183	13,676	53.6
Master's or Higher Degree	12,410	16,457	22,135	9,724	78.4

Source: Monthly CPS public use files, 1999, 2000, 2009, 2010, 2018, and 2019, U.S. Census Bureau, tabulations by authors.

## The Outlook for Labor Force Growth in South Dakota, 2018/2019 to 2030

Since 2000, the pace of growth of South Dakota's working-age population has been well below the national average. Over the 1999/2000 to 2018/2019 period, the working-age population of South Dakota increased from 556,000 in 1999/2000 to 671,000 in 2018/2019, a rise of 115,000 or 20.7 percent, slightly below the U.S. growth rate of 23 percent. The working-age population growth rate of 20.7 percent in South Dakota ranked 22<sup>nd</sup> highest among the 50 states and D.C. While population growth has been slow in South Dakota, its impact has been partially mitigated by higher rates of labor force participation and lower rates of reduction in the state's labor force participation rate over time compared to the U.S. Indeed, South Dakota remains among the top five states on the measure of overall state labor force attachment of its working-age population. The higher participation rate offset the slow growth in the size of the working-age population over the past 20 years. The result of these two offsetting forces is that between 1999/2000 and 2018/2019, South Dakota's labor force increased by 59,000 or nearly 15 percent, placing the state 21<sup>st</sup> highest in labor force growth rate among the states.

Given the below average working-age population growth in South Dakota over the past 20 years, what would be the projected outlook for labor force growth in the state over the coming decade, 2020-2030? The answer to this question depends on three key factors:

1. Future changes in the overall size of the state's working-age population (16 and older),
2. Future changes in the age/gender/educational attainment composition of the state's working-age population and
3. Future changes in the labor force participation rates of selected age/gender groups.

We have prepared a set of labor force projections for the state of South Dakota that are based on the best data available to date on the likely growth path of the state's working-age population, changes in its key demographic characteristics and expectations of future labor force participation for key demographic groups in the state.

To project the size and age/gender composition of the civilian labor force in South Dakota between 2018/2019 and 2030, we used population projection data for South Dakota that are available from the Census Data Center at South Dakota State University (SDSU).<sup>34</sup> SDSU

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<sup>34</sup> Population projection data were downloaded from:  
<http://www.sdstate.edu/soc/rldc/general-demographic-data/upload/Projections-with-Pyramids2.xlsx>



population projections are available separately for men and women in four-year age intervals up to age 84. For 85 and older, projections are made for men and women separately for all 85 and older combined. We used the SDSU medium growth model projected population data by gender and age groups to estimate the number of working-age persons in the following eight age groups both in the aggregate and by gender for the years 2020 and 2030.

- 16-19
- 20-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75 and older

### Projected Outlook for Growth in South Dakota's Working-Age Population, 2020-2030

A primary source of potential growth in South Dakota's resident labor force is an increase in the size of the state's working-age population (16 and older). Projections of the size and composition of the South Dakota population developed by the State Data Center at South Dakota State University are the key source of information about expected developments in the State's population in future years. Table 11 displays size and the age and gender composition of South Dakota's projected working-age population between 2020 and 2030 prepared by SDSU.<sup>35</sup> In 2020, the state data center estimated that the number of persons in the working-age population of South Dakota was 699,300 (Table 11). The SDSU forecasts that by 2030, the working-age population of South Dakota is projected to rise to 756,200, representing a gain of 56,800 or 8.1 percent, nearly identical to the projected growth rate of working-age population for the nation (8.0 percent).<sup>36</sup>

The growth in South Dakota's population between 2020 and 2030 is projected to vary sharply by age group. The largest growth is expected to occur among residents aged 65 and older who are the members of the post-World War II baby boom generation (those born between 1946

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<sup>35</sup> Population projections pertain to the resident population and includes persons living in institutions (jails, prisons, nursing homes, mental health institutions) and those serving in the nation's armed forces that are based in South Dakota. The projected population will, thus, be somewhat larger than the civilian non-institutional population of working-age adults.

<sup>36</sup> See: U.S. Census Bureau's Population Projection, 2017-2060 available on the following U.S. Census Bureau website: <https://www.census.gov/data/datasets/2017/demo/popproj/2017-popproj.html>.

and 1964) and the first cohort of Generation X (born between 1965-1980). Between 2020 and 2030, the population of 65- to 74-year-olds in South Dakota is projected to grow by about 17 percent as the very large baby boomer generation will be 66-84 years old in 2030. Among the 75 and older age group, the population is projected to grow by 45 percent through the next decade. In 2020, about one-quarter (24 percent) of working-age persons were projected to be 65 and

**Table 11:**  
**Projected Size of the Working-Age Resident Population of South Dakota**  
**by Age Group and Gender, 2020-2030**

Gender	Age Group	2020	2030	Absolute Change	Relative Change (%)
Male	16-19	23,472	24,336	864	3.7
	20-24	28,126	31,396	3,269	11.6
	25-34	59,909	57,693	-2,216	-3.7
	35-44	54,804	60,160	5,356	9.8
	45-54	47,501	54,473	6,973	14.7
	55-64	56,640	45,787	-10,852	-19.2
	65-74	43,879	50,135	6,257	14.3
	75+	30,945	46,256	15,311	49.5
	Total	345,275	370,237	24,962	7.2
Female	16-19	21,858	23,049	1,191	5.4
	20-24	26,821	30,072	3,251	12.1
	25-34	56,850	55,246	-1,604	-2.8
	35-44	51,567	57,623	6,056	11.7
	45-54	46,099	51,768	5,669	12.3
	55-64	57,488	45,679	-11,809	-20.5
	65-74	45,323	53,969	8,646	19.1
	75+	48,064	68,565	20,501	42.7
	Total	354,070	385,971	31,901	9.0
Total	16-19	45,330	47,385	2,055	4.5
	20-24	54,948	61,468	6,521	11.9
	25-34	116,759	112,939	-3,820	-3.3
	35-44	106,371	117,783	11,412	10.7
	45-54	93,600	106,242	12,642	13.5
	55-64	114,128	91,466	-22,662	-19.9
	65-74	89,202	104,105	14,903	16.7
75+	79,008	114,821	35,812	45.3	
Total	699,345	756,208	56,863	8.1	

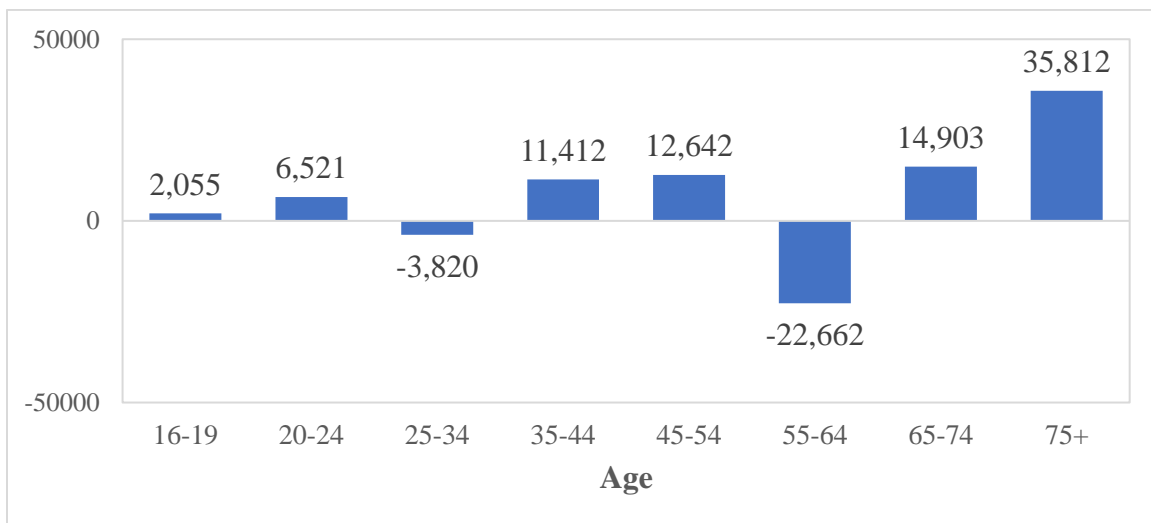
Source: Population Projection (medium series), South Dakota State University's Census Data Center, tabulations by authors.

older. By 2030, this age group’s share in state’s working-age population is projected to be 30 percent. Indeed, 4 in 10 working-age residents in South Dakota in 2030 are projected to be of age 55 and older. In the aggregate, the 65+ age cohort is projected to increase by nearly 51,000 or 30 percent between 2020 and 2030 and will account for nearly 90 percent of the net increase in the size of the resident, working-age population of South Dakota over this decade.

Between 2020 and 2030, the size of the working-age teen population (16-19) in South Dakota is projected to increase by only 4 percent while a growth rate of 12 percent is projected among young adults 20-24 years old. The size of the prime-age worker population is expected to grow slowly between 2020 and 2030. Overall, the prime-aged population (25-54 years old) of South Dakota will grow by about 20,000 persons or just 6 percent over the coming decade. It should be noted that prime-aged persons are characterized by the highest rate of labor force participation. The expected rise in the size of the prime-aged workforce is exclusively the result of increases strong gains in the 35 to 44 age group expected to increase by 10.7 percent and among those aged 45 to 54 with a projected rise of 13.5 percent. In contrast, the number of younger prime-age workers (25-34 years old) is projected to decline slightly (-3.3 percent) (Table 11).

A decline of nearly 20 percent in projected population of 55-64 years old is projected to occur over the 2020 to 2030 decade as the smaller Generation X (born between 1965-1980) will be 50-65 years old by 2030. These projected changes in the age composition of the state over the

Chart 7:  
Projected Changes in the Working-Age Population of South Dakota  
Between 2020 and 2030, by Age Group



coming decade will make the state increasingly (nearly exclusively) dependent upon persons in their retirement years (65 and older) for its labor force growth (Chart 7).

The share of men and women in the working-age population will be nearly identical in 2020 and 2030. Both groups are projected to have similar growth/decline patterns by age groups. Elderly women will account for 91 percent of the expected growth in the size of the state's female working-age population between 2020 and 2030 while 86 percent of the population rise among men will occur among those aged 65 and older. Given a greater life expectancy, women's population in South Dakota is projected to grow at a higher rate than men's (9 percent among women and 7 percent among men). Given the higher population growth rate among women over this decade, women's contribution to the increase in the size of the working-age population will be much higher than men's (56 percent versus 44 percent) (Table 11).

### The Labor Force Participation Rates of South Dakota Residents in 2018/2019 and the Projected Outlook to 2030

In addition to forecasts about the size and demographic characteristics of the working-age population in South Dakota measures of the labor force participation behavior of the working-age population in the future are also required to provide a forecast of labor force growth in the state.

The base that we use for estimates of future labor force participation are measures of civilian labor force participation rates of South Dakota residents by age group and gender categories during 2018/2019 that are displayed in Table 12.<sup>37</sup> The civilian labor force participation rates of South Dakota residents varied widely age group, rising sharply as they move from their teenage years when only 47 percent were active in the labor force to 78 and 87 percent in their 20s and mid 30's. Labor force participation rates peaked for 35- to 44-year-olds (89.1 percent), and then started to decline after the mid 40's, and dropping steeply after age 55 and then again after age 65. Men were more likely to be in the labor force than women except in their teen and mid 20s when women's labor force attachment slightly outpaced that of men. The patterns of labor force participation rate among men and women were similar by age group. (Table 12).

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<sup>37</sup> Labor force numbers for 2018/2019 by gender and age for South Dakota used in labor force projections between 2018/19 and 2030 are generated from the Monthly Current Population Survey (CPS) public use data files for 2018 and 2019. The sample size of the 16 years and older population in South Dakota was much larger in CPS data than in American Community Survey (ACS) data.

Table 12:  
Civilian Labor Force Participation Rates in South Dakota,  
by Gender and Age, 2018-2019 Averages (In Percent)

Age Group	All	Men	Women	Men- Women
16+	69.2	73.6	64.7	+8.9
16-19	46.8	45.8	47.7	-1.9
20-24	78.2	77.8	78.6	-0.8
25-34	87.5	92.4	82.2	+10.2
35-44	89.1	92.8	85.1	+7.6
45-54	87.1	90.6	83.6	+7.0
55-64	75.9	78.0	73.6	+4.4
65-74	35.7	41.5	30.2	+11.3
75+	11.8	18.8	6.3	+12.5

Source: 2018 and 2018 Monthly Current Population Surveys public use files, U.S. Census Bureau, tabulations by authors.

We have projected the size of South Dakota’s labor force using two scenarios:

1. No Change Scenario: In our first 2030 labor force projections scenario for South Dakota, we have applied the 2018-2019 average civilian labor force participation rates for each age/gender subgroup to their 2030 projected population levels. The key assumption underlying the labor force projections under scenario one is that these participation rates will remain unchanged over the next eleven-year period between 2018/2019 and 2030 and that only changes in the size and gender/age composition of the working-age population will determine the size of the labor force in the future.
2. National Trend Scenario: Under the second projections scenario, we adjust the 2018/2019 average labor force participation rates for each age/gender group in South Dakota for the projected national changes in labor force participation rates for these same demographic subgroups between 2020 and 2030. Recently, the U.S. Bureau of Labor Statistics has projected civilian labor force participation rates for these age groups from 2020 to 2030 to generate employment projection for the same time period.<sup>38</sup> This method accounts for expected changes in the size and gender/age

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<sup>38</sup> See: U.S. Bureau of Labor Statistics, “Employment Projection, 2020-2030,” September 8, 2021, <https://www.bls.gov/news.release/pdf/ecopro.pdf>. Detailed labor force participation projection tables are available on the following BLS website: <https://www.bls.gov/emp/data/labor-force.htm>.

composition of the working-age population as well as potential changes in the decision to engage in the labor market for various gender/age groups.

Table 13 displays projected labor force trends in South Dakota by gender/age group in 2030 under the first no change scenario (labor force participation rates for each gender/age group in 2030 will remain unchanged over the projection period). Projected labor force in 2030 in each gender/age group are derived by multiplying the projected number of persons in each age/gender group in 2030 by their labor force participation rate in 2018-2019. Summing these projected labor force estimates across the 16 age/gender subgroups in 2030 yielded the projected aggregate size of the state's civilian labor force in 2030.

Based on this assumption, the size of South Dakota's labor force will be 485,900 in 2030, an increase of 21,600 or a modest 4.7 percent from the 2018-19 level (Table 13). Under this assumption, men's labor force growth will be higher than women's between 2018/2018 and 2030 (5.0 percent among men versus 4.3 percent among women).

Under the no change scenario growth in the size of labor force in South Dakota will vary greatly by age group between 2018/2019 and 2030. Nearly 72 percent of the projected increase in the labor force between 2018/2019 and 2030 in the state will come from persons 65 and older whose numbers. The no change projections suggest that the number of older workers participating in the labor market will increase by nearly 15,500 while the overall resident labor force in the state will increase by only 21,600.

Teen labor force growth in the state is expected to be flat through 2030 as the size of the female teen labor force falls and the male labor force rises only enough to offset the decline among teen females. Therefore, under the no change scenario, teens will make no contribution to growth in the South Dakota labor force. The young adult (20-24) labor force is expected to increase by about 10 percent.

The size of the prime-age labor force in South Dakota is expected to increase by about 21,900 persons, a rise of 8 percent. Among the prime-age group, the smallest labor force growth will take place among 25- to 34-year-olds over this time period with an increase of just 2,700 labor force participants or just 2.8 percent over the forecast period. Labor force members in the 35 to 44 and 45- to 54-year age groups in South Dakota will grow by 11,900 or 12.8 percent and 7,300 or 8.6 percent, respectively. The rise of nearly 22,000 prime age workers will be largely

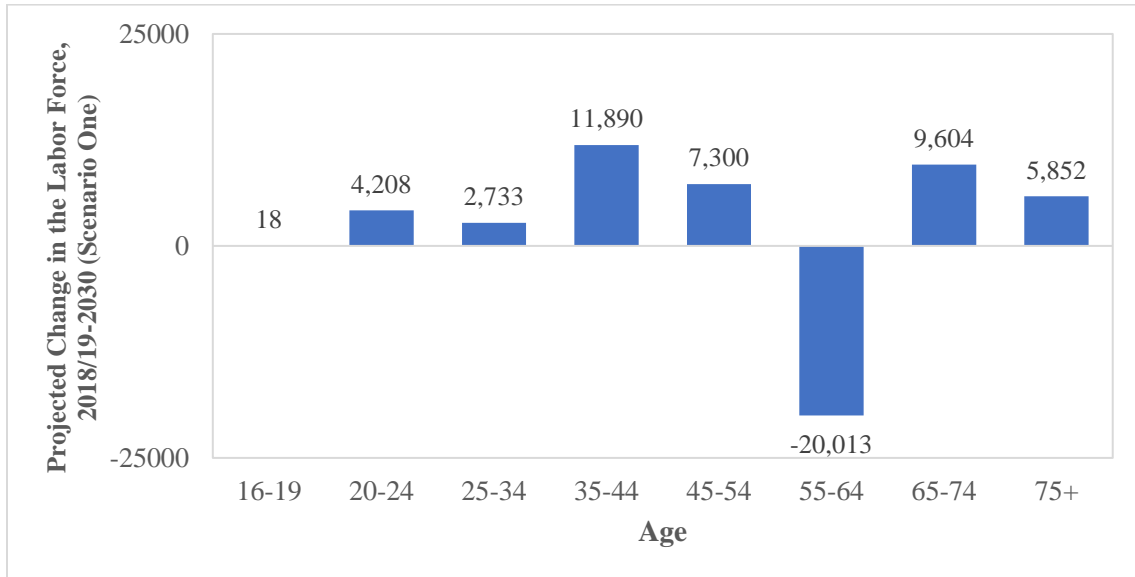
**Table 13:**  
**The Size of 2018-2019 Civilian Labor Force and the Projected Civilian Labor Force in 2030 in South Dakota Under the Assumption that Gender/Age Labor Force Participation Rates in 2030 Remain at 2018-2019 Levels (Scenario One)**

Age Group	(A) Labor Force (LF), 2018-19	(B) Labor Force Participation Rate 2018-19	(C) Projected Population, 2030	(D) Projected Labor Force, 2030 (B/100)*C	(E) Absolute Change in LF, 2018/19 to 2030 (D-A)	(F) Relative Change in LF (%), 2018/19 to 2030 (E/A)*100
<b>Male</b>						
16-19	10,629	45.8	24,336	11,148	519	+4.9
20-24	22,158	77.8	31,396	24,426	2,268	+10.2
25-34	52,325	92.4	57,693	53,293	968	+1.8
35-44	50,498	92.8	60,160	55,809	5,311	+10.5
45-54	43,889	90.6	54,473	49,356	5,467	+12.5
55-64	46,816	78.0	45,787	35,728	-11,088	-23.7
65-74	15,664	41.5	50,135	20,814	5,150	+32.9
75+	5,014	18.8	46,256	8,718	3,703	+73.9
Male, 16+	246,994	73.6	370,237	259,292	12,298	+5.0
<b>Female</b>						
16-19	11,499	47.7	23,049	10,999	-500	-4.4
20-24	21,687	78.6	30,072	23,628	1,941	+8.9
25-34	43,653	82.2	55,246	45,418	1,765	+4.0
35-44	42,474	85.1	57,623	49,053	6,579	+15.5
45-54	41,437	83.6	51,768	43,270	1,833	+4.4
55-64	42,562	73.6	45,679	33,637	-8,925	-21.0
65-74	11,846	30.2	53,969	16,300	4,454	+37.6
75+	2,189	6.3	68,565	4,337	2,148	+98.1
Female, 16+	217,347	64.7	385,971	226,642	9,295	+4.3
<b>All</b>						
16-19	22,129	46.8	47,385	22,147	18	+0.1
20-24	43,846	78.2	61,468	48,054	4,208	+9.6
25-34	95,978	87.5	112,939	98,711	2,733	+2.8
35-44	92,972	89.1	117,783	104,862	11,890	+12.8
45-54	85,326	87.1	106,242	92,625	7,300	+8.6
55-64	89,378	75.9	91,466	69,365	-20,013	-22.4
65-74	27,510	35.7	104,105	37,114	9,604	+34.9
75+	7,203	11.8	114,821	13,055	5,852	+81.2
<b>All, 16+</b>	<b>464,341</b>	<b>69.2</b>	<b>756,208</b>	<b>485,934</b>	<b>21,593</b>	<b>+4.7</b>

Source: (i) 2018-2019 labor force and labor force participation rates for South Dakota are estimated from the monthly Current Population Survey 2018-2019 public use files, U.S. Census Bureau (ii) 2030 population projection data are from Census Population Center in University from South Dakota.

offset by a large decline of 20,000 in the number of active labor force members in their pre-retirement years (55-64), representing a 22 percent decline (Table 13 and Chart 8).

Chart 8:  
Absolute Change in the Projected Civilian Labor Force in South Dakota  
between 2018/2019 and (Projected) 2030, by Age Group, Scenario One



Under our second projections scenario, we adjusted the 2018-2019 civilian labor force participation rates for each age/gender group in South Dakota by applying the U.S. Bureau of Labor Statistics projections of relative changes in the national labor force participation rates for these same gender/age groups between 2020 and 2030. Table 14 displays recently projected labor force participation rates in the U.S. by gender/age groups prepared by the U.S. Bureau of Labor Statistics (BLS).

The BLS labor force projections suggest that the overall labor force participation rate of the nation will decline by 1.4 percentage points by 2030. The largest decline in the labor force participation rate is projected to occur among teens continuing a longer-term trend of declining labor force attachment of teenagers in the nation. BLS forecasts that the participation rate for teen males will fall by a very large 7.0 percentage points accompanied by a 5.8 percentage point decline in the teen female labor force participation rate. Participation among young adult (aged 20-24) males is expected to fall by 4.6 percentage points while that of young females will fall only slightly.



A more mixed picture emerges for the labor force attachment for prime-aged (25-54) workers through the next decade. Prime-aged men’s labor force participation is projected to decline by 1.2 percentage points while among prime-aged women participation is projected to

**Table 14:**  
**Projected Labor Force Participation Rate in the U.S. by Gender/Age Group,**  
**2020 and Projected 2030 (In Percent)**

Gender	Age Group	2020	2030 (Projected)	Absolute Change	Relative Change
Male	16-19	34.1	27.1	-7.0	-20.5
	20-24	71.0	66.1	-4.9	-6.9
	25-34	87.1	85.1	-2.1	-2.3
	35-44	89.7	88.7	-1.0	-1.1
	45-54	86.8	86.0	-0.8	-0.9
	55-64	70.7	72.4	1.7	+2.4
	65-74	31.5	36.3	4.9	+15.2
	75+	11.8	14.4	2.6	+22.0
	<b>Total</b>		<b>67.7</b>	<b>65.1</b>	<b>-2.5</b>
Female	16-19	34.9	29.1	-5.8	-16.6
	20-24	67.5	66.7	-0.8	-1.2
	25-34	75.7	76.8	1.2	+1.5
	35-44	75.0	75.0	0.0	0.0
	45-54	74.7	76.6	1.9	+2.5
	55-64	59.1	65.1	6.0	+10.2
	65-74	22.4	28.1	5.7	+25.4
	75+	6.8	9.6	2.8	+41.2
	<b>Total</b>		<b>56.2</b>	<b>55.8</b>	<b>-0.4</b>
Total	16-19	34.5	28.1	-6.4	-18.6
	20-24	69.3	66.4	-2.8	-4.2
	25-34	81.4	80.9	-0.5	-0.6
	35-44	82.2	81.9	-0.3	-0.4
	45-54	80.6	81.2	0.6	+0.7
	55-64	64.7	68.6	4.0	+6.0
	65-74	26.6	32.0	5.3	+20.3
	75+	8.9	11.7	2.7	+31.5
	<b>Total</b>		<b>61.7</b>	<b>60.3</b>	<b>-1.4</b>

**Source:** U.S. Bureau of Labor Statistics, *Employment Projection 2020-2030*, available in BLS Web site, <https://www.bls.gov/emp/tables/civilian-labor-force-participation-rate.htm>.

increase by 1-percentage point. BLS expects that the labor force attachment among retirement-aged workers will continue to rise, particularly among those between the ages of 65 and 74 as

individuals increasingly mix work and retirement income or opt to delay retirement altogether (Table 14).

Table 15 displays labor force projections for South Dakota based on the second scenario (the national trends scenario) that accounts for both projected changes in the size and composition of the working-age population between 2018/19 and 2030 as well as for expected changes in the decision to participate in the labor force among 16 gender/age groups. The projected growth in the labor force in South Dakota under the second projection scenario is more optimistic than the first scenario as this projection accounts for rising labor force participation among South Dakota residents aged 65 and older, that is in line with national projections. It is important to recognize that these projections assume that labor force participation at the national level is expected to quickly rebound from the effects of the Covid-19 lockdowns that were implemented with varying degrees of intensity across states in the nation. An expectation that is yet to be tested.

Under the second projections scenario, South Dakota's resident labor force is expected to increase from 464,300 in 2018/2019 to 494,500 in 2030, representing a gain of 30,200 or 6.1 percent (Table 15). In contrast to the first scenario, women's labor force growth in South Dakota over this time period will be much higher than men's (7.7 percent among women and 4.6 percent among men). The largest drop in the labor force will be among 16-19 years old (22.8 percent) and 55-64 years old (21.4 percent). The labor force growth among 20-24 years old is projected to be small (4.9 percent) with much of the gains coming from women in this age group.

The prime-age labor force is projected to grow by 7.8 percent, largely attributable to growth in the labor force of 35- to 54-year-olds. Again, growth in prime-aged labor force is projected to be totally offset by labor force decline among persons in pre-retirement age of 55 to 64 years old (a decline of 15,800 or 21.4 percent). The labor force aged 65-74 years old is projected to grow by 38 percent in South Dakota over the 2018/2019 and 2030 time period under the second scenario. Among those aged 75 years and older, the labor force is projected to grow by 57 percent through 2030. The labor force growth/decline pattern among men and women by age group was similar, although different in magnitude (Table 15). Overall, 87 percent of net increase in labor force in South Dakota between 2018/2019 and 2030 will come from residents aged 65 and older. The entire net increase in men's labor force will come from men 65 and older

while 69 percent of the net increase in the state’s female labor force over the decade is projected to come from elderly women.

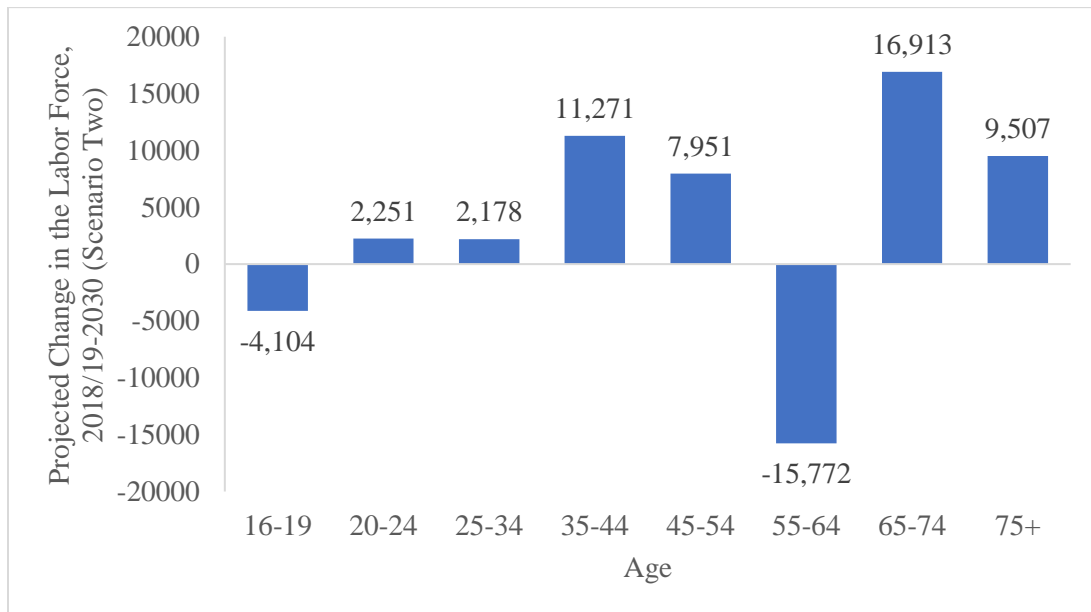
**Table 15:**  
Projected Changes in the Size and Age/Gender Composition of the Civilian Labor Force in South Dakota, 2018/19-2030 Under the Assumption that the SD Gender/Age Labor Force Participation Rates in 2030 Change at the Same Rate as Projected to Change in the U.S. between 2020 and 2030 (Scenario Two)

Age Group	(A) LFPR, SD, ACS 2018-19	(B) LFPR Change Factor, 2020- 2030, U.S.	(C) SD Projected LFPR with 2030 US Change Factor (A+B)	(D) Size of SD Labor Force, 2018-19	(E) Projected SD Population 2030	(F) Projected Size of SD Labor Force (C/100)* E	(G) Absolute Change in SD Labor Force, 2018/19- 2030	(H) Relative Change in SD Labor Force, 2018/19- 2030 (%)
<b>All</b>								
16-19	46.8	0.814	38.1	22,129	47,385	18,025	-4,104	-22.8
20-24	78.2	0.958	74.9	43,846	61,468	46,097	2,251	+4.9
25-34	87.5	0.994	87.0	95,978	112,939	98,156	2,178	+2.2
35-44	89.1	0.996	88.8	92,972	117,783	104,243	11,271	+10.8
45-54	87.1	1.007	87.7	85,326	106,242	93,277	7,951	+8.5
55-64	75.9	1.060	80.5	89,378	91,466	73,606	-15,772	-21.4
65-74	35.7	1.203	42.9	27,510	104,105	44,423	16,913	+38.1
75+	11.8	1.315	15.5	7,203	114,821	16,710	9,507	+56.9
All, 16+	69.2	0.979	67.7	464,342	756,209	494,537	30,195	+6.1
<b>Male</b>								
16-19	45.8	0.795	36.4	10,629	24,336	8,858	-1,771	-20.0
20-24	77.8	0.931	72.4	22,158	31,396	22,740	582	+2.6
25-34	92.4	0.977	90.3	52,325	57,693	52,084	-241	-0.5
35-44	92.8	0.989	91.8	50,498	60,160	55,206	4,708	+8.5
45-54	90.6	0.991	89.8	43,889	54,473	48,898	5,009	+10.2
55-64	78.0	1.024	79.9	46,816	45,787	36,573	-10,243	-28.0
65-74	41.5	1.152	47.8	15,664	50,135	23,976	8,312	+34.7
75+	18.8	1.220	22.9	5,014	46,256	10,612	5,598	+52.8
Male, 16+	73.6	0.962	70.8	246,993	370,236	258,948	11,955	+4.6
<b>Female</b>								
16-19	47.7	0.834	39.8	11,499	23,049	9,167	-2,332	-25.4
20-24	78.6	0.988	77.7	21,687	30,072	23,356	1,669	+7.1
25-34	82.2	1.015	83.4	43,653	55,246	46,072	2,419	+5.3
35-44	85.1	1.000	85.1	42,474	57,623	49,037	6,563	+13.4
45-54	83.6	1.025	85.7	41,437	51,768	44,379	2,942	+6.6

Age Group	(A) LFPR, SD, ACS 2018-19	(B) Change Factor, 2020-2030, U.S.	(C) SD Projected LFPR with 2030 US Change Factor (A+B)	(D) Size of SD Labor Force, 2018-19	(E) Projected SD Population 2030	(F) Projected Size of SD Labor Force (C/100)* E	(G) Absolute Change in SD Labor Force, 2018/19-2030	(H) Relative Change in SD Labor Force, 2018/19-2030 (%)
55-64	73.6	1.102	81.1	42,562	45,679	37,033	-5,529	-14.9
65-74	30.2	1.254	37.9	11,846	53,969	20,446	8,600	+42.1
75+	6.3	1.412	8.9	2,189	68,565	6,098	3,909	+64.1
Female, 16+	64.7	0.993	64.2	217,347	385,971	235,589	18,242	+7.7

**Source:** (i) 2018-2019 labor force and labor force participation rates for South Dakota are estimated from monthly Current Population Survey 2018-2019, public use files, U.S. Census Bureau (ii) 2030 population projection data are from Census Population Center in University from South Dakota; (iii) Labor force projection rate data are from the U.S. Bureau of Labor Statistics available in BLS Web site, <https://www.bls.gov/emp/tables/civilian-labor-force-participation-rate.htm>

**Chart 9:**  
**Absolute Change in the Projected Civilian Labor Force in South Dakota by Age Group, 2018/2019-2030, Scenario Two**



### A Comparison of the Projected Growth in South Dakota’s Resident Labor Force Under Two Scenarios

The projected outlook for labor force growth in South Dakota under the two scenarios differs only modestly. Under scenario one, which assumes no changes in the existing age/gender patterns of civilian labor force participation rates, the state’s civilian labor force is expected to

rise by 21,600 or 4.7 percent (Table 16). Under scenario two, which adjusts participation rates for projected age/gender participation changes at the national level, the labor force of the state is projected to rise by 30,200 or 6.1 percent; 1.5-percentage points higher than the projected rate of growth under scenario one.

Under both scenarios, adults 65 and older are expected to account for more than two-thirds of the net increase in South Dakota’s civilian labor force. The projected growth in the 65 and older labor force under scenario one is 15,500 or 44.5 percent. This age group is forecasted to account for 72 percent of the increase in the state’s labor force between 2018/2019 and 2030. The number of labor force participants under age 65 under the first scenario is expected to increase only by 6,100 over the decade.

**Table 16:**  
**Projected Changes in the Size and Age Composition of the Civilian Labor Force in South Dakota (16 and older) Between 2018/2019 and 2030, Under Two Alternative Scenarios**

	(A) 2018/2019	(B) 2030 (Projected)	(C) Absolute Change	(D) Percent Change
<b>Scenario One</b>				
Total 16 +	464,341	485,934	21,593	4.7
65 and Older	34,713	50,169	15,456	44.5
<i>Change due to 65 and Older (in %)</i>			<i>71.6</i>	
<b>Scenario Two</b>				
Total 16 +	464,341	494,537	30,195	6.1
65 and Older	34,713	61,133	26,420	76.1
<i>Change due to 65 and Older (in %)</i>			<i>87.5</i>	

Under scenario two, the older work force, particularly 75 and older, is projected to grow even more strongly primarily due to BLS projections of rising labor force attachment among persons 65 and older. Of the projected increase of 30,195 additional labor force participants in the state generated by scenario two, 26,400 or 87 percent is expected to come from the 65 and older population.

## Chapter 5

# Unemployment Problems

### Trends in Unemployment Problems in South Dakota, 1979-2019

This chapter examines trends in unemployment problems among South Dakota's labor force participants over the past 40 years including unemployment trends among various subgroups of unemployed persons during 1999/2000, 2009/2010, and 2018/2019. The unemployment rate is one of the most widely cited barometers of labor market conditions and it serves as the primary measure at the national, state, and local level of the extent to which available labor supply that is willing and able to work at prevailing wages remains unutilized by employers. The official national and state unemployment data represent the number of persons who are jobless at the time of the CPS survey,<sup>39</sup> have actively looked for work in the past four weeks and are currently available to take a job if one were offered to them.<sup>40</sup>

The unemployment rate simply represents the ratio of the number of unemployed persons relative to the number of persons actively participating in the civilian labor force; that is, the sum of the employed and the unemployed. Unemployment rates are not only an important measure of labor force underutilization, but they also influence the labor force participation behavior of adults, their ability to secure full-time jobs, their annual hours of employment, and frequently their real hourly or weekly wages.<sup>41</sup>

South Dakota has had lower unemployment rates than the U.S. since official state unemployment rate data were published by the Bureau of Labor Statistics in 1974 in the *Geographic Profile of Employment and Unemployment* report published annually by the U.S. Bureau of Labor Statistics. In 1979, South Dakota's unemployment rate averaged 3.6 percent, 2.2 percentage points lower than the national average unemployment rate of 5.8 percent. South Dakota's unemployment rate in 1979 ranked 6<sup>th</sup> lowest among the 50 states and D.C.

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<sup>39</sup> The CPS interview takes place every month with approximately 60,000 households during the calendar week that includes the 19th of the month. The monthly CPS questions refer to activities during the prior week, i.e., week that includes the 12th of the month.

<sup>40</sup> Those persons on temporary layoff with a specific recall date from their employer or who expect to be recalled within the next six months do not have to meet the active job search test.

<sup>41</sup> For earlier overviews of unemployment problems in South Dakota during 2000 to 2013, see: (i) Paul Harrington and Neeta Fogg, "Growth and Change in South Dakota Labor an Assessment of the State's Labor Market Imbalances in a Weak National Recovery," Center for Labor Markets and Policy, Drexel University, February 2014.

The U.S. economy fell into recession in 1981-82 and the unemployment rate in the nation reached as high as 10.8 percent in November/December of 1982. In South Dakota too, the unemployment rate rose to as high as 6 percent<sup>42</sup> for several months during the downturn after remaining below 4 percent before the recession. During the early stages of recovery over the 1982 to 1984 period, South Dakota had the lowest unemployment rate among all states. After reaching the unemployment rate peak at the end of 1982, and as the national economic recession ended and payroll job creation gained momentum, the unemployment rate in South Dakota started its decline that continued throughout the 1980s.

Low unemployment level in South Dakota in the 1980s was associated with very low labor force growth in the decade, itself resulting from very low resident population growth in the state. In the 1980s, labor force growth in South Dakota was very low. In fact, South Dakota was among the five states with the lowest labor force growth between 1979/80 to 1989/90.<sup>43</sup>

The unemployment rate in South Dakota was only 3.2 percent in 1992, even as the U.S. economy again fell into a recession during 1990-91 and unemployment rate reached above 7 percent by 1992. However, South Dakota's unemployment rate remained under 3-4 percent during the recession and thereafter until 1997. The longest economic expansion in the U.S. from 1992 to 2000 resulted in labor market boom across the states, and as a result, the unemployment rate across most states fell sharply. By 2000, South Dakota's unemployment rate had fallen to 2.3 percent, the lowest annual average ever recorded for the state since unemployment statistics were available. The 4 percent U.S. unemployment rate in 2000 was also one of the historically lowest unemployment rates on record.<sup>44</sup>

Labor force growth in South Dakota during the 1990s was also at par with the nation. The lower unemployment rate in the latter half of 1990s in South Dakota resulted from a higher rate of payroll job creation in the state. Between 1990 and 2000, South Dakota was one of the top ten states in the nation with the highest payroll job creation rate.<sup>45</sup> Again, South Dakota's unemployment rate during the 1990s was one of the lowest among the states and D.C. (Table 1).

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<sup>42</sup> The simple average unemployment rate of 6 percent in November/December 1982 in South Dakota was from the Local Area Unemployment Statistics (LAUS) data.

<sup>43</sup> South Dakota's size of the labor force (16+) increased from 337,000 in 1979/80 to 354,000 in 1989/90, an increase of only 17,000 or 5 percent and ranked 5<sup>th</sup> lowest among 50 states and D.C.

<sup>44</sup> Before 2000, the annual average unemployment rate in the U.S. was below 4 percent in 1948 (3.8%), 1967 (3.8%), 1947 (3.8%), 1968 (3.6%), 1969 (3.5%), 1951 (3.3%), 1952 (3.0%), and 1953 (2.9%).

<sup>45</sup> Payroll jobs in South Dakota increased from 288,000 in 1990 to 426,000 in 2000, an increase of 137,000 or 47.6 percent. The growth rate of 47.6 percent ranked 10<sup>th</sup> highest among the 50 states and D.C.

During a short technology sector-led recession of 2001 in the U.S., the unemployment rate rose in both South Dakota and the U.S. from their lows in 2000; however, South Dakota's unemployment rate remained lower than that of the U.S. By 2003, the unemployment rate in the U.S. had reached 6 percent, but South Dakota's unemployment rate was only 3.6 percent during the year and ranked the lowest among all states. Between 2004 to 2006, the unemployment rate in South Dakota stayed in the 3-4 percent range, lower than the national average rate, and again ranked among the lowest of all states.

Table 1:  
Trends in Annual Average Unemployment Rates in South Dakota and the U.S.  
Selected Years, 1979 to 2019 (Unemployment Rates in Percent)

Year	South Dakota	U.S.	Difference (SD - US)	SD Ranking Among 50 States and DC
1979	3.6	5.8	-2.2	6 <sup>th</sup> Lowest
1980	4.7	7.1	-2.4	4 <sup>th</sup> Lowest
1981	5.1	7.6	-2.5	7 <sup>th</sup> Lowest
1982	5.5	9.7	-4.2	Lowest
1983	5.4	9.6	-4.2	Lowest
1984	4.3	7.5	-3.2	Lowest
1989	4.2	5.3	-1.1	15 <sup>th</sup> Lowest
1990	3.9	5.6	-1.7	3 <sup>rd</sup> Lowest
1991	3.6	6.8	-3.2	3 <sup>rd</sup> Lowest
1992	3.2	7.5	-4.3	2 <sup>nd</sup> Lowest
1995	2.9	5.6	-2.7	2 <sup>nd</sup> Lowest
2000	2.3	4.0	-1.7	2 <sup>nd</sup> Lowest
2001	3.3	4.7	-1.4	3 <sup>rd</sup> Lowest
2002	3.1	5.8	-2.7	Lowest
2003	3.6	6.0	-2.4	Lowest
2007	2.9	4.6	-1.7	2 <sup>nd</sup> Lowest
2008	3.0	5.8	-2.8	2 <sup>nd</sup> Lowest
2009	5.0	9.3	-4.3	3 <sup>rd</sup> Lowest
2010	5.1	9.6	-4.5	3 <sup>rd</sup> Lowest
2011	4.9	8.9	-4.0	3 <sup>rd</sup> Lowest
2012	4.6	8.1	-3.5	3 <sup>rd</sup> Lowest
2015	3.5	5.3	-1.8	4 <sup>th</sup> Lowest
2016	2.8	4.9	-2.1	Lowest
2017	3.6	4.4	-0.8	13 <sup>th</sup> Lowest
2018	2.9	3.9	-1.0	8 <sup>th</sup> Lowest
2019	3.5	3.7	-0.2	24 <sup>th</sup> Lowest

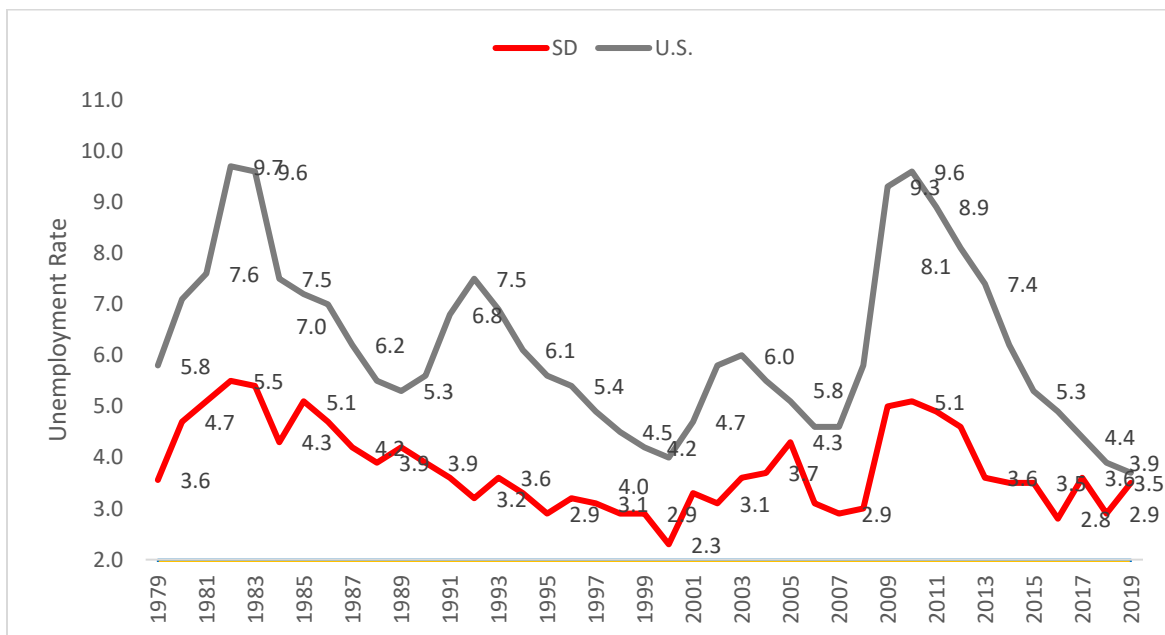
Source: U.S. Bureau of Labor Statistics, Geographic Profile of Employment and Unemployment, Selected Years, 1979 to 2019.



During the Great Recession of 2007-09, unemployment rates in South Dakota rose sharply to as high as 5.1 in 2010, but by national standards was still quite low again ranking among the lowest annual average unemployment rates of across all 50 states. A substantially lower rate of job loss in South Dakota compared to other states during the Great Recession of 2007-09 helped keep the unemployment rate in the state well below the national average. Forty-nine states had experienced substantial job loss compared to their 2007 levels.<sup>46</sup> South Dakota's job loss rate between 2007 and 2010 was second lowest among all states, only trailing Texas.

The Great Recession of 2007-09 ended in the second quarter of 2009, but payroll job growth in the U.S. was very slow until early 2012. The job creation pace gained momentum after 2012. The unemployment rate in the U.S. started to decline, reaching 4.9 percent in 2016. In South Dakota, the unemployment rate reached as low as 2.8 percent in 2016, the lowest among other states and D.C.

**Chart 1:**  
**Annual Average Unemployment Rate of South Dakota**  
**and the U.S., 1979 to 2019 (In Percent)**



**Source:** U.S. Bureau of Labor Statistics, Geographic Profile of Employment and Unemployment, Selected Years, 1979 to 2019.

Despite consistently ranking among lowest statewide unemployment rates in the nation, the pace of job creation in South Dakota between 2010 and 2016 was below that in most states

<sup>46</sup> Alaska, D.C., and North Dakota had higher level of payroll jobs in 2010 than in 2007.

and below the national average job growth rate.<sup>47</sup> The unemployment rate in South Dakota increased in 2017, 2018, and 2019 from its 2016 level while the unemployment rate in the nation continued to fall. In 2019, South Dakota's unemployment rate was 3.5 percent, nearly identical to that of the nation (3.7 percent) and ranked 24<sup>th</sup> lowest among 50 states and D.C. The higher unemployment rate between 2017-2019 in South Dakota was largely due to slow job growth in the state between 2016 and 2019. South Dakota added only 8,000 non-farm jobs between 2016 and 2019. The payroll employment growth rate in the state was just 2 percent over this four-year period and ranked 15<sup>th</sup> lowest among other states.

The findings in Table 2 examine unemployment rates in South Dakota and the U.S. in 2018/2019 by gender, race-ethnicity, age, and educational attainment. In both South Dakota and the U.S., there were no differences in the unemployment rates of men and women. In South Dakota, the unemployment rate of men women was 3 percent. In the U.S. too, men and women's unemployment rate were identical at about 4 percent. There were large variations in unemployment rate by race-ethnicity group. In South Dakota, the unemployment rate ranged from lows of 1.6 percent among Asians and 1.9 percent among non-Hispanic Whites to highs of 11 percent among "Other" race-ethnic group and 19 percent among American Indians. These patterns were generally reflective of the structure of unemployment rates by race-ethnicity in the nation; however, the 19.2 percent unemployment rate among American Indians in South Dakota was nearly 12-percentage points higher than their nationwide peers (7.3 percent). Although the size of "other" race-ethnic group in working-age population in South Dakota was under 2 percent, their unemployment rate was much higher than their counterparts nationwide (11 percent versus 5.5 percent).

The unemployment rate also varied by age groups in both South Dakota and the U.S. Younger workers tend to have higher unemployment rates than their older workers. The unemployment rate in South Dakota in 2018/2019 ranged from highs of 7.8 percent among 16- to 24-year-olds and 4 percent among 25- to 34-year-olds, to lows of 1.2 to 1.4 percent among 55- to 64-year-olds and 65 years and older. The pattern of variation in unemployment rates by age in South Dakota was similar to that of the U.S. (Table 2).

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<sup>47</sup> Between 2010 and 2016, South Dakota created 30,000 additional non-farm payroll jobs representing an increase of 7.4 percent. The 7.4 percent increase in payroll jobs ranked 29<sup>th</sup> highest among the 50 states and D.C.

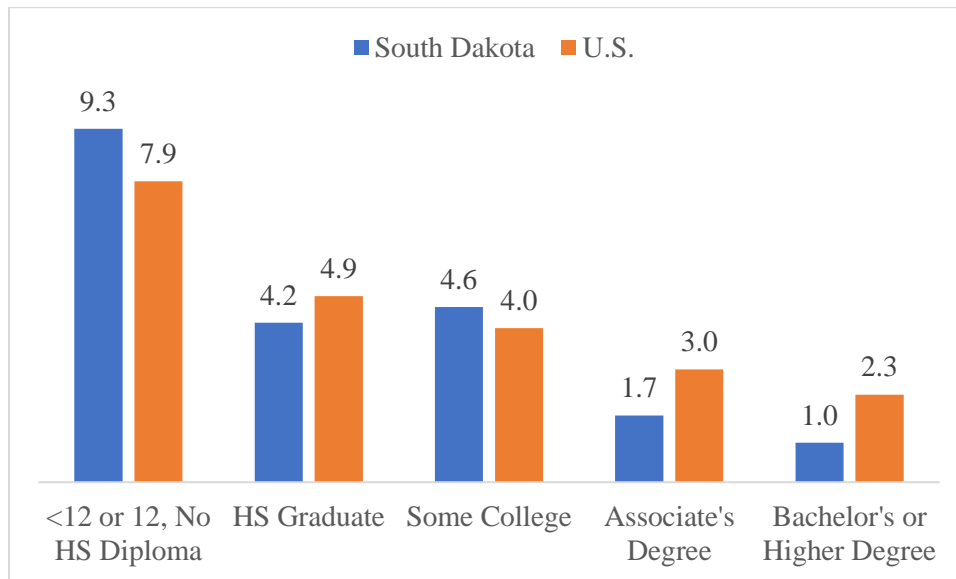
The unemployment rate also varied widely by the highest level of educational attainment levels of labor force participants. Less educated persons were more likely to have higher unemployment rate than their peers with a college degree. In South Dakota, the unemployment rate in 2018/2019 was highest among workers without a high school diploma (9.3 percent) (Chart 2) and fell as levels of educational attainment increased. Among those with high school diploma and some college, the unemployment rate in the state was 4.2 percent and 4.6 percent, respectively. Bachelor’s or higher degree holders in the state had an unemployment rate of 1 percent. Once again, we see that the structure of unemployment rates by educational attainment levels of workers in South Dakota was similar to that of the nation insofar although South Dakota’s unemployment rates in each of the five educational attainment levels were lower than their counterparts nationwide.

Table 2:  
Unemployment Rates in South Dakota and the U.S., by Gender, Race-Ethnicity, and Age,  
2018-2019 (CPS 2-Averages, in Percent)

Group	South Dakota	U.S.	Difference
All	3.2	3.8	-0.6
Male	3.1	3.9	-0.8
Female	3.4	3.8	-0.4
White	1.9	3.1	-1.2
Black	7.2	6.4	+0.8
Asian	1.6	2.9	-1.3
Hispanic	3.1	4.5	-1.4
American Indians	19.2	7.3	+11.8
All Other Races	11.0	5.5	+5.4
16-24	7.8	8.6	-0.8
25-34	4.0	3.9	+0.1
35-44	2.5	2.9	-0.4
45-54	2.4	2.8	-0.4
55-64	1.2	2.7	-1.5
65+	1.4	3.1	-1.7

Source: Monthly CPS public use files, 2018 and 2019, U.S. Census Bureau, tabulations by authors.

Chart 2:  
Unemployment Rates in South Dakota and the U.S., by Educational Attainment,  
2018-2019 (CPS 2-Averages, in Percent)



### The Changing Character of Unemployment Problems in South Dakota, 1999/2000 to 2018/2019

As the labor market condition changes over time, the type and severity of unemployment problems faced by unemployed workers also changes. The monthly CPS survey also captures information on reasons for being unemployed and the durations of existing spells of unemployment. The CPS information on reasons for being unemployed are measures of the paths by which those in the labor market entered the ranks of the unemployed. In the CPS survey, unemployed workers are classified into the following categories based on the reason for their unemployment:

1. Job loser/on layoff: Persons on temporary layoff
2. Other job loser: Persons whose jobs are permanently eliminated
3. Temporary job ended: Persons whose temporary job ended
4. Job leaver: Those who quit their last job before finding new employment.
5. Re-entrant: Re-entrant into the labor force, i.e., unemployed workers with prior work experience.
6. New entrant: new entrant into the labor force, i.e., unemployed workers without prior experience.

In South Dakota we find that the distribution of unemployed persons by reason for being unemployed changed during the business cycle over the past 20 years. These changes reflect business conditions at various stages of the business cycle and are similar in pattern (though not magnitude) to the changes seen in the U.S.

During 1999/2000, when South Dakota’s unemployment stood under 3 percent, a majority (59.8%) of the unemployed in the state were either job leavers or new entrants/re-entrants into the labor force (Table 3). Job leavers are those who quit their current job and are seeking employment in another organization. As unemployment rates fall, quit rates tend to increase. New entrants and re-entrants are persons who are either joining the labor force for the first time or re-entering the labor force after being away from the job market. Total job losers (those who experience temporary or permanent involuntary job separation), the bulk of whom were temporary job losers, accounted for only 40 percent of the total number of unemployed during the low unemployment period of 1999-2000.<sup>48</sup> Only 12 percent of unemployed in South Dakota in 1999/2000 were permanent job losers (laid-off with no expectation of recall to work) (Table 3 and Chart 3).

Table 3:  
Distribution of Unemployed Persons in South Dakota by Reason for  
Unemployment, Selected Time Periods, 1999/2000 to 2018/2019  
(Numbers in Percent, Except Total Unemployed)

	(A) Total Number Unemployed (In 1000s)	(B) Job Losers/ Completed Temporary Jobs* (C+D)	(C) Temporary Job Ended	(D) Permanent Job Ended	(E) Job Leavers	(F) Re Entrants	(G) New Entrants
<b>South Dakota</b>							
1999/2000	11	40.2	28.4	11.7	19.2	36.5	4.2
2009/2010	22	57.1	27.1	30.0	10.2	28.6	4.1
2018/2019	15	33.6	22.0	11.6	18.2	41.1	7.1
<b>U.S.</b>							
1999/2000	5,786	44.4	24.2	20.2	13.5	34.3	7.8
2009/2010	14,545	63.3	20.2	43.1	6.1	22.9	7.8
2018/2019	6,157	46.8	24.1	22.7	13.0	30.4	9.7

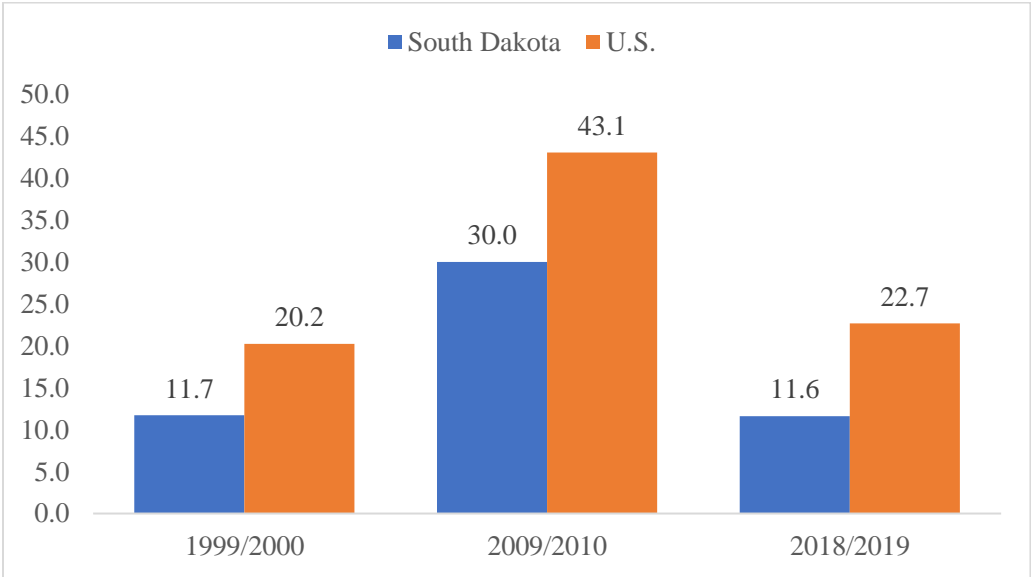
\*Note: Job losers/completed temporary jobs are sum of the following categories of unemployed: job losers/on layoff, other job ended, and temporary job ended.

<sup>48</sup> Permanent job losers include some individuals who were fired from their jobs rather than being laid off as a result of a reduction in workforce, plant closing, or plant re-location.

As state labor market conditions deteriorated during and aftermath of the Great Recession of 2007-2009, the distribution of the unemployed by reason for being unemployed changed markedly. During 2009/2010, fifty-seven percent of the unemployed in South Dakota were job losers (temporary + permanent). The share of permanent job losers in the state nearly tripled in 2009/2010 compared to 1999/2000. Thirty percent of the unemployed in South Dakota in 2009/2010 were permanent job losers, i.e., “dislocated workers” whose former jobs were eliminated. Job leavers and labor force re-entrants became much smaller shares of a much larger pool of unemployed persons during 2009/2010. However, South Dakota’s shares of total job losers and permanent job losers were much smaller during 2009/2010 compared to the U.S. Nearly two-thirds of unemployed persons in the U.S. were job losers in 2009/2010 and the share of permanent job losers was 43 percent (Table 3 and Chart 3).

With the steady labor market improvements after the recovery from the Great Recession of 2007-2009, the share of job losers declined in South Dakota and the U.S. In 2018/2019, one in three unemployed persons in South Dakota were job losers while the remaining two-thirds were job leavers (18 percent), re-entrants (41 percent), and new entrants (7 percent). In the U.S., the share of permanent job losers was much higher than that of South Dakota (23 percent vs. 12 percent) reflecting the much stronger labor market conditions in the state (Table 3 and Chart 3).

Chart 3:  
Permanent Job Losers as a Share of Total Unemployed Persons in South Dakota and the U.S.,  
Selected Time Periods, 1999/2000 to 2018/2019



## Unemployment Duration in South Dakota, 1999/2000 to 2018/2019

Unemployed workers can also be classified by the length of on-going period or spell of unemployment. The CPS survey collects information on how long (in weeks) a given unemployed person has continuously been unemployed in their current unemployment spell. Being unemployed, particularly for a long duration, is strongly associated with lower personal, social, and economic well-being of workers and their families.<sup>49</sup> For unemployed individuals, longer the spell of unemployment, higher the earnings losses, and greater the likelihood of exhausting eligibility for unemployment benefits, thereby reducing their disposable income even more. The loss of disposable income will lower their family income, thereby increasing the risk of poverty and other forms of income inadequacy problems among such families. For society as a whole, longer unemployment durations among workers lead to greater output losses and increase the likelihood that an individual will end the spell of unemployment by withdrawing from the labor force rather than becoming re-employment.<sup>50</sup> Long durations of unemployment can thus, reduce the future size of the state's civilian labor force resulting in lower levels of output and future labor shortages.

Table 4 displays mean and median weeks of unemployment of workers (16+) in South Dakota and the U.S. The average duration of unemployment in South Dakota at the labor market peak of 1999/2000 was under 3 months, which was below the national average duration of slightly higher than 3 months. The median duration of unemployment in the state in 1999/2000 was 4 weeks, 2 weeks lower than the national average.

Between 2002 and 2008, the mean duration of unemployment among South Dakota's workers remained between 13 to 16 weeks. The median weeks of unemployment in the state also remained between 6 to 8 weeks during that period, which was substantially above the 1999/2000 level. Even though South Dakota's mean unemployment duration was below that of the U.S. by 3 to 5 weeks between 2002 and 2005, the average duration of unemployment spells was just one week lower in 2006 and 2007. In comparison to the U.S., South Dakota's workers faced much

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<sup>49</sup> For evidence, see: Austin Nichols, Josh Mitchell, and Stephan Lindner, "Consequences of Long-Term Unemployment," Urban Institute, Washington D.C., July 2013 (<https://www.urban.org/sites/default/files/publication/23921/412887-Consequences-of-Long-Term-Unemployment.PDF>).

<sup>50</sup> See: Alan B. Krueger, Judd Cramer, David Cho, "Are the Long-Term Unemployed on the Margins of the Labor Market?" Brookings Institute, Spring 2014 ([https://www.brookings.edu/wp-content/uploads/2016/07/2014a\\_krueger.pdf](https://www.brookings.edu/wp-content/uploads/2016/07/2014a_krueger.pdf)).

lower levels of unemployment duration during and after the Great Recession of 2007-2009, particularly between 2008 to 2014.

It is puzzling that the average duration of unemployment in South Dakota remained at elevated levels between 2010 to 2019 in comparison to levels that prevailed before the Great Recession of 2007-2009. Between 2010 and 2019, the mean weeks of unemployment in South Dakota varied between 19 and 21 weeks. In 2019, for the first time, the mean weeks of unemployment in South Dakota exceeded that of the nation by 1 week (21 weeks versus 20 weeks). The median weeks of unemployment in South Dakota in 2018 and 2019 was the same as the U.S. (8 weeks).

Table 4:  
Mean and Median Weeks of Unemployment in South Dakota and the U.S.,  
Selected Years, 1999-2019 (Annual Averages)

Year	Mean Weeks			Median Weeks		
	South Dakota	U.S.	Difference (SD - US)	South Dakota	U.S.	Difference (SD - US)
1999	11	13	-3	4	6	-2
2000	9	13	-4	4	6	-2
2001	12	13	-1	5	7	-2
2002	13	17	-3	7	8	-1
2003	15	19	-4	7	10	-3
2005	14	18	-5	8	8	0
2006	16	17	-1	6	8	-2
2007	16	17	-1	6	8	-2
2008	12	18	-6	5	9	-4
2009	15	24	-9	9	15	-6
2010	21	33	-12	10	22	-12
2011	20	36	-16	8	22	-14
2013	18	32	-14	8	16	-8
2014	19	30	-10	7	13	-6
2016	20	24	-4	7	11	-4
2017	19	22	-3	8	9	-1
2018	20	20	-1	8	8	0
2019	21	20	+1	8	8	0

Source: Monthly CPS public use files, 1999 to 2019, U.S. Census Bureau, tabulations by authors.

Note: Starting January 2011, CPS respondent are allowed to report unemployment duration up to 5 years. Prior to 2011, the unemployment duration was capped at 2 years, i.e., response greater than 2 years was recorded as 2 years. Thus, the mean durations of unemployment estimates are likely to be higher in 2011 and after.



Table 5 presents distributions of unemployed workers in South Dakota and the U.S. in three categories of their unemployment duration in 1999/2000, 2009/2010, and 2018/2019. The three categories include the following:

- Unemployed for less than 15 weeks
- Unemployed for 15-26 weeks
- Unemployed for 27 weeks or more

In 1999/2000, when the labor market was performing at its peak, large shares of unemployed residents of South Dakota and the U.S. were unemployed for a short duration and only small shares faced longer unemployment durations. At that time, 83 percent of South Dakota’s unemployed residents were jobless for less than 15 weeks, 9.5 percent were unemployed for 15-26 weeks, and only 7.2 percent were unemployed for 27 weeks and longer. The pattern of unemployment durations in the U.S. was similar to South Dakota, with higher shares of short-term unemployed persons in 1999/2000. However, the share of short-term unemployed was somewhat lower in the U.S. than South Dakota (76 percent versus 83 percent).

Table 5:  
Distribution of Unemployed Persons by Weeks of Unemployment Spells,  
South Dakota and the U.S., Selected Time Periods, 1999/2000 to 2018/2019

	Total Unemployed (In 1000s)	0-14 Weeks	15-26 Weeks	27 Weeks or More
<b>South Dakota</b>				
1999/2000	11	83.3	9.5	7.2
2009/2010	22	63.6	17.2	19.2
2018/2019	15	67.4	11.3	21.3
<b>U.S.</b>				
1999/2000	5,786	75.8	12.3	11.9
2009/2010	14,545	44.8	17.7	37.5
2018/2019	6,157	64.3	14.4	21.2

Source: Monthly CPS public use files, 1999, 2000, 2009, 2010, 2018, and 2019, U.S. Census Bureau, tabulations by authors.

In the midst of labor market turmoil from the Great Recession of 2007-2009, longer-term unemployment spells rose sharply. In South Dakota, 17 percent of unemployed residents were unemployed for 15-26 weeks and about 1 in 4 were unemployed for 27 weeks or longer. The share of those who were unemployed for less than 15 weeks in the state was about 64 percent, substantially lower compared to 1999/2000 (83.3 percent). With a much higher overall unemployment rate during the Great Recession, findings for the U.S. were much more troubling:

45 percent of the nation’s unemployed residents were unemployed for less than 15 weeks while 18 percent were unemployed for 15-26 weeks, and 37 percent were unemployed for 27 weeks or longer (Table 5).

The employment situation in the U.S. was very strong before the pandemic of 2020. By 2018/2019, the nation’s unemployment rate had reached full employment levels and employers were experiencing difficulty in recruiting workers, and real wages of employed workers were rising.<sup>51</sup> As discussed above, in the latter part of the recovery from the Great Recession during 2017 and 2019, South Dakota’s unemployment rate was higher than it was in 2016. This finding is quite puzzling as during this period the number of job vacancies in the state substantially exceeded the number of unemployed job seekers (See chapter 10). The unexpectedly elevated unemployment rate in South Dakota’s “overfull employment” environment at that time appears to be at least partially the product of longer durations of unemployment rather than an increase in the number of persons who experienced a spell of unemployment.

The educational attainment unemployed persons with a long unemployment spell (27-plus weeks) in South Dakota and the U.S. was quite different. In 2018/19, two-thirds of longer-term unemployed persons in South Dakota had no postsecondary education and only 5 percent had a Bachelor’s degree or higher level of education. In a sharp contrast, less than half of the longer-term unemployed in the U.S. had no postsecondary education and one-quarter had a Bachelor’s or higher degree.

Table 6:  
Distribution of Long-Term Unemployed Persons (27 Weeks or More) by Educational Attainment, South Dakota and the U.S., 2018/2019 (In Percent)

Educational Attainment	South Dakota	U.S.	Difference
< 12 or 12, No HS Diploma	15.2	15.1	+0.1
HS Diploma	51.7	33.6	+18.1
Some College	27.8	26.1	+1.7
Bachelor's or Higher Degree	5.3	25.2	-19.9
Total	100.0	100.0	
N (In 1000s)	3	1,307	

Source: Monthly CPS public use files, 2018, and 2019, U.S. Census Bureau, tabulations by authors.

<sup>51</sup> See: Eric Morath and Greg Ip, "Tight Labor Market Returns the Upper Hand to American Workers Employers: Competing for Low-Wage Workers are Offering Signing Bonuses and Other Perks," *The Wall Street Journal*, June 20, 2021 (<https://www.wsj.com/articles/tight-labor-market-returns-the-upper-hand-to-american-workers-11624210501>).

## Unemployment Rates by Industry and Occupation in South Dakota and the U.S., 2009/2010 and 2018/2019

The monthly CPS also collects information on the industry and occupation for employment workers (in their current job) as well as for experienced unemployed persons (in their most recent jobs). This information can be used to categorize workers into industry and occupation groups.<sup>52</sup> For our analysis, we have categorized workers into 13 industry sectors and 7 occupational groups. Table 7 examines the unemployment rates of workers by industry sectors in South Dakota and the U.S. in 2009/2010 and 2018/2019.

During the Great Recession of 2007-09, the unemployment rate in South Dakota varied widely by industry, ranging from lows of 2 percent in education/healthcare/social assistance, transportation/warehousing/utilities, and finance/insurance/real estate/leasing industries to highs of 7-10 percent in leisure and hospitality and the business services sector that includes wide range of professional/scientific firms, as well as administrative support organizations such as temporary help and janitorial services industries.

Workers in goods-producing industries fared the worst during the recession. In South Dakota, workers in the construction sector had the highest unemployment rate (10.3 percent). Industries that employ the majority of blue-collar workers (manufacturing, construction, and transportation and utilities) had very high unemployment rates during the Great Recession of 2007-09. In South Dakota, these three sectors combined had an unemployment rate of 7.1 percent (Table 7).

With the exception of retail trade industry and leisure and hospitality producers, unemployment rates in South Dakota in 2018/2019 were well below their peak in 2009/2010. High unemployment rate in these two major industries in South Dakota in 2018/2019 is somewhat puzzling. Nationally, the unemployment rates in these two major industries fell by 5-6 percentage points over the 2009/2010 and 2018/2019 period (Table 6). In South Dakota, unemployment rates in 2018/2019 remained under 5 percent in all major industries with the exception of these two industries. The unemployment rates in other major industries ranked from 1 percent or below in agriculture/mining, finance/insurance/real estate/leasing, and other services, to highs of 4 to 5 percent in construction and public administration industries. For the

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<sup>52</sup> We have categorized industry and occupation of workers into broader groups to increase the number of observations (sample) in each of the industry and occupation sectors reported in order to produce statistically reliable estimates.

U.S., unemployment rates in 2018/2019 were 5 percent or lower in each of the 13 industries in our analysis, ranging from lows of 2 percent in education/healthcare/social assistance, finance/insurance/social assistance, and public administration to highs of 5 percent in construction, agriculture/forestry/mining, and arts/entertainment/recreation/accommodation/food service industry (Table 7).

Table 7:  
Unemployment Rates in South Dakota and the U.S., by Major Industry,  
2009/2010 and 2018/2019 (2-Year Averages in %)

Industry	South Dakota			U.S.		
	2009-10	2018-19	Abs. Change	2009-10	2018-19	Abs. Change
Agriculture, forestry, fishing and hunting, and mining	3.3	1.1	-2.2	9.8	5.0	-4.8
Construction	10.3	4.4	-5.9	17.7	4.6	-13.1
Manufacturing	6.8	2.6	-4.2	11.3	3.2	-8.1
Wholesale trade	4.0	1.2	-2.8	7.2	2.9	-4.3
Retail trade	4.9	4.9	0.0	9.6	4.5	-5.1
Transportation, warehousing, and utilities	2.2	1.9	-0.3	7.5	3.1	-4.3
Information	5.5	3.6	-1.9	9.2	3.5	-5.6
Finance and insurance, and real estate and leasing	2.1	0.8	-1.2	6.5	2.1	-4.3
Professional, scientific, management, administrative and waste management services	9.7	3.6	-6.1	10.1	3.7	-6.4
Educational services, healthcare, and social assistance	2.4	1.7	-0.7	4.8	2.5	-2.3
Arts, entertainment, recreation, accommodations, and food services	7.7	8.3	0.6	11.7	5.4	-6.3
Other services	2.1	0.4	-1.7	7.4	3.1	-4.3
Public administration	5.1	3.9	-1.2	3.5	1.8	-1.6

Source: Monthly CPS public use files, 2009, 2010, 2018, and 2019, U.S. Census Bureau, tabulations by authors.

Unemployment rates also varied by occupation. In our analysis, we have classified occupations into seven broad occupational groups. During 2009/2010 when the labor market was extremely weak as a result of the Great Recession of 2007-2009, the unemployment rates in South Dakota in five of the seven major occupation groups in our analysis was 5 percent or higher (Table 8). Among these five occupations, unemployment rates in the state ranged from lows of 5-6 percent in office/administrative support and service/low-level sales to highs of 8 percent in production/transportation/material moving and high skill blue collar occupations at that time. In contrast, unemployment rates were very low in healthcare practitioner/technical and

professional/technical/managerial/high-level sales occupations in the state during the Great Recession averaging just 1 percent and 2 percent, respectively. Nationwide, the unemployment rate of workers in these two occupations was also relatively low (2.4 percent in healthcare practitioner/technical occupations and 5.2 percent in the professional/technical/managerial/high-level sales occupations). In the remaining five occupations, the unemployment in the nation ranged from lows of 8.6 percent in office/administrative occupation and 10.5 percent in service and low-level sales occupations, to highs of 16 percent in high-skill blue collar and farming/fishing/forestry occupations (Table 8).

By 2018/2019, the unemployment rates of workers in all occupation groups in South Dakota, with the exception of service and low-level sales occupation, had dropped from their peak in 2009/2010. Unemployment rates in South Dakota over the 2009/2010 and 2018/2019 period dropped by about 3-6 percentage points range in office/admin support, high skill blue-collar, production/transportation/material moving, and farming/fishing/forestry occupations. Workers in service and low-level sales occupations in South Dakota had an unemployment rate of 6.3 percent in 2018/2019, much higher than their respective peers nationwide (4.9 percent). In the remaining major occupations, unemployment rates in the state in 2018/2019 were under 3 percent. In the U.S., six of the seven major occupations had unemployment rates below 5 percent. Workers in farming/fishing/forestry occupation in the nation faced the highest incidence of unemployment in 2018/2019 (9.5 percent).

Table 8:  
Unemployment Rates in South Dakota and the U.S., by Major Occupation,  
2009/2010 and 2018/2019 (2-Year Averages in %)

Occupation	South Dakota			U.S.		
	2009-10	2018-19	Abs. Change	2009-10	2018-19	Abs. Change
Professional, technical, managerial, high-level sales	2.2	1.4	-0.9	5.2	2.2	-3.1
Healthcare practitioner & technical	1.0	0.7	-0.3	2.4	1.4	-1.0
Office & administrative support	5.0	2.4	-2.6	8.6	3.6	-4.9
Service & low-level sales	6.3	6.3	0.0	10.5	4.9	-5.5
High skill blue collar	8.3	3.7	-4.6	15.9	4.5	-11.4
Production, transportation & material moving	7.9	3.1	-4.8	13.1	4.5	-8.6
Farming, fishing, and forestry	7.5	1.5	-6.0	16.3	9.5	-6.9

Source: Monthly CPS public use files, 2009, 2010, 2018, and 2019, U.S. Census Bureau, tabulations by authors.

## Trends in Unemployment Rates by County in South Dakota, 1999/2000 to 2018/2019

Monthly and annual labor force statistics at the state and sub-state levels are available online through the U.S. Bureau Labor Statistics' Local Area Unemployment Statistics (LAUS) program. Estimates of labor force, employment, and unemployment data generated by the LAUS program are available for states, cities, towns, counties, or county equivalents, as well as metropolitan or micropolitan areas of a state.<sup>53</sup> We have used LAUS program data for South Dakota to examine trends in unemployment rates in 66 counties for three periods in our analysis- 1999/2000, 2009/2010, and 2018/2019. Unemployment problems vary greatly within areas of the state as some areas experience strong demand for labor while other parts of the state may face slower growth and even decline.

Geographic mismatches between a state's labor demand and supply occur in both large and small states and even between a city and its suburbs. In South Dakota too, there were considerable differences in unemployment rate by counties. In 2018/2019, unemployment rates ranged from a low of 2.3 percent in Lincoln County to a high of 9.4 percent in Oglala Lakota County (Table 9). In the ten lowest unemployment counties, there were almost no differences in the unemployment rate, ranging from 2.3 to 2.6 percent. The 10 counties with the highest unemployment rate in 2018/2019 were characterized by a much wider range of unemployment

Table 9:  
Unemployment Rates in Top 10 and Bottom 10 Counties of South Dakota,  
2018-2019 (2-year Simple Averages, in %)

Rank	Top 10 Counties	UR	Bottom 10 Counties	UR
1	Lincoln County	2.3	Bennett County	4.6
2	Hand County	2.4	Corson County	4.6
3	Hughes County	2.4	Walworth County	4.8
4	Jerauld County	2.4	Jackson County	4.9
5	Harding County	2.5	Mellette County	5.0
6	McCook County	2.5	Ziebach County	5.0
7	Tripp County	2.5	Buffalo County	5.9
8	Douglas County	2.6	Todd County	5.9
9	Minnehaha County	2.6	Dewey County	8.0
10	Sully County	2.6	Oglala Lakota County	9.4
	Averages of Lowest 10 Counties	2.5	Averages of Highest 10 Counties	5.8

<sup>53</sup> Details about Local Area Unemployment Statistics (LAUS) program are provided in the following BLS website: <https://www.bls.gov/lau/laumthd.htm>.

rates, from 4.6 percent to 9.4 percent. Simple averages of unemployment rates in the top 10 (lowest unemployment) counties in 2018/2019 was 2.5 percent while the bottom 10 (highest unemployment) counties had a simple mean unemployment rate of 5.8 percent. The average unemployment rate of the ten highest unemployment counties was 2.4 times higher than the average unemployment rate of ten lowest unemployment counties (Table 9).

Have geographic differences in county unemployment rates increased or decreased over time? To answer this question, we examined annual average unemployment rates by county in 1999/2000, 2009/2010, and 2018/2019. At the peak of the labor market boom in 1999/2000, just over half of the state’s counties (34 counties) had a mean unemployment rate below 3 percent (Table 10). Another 41 percent or 27 counties had unemployment rates that fell in the range of 3-5 percent. Only 2 counties experienced an unemployment rate in 6 to 9 percent range and the remaining 3 counties had unemployment rates that exceeded 10 percent during 1999/2000.

Unemployment problems worsened during the Great Recession of 2007-2009. In 2009/2010, only 1 county in South Dakota had its unemployment rate below 3 percent and the majority of counties (just under 80 percent of counties 52 counties) had an unemployment rate in the 3 to 5 percent range. Ten counties in the state had an unemployment rate between 6 and 9 percent and the unemployment rate in the remaining 3 counties exceeded 10 percent.

Table 10:  
Distribution of 66 Counties in South Dakota by Unemployment Rate,  
1999/2000, 2009/2010, and 2018/2019  
(2-Year Simple Averages of Unemployment Rates in %)

Unemployment Rate Category	Numbers of Counties			% Distribution of Counties		
	1999/2000	2009/2010	2018/2019	1999/2000	2009/2010	2018/2019
Less than 3%	34	1	33	51.5	1.5	50.0
3% to Less than 6%	27	52	31	40.9	78.8	47.0
6% to Less than 10%	2	10	2	3.0	15.2	3.0
10% and Greater	3	3	0	4.5	4.5	0.0
Total	66	66	66	100.0	100.0	100.0
Minimum	1.4	2.9	2.2			
Maximum	10.8	12.6	9.4			

Source: Local Area Unemployment Statistics (LAUS), U.S. Bureau of Labor Statistics, 1999 to 2019, tabulations by authors.

In 2018/2019, the distribution of counties by unemployment rate category looked a lot like 1999/2000. Fifty percent of counties (33 counties) in 2018/2019 had an unemployment

below 3 percent and the unemployment rate of another 47 percent of counties (31 counties) fell in 3 to 5 percent range. There were only two counties in 2018/2019 with an unemployment rate in the 6 to 9 percent range. None of the 66 counties in South Dakota had an unemployment rate of 10 percent or higher in 2018/2019.

### Labor Force Underutilization Problems in South Dakota and the U.S., 1999/2000 to 2018/2019

Labor market problems of workers in South Dakota and the U.S. go well beyond those of official unemployment. In addition to unemployed individuals, there were large numbers of workers who experience under-employment (persons who are involuntarily working part-time, but desire full time work) and hidden unemployment or labor force reserve consisting of persons outside the labor force with a job desire including ‘discouraged workers.’ The combined pool of these three groups (unemployed, underemployed, and labor force reserve) comprises the underutilized labor force. Chart 4 displays the size of these groups in 2018/219 in South Dakota.

In 2018/2019, there were 14,877 residents in South Dakota who were officially unemployed. This group (unemployed) is measured using the official BLS measure of unemployment and is conceptually comparable to the unemployment findings reported monthly by the South Dakota Department of Labor and Regulation. In addition to these unemployed residents, there were 9,000 underemployed workers in the state composed of residents employed involuntarily in part-time jobs (less than 35 hours per week) for either economic reasons such as slack work at their firm or due to their inability to find a full-time job. The third group of underutilized adults in the state include the hidden unemployed or the labor force reserve. Members of the labor force reserve are those individuals who were jobless, had not actively looked for work in the past four weeks, but expressed a desire for immediate employment. During 2018/2019, there were 10,717 persons in the labor force reserve in South Dakota. The measure of underutilization combines these three groups of workers and in South Dakota this total was 34,623 during 2018-2019. We can estimate labor force the underutilization rate of workers by dividing the combined pool of underutilized labor (34,623) by the adjusted civilian labor force (464,341 labor force + 10,717 labor force reserve).<sup>54</sup>

Underutilization Rate	=	$\frac{\text{Unemployed} + \text{Underemployed} + \text{Labor Force Reserve}}{\text{Adjusted Civilian Labor Force}}$
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<sup>54</sup> Adjusted labor force is sum of the labor force (employed + unemployed) and the labor force reserve.



In 2018/2019, the labor force underutilization rate among working-age residents (16+) in South Dakota was 7.3 percent, more than two times higher than the official unemployment rate in the state (3.2 percent). South Dakota’s labor force underutilization rate, however, was lower than that for the U.S. (9.2 percent) and ranked 7<sup>th</sup> lowest among the 50 states and D.C.

Chart 4:  
Identifying the Pool of Underutilized Labor in South Dakota, 2018/2019  
(2-Year Averages, not Seasonally Adjusted)

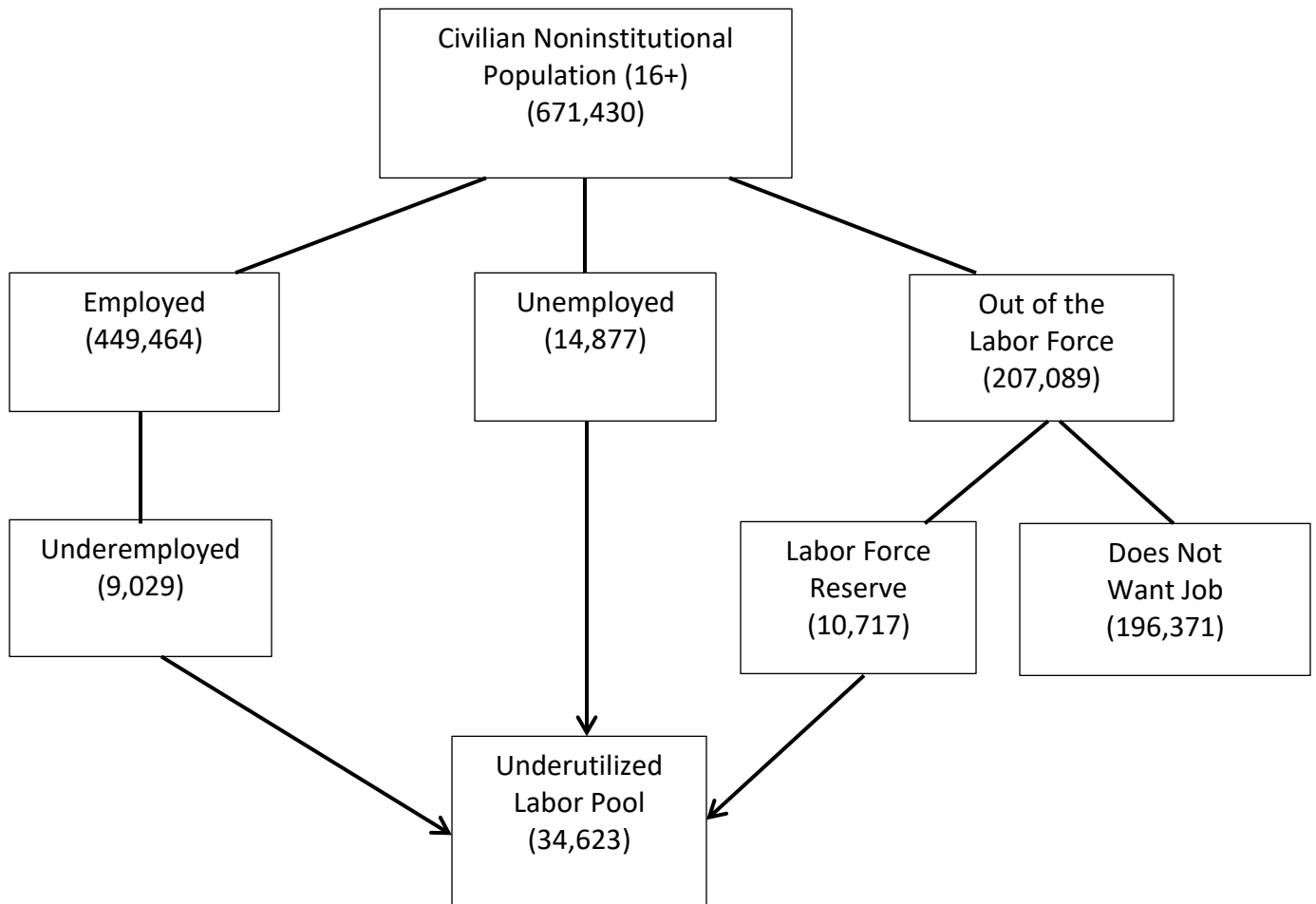


Table 11 provides data that examines labor force underutilization rates of workers in South Dakota and the U.S. in 1999/2000, 2009/2010, and 2018/2019 by their level of educational attainment. The overall labor force underutilization rate of workers (16+) in South Dakota was only 6.7 percent in 1999/2000, rose to as high as 11.7 percent in 2009/2010 during the Great Recession of 2007-2009 and its aftermath, and declined to 7.3 percent in 2018/2019. South

Dakota’s labor force underutilization rate of workers in each of the three time periods was lower than that of the U.S. and ranked among the lowest compared to 50 states (Table 11).

South Dakota’s underutilization rate varied widely by educational attainment. In 2018/2019, the underutilization rate ranged from highs of 18 percent among those without a high school diploma and about 9 percent among those with a high school diploma, to lows of 5 percent among Associate’s degree holders and 3.5 percent among Bachelor’s or higher degree holders. South Dakota’s 2018/2019 underutilization rates in four of the five educational attainment groups were lower than those of their peers in the U.S. In both South Dakota and the U.S., the labor force underutilization rates dropped sharply from their peak levels in 2009/2010 (Table 11).

**Table 11:**  
**Labor Force Underutilization Rates of 16 and Older Residents in South Dakota and the U.S. by Educational Attainment, 1999/2000, 2009/2010, and 2018/2019**  
**(2-Year Simple Averages of Unemployment Rates in %)**

Educational Attainment	Labor Force Underutilization Rate			Ranking by State (Lowest to Highest)		
	1999/2000	2009/2010	2018/2018	1999/2000	2009/2010	2018/2018
<b>South Dakota</b>						
<12 or 12, No HS Diploma	15.1	28.4	18.5	4 <sup>th</sup>	6 <sup>th</sup>	20 <sup>th</sup>
HS Diploma	7.6	14.0	8.7	10 <sup>th</sup>	3 <sup>rd</sup>	5 <sup>th</sup>
Some College, No Degree	6.6	11.9	9.4	15 <sup>th</sup>	5 <sup>th</sup>	24 <sup>th</sup>
Associate's Degree	3.4	6.5	4.8	2 <sup>nd</sup>	2 <sup>nd</sup>	7 <sup>th</sup>
Bachelor's or Higher Degree	3.0	5.6	3.5	8 <sup>th</sup>	4 <sup>th</sup>	3 <sup>rd</sup>
Total	6.7	11.7	7.3	7 <sup>th</sup>	3 <sup>rd</sup>	7 <sup>th</sup>
<b>U.S.</b>						
<12 or 12, No HS Diploma	20.4	35.3	18.9			
HS Diploma	9.7	22.0	11.6			
Some College, No Degree	7.9	17.5	9.9			
Associate's Degree	5.7	14.0	7.3			
Bachelor's or Higher Degree	4.2	9.4	5.4			
Total	9.1	18.2	9.2			

Source: Monthly CPS public use files, 1999, 2000, 2009, 2010, 2018, and 2019, U.S. Census Bureau, tabulations by authors.

## Appendix Table A-1

Table A-1:  
Characteristics of Unemployed in South Dakota and the U.S., 2018/2019

	South Dakota	U.S.	Difference
Number Unemployed (In 1000s)	15	6,157	
<b>% Distribution</b>			
All	100.0	100.0	
<b>Gender</b>			
Male	51.2	53.8	-2.6
Female	48.8	46.2	+2.6
<b>Race-Ethnicity</b>			
White	51.9	50.8	+1.1
Black	4.8	19.7	-14.9
Asian	0.8	4.6	-3.7
Hispanic	3.6	20.9	-17.3
American Indian/Alaska	34.2	1.3	+32.9
Other	4.7	2.7	+2.0
<b>Age Group</b>			
16-24	34.3	29.1	+5.3
25-55	55.1	53.6	+1.5
55+	10.6	17.4	-6.8
<b>Educational Attainment Level</b>			
< 12 or 12, No HS Diploma	21.4	17.7	+3.7
HS Diploma	36.5	33.5	+3.1
Some College	31.9	26.4	+5.6
Bachelor's or higher degree	10.2	22.5	-12.4

Source: Monthly CPS public use files, 2018 and 2019, U.S. Census Bureau, tabulations by authors.

## Chapter 6

# Poverty and the Labor Market

### Introduction

This chapter explores poverty developments in South Dakota with special reference to the connections (and disconnections) between poverty and engagement in the labor market. We begin by providing a short review of overall developments in poverty problems in South Dakota as measured by the U.S Bureau of the Census's poverty thresholds which serve as the official measure of poverty at the federal, state, and local level.<sup>55</sup> We follow this by exploring the demographic and educational characteristics of the poor in the state just prior to the pandemic downturn.

Poverty problems in South Dakota are closely correlated with level of educational attainment, but also very closely connected to literacy and numeracy skills (see chapter 8 for a discussion of the link between foundational skills of adults and income inadequacy in South Dakota). But the connection between education and poverty is expressed by the extent of the connection of education to the labor market. We therefore explore the connections between poverty, education and labor force behavior and outcomes of the adult population of the state. Unsurprisingly, we find the labor force status of the poor population of the state to be much different compared to those who are not poor. We go on to explore the differences between the poor and non-poor adult population in the length of time since individuals in each population group last worked. This analysis found substantial long-term disconnection from employment among the state's poor adult residents.

The chapter also provides data from an alternative measure of poverty for South Dakota that paints a substantially different picture of the extent of poverty problems in the state relative to other states and compared to the official poverty measure. We also include a section of the incidence of deep poverty among residents of the state.

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<sup>55</sup> The poverty thresholds used for statistical purposes by the U.S. Census Bureau are slightly different from poverty guidelines established by the U.S. Department of Health and Human Services that are developed for administrative purposes. For a complete discussion of these concepts, see: Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services "2021 Poverty Guidelines," [2021 Poverty Guidelines ASPE \(hhs.gov\)](https://aspe.hhs.gov).

## Trends in Poverty in South Dakota, 1960-2015/2019

Despite South Dakota’s history of strong labor market performance and high rates of human resource utilization that dates back to the 1980s, the state’s record on the official measure of poverty is decidedly more mixed. Until 2000, South Dakota was ranked among states with higher poverty rates. In 1960, thirty percent of South Dakota’s residents were poor, and the state’s poverty rate was 8-percentage points higher than that of the nation, ranking the state with the 13<sup>th</sup> highest poverty rate among the states. The state’s poverty rate declined sharply to 18.7 percent by 1970, but the US poverty rate declined even more rapidly falling to 13.7 percent in the same year. South Dakota’s poverty rate remained at 17 percent in 1980, which was 4.5 percentage points higher than the U.S. poverty rate, and the 8 highest poverty among all states. The poverty rate of South Dakota declined by only 1-percentage point between 1980 and 1990. The 15.9 percent poverty rate in South Dakota in 1990 remained 2.7 percentage points higher than the U.S. average and ranked 12<sup>th</sup> highest among all states.

The 1990s economic and labor market expansion helped further reduce the incidence of poverty across the U.S. In 2000, South Dakota’s poverty rate was 13.2 percent, just slightly higher than the U.S. average (12.4 percent), but still ranked 17<sup>th</sup> highest among the states. Over the past 20 years, the poverty rate in South Dakota has remained around 13-14 percent range, slightly lower than the nation’s poverty rate, and ranking in the middle of all states with 23<sup>rd</sup>/24<sup>th</sup> highest poverty rate.

Table 1:  
Trends in the Poverty Rate in South Dakota and the U.S.,  
1960-2015/2019 (Numbers in Percent)

Year	South Dakota	U.S.	Difference	SD Rank
1960	30.1	22.1	+8.0	13 <sup>th</sup> Highest
1970	18.7	13.7	+5.0	14 <sup>th</sup> Highest
1980	16.9	12.4	+4.5	8 <sup>th</sup> Highest
1990	15.9	13.1	+2.7	12 <sup>th</sup> Highest
2000	13.2	12.4	+0.8	17 <sup>th</sup> Highest
2008-2012	13.8	14.9	-1.1	27 <sup>th</sup> Highest
2015-2019	13.1	13.4	-0.3	24 <sup>th</sup> Highest

Sources: 1960, 1970, 1980, 1990, 2000 Decennial Censuses of Population and Housing and 2008-2012 and 2015-2019 American Community Surveys, U.S. Census Bureau.

The poverty rate varied widely across South Dakota’s 66 counties. During 2015-2019, the poverty rate in South Dakota’s counties ranged from lows of 4 percent in Campbell and Lincoln counties to highs of 53-55 percent in Mellette and Todd counties (Table 2). In the 10 lowest poverty counties, the poverty rate ranged from 4 to 7 percent while in 10 highest poverty counties, the poverty rate ranged from 22 to 55 percent. The simple average of poverty rates was 5.6 percent in the 10 lowest poverty counties and 42 percent in the 10 highest poverty counties. The mean poverty rate in the 10 highest poverty counties during 2015-2019 was 7.5 times higher than that in the 10 lowest poverty rate counties, an astronomical difference. *The nations five poorest counties (Corson, Jackson, Oglala Lakota, Mellette, and Todd) during 2015 to 2019 were in South Dakota.*

Table 2:  
Poverty Rates in the Top 10 and Bottom 10 Counties of South Dakota,  
2015-2019 (Numbers in Percent)

10 Lowest Poverty Rate Counties	Poverty Rate	10 Highest Poverty Rate Counties	Poverty Rate
Campbell	4.0	Clay	22.4
Lincoln	4.1	Dewey	31.3
Edmunds	4.7	Bennett	35.9
Stanley	4.7	Buffalo	39.7
Aurora	5.4	Ziebach	42.5
Hamlin	5.7	Corson	44.8
Douglas	6.3	Jackson	45.4
Miner	6.8	Oglala Lakota	46.2
Meade	6.9	Mellette	52.8
Harding	7.1	Todd	55.5
Bottom 10 Averages	5.6	Top 10 Averages	41.7

Source: 5-Year American Community Surveys (2015-2019), tables published by the U.S. Census Bureau; tabulations by authors.

Historically, most counties in South Dakota have made substantial progress in reducing the incidence of poverty. In 1960, there were no counties in South Dakota with a poverty rate below 10 percent (Table 3). Every county had a 10 percent or higher poverty rate. By 2015-2019, 27 counties in South Dakota had a poverty rate that was below 10 percent. In 1960, 6 counties in South Dakota (Buffalo, Corson, Hanson, Mellette, Oglala Lakota, and Todd) had 50 percent or higher poverty rate while by 2008-2012, no counties had poverty rate greater than 50 percent.

During 2015-2019, two counties in South Dakota (Mellette and Todd) saw their poverty rate once again climb above 50 percent.

Table 3:  
Distribution of 66 Counties in South Dakota by Poverty Rate Category, 1960-2015/2019

Poverty Rate Category	Number of South Dakota Counties						
	1960	1970	1980	1990	2000	2008-2012	2015-2019
Less than 10%	0	1	2	2	16	12	27
10% to Less than 20%	7	27	25	43	33	41	27
20% to Less than 30%	18	28	25	11	8	5	3
30% to Less than 40%	16	6	9	3	4	3	3
40% to Less than 50%	19	4	5	4	3	5	4
50% and Greater	6	0	0	3	2	0	2
Total Counties	66	66	66	66	66	66	66

Sources: 1960, 1970, 1980, 1990, 2000 Decennial Censuses of Population and Housing and 2008-2012 and 2015-2019 American Community Surveys, U.S. Census Bureau.

## The Connection between Poverty Status, Educational Attainment, and the Labor Market

There is a strong link between poverty, employment status, and educational attainment of working-age adults in South Dakota, with educational attainment serving as an important determinant of labor market success and the likelihood of poverty status in a given year. The employment status of the working age population is strongly influenced by their level of educational attainment. In South Dakota, less than half (47 percent) of those without high school diploma were employed during 2015-2019 (Table 4). Among those with a high school diploma or equivalent, nearly three-quarters (74.5 percent) were employed. Nine out of 10 adults with a Bachelor's or higher degree were employed during 2015-2019.

As expected, the proportion of persons who were jobless (either unemployed or not in the labor force (NILF) was much higher among those without a college degree. Working-age adults without a high school diploma were about 6 times more likely to be unemployed than their counterparts with a Bachelor's degree. Nearly one-half (46.8 percent) of those without a high school diploma were out of labor force in comparison to about 1 in 10 among those with a Bachelor's degree or higher. Educational attainment and joblessness are closely connected and the data for South Dakota finds a strong connection between the likelihood of living in a poor household and the labor force status of unemployment or being out of the labor force.

**Table 4:**  
**Percentage Distribution of the 16- to 64-Year-Old Population of South Dakota and the U.S.**  
**by Labor Force Status, by Educational Attainment, 2015-2019**

Educational Attainment	Percentage Distribution (in %)		
	Employed	Unemployed <sup>56</sup>	NILF
<b>South Dakota</b>			
<12 or 12, No HS Diploma	47.1	6.1	46.8
HS Diploma/Equivalent	74.5	3.7	21.8
Some College	80.5	2.8	16.7
Bachelor's Degree	89.5	1.1	9.5
Master's or Higher Degree	90.8	0.8	8.4
Total	77.2	3.0	19.9
<b>U.S.</b>			
<12 or 12, No HS Diploma	44.2	5.4	50.4
HS Diploma/Equivalent	67.1	5.1	27.8
Some College	73.6	3.9	22.5
Bachelor's Degree	83.5	2.6	14.0
Master's or Higher Degree	86.8	1.9	11.3
Total	70.6	4.0	25.5

Source: 5-Year American Community Surveys (2015-2019), public use files, U.S. Census Bureau; tabulations by authors.

The incidence of poverty among 16- to 64-year-old South Dakotans is negatively related to the level of educational attainment, that is, at each higher level of education we find a sharp drop in the poverty rate. Findings in Table 5 reveal that nearly one-quarter of South Dakota’s adults (23.9 percent) without a high school diploma were poor. Their counterparts with a high school diploma, but no postsecondary schooling had a poverty rate of 14.2 percent, nearly 10 percentage points lower than the poverty rate of high school dropouts. Among those with some college or an Associate’s degree, the poverty rate was 9.3 percent, one-third lower than for those with just a high school diploma. Among college graduates, the poverty rate was quite low; under 4 percent for those with a Bachelor’s degree only and just 2.5 percent for those with a graduate or professional degree award. The U.S. poverty rate in each the five educational levels was very similar to South Dakota.

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<sup>56</sup> The unemployment share discussed in this section is calculated as a proportion of the population (in each group). This differs from the official unemployment rate that is calculated as a proportion of the labor force, not the population.



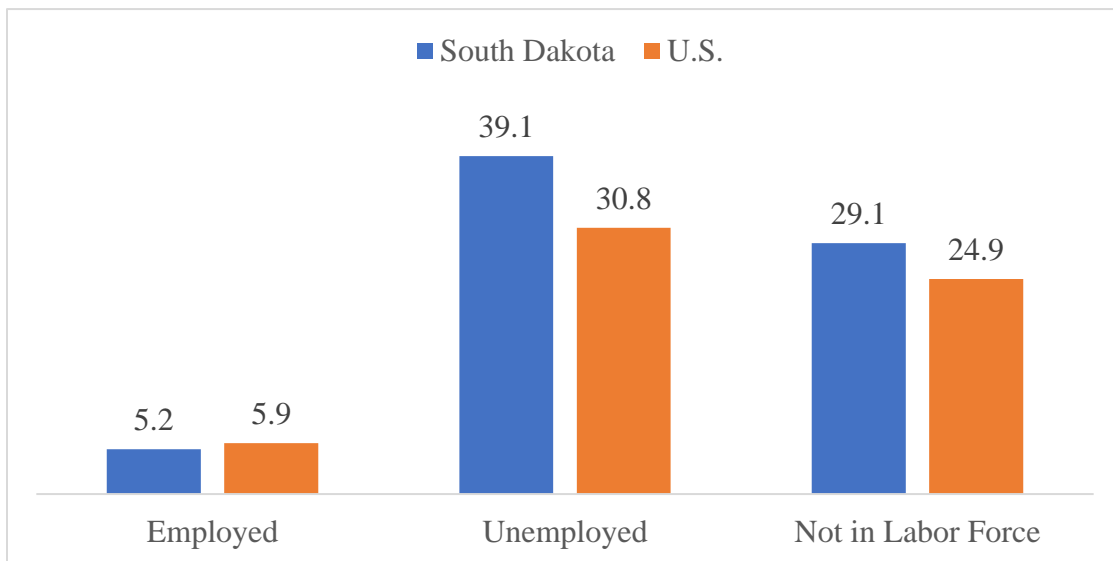
Table 5:  
The Poverty Rate of South Dakota’s 16- to 64-Year-Old Population,  
by Educational Attainment Status, 2015-2019

Educational Attainment	Poverty Rate		
	South Dakota	U.S.	Difference
<12 or 12, No HS Diploma	23.9	23.3	0.6
HS Diploma/Equivalent	14.2	15.1	-0.9
Some College	9.3	10.2	-0.8
Bachelor's Degree	3.8	4.7	-0.9
Master's or Higher Degree	2.5	3.1	-0.6
Total	10.9	11.7	-0.8

Sources: 5-Year American Community Surveys (2015-2019), public use files, U.S. Census Bureau; tabulations by authors.

The labor force status of non-elderly working-age adults exerts a considerable influence on the likelihood of living in a poor household. The incidence of poverty among employed residents in South Dakota was only 5.2 percent (Chart 1). In contrast the poverty rate of 39 percent among unemployed adults in South Dakota was very high and sharply higher than the 31 percent poverty rate found for unemployed adults in the U.S. We also find a very high incidence of poverty among persons who were out of the labor force; 29 percent in South Dakota and 25 percent in the U.S.

Chart 1:  
Poverty Rate of 16- to 64-Year-Old Adults by Labor Force Status, 2015-2019  
(Numbers in Percent)



Sources: 5-Year American Community Surveys (2015-2019), public use files, U.S. Census Bureau; tabulations by authors.

These findings suggest that poverty problems in South Dakota differ from those of the nation as the likelihood of poverty among the non-working adult population was much higher in the state than in the nation. The poverty rate among employed persons in South Dakota is slightly less than among their counterparts in the nation. This suggests that there may be greater barriers to employment for the non-working poor in South Dakota. In Chapter 8 we explore this issue by examining the connection between poverty and literacy and numeracy skills proficiencies in South Dakota and the U.S.

Table 6 examines the incidence of poverty by labor force status and educational attainment and helps sort out the independent effects of educational attainment and labor force status on the likelihood of poverty. For example, we find that if high school dropouts were able to find work their likelihood of poverty was under 11 percent, but if they were unemployed or not participating in the job market, their chances of being poor were 3 to 4 times greater than if they were employed (10.9 percent for employed high school dropouts, 42.8 percent for unemployed, and 34.6 percent for those not in the labor force). At the other extreme, employed college graduates were very unlikely to be poor. The poverty rate among employed Bachelor's

Table 6:  
The Poverty Rate of South Dakota's 16- to 64-Year-Old Population,  
by Labor Force Status and Educational Attainment, 2015-2019

Educational Attainment	Poverty Rate		
	Employed	Unemployed	NILF
<b>South Dakota</b>			
<12 or 12, No HS Diploma	10.9	42.8	34.6
HS Diploma/Equivalent	7.0	44.4	33.8
Some College	5.2	37.6	24.7
Bachelor's Degree	2.5	14.2	15.1
Master's or Higher Degree	1.6	14.8	11.4
Total	5.2	39.1	29.1
<b>U.S.</b>			
<12 or 12, No HS Diploma	14.5	38.5	29.4
HS Diploma/Equivalent	8.1	33.7	28.5
Some College	5.7	29.2	21.7
Bachelor's Degree	2.5	19.1	14.9
Master's or Higher Degree	1.5	17.1	12.8
Total	5.9	30.8	24.9

Source: 5-Year American Community Surveys (2015-2019), public use files, U.S. Census Bureau; tabulations by authors.

degree holders was only 2.5 percent, and it was even lower among employed persons with a Master’s or professional degree, 1.6 percent. The chance of poverty even for well-educated residents were much higher if they were jobless; 14.2 percent for unemployed persons with a Bachelor’s degree, and 15.1 percent for those not in the labor force.

It is important to note that jobless South Dakota residents without a college degree (unemployed or out of labor force) had substantially higher poverty than their counterparts in the U.S. In contrast, jobless college graduates in South Dakota (unemployed or out of labor force) had a lower poverty rate than their nationwide counterparts. This finding suggests that reductions in poverty are even more closely related to working and achieving a higher level of educational attainment in South Dakota than in the U.S. Moreover, in Chapter 8 our analysis finds that the effects of increased literacy and numeracy skills on reducing the risk of poverty are greater in South Dakota than in the nation.

Table 7 displays the distribution of poor persons by their educational attainment, unlike Tables 5 and 6 that provided the poverty rate by educational attainment, Table 7 highlights the heavy concentration of the state’s poor population among persons with no college degree. Nearly two-thirds (63 percent) of 16- to 64-year-old poor residents of South Dakota had dropped out of school or ended their formal schooling with a high school diploma; 27 percent did not have a high school diploma and 36 percent only had a high school diploma or a GED. The share of 16- to 64-year-old poor adults with some college education or an Associate’s degree was about 29 percent. Thus, 9 out of 10 working-age and non-elderly poor South Dakotans lacked a college degree. In contrast, only 8 percent of poor adults in South Dakota were those with a Bachelor’s

Table 7:  
Percentage Distribution of Persons (16-64) in Poverty, by Educational Attainment,  
South Dakota and the U.S., 2015-2019

Educational Attainment	South Dakota	U.S.	Difference
<12 or 12, No HS Diploma	27.1	30.5	-3.6
HS Diploma/GED	35.9	33.9	1.8
Some College	28.8	25.4	3.6
Bachelor's Degree	6.6	7.4	-0.8
Master's or Higher Degree	1.7	2.7	-1.1
Total	100.0	100.0	
N (Numbers of Poor, in 1000s)	56	23,280	

Source: 5-Year American Community Surveys (2015-2019), public use files, U.S. Census Bureau; tabulations by authors.

or higher degree Findings were similar for the U.S.- 90 percent of working-age poor in the U.S. lacked a college degree.

Our earlier discussion found that the incidence of poverty was closely related to employment. Non-elderly employed adults in South Dakota had a very low incidence of poverty and those who were both employed and had a college degree were very unlikely to live in a poor household. We also found that jobless non-elderly residents had a very high likelihood of poverty. Table 8 explores the interrelationship between poverty and the job market by comparing the labor force status of poor non-elderly residents of South Dakota with their non-poor counterparts.

Our earlier discussion revealed that the poverty rate was highest among persons classified as unemployed. However, since the overall number of unemployed persons in the state was quite low during the 2015 to 2019 period, only 10 percent of the poor population was unemployed, indicating that 90 percent of the state’s poverty problems are NOT associated with unemployment. Instead, we find that more than one-half of the state’s non-elderly poor residents simply did not participate in the labor market compared to just 15 percent of their non-poor counterparts. The share of employed persons was about 82 percent among non-poor South Dakota residents (16-64), but only about 37 percent among their poor counterparts. These data suggest that the bulk of the poverty problem in South Dakota is concentrated among those disengaged from the labor market. However, there are still a considerable number of poor residents of the state that are employed but remain poor.

Table 8:  
Percentage Distribution of 16- to 64-Year-Old Population in South Dakota and the U.S.,  
by Labor Force Status, by Poverty Status, 2015-2019

Poverty Status	Percentage Distribution		
	Employed	Unemployed	NILF
<b>South Dakota</b>			
Poor	36.6	10.7	52.8
Not Poor	82.1	2.0	15.8
<b>U.S.</b>			
Poor	35.5	10.5	54.0
Not Poor	83.7	5.5	10.8

Source: 5-Year American Community Surveys (2015-2019), public use files, U.S. Census Bureau; tabulations by authors.

A more detailed breakout of non-elderly working age adults in South Dakota by poverty, educational attainment, and labor force status are displayed in Table 9. Among those in poverty

lacking a high school diploma, only 1 in 3 were active labor force participants (21.4 percent employed and 10.9 percent unemployed). Among the non-poor group lacking a high school diploma, 6 in 10 were active labor force participants (55 percent employed and 4.6 percent unemployed). For both non-elderly poor and non-poor in South Dakota labor force participation rose with higher educational attainment levels, however, among the poor, the labor force participation rate gap was extremely high in favor of non-poor. Among the poor with a Bachelor’s degree, 62 percent were active members of the labor force (58 percent employed and 4 percent unemployed) while among the non-poor in this educational attainment group, 92 percent were active members of the labor force with almost all employed members (90.7 percent employed and 1 percent unemployed).

These findings suggest that a substantial part of the problem of poverty in South Dakota is related to very low levels of job market participation among the state’s working-age poor residents that is itself connected to lower levels of educational attainment and likely lower foundational skills of the poor population. We also found a substantial working poor population in the state. We explore both groups in greater detail below.

Table 9:  
Percentage Distribution of the 16- to 64-Year-Old Population in South Dakota  
by Labor Force Status, by Poverty Status and Educational Attainment, 2015-2019

Poverty Status and Educational Attainment	Percentage Distribution		
	Employed	Unemployed	NILF
<b>Poor</b>			
<12 or 12, No HS Diploma	21.4	10.9	67.7
HS Diploma/Equivalent	36.8	11.4	51.8
Some College	44.5	11.3	44.2
Bachelor's Degree	58.2	4.1	37.7
Master's or Higher Degree	57.2	5.0	37.8
Total	36.6	10.7	52.8
<b>Not Poor</b>			
<12 or 12, No HS Diploma	55.1	4.6	40.3
HS Diploma/Equivalent	80.8	2.4	16.8
Some College	84.2	1.9	13.9
Bachelor's Degree	90.7	1.0	8.3
Master's or Higher Degree	91.7	0.7	7.6
Total	72.6	4.0	23.4

Source: 5-Year American Community Surveys (2015-2019), public use files, U.S. Census Bureau; tabulations by authors.

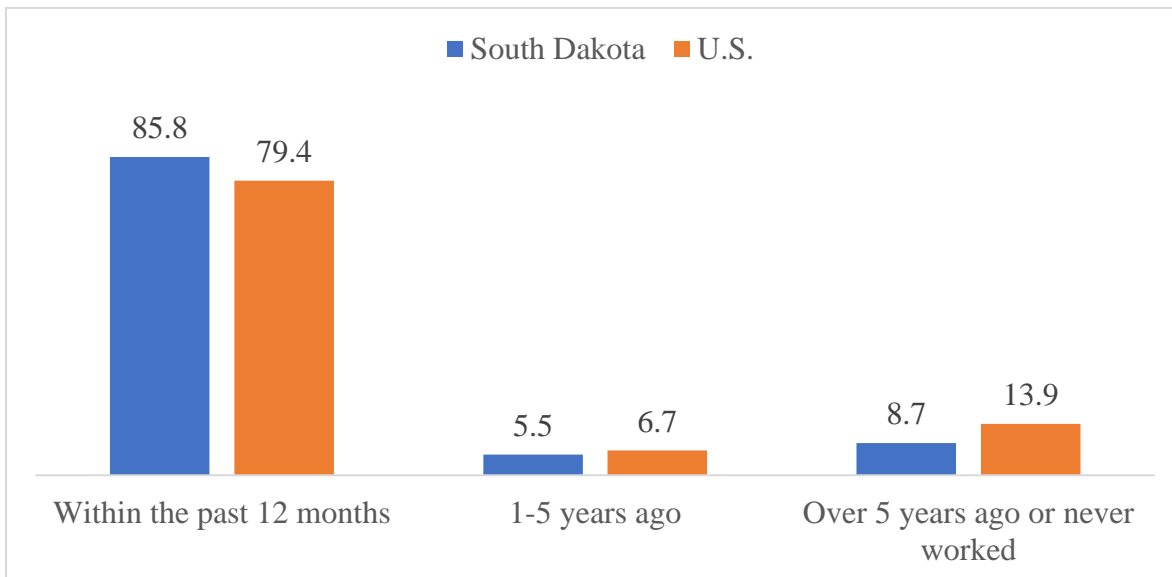
## Poverty and Joblessness

The discussion above found that the bulk of the poverty problems in South Dakota are concentrated among jobless persons: those who were unemployed and especially those who were not in the labor force. There is a strong link between the duration of joblessness and the incidence of poverty problems among working-age residents in South Dakota and the U.S. We have analyzed 5-year (2015-2019) American Community Survey (ACS) public use data files to examine the link between poverty and duration of joblessness in South Dakota and the U.S.

One of the questions on the ACS asked respondents when they had last worked even for just a few days. Respondents could check one of the three responses to this question: i) last worked within the past 12 months, ii) last worked 1 to 5 years ago, iii) last worked over five years ago or never worked. Using this information in We have estimated poverty rates of non-elderly persons (aged 21-64)<sup>57</sup> by their last worked status in South Dakota and the U.S.

Chart 2 displays percentage distribution of 21-to-64-year-old adults in South Dakota and the U.S. by last worked status. Nearly 86 percent of adults in this age group in South Dakota reported that they had worked in the 12 months preceding the ACS surveys, a much higher share

**Chart 2:**  
Percentage Distribution of Residents Between 21- and 64-Years-Old in South Dakota and the U.S., by Their Last Work Status, 2015-2019



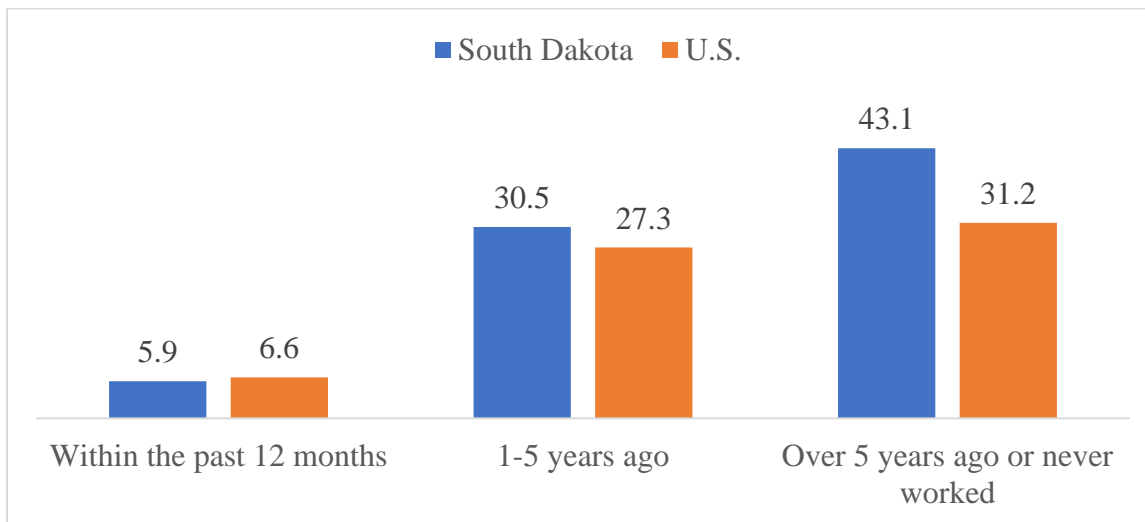
Source: 5-Year American Community Surveys (2015-2019), public use files, U.S. Census Bureau; tabulations by authors.

<sup>57</sup> Analysis of worked last time is restricted to 21- to 64-year-old individuals to ensure that every individual has had at least 5 years since they turned 16 and became eligible for official employment.

than that of their counterparts across the nation (79.4 percent). The share of South Dakotans reporting they had last worked 1-5 years ago was just 5.5 percent, which was again slightly lower than the share of their peers in the U.S. (6.7 percent). And nearly 9 percent of South Dakota’s 21- to 64-year-old residents reported that they had last worked over 5 years ago or had never worked.

Working-age individuals with long periods of time away from the labor market are very likely to face income adequacy problems. In South Dakota, the poverty rate of persons aged 21 to 64 is closely associated with the duration of their joblessness. The poverty rate among those who had worked in the year preceding the ACS survey was about 6 percent, on average, over 2015 to 2019 period. However, the likelihood of living in poverty skyrocketed among those residents of the state who had been out of work for longer periods of time. The poverty rate among South Dakota residents who had not worked in the prior year and whose most recent employment was more than 1 and up to 5 years ago, was 30.5 percent (Chart 3). Among those South Dakotans who had not worked in the past 5 years or never worked, the poverty rate was considerably greater, 43.1 percent; a rate that was 12-percentage points higher than that of their counterparts in the U.S.; 31 percent in the U.S. versus 43 percent in South Dakota. Long-term job market disconnection appears to be more likely to lead to poverty in South Dakota than in the nation.

Chart 3:  
Poverty Rates of 21- to 64-Year-Old Residents in South Dakota and the U.S.  
by Their Last Work Status, 2015-2019



Source: 5-Year American Community Surveys (2015-2019), public use files, U.S. Census Bureau; tabulations by authors.

## Supplemental Poverty Rate in South Dakota

Every year, the U.S. Census Bureau publishes data on the official poverty status of families and individuals across the U.S. The poverty status is determined by using an official poverty measure (OPM) that compares pre-tax cash income of families or an individual against an income threshold set at three times the cost of a minimum food diet in 1963.<sup>58</sup> The poverty income thresholds are adjusted for family size. And, each year, these poverty income thresholds are adjusted for inflation. Estimates of poverty rates are generated from the March CPS Survey supplement that includes special questions including measures of household and family incomes (known as Annual Social and Economic Supplement), which is conducted in February through April with a sample of more than 75,000 households per year. Independent measures of poverty are also published with a much larger sample from the American Community Survey which is administered throughout the year with a randomized sample of approximately 3.5 million households.<sup>59</sup>

For the entire U.S., the official poverty rate derived from the CPS supplement in 2019 was 10.5 percent, down from 11.8 percent in 2018.<sup>60</sup> States and sub-states area poverty estimates from the U.S. Census Bureau are derived from the American Community Survey. In 2019, the poverty rate of all persons in South Dakota was 11.9 percent, which ranked (25<sup>th</sup>) in the middle of all states.<sup>61</sup>

Critics argue that the official poverty measure is deeply flawed.<sup>62</sup> The poverty thresholds are considered somewhat arbitrary as they were devised more than 60 years ago with a simple national level set of thresholds that are only adjusted annually for inflation. Among the most

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<sup>58</sup> The USDA developed subsistence food budget plan for family of four in 1961 using data from 1955 Household Consumption survey.

<sup>59</sup> To understand how poverty status is determined by the U.S. Census Bureau, see: (<https://www.census.gov/topics/income-poverty/poverty/guidance/poverty-measures.htm>).

<sup>60</sup> Jessica Semega, Melissa Kollar, Emily A. Shrider, and John F. Creamer U.S. Census Bureau, Current Population Reports, P60-270, *Income and Poverty in the United States: 2019*, U.S. Government Publishing Office, Washington, DC., 2020 (<https://www.census.gov/content/dam/Census/library/publications/2020/demo/p60-270.pdf>).

<sup>61</sup> See: Craig Benson, *Poverty: 2018 and 2019*, American Community Survey Briefs, Issued September 2020 ACSBR/20-04 (<https://www.census.gov/content/dam/Census/library/publications/2020/acs/acsbr20-04.pdf>).

<sup>62</sup> See: (i) Natalia Kolesnikova and Yang Liu, "Understanding Poverty Measures and the Call to Update Them", *The Regional Economist*, July 2012, ([https://www.stlouisfed.org/~media/Files/PDFs/publications/pub\\_assets/pdf/re/2012/c/poverty.pdf](https://www.stlouisfed.org/~media/Files/PDFs/publications/pub_assets/pdf/re/2012/c/poverty.pdf)); (ii) Shawn Fremstad, "The Official Poverty Rate is Based on a Hopelessly Out-of-Date Measure", *The Washington Post*, September 16, 2019 (<https://www.washingtonpost.com/outlook/2019/09/16/official-us-poverty-rate-is-based-hopelessly-out-of-date-metric/>).



important criticisms of the current poverty thresholds is that they may not represent actual household consumption of goods and services since the poverty threshold includes only the households' money income from all sources as the basis to determine its living standard relative to the poverty threshold. The official poverty threshold by the U.S. Census Bureau includes *only* cash income (unemployment compensation, workers' compensation, Social Security, Supplemental Security Income, public assistance, veterans' payments, survivor benefits, pension or retirement income, interest, dividends, rents, royalties, income from estates, trusts, educational assistance, alimony, child support, assistance from outside the household, and other miscellaneous sources). This means that the official poverty measure does not account for *any* in-kind publicly financed benefits like Medicaid, tax credits like the Earned Income Tax Credit (EITC), housing subsidies, food assistance programs, work expenses, medical costs, capital gains/losses. Nor do poverty thresholds account for geographic variation in the cost of living; an especially important limitation given the very large variation in housing costs relative to household cash incomes that exist across states and localities.

To address these shortcomings in the official poverty measure, the U.S. Census Bureau has created a supplemental poverty measure since 2011.<sup>63</sup> The supplemental poverty in addition to cash income takes account of several (but not all) government non-cash benefit programs such as the value of food stamps and imputed cash value of Medicaid benefits. Unlike the official poverty threshold, the supplemental poverty threshold also includes geographic adjustments for differences in housing costs.

Table 10 displays poverty rates in South Dakota and the U.S. based on official poverty measure (OPM) alongside the supplemental poverty measure (SPM). The SPM measure paints a very different and more favorable picture of poverty in South Dakota than the official poverty measure. For South Dakota, the official poverty rate in 2017-2018-2019 was 10.6 percent, which was 1.4 percentage points higher than the supplemental poverty rate (9.2 percent). The official poverty rate in South Dakota ranked in the middle of the pack among states (26<sup>th</sup> lowest) but the state's ranking on the supplemental poverty measure was 13<sup>th</sup> lowest poverty rate among all states indicating that the incidence of poverty in South Dakota based on the supplemental

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<sup>63</sup> For detailed information about supplemental poverty threshold, see: (i) the U.S. Census Bureau's Web site on this topic (<https://www.census.gov/topics/income-poverty/supplemental-poverty-measure.html>); (ii) Bureau of Labor Statistics, *Supplemental Poverty Measure (SPM) Thresholds, 2013*, Washington, DC: Department of Labor (<http://www.bls.gov/pir/spmhome.htm>).

measure is lower than most other states. In contrast, we find that the supplemental poverty rate for the U.S. was 1-percentage point higher than the official poverty rate (12.5% versus 11.5%).

Table 10:  
Differences Between the Official and Supplemental Poverty Rates in  
South Dakota and the U.S., 2017-2018-2019 Averages

Poverty Measure	South Dakota	U.S.	South Dakota Rank (Lowest to Highest)
Official	10.6%	11.5%	26 <sup>th</sup>
SPM	9.2%	12.5%	13 <sup>th</sup>
Abs. Difference	+1.4%	-1.0%	

Source: The U.S. Census Bureau, <https://www.census.gov/library/publications/2020/demo/p60-272.html>

Note: Official poverty data published by the U.S. Census Bureau in this table are based on 2018, 2019, and 2020 Current Population Surveys Annual Social and Economic Supplement (CPS ASEC). The poverty rates from CPS ASEC and American Community Survey (ACS) differ. The ACS poverty rate for South Dakota in 2017-2018-2019 was 12.7%, much higher than the official poverty rate of 10.6% from CPS ASEC during the same time period.

## Deep Poverty and the Characteristics of the Working-Age Deep Poor Population in South Dakota

The official poverty rate measures the share of a population that resides in a household with cash income below the official poverty threshold that varies by the size and composition of the household. For example, for persons under the age of 65 who are living alone, the poverty income threshold in 2020 was \$13,465, meaning that such persons with cash income under \$13,465 during 2020 would be classified as poor. A family of three with two dependent children under age 18 has a national poverty threshold of \$20,852.

However, a closer exploration of the household cash income data reveal that a large proportion of residents who are classified as poor live in households with incomes that are much lower than the official poverty threshold. To account for the potential variability in household income for the poverty population, a deep poverty measure has been developed to gain a rough measure of the magnitude of the income deficit relative to the poverty threshold. Persons with incomes below 50 percent of the poverty threshold are classified as living in ‘deep poverty.’ Our analysis of the 5-year ACS data files (2015-2019) for South Dakota found that about 47,000 or 5.5 percent of all South Dakota’s residents had household incomes below 50 percent of the official poverty threshold, placing them in the deep poverty category. The deep poverty rate of South Dakota was identical with the U.S. average rate (5.5 percent). Over the past 20 years, the

deep poverty rate in South Dakota has remained in the 5 percent range. The deep poverty rate in South Dakota was 5.2 percent in 1999, 5.6 percent in 2008-2012, and 5.5 percent in 2015-2019.

Among *working-age non-elderly* (16-64) residents of South Dakota, the deep poverty rate in 2015-2019 was 5.6 percent, which was very similar to the U.S. rate of 5.3 percent. Findings in Table 11 reveals that excluding both the elderly and most children from the deep poverty measure does little to reduce the deep poverty rate in South Dakota and the U.S. Indeed, we found little difference between the incidence of deep poverty among the non-elderly working-age population and the total population of South Dakota and the U.S.

**Table 11:**  
**Trends in Deep Poverty Rates in South Dakota and the U.S., 1999-2015/2019 (In %)**

Year	South Dakota		U.S.	
	All	16-64	All	16-64
1999	5.2	4.9	5.2	4.9
2008-2012	5.6	5.3	6.0	5.6
2015-2019	5.5	5.6	5.5	5.3

Sources: Decennial Census of Population and Housing, 2000 (5% PUMS), and 5-year American Community Surveys, 2008-2012 and 2015-2019, U.S. Census Bureau; tabulations by authors.

Note: College students under 30 years of age who are not living in households with related children are excluded from the deep poverty/poverty estimates in our analysis.

In both South Dakota and the U.S., deep poverty rates of working-age residents varied by their gender, race, age, educational attainment levels, disability status, and household living arrangements<sup>64</sup> (Table 12). During 2015-2019, South Dakota’s female residents had slightly higher deep poverty rates than their male counterparts (5.9 percent versus 5.3 percent). The deep poverty rate among females was also slightly higher than males in the U.S. (6.2 percent versus 4.3 percent).

The deep poverty rate also varied widely by race-ethnicity of the non-elderly working-age population in South Dakota. More than one-quarter (26.4 percent) of Native Americans in South Dakota were deep poor, more than two times higher than their respective peers nationwide (11.7 percent). The deep poverty rate among American Indians in South Dakota as well as the U.S. was the highest among the major race-ethnicity groups. Hispanics in South Dakota had second highest deep poverty rate of 10.2 percent. Among African Americans in South Dakota,

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<sup>64</sup> Detailed subgroup analysis is restricted to persons aged 16-64 as the findings for all persons and persons aged 16-64 were very similar.

the deep poverty rate was 8 percent. Asian and Whites in South Dakota had the lowest deep poverty rate (2.6 percent among Asians and 3.2 percent among non-Hispanic Whites).

The deep poverty rate varied by age. Teens and young adults (excluding college students) had a higher incidence of deep poverty than their older peers.<sup>65</sup> In South Dakota, the deep poverty rate during 2015-2019 varied from a high of 7.8 percent among those in the 16- to 24-year-old age range, to a low of 4.0 percent among the 55- to 64-year-old population. Among those in the 25- to 54-year-old age group, the deep poverty rates in the state were in the 4.8 to 6.6 percent range. Similar patterns in deep poverty rates by age group prevailed for non-elderly working-age persons in the U.S. (Table 12).

Individuals with disabilities were more than twice as likely than those without disabilities to be in deep poverty. The deep poverty rate for persons with disabilities was 11.2 percent compared to 4.9 percent for persons without disabilities. Similar size difference in deep poverty rates prevailed by disability status in the U.S.

Persons with lower levels of educational attainment had a much greater likelihood of deep poverty than those with higher levels of educational attainment. This increased risk of very low household incomes and deep poverty among residents with low levels of educational attainment is unsurprising. Persons with low literacy and numeracy skills and fewer years of schooling are much more likely to have lower labor force attachment, higher unemployment and underemployment rates, lower full-time employment rates, and lower annual earnings.<sup>66</sup> Thus, persons with lower levels of education are more likely than their counterparts with higher levels of education to be in deep poverty. In South Dakota, 14 percent of non-elderly working-age persons without a high school diploma had income below 50 percent of the poverty line. Among the 28,600 working-age non-elderly deep poor persons in South Dakota, nearly one-third did not

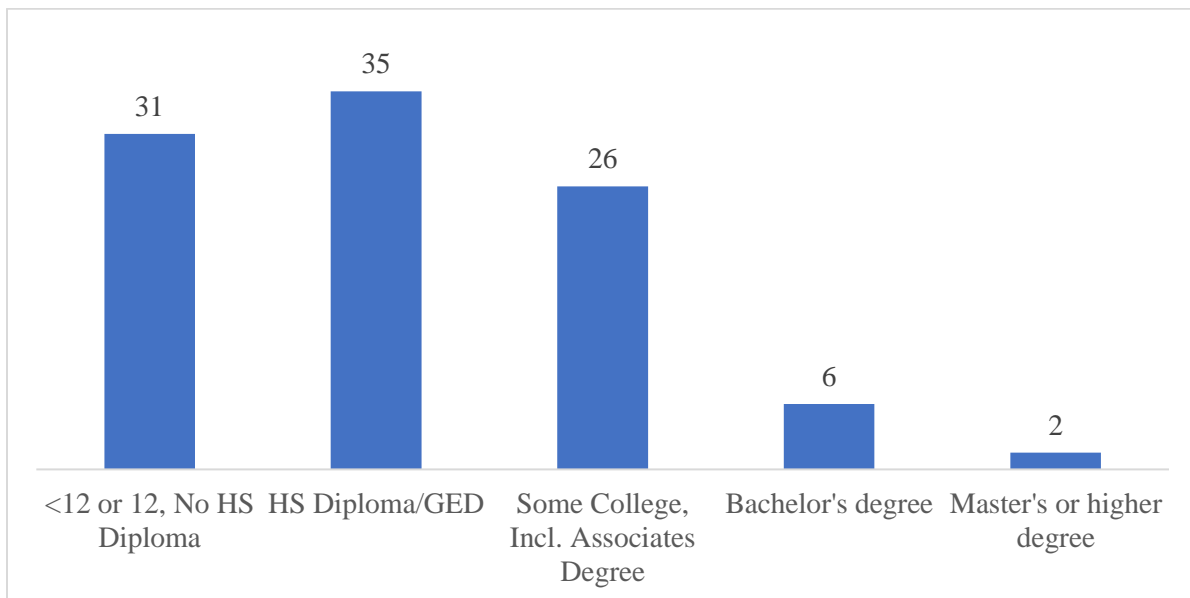
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<sup>65</sup> Part of this very high incidence of deep poverty among young people is associated with their disconnection from human capital development activities, see Neeta P. Fogg and Paul E. Harrington, *The Human Capital Deficit of Disconnected Youth in Philadelphia*, Center for Labor Markets and Policy, Drexel University, September 2015.

<sup>66</sup> See: Irwin Kirsch, Henry Braun, Mary Louise Lennon and Anita Sands, *Choosing our Future: A Story of Opportunity in America*, Educational Testing Service, Princeton, January 2016; and Walter W. McMahon, "The Social and External Benefits of Education, in *International Handbook of the Economics of Education*, Geraint Johnes and Jill Johns (Eds.) Edward Elgar Publishing Cheltenham UK, 2004 Goldin, Claudia D. and Lawrence F. Katz, *The Race between Education and Technology*. Boston MA: Harvard University Press, 2008 Neeta Fogg, Paul Harrington and Ishwar Khatiwada, *The Impact of Human Capital Investment on the Earnings of American Workers*, Educational Testing Service, Princeton, NJ Forthcoming, 2018 *The Human Capital Report, 2015*, World Economic Forum, Employment, Skills, and Human Capital Global Challenge Insight Report, 2015. ([http://www3.weforum.org/docs/WEF\\_Human\\_Capital\\_Report\\_2015.pdf](http://www3.weforum.org/docs/WEF_Human_Capital_Report_2015.pdf)).

have a high school diploma and another 35 percent had just a high school diploma or its equivalent (Chart 4). Thus, two-thirds of those in deep poverty had no schooling beyond high school. Among working-age residents of South Dakota with a high school diploma, 7.1 percent lived in a household with income below the deep poverty threshold during 2017-2019 (Table 12). In contrast, less than 2 percent of those with a Bachelor’s or higher degree faced deep poverty problems in South Dakota. Patterns of deep poverty rates by educational attainment were similar for the U.S.; however, those without a high school diploma in South Dakota had a higher incidence of deep poverty than their peers across the U.S. (Table 12).

Chart 4:  
Distribution of Non-Elderly Deep Poor (16-64) in South Dakota  
by Their Educational Attainment, 2015-2019 (In Percent)



Source: 5-Year American Community Surveys (2015-2019), public use files, U.S. Census Bureau; tabulations by authors.

Deep poverty rates were also strongly linked to household living arrangements of individuals. Persons living in single-parent households had a sharply higher incidence of deep poverty compared to those living in married-couple households. Part of this difference is associated with a greater likelihood among married-couple households to have at least one spouse with a bachelor’s degree. The share of householders with a college degree is much lower among single parent households. About 36 percent of householders in married couple families in South Dakota had a bachelor’s or higher degree; nearly double the proportion found for householders of single parent families (19 percent). Thus, adults in married-couple households

**Table 12:**  
**Deep Poverty Rates of 16- to 64-Year-Old Population in South Dakota and the U.S.,**  
**by Selected Demographic Characteristics, 2015-2019 (In %)**

Group	% Deep Poor		Difference SD-US (Percentage Points)
	South Dakota	U.S.	
All (16-64)	5.6	5.3	0.3
<b>Gender</b>			
Male	5.3	4.3	1.0
Female	5.9	6.2	-0.3
<b>Race-Ethnicity</b>			
White	3.2	4.1	-0.9
Black	8.0	8.9	-0.9
Asian	2.6	3.8	-1.2
American Indian	26.4	11.7	14.7
Hispanic	10.2	6.5	3.7
Other	7.7	6.4	1.3
<b>Age Group</b>			
16-24	7.8	7.2	0.6
25-34	6.6	6.0	0.6
35-44	5.0	4.9	0.1
45-54	4.8	4.3	0.5
55-64	4.0	4.3	-0.3
<b>Disability Status</b>			
Disabled	11.2	10.1	1.1
Not Disabled	4.9	4.7	0.2
<b>Educational Attainment</b>			
<12 or 12, No HS Diploma	14.0	10.1	3.9
HS Diploma/GED	7.1	6.7	0.4
Some College	4.3	4.5	-0.2
Bachelor's or Higher Degree	1.6	2.1	-0.5
<b>Living Arrangements</b>			
Married-Couple Family	1.8	1.8	0.0
Male-Headed Family	9.4	9.0	0.4
Female-Headed Family	15.0	10.8	4.2
Non-Family Households	9.3	9.5	-0.2

Source: 5-year American Community Surveys, 2015-2019, public use files, U.S. Census Bureau; tabulations by authors.

Note: College students under 30 years of age who are not living in households with related children are excluded from the deep poverty/poverty estimates in our analysis.

tend to be better-educated and are likely to have higher employment rates and access to occupations with higher wages. In contrast, single parent households, are more frequently characterized by a lower level of educational attainment, lower employment rates, lower wages, and higher unemployment rates.

Working-age residents living in female-headed family households (with no spouse present) in South Dakota had a relatively high deep poverty rate of 15 percent, much higher than the deep poverty rate found among state's residents living alone or in non-family households (10.2 percent) and male-headed family households (with no spouse present) (9.4 percent). In sharp contrast, less than 2 percent of persons living in married-couple households faced deep poverty problems in South Dakota during the 2015-2019 period. Deep poverty rates in the U.S. in each of these demographic and socio-economic groups of working-age adults (aged 16-64) followed similar patterns.

## Chapter 7

# Trends in Household Employment

### Introduction

Another key measure of labor market outcomes of a state's working-age residents is the employment-to-population (E/P) ratio, which represents the share of the state's working-age population that is employed at a given time. It serves as an important indicator of the extent to which the working-age population is engaged in the production of final output. It is very useful in understanding differences in economic growth and living standards across states and regions. Higher E/P ratios, *ceteris paribus*, mean higher levels of output and income in a given area.

The E/P ratio can also provide important insight into a state's labor market conditions. For example, during the recent Covid-19 pandemic, states that have experienced similar levels of payroll employment declines have sharply different rates of change in their unemployment levels and rates. The difference is a result of a larger share of newly jobless workers in some states remaining engaged in the labor force, while in neighboring states a larger share of newly laid-off workers simply entirely withdrew from the labor force. Indeed, a hallmark of the pandemic has been a decline in the size of the labor force in the nation and many states. The E/P ratio compensates for these behavioral choice differences among the jobless by reporting the share of the entire working-age population that is employed unlike the unemployment rate that measures the share of the labor force that is unemployed.

### Trends in the Employment-to-Population Ratio of Working-Age Residents of South Dakota and the U.S., 1979-2019

The E/P ratio is influenced by the labor force participation rate and the unemployment rate of workers in the state.<sup>67</sup> Findings in a previous section of the report showed that over the past 40 years, South Dakota was one of the states with the highest labor force participation rate and the lowest unemployment rate, hence, the E/P ratio for the state was also one of the highest among all states. Similar to the labor force participation rate and the unemployment rate, the E/P ratio in South Dakota and the U.S. has fluctuated with business cycle conditions (Table 1). In

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<sup>67</sup> Algebraically,  $E/P = L/P \cdot E/L$  where  $L/P$  equals the labor force participation rate and  $E/L$  represents the share of the labor force that is employed. The value of  $E/L$  is equal to  $1 - U/L$  where  $U/L$  represents the unemployment rate.



1979, two-thirds of South Dakota's working-age residents were working, which was much higher than the nationwide E/P ratio (59.9 percent). The E/P ratio in the state and the nation fell during the recession of 1981-82 and its aftermath in 1982 and 1983. However, South Dakota's E/P ratio remained about 5-percentage points higher than that of the U.S. (63 percent versus 58 percent) and the state was among the top 10 states with the highest E/P ratio. The E/P ratio started to rise in 1984 and reached as high as 67.1 percent by 1990. The ranking of South Dakota's E/P ratio among the states slipped modestly compared to the 1980s, but the ratio still remained one of the highest (ranked 14<sup>th</sup> highest) among all states.

In contrast to the nation, South Dakota's E/P ratio remained steady during and after the recession of early 1990s and ranked 6<sup>th</sup> highest among the states in 1991 and 1992. In mid- to late-1990s, the E/P ratio of South Dakota rose steadily, reaching 71 percent in 2000. The long economic expansion of the 1990s also propelled the E/P ratio of U.S. residents to the highest level on record. In 2000, the E/P ratio in the U.S. was 64.4 percent, the highest ever recorded as the entire baby-boom generation was in the prime of their working lives, aged 25 to 54, when the major life activity of most individuals is employment. South Dakota's E/P ratio in 2000 was 6.6 percentage points higher than that of the U.S. and ranked 3<sup>rd</sup> highest among the 50 states and D.C. (Table 1).

During the technology sector led recession of 2001 and its aftermath, the E/P ratio fell in the U.S. but remained steady in South Dakota in the 70-71 percent range from 2001 to 2008 and ranked 2<sup>nd</sup> and 3<sup>rd</sup> highest among the states. These trends suggest strong cyclical stability in South Dakota labor markets at that time. In contrast, the E/P ratio in the U.S. declined from 64.4 percent in 2000 to 62.3 percent in 2003 and 2004 and rose again to 63 percent range from 2005-2007.

While South Dakota was largely insulated from the effects of the dot.com recession, this was not the case during the Great Recession, although the labor market impact of the financial collapse was much less severe in the state. The E/P ratio fell sharply in South Dakota as well as the U.S. during this recession. In 2009, the E/P ratio fell to 68.9 percent in South Dakota and 59.3 percent in the U.S. The state's E/P ratio was still 9.6 percentage points higher than the nation. South Dakota maintained its rank of 2<sup>nd</sup> or 3<sup>rd</sup> highest E/P ratio among the states from 2007 to 2013. In 2010 and 2011, the nation's E/P ratio fell to 58 percent, the lowest since 1977,<sup>68</sup>

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<sup>68</sup> In 1977, the E/P ratio in the U.S. was 57.9 percent.

and South Dakota's E/P ratio fell to 67 percent but remained 9-percentage points higher than that for the U.S.

Table 1:  
Trends in the Employment-to-Population Ratio for Working-Age (16+) Residents  
in South Dakota and the U.S., 1979-2019

Year	South Dakota	U.S.	Difference	South Dakota's Rank
1979	65.7	59.9	+5.8	7 <sup>th</sup> Highest
1980	64.4	59.2	+5.2	9 <sup>th</sup> Highest
1982	62.7	57.8	+4.9	10 <sup>th</sup> Highest
1983	62.7	57.9	+4.8	10 <sup>th</sup> Highest
1984	64.9	59.5	+5.4	9 <sup>th</sup> Highest
1989	66.7	63.0	+3.7	12 <sup>th</sup> Highest
1990	66.7	62.8	+3.9	14 <sup>th</sup> Highest
1991	67.1	61.7	+5.4	6 <sup>th</sup> Highest
1992	67.3	61.5	+5.8	6 <sup>th</sup> Highest
1993	67.6	61.7	+5.9	8 <sup>th</sup> Highest
1994	69.4	62.5	+6.9	7 <sup>th</sup> Highest
1999	71.1	64.3	+6.8	3 <sup>rd</sup> Highest
2000	71.0	64.4	+6.6	3 <sup>rd</sup> Highest
2001	70.2	63.7	+6.5	3 <sup>rd</sup> Highest
2002	71.1	62.7	+8.4	2 <sup>nd</sup> Highest
2003	71.1	62.3	+8.8	2 <sup>nd</sup> Highest
2004	71.0	62.3	+8.7	2 <sup>nd</sup> Highest
2005	69.9	62.7	+7.2	3 <sup>rd</sup> Highest
2007	71.5	63.0	+8.5	2 <sup>nd</sup> Highest
2008	71.1	62.2	+8.9	3 <sup>rd</sup> Highest
2009	68.9	59.3	+9.6	2 <sup>nd</sup> Highest
2010	67.2	58.5	+8.7	3 <sup>rd</sup> Highest
2011	67.4	58.4	+9.0	3 <sup>rd</sup> Highest
2012	66.4	58.6	+7.8	3 <sup>rd</sup> Highest
2013	67.1	58.6	+8.5	3 <sup>rd</sup> Highest
2014	66.9	59.0	+7.9	5 <sup>th</sup> Highest
2015	67.3	59.3	+8.0	3 <sup>rd</sup> Highest
2016	67.0	59.7	+7.3	4 <sup>th</sup> Highest
2017	66.9	60.1	+6.8	4 <sup>th</sup> Highest
2018	66.8	60.4	+6.4	5 <sup>th</sup> Highest
2019	67.1	60.8	+6.3	7 <sup>th</sup> Highest

Source: South Dakota's E/P ratio estimates are from Geographic Profile of Employment and Unemployment, U.S. Bureau of Labor Statistics (<https://www.bls.gov/opub/geographic-profile/archive.htm>), estimates for the U.S. are obtained from the U.S. Bureau of Labor Statistics data portal (<https://www.bls.gov/data/#unemployment>) that are benchmarked annually to reflect population controls.

The E/P ratio in the U.S. slowly started to rise after 2013 and reached 60.8 percent in 2019. In South Dakota, the E/P ratio remained in 67 percent range from 2013 to 2019. South Dakota's E/P ratio ranked among the top 5 states between 2013 and 2018 but slipped to 7<sup>th</sup> highest in 2019 after remaining in the 3<sup>rd</sup> to 5<sup>th</sup> highest position from 2010 to 2018. In South Dakota and the U.S., the E/P ratio in 2019 was lower than in the pre-Great Recession peak in 2007; 4.4-percentage points lower in South Dakota and 2.2-percentage points lower in the U.S. The 4.4 percentage drop in the E/P ratio in South Dakota compared to 2007 is not trivial. If South Dakota's E/P ratio in 2019 had remained at the 2007 level (71.5 percent), the state would have had an additional 30,000 employed persons in 2019.<sup>69</sup>

### Trends in the Employment-to-Population Ratio of Working-Age Men and Women (16+) in South Dakota and the U.S., 1979-2019

An analysis of trends in the E/P ratio of men and women in South Dakota and the U.S. over the 1979-2019 period shows highly divergent trends. In 1979, nearly 8 out of 10 working-age men in South Dakota were employed (Table 2). In contrast, only a little over half of working-age women in the state were employed (53 percent). The E/P ratio of men in South Dakota was nearly 26-percentage points higher than that of women. The E/P ratio pattern for men and women in the U.S. was very similar; however, the E/P ratio for **both**, men, and women, in South Dakota exceeded their national counterparts by about 6 percentage points.

Men's E/P ratio in the U.S. has been declining since late 1950s while rising among women. In South Dakota, men's E/P ratio declined from 79.7 percent in 1979 to 75.2 percent in 1989 and remained in 74-76 percent range between 2000 and 2007. In contrast, women's E/P ratio in the state rose from 53 percent in 1979 to 58.7 percent in 1989 to 66.4 percent in 2000 and to almost 67 percent in 2007, before the onset of the Great Recession. South Dakota's E/P ratio for both men and women were much higher than their respective peers nationwide in each of these years, although the pattern of change over time was similar. The gender gap in the E/P ratio in South Dakota declined from about 27-percentage points in 1979 to 9.7 percentage points in 2007 as men's E/P ratio continuously declined while that of women's kept increasing over this period. Findings were very similar for the entire U.S. between 1979 and 2007; however, the gap between male and female E/P ratios was higher in the nation than in South Dakota.

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<sup>69</sup> The civilian population 16 and older in South Dakota in 2019 was 672,000. Multiplying 672,000 by 4.4 percent yields 30,000.

The E/P ratio declined for both men and women in South Dakota and the U.S. during the Great Recession of 2007-2009 and its aftermath. In South Dakota, the E/P ratio for men in 2011 was 71.2 percent, the lowest level since such data on labor force statistics were available. For women too, the E/P ratio in South Dakota declined from a high of 66.8 percent in 2007 to 63.6 percent in 2011. Between 2007 and 2011, the E/P ratio for men and women in the U.S. declined by 5.9 and 3.4 percentage points, respectively.

For men in both South Dakota and the U.S., the E/P ratio in 2019 was lower than in 2007, before the Great Recession of 2007-2009. Over the 2007-2019 period, men’s E/P ratio in South Dakota dropped by 5.4 percentage points, much larger decline compared to their national counterparts who saw a 3.2 percentage points decline in their E/P ratio. The E/P ratio decline over the 2007-2019 period among women was also larger in South Dakota than in the U.S. (-3.7 percentage points versus -1.2 percentage points) (Table 2).

Table 2:  
Trends in the Employment-to-Population Ratio of Working-Age (16+) Men and Women  
in South Dakota and the U.S, Selected Years, 1979-2019

Year	South Dakota			U.S.		
	Men	Women	Difference	Men	Women	Difference
1979	79.7	53.1	+26.6	73.8	47.5	+26.3
1989	75.2	58.7	+16.5	72.5	54.3	+18.2
2000	75.9	66.4	+9.5	71.9	57.5	+14.4
2007	76.5	66.8	+9.7	69.8	56.6	+13.2
2011	71.2	63.6	+7.6	63.9	53.2	+10.7
2016	72.1	61.9	+10.2	65.8	54.1	+11.7
2019	71.1	63.1	+8.0	66.6	55.4	+11.2

Source: South Dakota’s E/P ratio estimates are from Geographic Profile of Employment and Unemployment, U.S. Bureau of Labor Statistics (<https://www.bls.gov/opub/geographic-profile/archive.htm>), estimates for the U.S. are obtained from the U.S. Bureau of Labor Statistics data portal (<https://www.bls.gov/data/#unemployment>) that are benchmarked annually to reflect population controls.

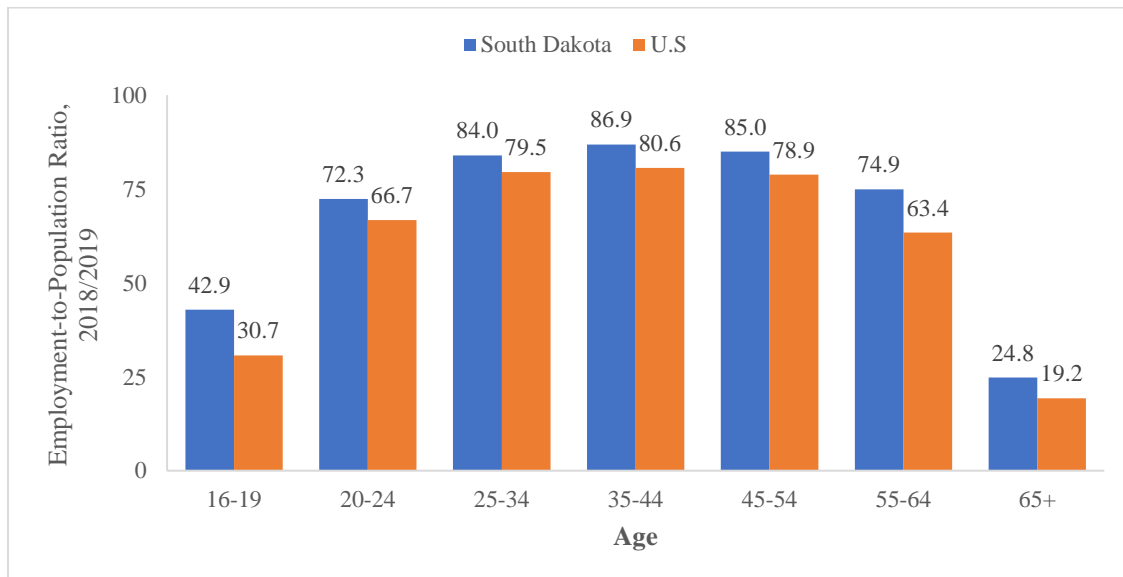
### Trends in the Employment-to-Population Ratio of Working-Age Adults (16+) in South Dakota and the U.S. by Age Group, 1999/2000 and 2018/2019

The employment-to-population ratio varied widely by age in South Dakota. Younger (16-24) and older individuals (55+) are less likely to be employed than prime-aged (25-54) individuals. In both South Dakota and the U.S., the E/P ratio rose steadily and strongly from teenage years to the prime-age years and then begin to fall in the pre-retirement years and fall more sharply in the retirement years. In South Dakota, the E/P ratio of working-age adults in

2018/2019 rose from a low of 43 percent for teenagers (16-19) to 72 percent for young adults (20-24) and peaked at 84-87 percent for those in the 25-54 age groups. After prime working years, the E/P ratio declined to 75 percent among 55- to 64-year-olds and plummeted to 25 percent for those 65 and older. Very similar findings pattern prevailed in the U.S.; however, in each of the seven age categories, the E/P ratios were higher in South Dakota than in the U.S.

The largest gap in the E/P ratio between South Dakota and the U.S. was observed among teens, where South Dakota teenagers were much more likely to work than their counterparts in the nation. In 2018/2019, the E/P ratio among South Dakota’s teens was 12-percentage points higher than their counterparts nationwide (42.9 percent versus 30.7 percent). This means that the likelihood of a teen working in South Dakota was 1.4 times that of their counterparts in the nation. There was also a nearly 12-percentage points E/P ratio gap between South Dakota and the U.S., in favor of South Dakota, among 55 to 64-year-olds.

**Chart 1:**  
**The Employment-to-Population Ratio of Working-Age (16+) Residents of South Dakota and the U.S., by Age, 2018/2019 (2-Year Averages, in Percent)**



Source: Monthly CPS public use files, 2018 and 2019, U.S. Census Bureau, tabulations by authors.

In the remaining five age groups, the E/P ratios for South Dakota’s working-age population were 4-6 percentage points higher than their peers nationwide (Chart 1). As mentioned in Chapter 4, labor force participation rate of 65 and older individuals is expected to increase substantially over the next decade. Thus, the E/P ratio of the older population is also

expected to rise in the next decade.<sup>70</sup> However, the effects of the pandemic on the future likely path of labor force attachment of older workers remains unclear as older workers (65 and older) have been slow to return to the labor market through the end of 2021 after their initial large-scale withdrawal in the second quarter of 2020.

Although the E/P ratio among younger individuals had been declining after 2000, most of the decline occurred during the Great Recession of 2007-2009. The E/P ratio drop was substantially higher among younger individuals in both South Dakota and the U.S. The teen employment rate in South Dakota dropped from 60 percent in 1999/2000 to 46.5 percent in 2009/2010, a decline of 14 percentage points. The teen E/P ratio in the U.S. has always been substantially lower than in South Dakota. In the U.S., the teen E/P ratio dropped from 45 percent in 1999/2000 to 27 percent in 2009/2010, a drop of nearly 18-percentage points. Among 20-to-24-year-olds, the E/P ratio in the state dropped from 80 percent in 1999/2000 to 67.9 percent in 2009/2010, a decline of 12-percentage points. The E/P ratio decline of 12-percentage points among individuals in 20-24 age group in South Dakota was higher than the decline among their peers nationwide (-10.7 percentage points).

Among individuals in the 25- to 34-years-old age group, the E/P ratio decline over the 1999/2000 to 2009/2010 period was 6-percentage points in South Dakota, which was only slightly smaller than the decline among their peers nationwide (-7.2-percentage points). South Dakota's E/P ratio decline over the 1999/2000 and 2009/2010 period was smallest among individuals in 35-44 and 45-54 age group, -1.3 and -3.5-percentage points, respectively. For individuals in these two age groups, the E/P ratio in the U.S. declined by -5.5 and 5.1-percentage points, respectively.

In a sharp contrast, the E/P ratio increased for individuals aged 55 and older over the 1999/2000 to 2009/2010 period. Among individuals in 55-64 age group, the E/P ratio in South Dakota increased only by less than a percentage point, much smaller increase that occurred among their peers nationwide U.S (+2.7 percentage points). The largest E/P ratio increase over this period in South Dakota was among individuals in age group 65 and older. The E/P ratio in the state for this age group increased from 17.6 percent in 1999/2000 to 27.6 percent in

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<sup>70</sup> For a review of national labor force projections through 2030 by age group and gender, see: Kevin S. Dubina, Lindsey Ice, Janie-Lynn Kim, and Michael J. Rieley, "Projections overview and highlights, 2020–30," *Monthly Labor Review*, U.S. Bureau of Labor Statistics, October 2021 (<https://doi.org/10.21916/mlr.2021.20>).

2009/2010, an increase of 10-percentage points. Nationally, the E/P ratio for this group increased only by 3.9 percentage points (Table 3).

Table 3:  
Trends in the Employment-to-Population Ratio of Working-Age Residents of South Dakota and the U.S., by Age Group, 1999/2000 to 2018/2019 (2-Year Averages in Percent)

Age	E-P Ratio			Absolute Change		
	1999/2000	2009/2010	2018/2019	1999/00-2009/10	2009/10-2018/19	1999/00-2018/19
<b>South Dakota</b>						
16-19	60.3	46.5	42.9	-13.9	-3.6	-17.4
20-24	80.1	67.9	72.3	-12.1	4.4	-7.7
25-34	87.8	82.0	84.0	-5.9	2.0	-3.9
35-44	87.8	86.6	86.9	-1.3	0.3	-1.0
45-54	88.9	85.4	85.0	-3.5	-0.4	-4.0
55-64	69.6	70.2	74.9	0.6	4.7	5.3
65+	17.6	27.6	24.8	10.0	-2.8	7.1
<b>U.S.</b>						
16-19	44.9	27.1	30.7	-17.8	3.6	-14.2
20-24	72.0	61.3	66.7	-10.7	5.5	-5.3
25-34	81.4	74.2	79.5	-7.2	5.3	-1.9
35-44	82.3	76.8	80.6	-5.5	3.9	-1.6
45-54	80.5	75.3	78.9	-5.1	3.5	-1.6
55-64	57.8	60.5	63.4	2.7	2.9	5.6
65+	12.2	16.1	19.2	3.9	3.1	7.0

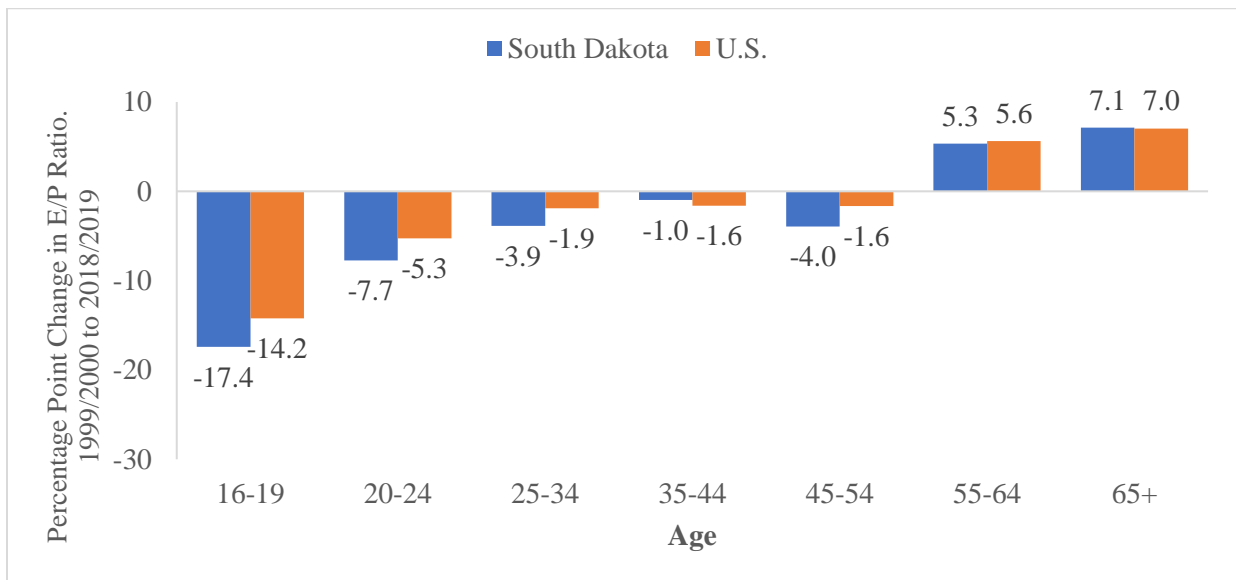
Source: Monthly CPS public use files, 1999, 2000, 2009, 2010, 2018, and 2019, U.S. Census Bureau, tabulations by authors.

The Great Recession of 2007-2009 officially ended in the second quarter of 2009, but the U.S. labor market started to improve slowly and steadily only after 2012 and began to approach near-full employment after 2017. In South Dakota, the E/P ratio did not improve for individuals aged 16-19, 45-54, and 65 and older between 2009/2010 and 2018/2019. The E/P ratio was flat for South Dakotans aged 45-54 over this period and dropped by -3.6-percentage points among teens and -2.8-percentage points among those 65 and older. In contrast, the E/P ratio for individuals in age groups 20-24, 25-34, and 55-64 in the state increased by 2 to 4-percentage points. In the U.S., the E/P ratio increased for individuals in every age group by 3 to 5-percentage points between 2009/2010 and 2018/2019.

## Age Twists in the Employment-to-Population Ratios of Working-Age Adults (16+) in South Dakota and the U.S., 1999/2000 and 2018/2019

Since early 2001, the nation has experienced an age-twist emerge in the employment-to-population ratios for working-age individuals. The age twist was associated with teens and young adults becoming less likely to work as revealed by an E/P ratio decline while older persons (55+) became more likely to work as observed by a rise in their E/P ratios. Chart 2 displays percentage point change (absolute change) in the E/P ratio between 1999/2000 and 2018/2019 by age group in South Dakota and the U.S. Over this period, the E/P ratio in both South Dakota and the U.S. declined for individuals aged 16-54 but rose for those aged 55 and older. In South Dakota, the E/P ratio decline was largest for teens (-17.4-percentage points) and young adults aged 20-24 (-7.7-percentage points) and smaller for individuals aged 25-34 (-3.9-percentage points), 35-44 (-1.0-percentage point) and 45-54 (-4.0-percentage points). In contrast, the E/P ratio rose for individuals aged 55 and older increased in the 5 to 7-percentage points range over the same period. Findings were very similar for the U.S. over this period.

**Chart 2:**  
Percentage Point Change in the Employment-to-Population Ratio of Working-Age (16+) Residents of South Dakota and the U.S., by Age, 1999/2000 to 2018/2019



Source: Monthly CPS public use files, 1999, 2000, 2018, and 2019, U.S. Census Bureau, tabulations by authors.



## The Employment Experiences of Working-Age Individuals (16+) in South Dakota and U.S. by Educational Attainment, 1999/2000 and 2018/2019

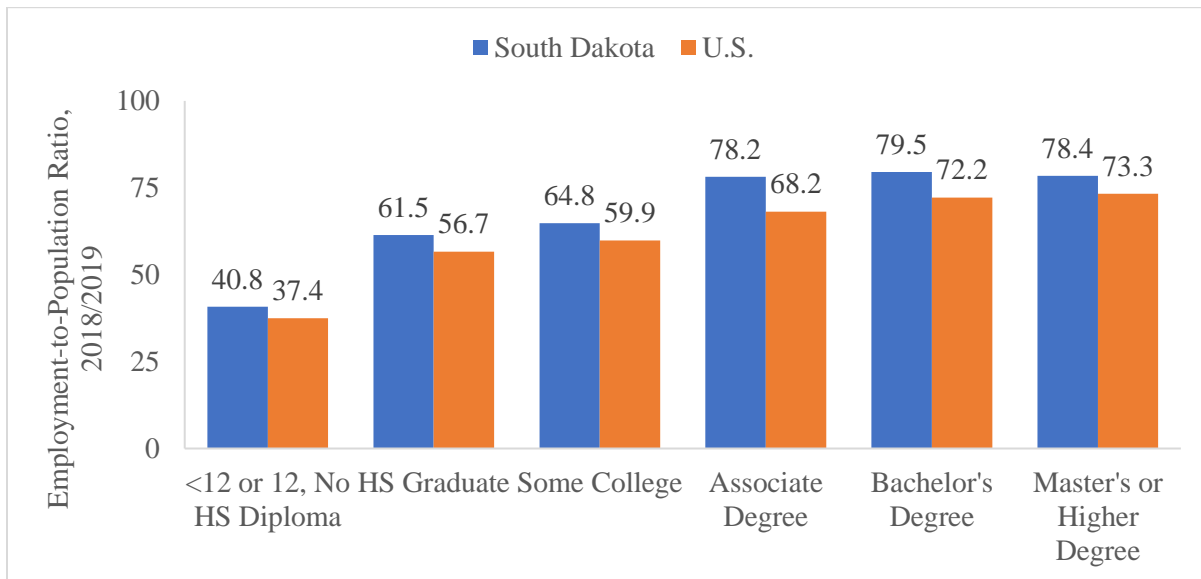
A preceding section examined trends in the employment rates of South Dakota's working-age residents and for men and women separately from 1979 to 2019. Trends in the E/P ratio for working-age individuals by age categories over the 1999/2000 and 2018/2019 period were examined in a separate section. In this section, we present an analysis of the trend in E/P ratios by educational attainment in South Dakota and the U.S. over the 1999/2000 and 2018/2019 period. Labor market outcomes of working-age individuals such as employment and earnings are closely related to their educational attainment, which is closely associated with their literacy/numeracy proficiencies.<sup>71</sup> Individuals with higher levels of formal educational attainment have higher employment rates and annual earnings than their peers with lower levels of educational attainment.

During 2018/2019, the E/P ratios of working-age individuals in both South Dakota and the U.S. varied widely their educational attainment. In South Dakota, the E/P ratio increased sharply with increase in formal schooling, ranging from about 41 percent for those adults lacking a high school diploma to 61 percent for those with a high school diploma or a GED to 65 percent for those with some college to 78-79 percent for those with Bachelor's or a higher degree. The pattern of findings for the U.S. was very similar; however, South Dakota's E/P ratio in each of the six educational attainment groups was higher than their respective peers nationwide (Chart 3).

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<sup>71</sup> See: (i) Neeta Fogg, Paul Harrington, and Ishwar Khatiwada, *Skills and Earnings in Full-Time Labor Market*, (Princeton, NJ: Educational Testing Service, 2018) (<https://www.ets.org/s/research/pdf/skills-and-earnings-in-the-full-time-labor-market.pdf>); (ii) Neeta Fogg, Paul Harrington, and Ishwar Khatiwada, *Skills and the Earnings of College Graduates*, (Princeton, NJ: Educational Testing Service, 2019) (<https://www.ets.org/s/research/pdf/skills-and-the-earnings-of-college-graduates.pdf>); (iii) Neeta Fogg, Paul Harrington, and Ishwar Khatiwada, *Skills and the Earnings in the Part-Time Labor Market*, (Princeton, NJ: Educational Testing Service, 2020) (<https://www.ets.org/s/research/pdf/skills-and-earnings-in-the-part-time-labor-market.pdf>).

**Chart 3:**  
**The Employment-to-Population Ratio of Working-Age (16+) Residents of South Dakota and the U.S. by Educational Attainment, 2018/2019 (2-Year Year Averages. In Percent)**



Source: Monthly CPS public use files, 2018 and 2019, U.S. Census Bureau, tabulations by authors.

The pattern of change in the E/P ratio by educational attainment level over the past two decades in South Dakota and the U.S. are quite similar. Both the nation and South Dakota experienced a sharp drop in the E/P ratio among those without a college degree between 1999/2000 and 2009/2010. In South Dakota, the largest decline in the E/P ratio over this period was among those persons lacking a high school diploma<sup>72</sup> (-8 percentage points), those with some college (-6 percentage points), and those with a high school diploma or equivalent (-4.7 percentage points). There was no change in the E/P ratio in the state among those with Associate’s degree, and among those with a Bachelor’s degree and a Master’s or higher degree, the E/P ratios dropped by -1percentage point and -3.5 percentage points, respectively. For the U.S., the E/P ratio declined in the range of 5-9 percentage points across all educational levels between 1999/2000 and 2009/2010 (Table 4).

Over the 2009/2010 and 2018/2019 period, the E/P ratio in South Dakota increased by 2.3-percentage points for those with less than a high school education and by 1.4-percentage points for those with Master’s or higher degree. For adults in the remaining four educational groups in the state, the E/P ratio declined by 2 to 4-percentage points over the period.

<sup>72</sup> This group includes enrolled high school students 16 years and older.

**Table 4:**  
**Trends in the Employment-to-Population Ratio of Working-Age (16+) Residents**  
**of South Dakota and the U.S., by Educational Attainment,**  
**1999/2000 to 2018/2019 (2-Year Averages, in Percent)**

Educational Attainment	E/P Ratio			Absolute Change		
	1999/2000	2009/2010	2018/2019	1999/00- 2009/10	2009/10- 2018/19	1999/00- 2018/19
<b>South Dakota</b>						
<12 or 12, No HS Diploma	46.6	38.5	40.8	-8.1	2.3	-5.8
HS Graduate	71.1	66.4	61.5	-4.7	-4.9	-9.6
Some College	73.8	67.8	64.8	-5.9	-3.1	-9.0
Associate Degree	81.3	82.0	78.2	0.7	-3.9	-3.2
Bachelor's Degree	82.8	81.6	79.5	-1.2	-2.1	-3.2
Master's or Higher Degree	80.5	77.0	78.4	-3.5	1.4	-2.1
<b>U.S.</b>	71.0	68.1	67.0	-2.9	-1.1	-4.0
<12 or 12, No HS Diploma	41.1	34.3	37.4	-6.8	3.1	-3.7
HS Graduate	63.5	55.5	56.7	-8.0	1.2	-6.9
Some College	69.4	60.8	59.9	-8.6	-0.9	-9.5
Associate Degree	76.6	70.3	68.2	-6.3	-2.1	-8.4
Bachelor's Degree	77.8	72.9	72.2	-4.9	-0.7	-5.6
Master's or Higher Degree	79.8	74.8	73.3	-4.9	-1.5	-6.4

Source: Monthly CPS public use files, 1999, 2000, 2009, 2010, 2018, and 2019, U.S. Census Bureau, tabulations by authors.

Findings for the U.S. are quite different. Those without a high school diploma and those with high school diploma experienced an E/P ratio rise of 3.1 and 1.2 percentage points, respectively, between 2009/2010 and 2018/2019. For adults with some college education or a college degree, the E/P ratio was either flat or declined modestly over this period (Table 4).

Over the entire 20-year period (1999/2000 to 2018/2019), the E/P ratio in South Dakota declined in each of the six educational attainment groups, with the largest decline taking place for individuals without a college degree (-6 to -10-percentage points). For the U.S., the E/P ratio decline during this period was largest for those with some college (-9.5-percentage points) and for those with an Associate's degree (-8.4-percentage points) and smallest for those without a high school diploma (-3.7-percentage points) (Table 4).

## Chapter 8

# Foundational Skills and the Labor Market

### Introduction

This chapter presents indirect estimates of literacy and numeracy proficiencies among adults in South Dakota and the 66 counties of South Dakota. Indirect measures of literacy and numeracy skill scores at the state and county levels for adult population (16+) are published by the U.S. Department of Education. These skill measures rely on findings from the Program for the International Assessment of Adult Competencies (PIAAC), a sample survey of adults in the U.S. conducted in 2012, 2014, and 2017, that directly measured the literacy and numeracy skills of U.S. adults.<sup>73</sup> State and county measures of literacy and numeracy skills were estimated from PIAAC data using an advanced statistical method known as small area estimation (SAE).

The PIAAC survey is a multicycle survey conducted in 32 countries sponsored by the Organization for Economic Cooperation and Development (OECD). The PIAAC survey was designed to measure literacy and numeracy skills and competencies of adult population aged 16 to 74.<sup>74</sup> More than 12,000 adults in the U.S. participated in three cycles of PIAAC surveys in 2012, 2014, and 2017.

### Indirect Estimates of Literacy and Numeracy Proficiency Skills in South Dakota, 2017

A considerable body of research conducted over the past 30 years has consistently shown that literacy and numeracy skills of adults are strongly associated with labor market outcomes such as labor force participation and earnings.<sup>75</sup> The PIAAC literacy competency measure

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<sup>73</sup> For detailed methodology used in estimating indirect measure of literacy and numeracy at the state and county level, see: Tom Krenzke, Leyla Mohadjer, Jianzhu Li, Anreea Erciulescu, Robert Fay, Weija Ren, Wendy Van de Kerckhove, Ln Li, and J.N.K. Rao, *Program for the International Assessment of Adult Competencies (PIAAC): State and County Estimation Methodology Report* (NCES 2020-225), U.S. Department of Education, National Center for Education Statistics, 2020, Washington, DC: U.S. Government Printing Office (<https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2020225>).

<sup>74</sup> To understand more about PIAAC surveys, its design and methodology, and various publication based in PIAAC surveys, see: <https://www.oecd.org/skills/piaac/>

<sup>75</sup> See: (i) Neeta Fogg, Paul Harrington, and Ishwar Khatiwada, *Skills and Earnings in Full-Time Labor Market*, (Princeton, NJ: Educational Testing Service, 2018) (<https://www.ets.org/s/research/pdf/skills-and-earnings-in-the-full-time-labor-market.pdf>); (ii) Neeta Fogg, Paul Harrington, and Ishwar Khatiwada, *Skills and the Earnings of College Graduates*, (Princeton, NJ: Educational Testing Service, 2019) (<https://www.ets.org/s/research/pdf/skills-and-the-earnings-of-college-graduates.pdf>); (iii) Neeta Fogg, Paul Harrington, and Ishwar Khatiwada, *Skills and the Earnings in the Part-Time Labor Market*, (Princeton, NJ: Educational Testing Service), 2020

assesses individuals' ability to understand, use and respond appropriately to written texts. The numeracy competency measure assesses the ability to use basic mathematical and computational concepts. We present the following two measures of PIAAC literacy and numeracy skills for the adult population of South and its counties:

- Mean literacy and numeracy scores on a scale of 0 to 500
- The percentage distribution of the adult population by the level of their literacy and numeracy proficiencies. Each proficiency level represents a discrete level of achievement and is defined by a range of literacy and numeracy scores. These levels are discussed in more detail below and in Appendix A.

Indirect estimates of South Dakota's mean literacy and numeracy scores of adults (16-74) were above the indirect estimates of skill scores for the nation. The mean literacy score in South Dakota was 271, a score that was significantly higher than (the indirect estimate of) the mean literacy score (264) for the adult population in the nation. The mean of literacy score among the states ranged from a high of 279 in New Hampshire and Minnesota to a low of 252 in Mississippi, Louisiana, and New Mexico. Among the countries that participated in the PIAAC survey, the mean literacy score of U.S. adults was slightly above the mean score for all nations that participated in the PIAAC.

The mean numeracy proficiency score in South Dakota was estimated to be 259, again higher than the mean indirectly estimated numeracy score of 249 for the U.S.<sup>76</sup> The mean numeracy proficiency score ranged from highs of 268 in Hampshire and Minnesota to lows of 234 in Mississippi and 233 in Louisiana. An international comparison found that U.S. adults did not fare well compared to their international counterparts on the PIAAC numeracy proficiency test. Direct measures of the mean numeracy proficiency score of U.S. adults was 257, significantly below direct measures of the mean numeracy score for several of the OECD

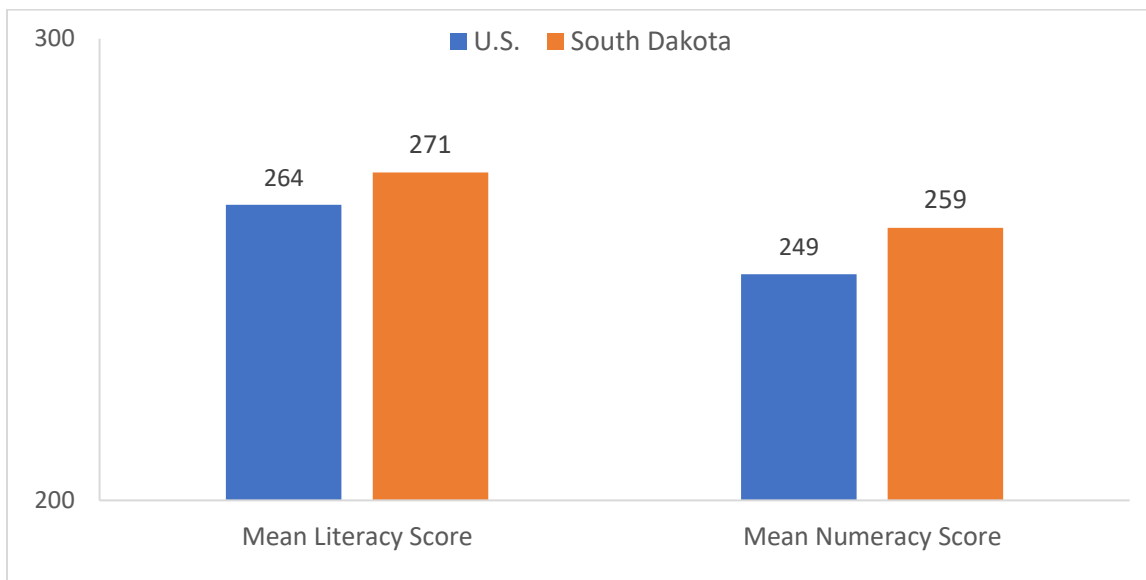
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(<https://www.ets.org/s/research/pdf/skills-and-earnings-in-the-part-time-labor-market.pdf>) iv) Andrew Sum, *Literacy and the Labor Force*, National Center for Education Statistics, NCES 1999-470, Washington D.C., 1999

<sup>76</sup> Direct measures from PIAAC data of the mean literacy score and the mean numeracy score for the U.S. were 269 and 257, respectively. Indirect estimates of the mean literacy and numeracy scores for the U.S. (using the same estimation methodology that was used to produce indirect estimates of skill scores for states and sub-state areas) were 264 and 249, respectively. In this chapter, we use indirect estimates of skill scores for the U.S. and not direct measures because they are comparable to skill scores for South Dakota and its counties that are based on the indirect estimation methodology.

countries participating in the PIAAC data collection. U.S. numeracy scores ranked just 23<sup>rd</sup> out of 32 countries on the PIAAC measure of numeracy proficiency.<sup>77</sup>

Chart 1:  
Indirect Estimates of the Mean Literacy and Numeracy Skill Scores in the U.S. and South Dakota, 2012/2014/2017



The state and county level literacy and numeracy proficiency data are also available by discrete levels of literacy and proficiency scores. These proficiency levels are defined by the cut-off scores on the literacy and numeracy proficiency tests. Definitions of these proficiency levels and detailed task descriptions for each literacy and numeracy proficiency level are displayed in Appendix A.

A comparison of the percentage distribution of adults in South Dakota and the U.S. by their literacy proficiency levels is presented in Chart 2. **Literacy level 1 or below** reflects a limited reading ability such as understanding basic vocabulary and the ability to read a short, simple paragraph. Individuals with a literacy score between 0 and 225 are classified having literacy proficiencies at or below level 1. In South Dakota, 15 percent of adults had estimated literacy proficiency scores at level 1 or below, well below that of the U.S. where nearly 22

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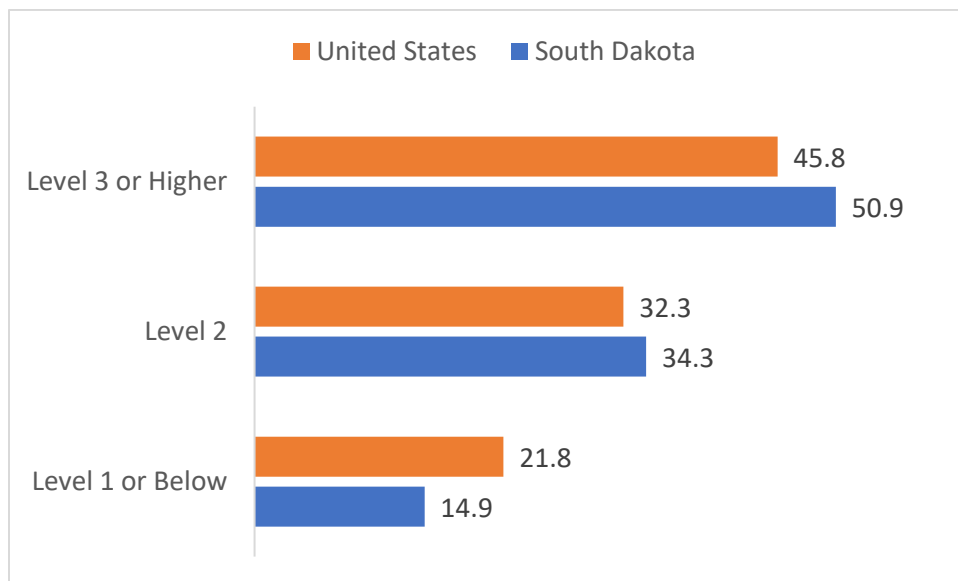
<sup>77</sup> According to the NCES, direct estimates (from PIAAC data) of the mean of literacy proficiency score of U.S. adults (16-65) was 272 (10 points higher than the international average) and ranked 14<sup>th</sup> highest among the 32 countries participating in PIAAC surveys. The NCES Web report comparing countries on literacy, numeracy, and problem-solving measures can be accessed from: <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2020127>

percent of adults' achieved a literacy proficiency score at level 1 or below. Thus, the low literacy population in South Dakota is just two-thirds that of the nation.

**Level 2 literacy** skills reflect an ability to read more complex texts than those with skills at level 1 or below. Adults with level 2 skills are able to make low level inferences from text. Level 2 is defined by literacy scores ranging from 226 to 275. In South Dakota just over one-third (34.3 percent) of adults had literacy proficiency scores that placed them at level 2. This proportion was about the same as the share of adults in the U.S. with level 2 scores (32.3 percent).

**Level 3 literacy** skills scores signal the ability to read more lengthy and dense texts, identify and evaluate information requiring more complex levels of inference and can disregard irrelevant texts to find a correct answer. Persons who score at **literacy levels 4/5** have a strong ability to integrate, synthesize and interpret information from lengthy and complex documents as well as evaluate evidence-based arguments. A score of 276 or higher places individuals in the level 3 or higher category (Levels 3, 4, or 5). The Educational Testing Service has argued that level 3 literacy skills are essential for full engagement in a variety of economic, social, and civic

Chart 2:  
Percentage Distribution of Working-Age Adults (16+) in South Dakota and the U.S.  
by Indirect Estimates of their Levels of Literacy Proficiency, 2017

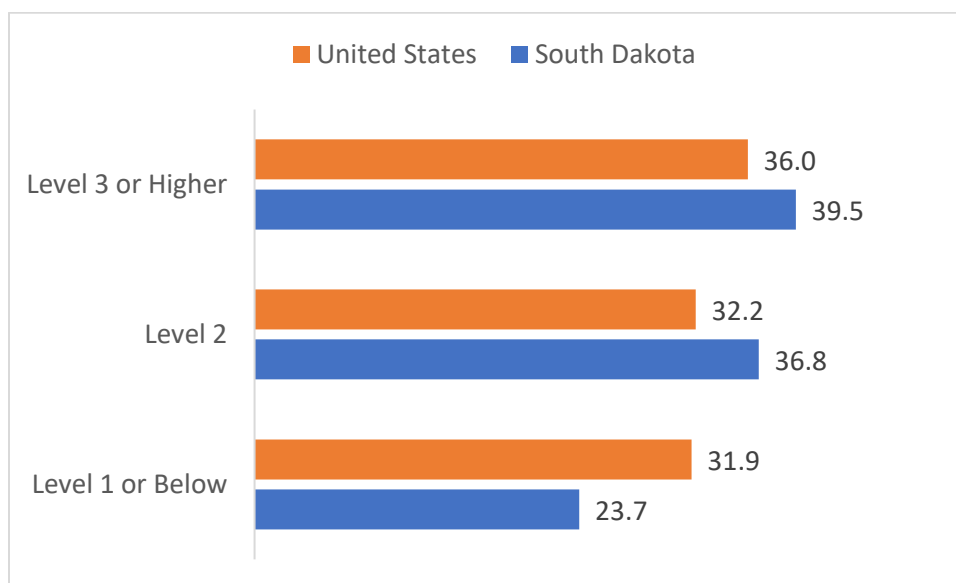


life activities. Just over one half (50.9 percent) of the adult population in South Dakota score at level 3 or higher compared to 45.8 percent of adults in the U.S.<sup>78</sup>

Percentage distribution of adults by numeracy level for South Dakota and the U.S. are provided in Chart 3. Those with **numeracy skills at level 1 or below** can engage only in simple arithmetic tasks such as counting, sorting, and performing basic arithmetic operations. The share of South Dakota residents with numeracy skills at level 1 or below is substantial although lower than their U.S. counterparts. Estimates of numeracy proficiency in South Dakota found that 23.7 percent of adults in the state had numeracy proficiencies at level 1 or below.

Individuals with **level 2 numeracy proficiency** scores can undertake tasks that require two or more steps or processes using whole numbers and common decimals, percentages, and fractions. They can engage in measurement, spatial representation and estimation and are able to interpret tables and graphs. More than 37 percent of adults in South Dakota are estimated to have level 2 numeracy proficiencies compared to 32.2 percent of adults across the nation.

Chart 3:  
Percentage Distribution of Working-Age Adults (16+) in South Dakota and the U.S.,  
by Indirect Estimates of Their Levels of Numeracy Proficiency, 2017



Adults with **numeracy level 3 or higher** scores are able to understand mathematical information that is less familiar and more complex, Tasks involve several steps and require the

<sup>78</sup> About 14 percent of the adult population in the U.S. achieved a literacy score that placed them in level 4/5. Separate state level estimates for level 4/5 shares are not available.



selection of problem-solving strategies. Persons with level 3 and higher scores can work with mathematical relationships, patterns and proportions expressed in verbal or numerical form and can interpret and analyze statistics in texts, tables, and graphs. Nearly 40 percent of the adult population in South Dakota are estimated to have numeracy skill scores that place them at level 3 or higher compared to 36 percent nationally (Chart 3).

### Indirect Estimates of Literacy and Numeracy Proficiency Skills in Counties of South Dakota, 2017

We also examined estimates of literacy and numeracy proficiency score across counties in South Dakota. Table 2 displays the top 10 and bottom 10 counties ranked by their mean literacy proficiency score. The findings suggest a high degree of geographic variability in literacy across South Dakota.

The top 10 counties with the highest estimated mean of literacy proficiency score were Lincoln County (288), Sully County and Brookings County (279), Clay County and Harding County (278), Hand County, Hughes County, and Union County (276), and Custer County and Davison County (275). At the bottom of the ranking were Jackson County (258), Charles Mix County (257), Dewey County (256), Carson County (254), Ziebach County (252), Bennett County (251), Mellette County and Todd County (247), Oglala Lakota County (243), and Buffalo County (237). The average of mean literacy proficiency score in top 10 counties was

Table 1:  
Indirect Estimates of the Mean Literacy Proficiency Score in the Top 10 and Bottom 10 Counties  
(Ranked Highest to Lowest) in South Dakota, 2017

<b>Top 10</b>	Mean Literacy Score	<b>Bottom 10</b>	Mean Literacy Score
Lincoln County	288	Jackson County	258
Sully County	279	Charles Mix County	257
Brookings County	279	Dewey County	256
Clay County	278	Corson County	254
Harding County	278	Ziebach County	252
Hand County	276	Bennett County	251
Hughes County	276	Mellette County	247
Union County	276	Todd County	247
Custer County	275	Oglala Lakota County	243
Davison County	275	Buffalo County	237
Averages of Top 10	278	Averages of Bottom 10	250

278, which was 28-points higher than the average of bottom 10 counties (250). This difference is equal to more than one-half a standard deviation, indicating a quite large difference in literacy scores between the two sets of counties.

There is a strong positive relationship between literacy and numeracy skills among adults in the U.S. and we found this relationship to be the same across counties in South Dakota. Indeed, a comparison of the numeracy findings in Table 2 with the literacy findings in Table 1 reveals that there is an almost a complete overlap between the top ranked 10 counties and the bottom ranked 10 counties with respect to both literacy and numeracy proficiency scores.

Nine out of 10 counties with the highest mean literacy proficiency scores were also the counties with the highest mean numeracy proficiency scores. The average of mean numeracy proficiency scores of the top 10 counties was 267. The bottom 10 counties for mean numeracy proficiency score were the same counties ranking in the bottom of the mean of literacy proficiency score. The average of numeracy score in bottom 10 counties was 229. The difference between the average of the top 10 and bottom 10 counties was 38 points or two-thirds of a standard deviation.<sup>79</sup>

Table 2:  
Indirect Estimates of the Mean Numeracy Proficiency Score in the Top 10 and Bottom 10  
Counties (Ranked Highest to Lowest) in South Dakota, 2017

<b>Top 10</b>	Mean Numeracy Score	<b>Bottom 10</b>	Mean Numeracy Score
Lincoln County	281	Charles Mix County	241
Sully County	270	Jackson County	237
Hand County	267	Dewey County	237
Brookings County	266	Bennett County	233
Harding County	266	Corson County	232
Union County	266	Ziebach County	231
Hughes County	265	Mellette County	225
Davison County	264	Todd County	225
Clay County	264	Oglala Lakota County	221
Stanley County	263	Buffalo County	213
Average of Top 10	267	Average of Bottom 10	229

<sup>79</sup> The mean literacy and numeracy scores for adults all 66 counties in South Dakota are presented in Appendix Table A-1. Percentage distribution of the adult population by literacy and numeracy levels for all 66 counties in South Dakota are presented in Appendix Table A-2.

## Correlations between Indirect Estimates of Literacy and Numeracy Proficiencies and Labor Force Status and Income Inadequacy Across Counties in South Dakota and the U.S.

Our analysis of county data reveal that there is a strong association between labor force status and the literacy and numeracy skills proficiencies of adults in the U.S. and especially in South Dakota. There is a similarly strong association between the likelihood of poverty and income inadequacy and the literacy and numeracy proficiencies of adults in the U.S. and in South Dakota. Using the PIAAC-based county estimates of literacy and numeracy skill scores along with data from the American Community Survey (ACS) on labor force status and measures of household income inadequacy, we have estimated the correlation between literacy and numeracy skills (separately) and labor force status of adults in the U.S. and South Dakota and also estimated correlations between skills and measures of income inadequacy.

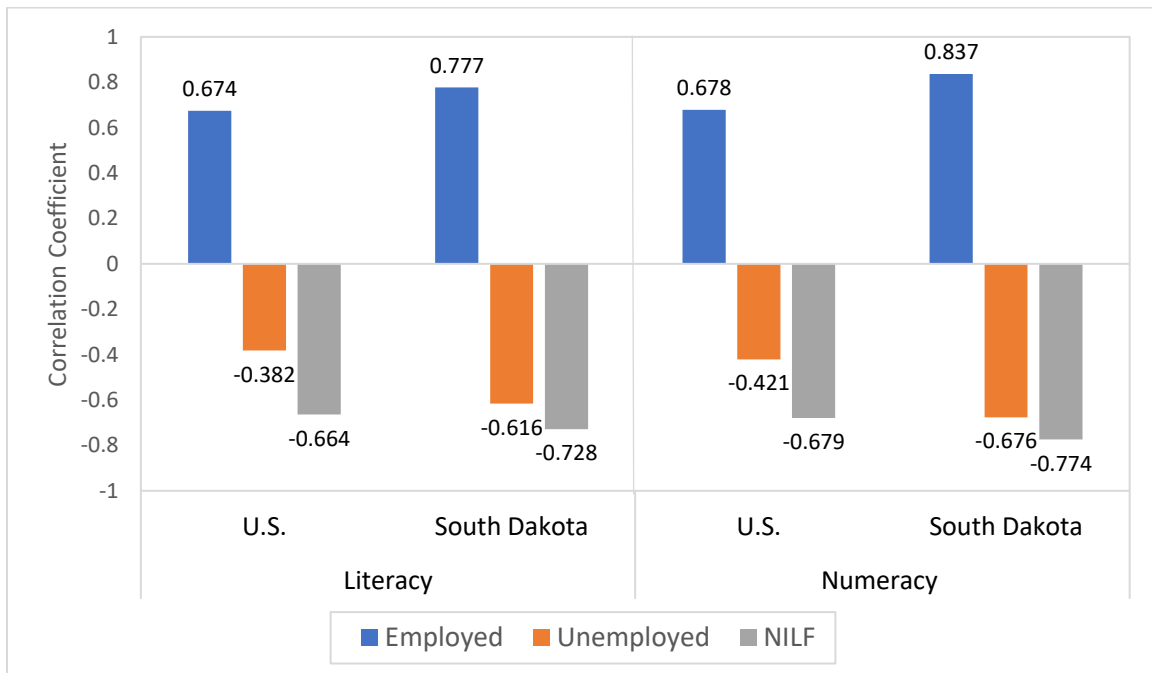
The findings provided in Chart 4 reveal strong positive correlations between the employment-to-population (E/P) ratio and skills in both the U.S. and in South Dakota. The correlation coefficient between literacy skills scores and the E/P ratio in counties was +0.674 in the U.S. In South Dakota, that correlation was even stronger; the correlation coefficient between literacy skills and the E/P ratio across the 66 counties in the state was +0.777. These results indicate that in South Dakota there is an even stronger correlation between literacy skills and the likelihood of employment than that found across all counties in the nation.

The findings on the correlation between the E/P ratio and numeracy in the U.S. are similar to those we found for the literacy measure, with a correlation coefficient between the E/P ratio and numeracy skills of +0.678, almost identical to the literacy coefficient. In South Dakota the correlation was even stronger than that found for literacy; the correlation coefficient between numeracy skills and E/P ratios across counties in South Dakota was +0.837, much greater than the same measure in the U.S. These findings reveal that counties with higher literacy and numeracy skills in South Dakota are expected to have much higher E/P ratios.

While the correlations between employment and skills in South Dakota and the U.S. are high and positive, we also find evidence of the expected negative relationship between skills and unemployment across counties in both the state and nation, but that negative relationship is especially strong in South Dakota. The findings in Chart 4 reveal a modest negative relationship between the share of the working-age population in the U.S. experiencing unemployment and the mean literacy and numeracy skills of working-age persons. This means that as skill levels

increase across counties in the nation, the share of the working-age population that is unemployed declines. In the U.S. a negative relationship was found between the incidence of unemployment in counties and skills, but the size of the correlation coefficients for both literacy and numeracy were much smaller than those observed for South Dakota. The U.S. correlation between the incidence of unemployment in the working-age population and literacy skills was -0.382 and for numeracy skills it was -0.421. This means that there is a moderate negative relationship between skills and the unemployment in the U.S.

**Chart 4:**  
Correlation Coefficients between Indirect Estimates of Skills (Literacy and Numeracy) and Labor Force Status in the U.S. and South Dakota, 2012/2014/2017



Note: All of these correlation coefficients were statistically significant at .05 level.

In South Dakota, the negative relationship between skills and the incidence of unemployment was much stronger suggesting that skills play a more important role in determining who will be unemployed in South Dakota than is the case for the nation as a whole. The correlation coefficients in South Dakota between the incidence of unemployment and literacy and numeracy were -0.616 and -0.679, respectively. These findings reveal a much stronger (negative) relationship between unemployment and skills in the state relative to the U.S. Given the very low unemployment rates that prevailed in South Dakota during the 2012-2017

period, we suspect that, unlike the U.S., a substantially high share of the remaining unemployment in ‘full employment’ South Dakota labor market was concentrated among those with the lowest literacy and numeracy skills.

During 2012-2017, the U.S. economy was not operating near the full-employment levels. These national correlation results in the context of considerable excess unemployment suggest that a higher fraction of unemployed persons in the nation had higher literacy and numeracy skills than was the case in South Dakota. The much closer to full employment environment in South Dakota resulted in higher employment rates and lower unemployment rates for those labor force participants with stronger skills compared to their counterparts nationally.

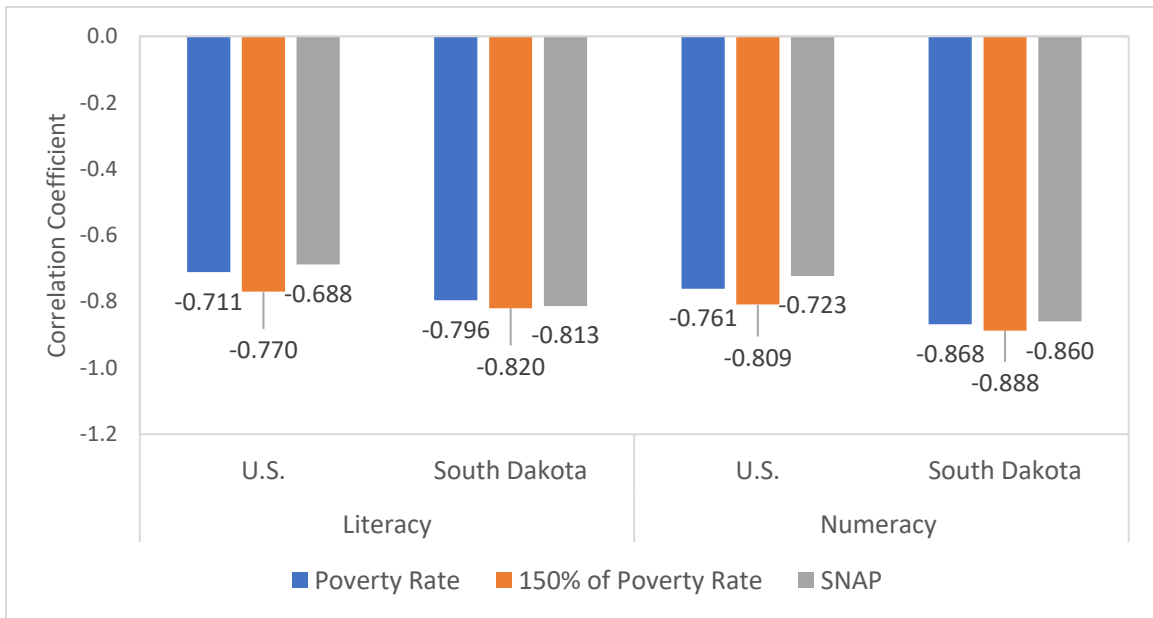
The relationship between skills and the share of the population that is out of the labor force was strongly negative in both the U.S. and South Dakota. The adult population that is out of the labor force includes all persons aged 16 and older who are jobless, but not classified as unemployed. In the U.S., the correlation between skills and the share of the working-age population that is out of the labor force in counties was large and significant, -0.664 for literacy skills and -0.676 for numeracy skills. Thus, as literacy and numeracy scores rise across counties, the share of the working-age population that does not participate in the job market falls sharply. In South Dakota, this negative relationship was stronger. The correlation between the share of adults who are out of the labor force across counties and literacy skills was -0.728 and for numeracy skills it was -.0774, revealing a stronger negative relationship between skills and the share of adults out of the labor force in South Dakota compared to that observed for the nation.

The relationship between skills and the likelihood of poverty and income inadequacy in South Dakota was also strongly negative and connected in part to disconnection from the labor market. Indeed, a very large share of South Dakota poverty population is jobless, with the majority out of the labor force. Chart 5 explores the relationship between the official poverty measure, the near poverty measure (household money income at or below 150 percent of the official poverty income thresholds) and for participation in the means tested Supplemental Nutrition Assistance Program (SNAP). The chart reveals very strong negative relationships between all three indicators of income inadequacy within a county and the literacy and numeracy proficiency skills of adult residents of the county in both South Dakota and the nation.

The correlation coefficients in the U.S. between literacy skills and the three income inadequacy measures was -0.688 for SNAP participation, -0.711 for poverty rate, and -0.770 for

the share of the population that resided in households with incomes within 150 percent of the official poverty measure. In South Dakota, the negative association between income inadequacy and literacy skills was even stronger, with a coefficient of -0.796 between literacy skills and the incidence of poverty, -0.813 between literacy skills and SNAP participation, and -0.820 between literacy skills and the incidence of near poverty across counties in the state.

**Chart 5:**  
Correlation Coefficients between Indirect Estimates of Skills (Literacy and Numeracy) and Poverty Rate, 150% of Poverty Rate, and SNAP Participation in the U.S. and South Dakota, 2012/2014/2017



Note: All of these correlation coefficients were statistically significant at .05 level.

The numeracy correlations revealed an even stronger negative connection between numeracy skills and income inadequacy than was observed for the literacy measure and this negative association was especially strong in South Dakota. Indeed, in South Dakota we found correlation coefficients of -0.860, -0.868, and -0.888 between numeracy skills and SNAP participation, poverty and near poverty, respectively. This finding suggests a very strong connection between income inadequacy and numeracy skills across counties in South Dakota. Simply put, as skills rise in counties across the state, the incidence of income inadequacy fall very sharply.

## Appendix A: Description of PIAAC Discrete Achievement Levels

### Literacy Proficiency Levels:

Achievement level and score range	Literacy Task descriptions
<b>Below Level 1</b> 0 - 175	The tasks at this level require the respondent to read brief texts on familiar topics to locate a single piece of specific information. There is seldom any competing information in the text and the requested information is identical in form to information in the question or directive. The respondent may be required to locate information in short continuous texts. However, in this case, the information can be located as if the text were non-continuous in format. Only basic vocabulary knowledge is required, and the reader is not required to understand the structure of sentences or paragraphs or make use of other text features. Tasks below Level 1 do not make use of any features specific to digital texts.
<b>Level 1</b> 176 - 225	Most of the tasks at this level require the respondent to read relatively short digital or print continuous, non-continuous, or mixed texts to locate a single piece of information that is identical to or synonymous with the information given in the question or directive. Some tasks, such as those involving non-continuous texts, may require the respondent to enter personal information onto a document. Little, if any, competing information is present. Some tasks may require simple cycling through more than one piece of information. Knowledge and skill in recognizing basic vocabulary determining the meaning of sentences and reading paragraphs of text is expected.
<b>Level 2</b> 226 - 275	At this level, the medium of texts may be digital or printed, and texts may comprise continuous, non-continuous, or mixed types. Tasks at this level require respondents to make matches between the text and information and may require paraphrasing or low-level inferences. Some competing pieces of information may be present. Some tasks require the respondent to <ul style="list-style-type: none"> <li>• cycle through or integrate two or more pieces of information based on criteria,</li> <li>• compare and contrast or reason about information requested in the question, or</li> <li>• navigate within digital texts to access and identify information from various parts of a document.</li> </ul>
<b>Level 3</b> 276 - 325	Texts at this level are often dense or lengthy, and include continuous, non-continuous, mixed, or multiple pages of text. Understanding text and rhetorical structures become more central to successfully completing tasks, especially navigating complex digital texts. Tasks require the respondent to identify, interpret, or evaluate one or more pieces of information, and often require varying levels of inference. Many tasks require the respondent to construct meaning across larger chunks of text or perform multi-step operations in order to identify and formulate responses. Often tasks also demand that the respondent disregard irrelevant or inappropriate content to answer accurately. Competing information is often present, but it is not more prominent than the correct information.
<b>Level 4</b> 326 - 375	Tasks at this level often require respondents to perform multiple-step operations to integrate, interpret, or synthesize information from complex or lengthy continuous, non-continuous, mixed, or multiple type texts. Complex inferences and application of background knowledge may be needed to perform the task successfully. Many tasks require identifying and understanding one or more specific, non-central idea(s) in the text in order to interpret or evaluate subtle evidence-claim or persuasive discourse relationships. Conditional information is frequently present in tasks at this level and must be taken into consideration by the respondent. Competing information is present and sometimes seemingly as prominent as correct information.
<b>Level 5</b> 376 - 500	At this level, tasks may require the respondent to search for and integrate information across multiple, dense texts; construct syntheses of similar and contrasting ideas or points of view; or evaluate evidence-based arguments. Application and evaluation of logical and conceptual models of ideas may be required to accomplish tasks. Evaluating reliability of evidentiary sources and selecting key information is frequently a requirement. Tasks often require respondents to be aware of subtle, rhetorical cues and to make high-level inferences or use specialized background knowledge.

**Numeracy Proficiency Levels:**

<b>Achievement level and score range</b>	<b>Numeracy Task descriptions</b>
<b>Below Level 1 0 - 175</b>	Tasks at this level require the respondents to carry out simple processes such as counting, sorting, performing basic arithmetic operations with whole numbers or money, or recognizing common spatial representations in concrete, familiar contexts where the mathematical content is explicit with little or no text or distractors.
<b>Level 1 176 - 225</b>	Tasks at this level require the respondent to carry out basic mathematical processes in common, concrete contexts where the mathematical content is explicit with little text and minimal distractors. Tasks usually require one-step or simple processes involving counting, sorting, performing basic arithmetic operations, understanding simple percent's such as 50%, and locating and identifying elements of simple or common graphical or spatial representations.
<b>Level 2 226 - 275</b>	Tasks at this level require the respondent to identify and act on mathematical information and ideas embedded in a range of common contexts where the mathematical content is fairly explicit or visual with relatively few distractors. Tasks tend to require the application of two or more steps or processes involving calculation with whole numbers and common decimals, percentages, and fractions; simple measurement and spatial representation; estimation; and interpretation of relatively simple data and statistics in texts, tables, and graphs.
<b>Level 3 276 - 325</b>	Tasks at this level require the respondent to understand mathematical information that may be less explicit, embedded in contexts that are not always familiar and represented in more complex ways. Tasks require several steps and may involve the choice of problem-solving strategies and relevant processes. Tasks tend to require the application of number sense and spatial sense; recognizing and working with mathematical relationships, patterns, and proportions expressed in verbal or numerical form; and interpretation and basic analysis of data and statistics in texts, tables, and graphs.
<b>Level 4 326 - 375</b>	Tasks at this level require the respondent to understand a broad range of mathematical information that may be complex, abstract, or embedded in unfamiliar contexts. These tasks involve undertaking multiple steps and choosing relevant problem-solving strategies and processes. Tasks tend to require analysis and more complex reasoning about quantities and data; statistics and chance; spatial relationships; and change, proportions, and formulas. Tasks at this level may also require understanding arguments or communicating well-reasoned explanations for answers or choices.
<b>Level 5 376 - 500</b>	Tasks at this level require the respondent to understand complex representations and abstract and formal mathematical and statistical ideas, possibly embedded in complex texts. Respondents may have to integrate multiple types of mathematical information where considerable translation or interpretation is required; draw inferences; develop or work with mathematical arguments or models; and justify, evaluate, and critically reflect upon solutions or choices.



Appendix Table A-1:  
Indirect Estimates of Mean Literacy and Numeracy Proficiency Scores of Adults  
in South Dakota Counties and Their Ranking

County	Indirect Estimates		Ranking (H to L)	
	Mean Literacy Score	Mean Numeracy Score	Based on Mean Literacy Score	Based on Mean Numeracy Score
Aurora County	266	256	40	34
Beadle County	261	247	54	54
Bennett County	251	233	62	60
Bon Homme County	265	254	45	42
Brookings County	279	266	3	4
Brown County	274	262	12	11
Brule County	268	256	35	32
Buffalo County	237	213	66	66
Butte County	262	248	53	52
Campbell County	268	258	33	26
Charles Mix County	257	241	58	57
Clark County	265	253	44	45
Clay County	278	264	4	9
Codington County	269	257	26	27
Corson County	254	232	60	61
Custer County	275	262	9	12
Davison County	275	264	10	8
Day County	264	250	48	50
Deuel County	267	255	38	38
Dewey County	256	237	59	59
Douglas County	266	256	39	36
Edmunds County	271	261	19	17
Fall River County	270	257	24	31
Faulk County	269	257	27	27
Grant County	266	254	43	40
Gregory County	265	252	47	46
Haakon County	267	253	37	44
Hamlin County	268	256	34	32
Hand County	276	267	6	3
Hanson County	272	261	15	15
Harding County	278	266	5	5
Hughes County	276	265	7	7
Hutchinson County	266	255	42	38
Hyde County	264	249	49	51
Jackson County	258	237	57	58

County	Indirect Estimates		Ranking (H to L)	
	Mean Literacy Score	Mean Numeracy Score	Based on Mean Literacy Score	Based on Mean Numeracy Score
Jerauld County	264	252	49	47
Jones County	267	254	36	42
Kingsbury County	270	259	23	20
Lake County	272	259	16	22
Lawrence County	271	258	19	24
Lincoln County	288	281	1	1
Lyman County	262	246	52	55
McCook County	269	259	28	19
McPherson County	260	248	56	53
Marshall County	272	261	16	16
Meade County	274	262	13	14
Mellette County	247	225	63	63
Miner County	266	254	40	41
Minnehaha County	271	260	18	18
Moody County	268	255	32	37
Oglala Lakota County	243	221	65	65
Pennington County	274	262	11	13
Perkins County	269	256	29	35
Potter County	269	257	30	27
Roberts County	260	245	55	56
Sanborn County	270	258	25	25
Spink County	269	257	31	30
Stanley County	273	263	14	10
Sully County	279	270	2	2
Todd County	247	225	64	64
Tripp County	265	251	46	49
Turner County	271	259	21	21
Union County	276	266	8	6
Walworth County	263	251	51	48
Yankton County	270	259	22	23
Ziebach County	252	231	61	62

Appendix Table A-2:  
Percentage Distribution of Adults in South Dakota Counties by Indirect Estimates of The Level  
of their Literacy and Numeracy Proficiencies (In %)

County	Literacy Proficiency Level			Numeracy Proficiency Level		
	Level 1 or Below	Level 2	Level 3 or Higher	Level 1 or Below	Level 2	Level 3 or Higher
Aurora County	17.8	36.2	46.0	25.6	38.4	36.0
Beadle County	24.2	33.9	41.8	34.6	31.8	33.6
Bennett County	29.2	36.3	34.6	43.5	30.7	25.8
Bon Homme County	17.3	38.2	44.4	26.5	39.7	33.8
Brookings County	11.2	31.4	57.3	19.6	35.1	45.3
Brown County	13.6	34.2	52.2	21.7	37.4	40.9
Brule County	18.4	33.1	48.5	27.1	33.3	39.5
Buffalo County	29.8	49.0	21.2	49.1	43.6	7.4
Butte County	16.4	43.0	40.6	27.1	45.7	27.3
Campbell County	14.2	40.9	45.0	22.5	44.4	33.1
Charles Mix County	20.1	41.8	38.1	32.7	41.8	25.5
Clark County	16.1	40.7	43.2	26.2	42.9	30.9
Clay County	13.4	28.4	58.2	22.9	30.0	47.1
Codington County	14.7	38.0	47.3	23.7	40.9	35.4
Corson County	27.6	38.1	34.3	44.1	32.2	23.7
Custer County	12.4	35.0	52.5	21.0	39.1	40.0
Davison County	14.4	32.5	53.1	22.2	35.0	42.8
Day County	16.6	40.9	42.5	27.5	42.7	29.8
Deuel County	15.8	40.9	43.3	25.0	43.9	31.1
Dewey County	22.4	42.0	35.6	36.9	40.4	22.7
Douglas County	16.8	38.2	45.0	25.4	40.3	34.3
Edmunds County	14.0	37.6	48.4	21.7	41.2	37.1
Fall River County	14.2	35.3	50.4	23.8	37.9	38.2
Faulk County	13.9	37.8	48.3	23.0	40.9	36.1
Grant County	15.7	41.2	43.2	24.7	43.9	31.4
Gregory County	18.2	38.0	43.8	28.1	38.7	33.2
Haakon County	16.4	39.8	43.8	26.8	41.4	31.8
Hamlin County	13.5	41.8	44.6	22.3	46.4	31.3
Hand County	12.3	34.1	53.6	19.5	38.0	42.6
Hanson County	13.2	37.8	48.9	21.5	41.4	37.1
Harding County	11.9	33.8	54.3	19.9	38.0	42.1
Hughes County	14.0	31.8	54.2	21.4	34.8	43.8
Hutchinson County	18.3	36.7	45.0	27.3	37.5	35.2
Hyde County	15.3	44.5	40.2	26.4	47.4	26.3
Jackson County	24.6	36.7	38.8	40.1	32.2	27.6
Jerauld County	16.4	42.6	41.1	26.0	45.2	28.8

County	Literacy Proficiency Level			Numeracy Proficiency Level		
	Level 1 or Below	Level 2	Level 3 or Higher	Level 1 or Below	Level 2	Level 3 or Higher
Jones County	13.2	44.4	42.4	23.5	48.9	27.6
Kingsbury County	14.9	37.7	47.4	23.2	40.7	36.2
Lake County	14.1	35.3	50.6	23.4	37.9	38.7
Lawrence County	13.2	35.8	51.0	22.4	39.0	38.6
Lincoln County	8.0	26.7	65.3	12.2	32.9	54.9
Lyman County	17.7	41.2	41.1	29.8	42.5	27.7
McCook County	16.7	36.3	47.1	24.9	38.1	37.0
McPherson County	23.0	36.1	40.9	33.1	34.0	32.9
Marshall County	14.4	35.4	50.1	22.1	39.4	38.5
Meade County	11.6	36.4	51.9	20.1	41.4	38.6
Mellette County	27.7	43.1	29.2	44.9	38.7	16.5
Miner County	16.3	39.4	44.2	25.9	41.7	32.5
Minnehaha County	14.5	32.3	53.2	22.6	35.3	42.1
Moody County	16.6	35.9	47.5	26.1	37.6	36.3
Oglala Lakota County	33.9	35.6	30.5	51.8	25.7	22.5
Pennington County	13.2	32.9	53.9	21.8	36.3	41.9
Perkins County	14.3	39.9	45.8	23.8	43.2	32.9
Potter County	13.6	40.2	46.2	22.2	44.2	33.6
Roberts County	18.4	41.5	40.1	30.2	42.6	27.2
Sanborn County	14.8	38.4	46.8	23.4	41.7	34.9
Spink County	14.2	39.0	46.8	23.3	42.2	34.5
Stanley County	11.9	38.0	50.1	19.7	42.7	37.6
Sully County	8.9	36.2	54.9	15.6	42.7	41.7
Todd County	32.0	36.0	32.1	49.4	27.5	23.1
Tripp County	17.6	39.9	42.6	28.5	40.8	30.7
Turner County	13.6	37.0	49.4	22.3	40.3	37.3
Union County	13.1	33.3	53.6	20.1	37.1	42.8
Walworth County	17.2	40.7	42.1	27.0	42.4	30.5
Yankton County	15.5	34.7	49.8	24.2	36.9	38.9
Ziebach County	26.2	41.8	32.0	42.7	37.0	20.3
South Dakota	14.9	34.3	50.9	23.7	36.8	39.5
U.S.	21.8	32.3	45.8	31.9	32.2	36.0

## Chapter 9

# Trends in Non-Farm Payroll Employment

### Introduction

In this chapter we examine trends in non-farm payroll employment developments in South Dakota over the past 40 years and compare the findings for the state with that of other states and the U.S. The measures of non-farm payroll employment discussed in this chapter are derived from the Current Employment Statistics (CES) survey, a federal-state cooperative statistical program of the South Dakota Department of Labor and Regulation and the U.S. Bureau of Labor Statistics. The CES program is designed to create statistically reliable and current measures of the number of non-agricultural wage and salary workers on the payrolls of private sector business establishments and government entities, along with measures of weekly hours of work, and hourly and weekly earnings. Monthly measures of total non-farm employment by industries are produced for the nation, states, and metropolitan regions.

The CES employment measure for South Dakota used in this chapter is a count of non-farm wage and salary jobs in the state based on the location of the firms/government agencies, and not on the residence of workers in those firms. The CES employment measure does not include all employed residents of the state. It excludes residents employed by establishments located outside South Dakota as well as self-employed and unpaid family workers.<sup>80</sup>

### Historical Context of the Pace of Job Creation

South Dakota's record of job creation between 1980 and 2000 is characterized by two very distinct trends. The state experienced slow growth in payroll employment levels during the 1980s that is followed by quite strong job growth during the 1990s. South Dakota's non-farm payroll jobs increased only by 35,000 or 14.4 percent between 1979 and 1989 period, an annual pace of new job creation of just 1.4 percent per year. This slow growth rate ranked South Dakota 32<sup>nd</sup> among the 50 states and D.C. on its rate of new job creation. The growth rate of payroll employment levels in the U.S. over this same period of 20.1 percent was 1.4 times the size of South Dakota's payroll job growth rate (Table 1).

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<sup>80</sup> Chapter 7 examines findings on employment in South Dakota using a broader measure of work derived from the Current Population Survey.

All of the job growth in the state over the 1980s decade took place after 1982 as the back-to-back recessions of 1980 and 1981-82 had a much stronger adverse impact on South Dakota's payroll employment level than the U.S.<sup>81</sup> Between 1979 and 1982, South Dakota lost 11,000 or 4.6 percent of its pre-recession employment level. In contrast, the nation's payroll employment level fell by just 0.3 percent over the same period (Table 1). However, South Dakota's post-recession rate of employment recovery was similar to the nation as whole; 20 percent increase in

**Table 1:**  
**Trends in Total Non-Farm Employment in South Dakota and the U.S.,**  
**Selected Years, 1979-2019 (Annual Averages in 1000's)**

Year	South Dakota	U.S.	SD Rank (High to Low)
1979	241	89,936	
1982	230	89,685	
1989	276	108,047	
2000	378	132,018	
2007	406	137,978	
2010	402	130,337	
2019	441	150,900	
<b>Absolute Change in Payroll Employment</b>			
1979-1989	+35	+18,111	
1979-1982	-11	-251	
1982-1989	+46	+18,362	
1989-2000	+102	+23,971	
2000-2007	+28	+5,960	
2007-2010	-4	-7,641	
2000-2010	+25	-1,681	
2010-2019	+38	+20,563	
<b>Percentage Change in Payroll Employment</b>			
1979-1989	+14.4	+20.1	32 <sup>nd</sup> highest
1979-1982	-4.6	-0.3	39 <sup>th</sup> highest
1982-1989	+20.0	+20.5	26 <sup>th</sup> highest
1989-2000	+36.8	+22.2	7 <sup>th</sup> highest
2000-2007	+7.5	+4.5	14 <sup>th</sup> highest
2007-2010	-0.9	-5.5	5 <sup>th</sup> highest
2000-2010	+6.5	-1.3	11 <sup>th</sup> highest
2010-2019	+9.5	+15.8	34 <sup>th</sup> highest

Source: Current Employment Statistics (CES), annual averages, selected years, 1979 to 2019, U.S. Bureau of Labor Statistics, tabulations by authors.

<sup>81</sup> The first recession began in January 1980 and ended in July 1980. The second recession began in July 1981 and ended in November 1982.

South Dakota and 20.5 percent increase in the nation. Thus, South Dakota's poor performance of the entire 1979 to 1989 period is largely attributable to the outsize effects that the twin recessions 1980 and 1981-82 had on the state's payroll employment compared to the nation.

The decade of the 1990s saw not only a continuation of the 1980s recovery, but an acceleration in payroll job creation in South Dakota. The U.S. again entered a recession in July 1990 and lost 1 million payroll jobs by 1992, equal to about 1 percent of total payroll employment (Table 2 and Chart 2), but South Dakota employment growth did not waver during the recession of the early 1990s (Table 2 and Chart 1). During the nine months of U.S. economic recession spanning from July 1990 to March 1991, South Dakota added 6,000 jobs increasing payroll jobs by 2.1 percent while the nation lost 1.282 million jobs, representing a decline of 1.2 percent (Table 2).

The pace of job creation in South Dakota over the 1989-2000 period was very strong. South Dakota created an astounding 102,000 payroll jobs, a rise of 37 percent over the decade. The growth rate of 37 percent in payroll employment over the 1989-2000 period in South Dakota ranked 7<sup>th</sup> highest among the states. During the 1990s, payroll employment in the U.S. posted strong employment gains by historical standards growing by 22 percent over the decade. But the pace of new job creation in South Dakota was 1.7 times greater than the nation over that time.

The longest economic expansion on record in the U.S., spanning 120 months, ended in March 2001 as the nation's technology sector reversed its spectacular rise and the dot.com recession began. The recession lasted for 8 months, ending in November 2001. During these 8 months, South Dakota lost just under 1 percent of payroll jobs (~3,000) while the job loss was much higher in the nation (1.647 million or 1.2 percent) (Table 2). The recovery from that downturn was sluggish causing some to characterize the first few years of the post-recession period as the 'jobless recovery.' Payroll employment growth was somewhat tepid for both South Dakota and the U.S. over the 2000-2007 period. Between 2000 and 2007, South Dakota employers added 28,000 jobs to their payroll, growing by just 7 percent over the period, yet this rate of increase was much stronger than that for the U.S. where employment levels increased by just 4.5 percent over those seven years (Table 1). The 7.5 percent growth in payroll jobs over the 2000-2007 period in the state ranked 14<sup>th</sup> highest among the states. (Employment growth ranking tables for various time periods by state are provided in the Appendix Tables A-1 and A-2 at the end of this chapter.)

The U.S. was hard hit by the Great Recession of 2007-2009 that was primarily triggered by the collapse of the subprime mortgage market. The independent government Commission

Table 2:  
Employment Gains/Losses During the Months of U.S. Economic Recessions of 1990-91, 2001, and 2007-2009 (Employment Numbers are in 1000s, Except Percent Change)

Area/U.S. Recession Months	(A) Employment Level Prior to Recession Month	(B) Total Change in Employment Level from Recession Start to End Months	(C) Percent of Job Loss (B/A)*100
<b>South Dakota</b>			
July 1990-March 1991	288	6	2.1%
March 2001- November 2001	380	-3	-0.8%
December 2007-June 2009	408	-5	-1.3%
<b>U.S.</b>			
July 1990-March 1991	109,856	-1,282	-1.2%
March 2001- November 2001	132,789	-1,647	-1.2%
December 2007-June 2009	138,284	-7,276	-5.3%

Source: Current Employment Statistics (CES), annual averages, selected years, 1979 to 2019, U.S. Bureau of Labor Statistics, tabulations by authors.

Note: Seasonally adjusted monthly CES data for states are only available from 1990. Therefore, we cannot examine seasonally adjusted monthly CES employment levels during the recessions of 1980 and 1981-82.

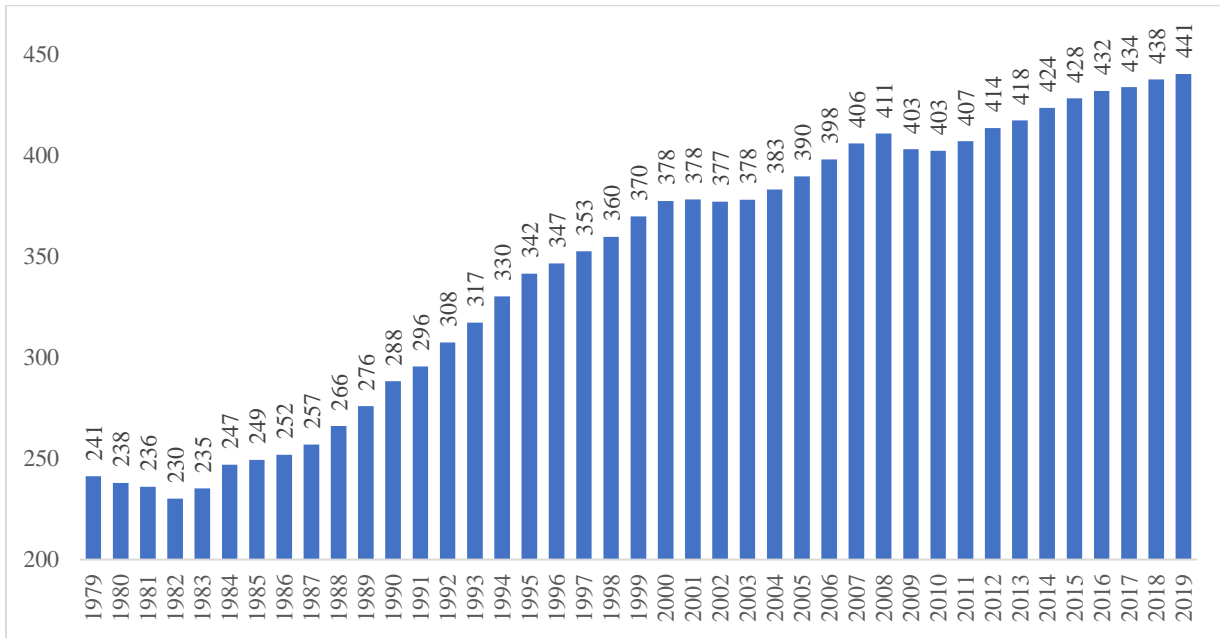
formed to pinpoint the causes of the Great Recession of 2007-2009 cited widespread failures in regulation and supervision, corporate governance and risk management, excessive borrowing, risky investments, lack of transparency, and systematic breakdown in accountability and ethics.

<sup>82</sup> The recession in the U.S. began in December 2007, followed quickly with job losses beginning in February 2008. Between February 2008 and June of 2009 when the recession was declared officially over, the U.S. had lost 7.276 million jobs (Table 2). However even after the recession had ‘officially’ ended, payroll job loss continued through December 2009. Overall, between February 2008 and December 2009, the U.S. lost 8.6 million non-farm payroll jobs (Chart 2). South Dakota employers weathered the Great Recession much better than most states. During the recession months, South Dakota lost 1.3 percent of payroll jobs compared to 5.3 percent for the entire U.S. (Table 2). In 2010, South Dakota’s non-farm payroll job level was only 4,000 or 0.9 percent below the level in 2007. (Table 1, Chart 1). Among the 48 states that lost payroll jobs

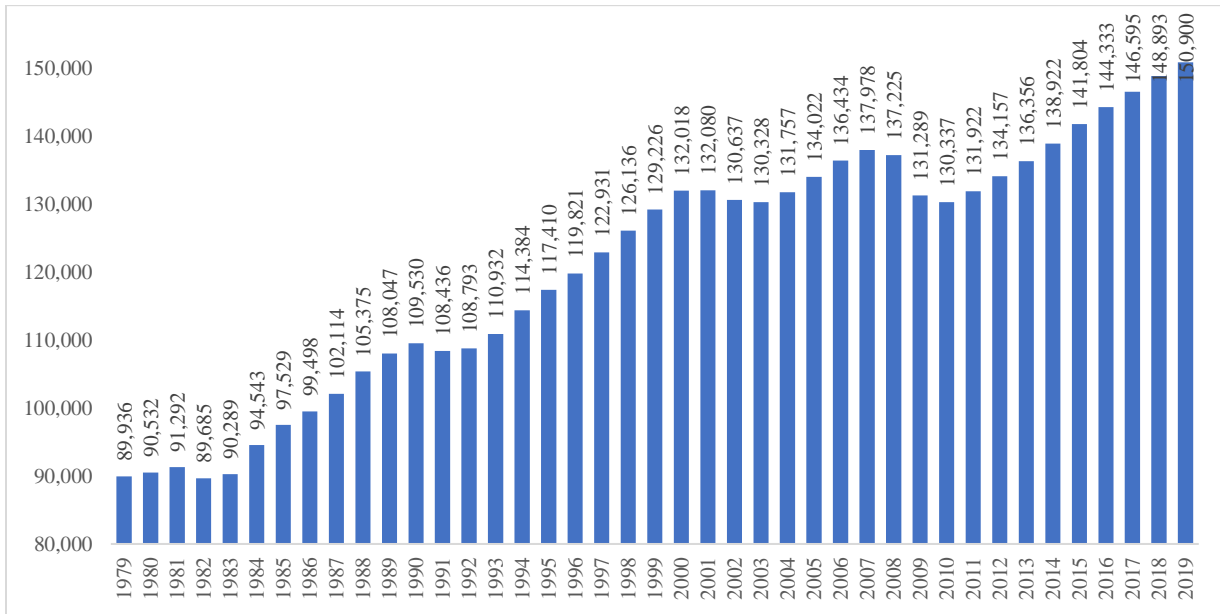
<sup>82</sup> See: “The Financial Crisis Inquiry Report: Final Report of the National Commission on the Causes of the Financial and Economic Crisis in the United States,” Washington, D.C., Financial Crisis Inquiry Commission, 2010, <https://www.govinfo.gov/content/pkg/GPO-FCIC/pdf/GPO-FCIC.pdf>



**Chart 1:**  
**Trends in Total Non-Farm Payroll Employment in South Dakota, 1979 to 2019**  
**(Annual Averages in 1000s)**



**Chart 2:**  
**Trends in Total Non-Farm Payroll Employment in the U.S., 1979 to 2019**  
**(Annual Averages in 1,000s)**



between 2007 and 2010, South Dakota's 0.9 percent job loss rate was 2<sup>nd</sup> lowest, trailing only Texas (-0.5 percent).<sup>83</sup>

The Great Recession marked the first time in the post-WWII period that the U.S. began a decade with fewer jobs than existed at the start of the decade. Payroll employment levels in 2010 were 1.681 million lower than in 2000. Between 2000 and 2010, 22 states experienced job growth while the remaining 28 states recorded job losses over the decade. South Dakota was one of those states that experienced payroll job growth between 2000 and 2010. The state added 25,000 payroll jobs over the decade, a relative increase of 6.5 percent and the state's payroll job growth rate ranked 11<sup>th</sup> highest among the states (Table 1). Several states in the Midwest were especially hard hit by the recession including Ohio and Michigan where payroll employment levels during 2010 were 10.5 percent and 17.3 percent lower, respectively, than in 2000.

South Dakota's job market again began to improve after 2010, and between 2011 and 2014, the state had added 21,000 new jobs a relative rise of 5.2 percent (Chart 1). Nationwide, payroll jobs rose by 8.586 million or 6.5 percent between 2011 and 2014 (Chart 2). Payroll job creation in South Dakota slowed over the 2015 and 2019 period. The state's labor market reached full employment in 2014-15, much sooner than the U.S., (see chapters 1 and 10) and labor supply constraints began to limit employers' ability to expand their employment levels. Between 2015 and 2019 South Dakota payroll employment increased by just 3.9 percent equal to less than one-half of the 8.4 percent rise in payroll employment in the U.S. during the period. Overall, between 2010 and 2019, South Dakota's payroll increased by 38,000 or 9.5 percent resulting in a drop in its ranking to 34<sup>th</sup> highest among the states. During the same period (2010-2019), the U.S. added 20.563 million jobs, representing a relative increase of 15.8 percent, nearly double the rate of growth in South Dakota.

The last time South Dakota was ranked below the national average in the pace of new job creation was during the 1980s, when the effects of the twin recessions were much stronger in the state than in the nation. During the decade of the 2010s the slowdown in the pace of job creation has little to do with the adverse effects of the Great Recession, which were minor in South

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<sup>83</sup>Two states (North Dakota and Alaska) and D.C experienced gains in payroll employment between 2007 and 2010. The payroll job growth rate over this period was 5 percent in North Dakota, 2.7 percent in D.C., and 2.2 percent in Alaska.

Dakota; rather, slow payroll employment growth in the state during the 2010s was much more closely connected to worsening labor supply problems as the demand for labor increased.

### Employment Structure and Changes Across Major Industries of South Dakota

The industrial composition of employment has changed in both South Dakota and the U.S. over the past few decades with considerable differences in the industry mix of South Dakota compared to that of the U.S. Table 3 displays non-farm annual average employment by industry in South Dakota and the U.S. during 2019. At the most aggregated level we find that South Dakota's private sector share of total non-farm employment was lower than that for the U.S. (81.8 percent versus 85.0 percent). The government sector's (including federal, state, local and tribal) employment share in the state was higher than the U.S. (18.2 percent versus 15 percent) and was the single largest industry sector of employment in the South Dakota.

Among private sector producers the health care and social assistance sector was the largest industry sector of employment in South Dakota accounting for 15 percent of the state's total payroll employment. This sector includes ambulatory care health facilities (including home health agencies), hospitals, nursing home and assisted care facilities as well as most of the state's employment in social assistance service organizations. South Dakota had a somewhat larger share of its payroll employment concentrated in health and social services compared to the U.S. where the sector's share of total non-farm payroll employment was 13.5 percent.

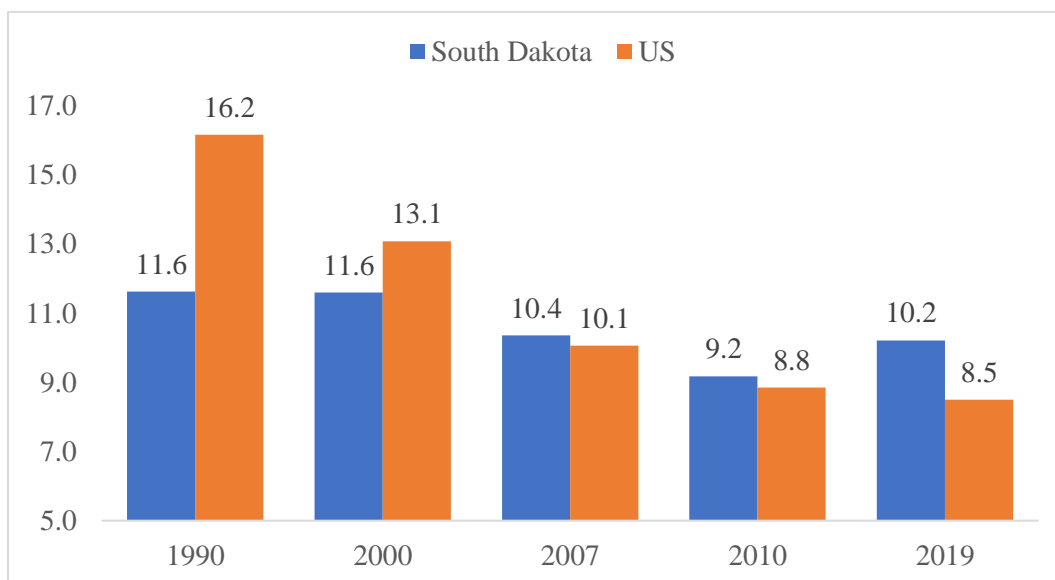
Retail trade accounted for 11.6 percent of employment in the state; this proportion was 1.3 percentage points higher than that of the U.S. Leisure and hospitality was also a major industry sector source of work in South Dakota employing 10.8 percent of all payroll workers. This proportion was nearly the same as the U.S. share of employment in this sector.

During 2019, South Dakota manufacturers employed 10.2 percent of state's workers, ranking it as the fifth largest sectoral source of employment in the state; this proportion is 1.7 percentage points higher than that of the U.S. manufacturing sector's share of total payroll employment (8.5 percent). Unlike the nation, manufacturing employment in South Dakota has been characterized by considerable stability. Indeed, manufacturing sector's share of total state payroll employment has changed only slightly over the past 30 years; staying at 11.6 percent in both 1990 and 2000, declining to 9.2 percent in 2010, and then increasing to 10.2 percent by 2019. In a sharp contrast, manufacturing sector's employment share in the entire U.S. has declined continuously from 16.2 percent in 1990 to 8.5 percent in 2019 (Chart 3).

**Table 3:**  
**Employment Share by Industry in South Dakota and the U.S., 2019**  
**(Ranked by South Dakota's Employment Share from Highest to Lowest (Numbers in Percent))**

Industry	South Dakota	U.S.	Difference
Total Payroll Jobs (In 1,000s)	441	150,900	
<b>Share (In %)</b>			
<b>Government</b>	<b>18.2</b>	<b>15.0</b>	<b>3.2</b>
<b>Private Sector</b>	<b>81.8</b>	<b>85.0</b>	<b>3.2</b>
Health Care and Social Assistance	15.0	13.5	1.5
Retail Trade	11.6	10.3	1.3
Leisure and Hospitality	10.8	11.0	-0.2
Manufacturing	10.2	8.5	1.7
Professional and Business Services	7.5	14.1	-6.6
Financial Activities	6.6	5.8	0.8
Construction	5.4	5.0	0.4
Wholesale Trade	4.8	3.9	0.9
Other Services	3.8	3.9	-0.1
Transportation/Warehousing/and Utilities	3.1	4.1	-1.0
Educational Services	1.6	2.5	-0.9
Information	1.3	1.9	-0.6
Mining and Logging	0.2	0.5	-0.3

**Chart 3:**  
**Manufacturing Sector's Employment Share of Total Employment, South Dakota and the U.S., Selected Years, 1990 to 2019 (In Percent)**



The professional and business service sector, composed of an amalgam of businesses that supply wide range of services primarily (but not exclusively) to other businesses. Firms engaged in very sophisticated computer software, management consulting, engineering and design work are combined with temporary help agencies and services to buildings firms (including janitorial services) in the professional and business services sector. Just 7.5 percent of all payroll jobs in South Dakota were found in this sector compared to 14.1 percent in the nation. As we note below, the industries that make up this sector have been important sources of new job creation in the nation.

The seventh largest employer in South Dakota was the financial activities industry. In 2019, the financial activities sector in South Dakota employed 6.6 percent of the state's workers; slightly higher employment share than that of the U.S. (5.8 percent). This proportion was surprisingly low given the large share of finance in the state's GDP (see chapter 2).

The employment share of the construction industry in South Dakota was 5.4 percent, about the same as the nation (5 percent). In the remaining 7 sectors (wholesale trade, other services, transportation, warehousing, and utilities, educational services, information, and mining and logging), the employment share in South Dakota ranged from lows of 0.2 and 1.3 percent in mining and logging and information industries to highs of 3.8 percent in the "other" service industry to 4.8 percent in the wholesale trade industry. These 7 industries together accounted for 14.8 percent of total employment South Dakota and 16.8 percent of total employment in the U.S. in 2019.

### Sources of Payroll Job growth in South Dakota and the U.S., 2010-2019

How did these industry sectors fare in generating employment over the past decade prior to the outbreak of global COVID-19 pandemic? Below we track changes in the industrial distribution of jobs in South Dakota over the 2010 and 2019 period and compare the findings with those of the U.S. Table 4 displays changes in payroll employment levels in South Dakota between 2010 and 2019 for total non-farm payroll employment, total private sector payroll employment, private sector payroll employment in 13 industry sectors, and payroll employment in the public sector.

Between 2010 and 2019, total private sector payroll employment in South Dakota increased from 324,000 in 2010 to 361,000 in 2019, an increase of 37,000 or 11.4 percent.

Almost all of the net gain in payroll job gains in South Dakota over this period came from the private sector. The government sector payroll jobs increased only by 1,000 or less than 2 percent

Table 4:  
Change in Employment by Industry in South Dakota and the U.S., 2010-2019  
(Employment Numbers are in 1000s, Except Percent Change)

Industry	South Dakota				U.S.
	2010	2019	Abs. Chg.	% Change	% Change, U.S
Total Non-farm	402	441	38	9.5	15.8
Total Private	324	361	37	11.4	19.0
Mining and Logging	0.93	0.98	0.04	4.5	3.1
Construction	20	24	4	17.6	35.8
Manufacturing	37	45	8	21.9	11.2
Durable Manufacturing	24	29	5	19.4	13.8
Non-Durable Manufacturing	13	16	3	26.6	7.0
Wholesale Trade	18	21	3	14.4	9.3
Retail Trade	49	51	2	3.5	8.1
Transportation, Warehousing, and Utilities	13	14	1	8.2	31.3
Information	7	6	-1	-15.8	5.8
Financial Activities	29	29	0	0.4	13.8
Professional and Business Services	28	33	6	20.0	26.8
Educational Services	6	7	1	11.8	18.7
Health Care and Social Assistance	57	66	9	15.4	21.4
Leisure and Hospitality	43	47	4	10.5	27.2
Other Services	16	17	1	7.7	10.5
Government	79	80	1	1.7	0.5

Source: Current Employment Statistics (CES), annual averages, 2010 and 2019, U.S. Bureau of Labor Statistics, tabulations by authors.

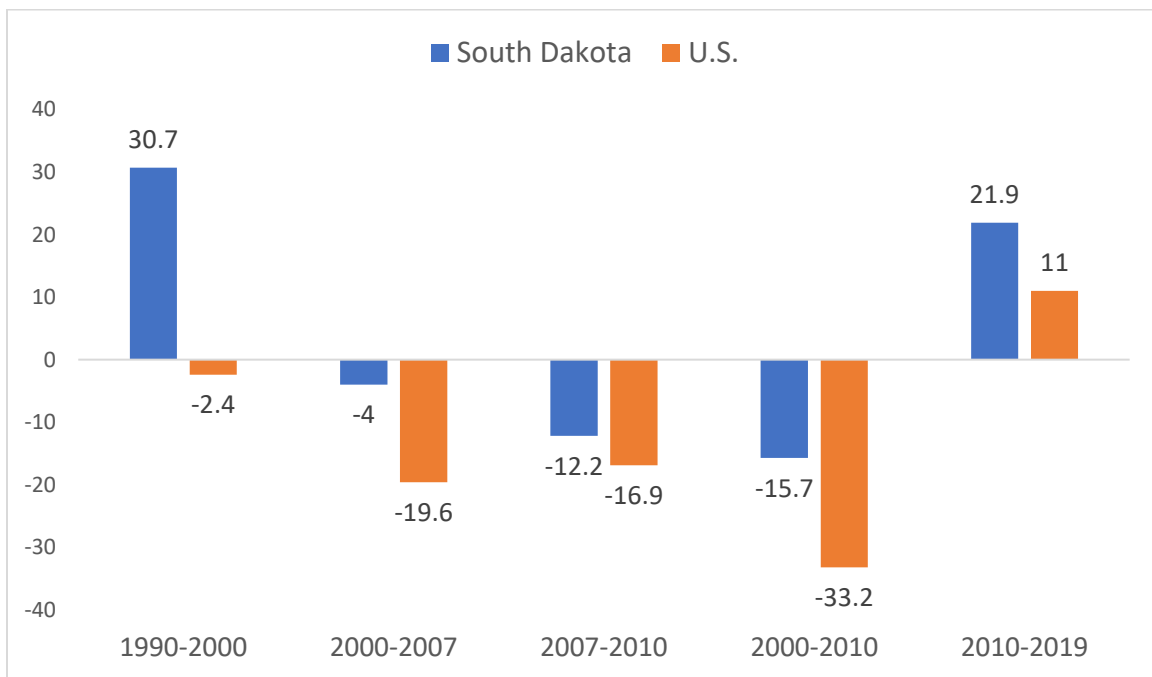
Over this period (Table 4). In the U.S. too, employment in government sector increased only by 0.5 percent over this period (Table 4).

South Dakota's manufacturing industry employment growth over the 2010-2019 period was very strong, leading all major industry sectors in its pace of growth. Between 2010 and 2019, manufacturing employment rose by nearly 22 percent from 37,000 to 45,000; this growth rate was double that of the pace of growth of the U.S. manufacturing sector employment (11.2 percent).

Since the 1980s, the manufacturing sector in the U.S. has experienced very large employment losses with especially large losses during periods of economic recession.<sup>84</sup> Yet when the U.S. manufacturing sector experienced employment losses in the 1990s and again in the 2010s, South Dakota’s manufacturing was adding jobs. And when South Dakota lost manufacturing employment during the 2000s its pace of loss was much lower than that of the nation.

Between 1990 and 2000, manufacturing sector employment in South Dakota increased by 31 percent while the U.S. employment in this sector declined by 2.4 percent (Chart 4). Over the 2000-2007 period, manufacturing employment in the U.S. declined sharply (-20 percent), but the decline in South Dakota was quite modest (-4 percent). During the Great Recession of 2007-2009, manufacturing sector employment decline accelerated in South Dakota and the U.S. South Dakota lost 12.2 percent of its manufacturing employment between 2007 and 2010, a

Chart 4:  
Employment Growth Rate in the Manufacturing Sector in South Dakota and the U.S.,  
Selected Periods, 1990-2019 (In Percent)



<sup>84</sup> Manufacturing sector employment in the U.S. fell from 19.428 million in 1979 to 17.984 million in 1989, an absolute decline of 1.444 million or 7.4 percent. Since manufacturing data at the state level by industry from CES survey are not available prior to 1990, we looked at private sector wage and salary employment in South Dakota that are available from Quarterly Census of Employment and Wages (QCEW), previously known as ES-202 data series. Private sector manufacturing wage and salary employment increased from 27,113 in 1979 to 32,182 in 1989, an increase of 5,069 or 18.7 percent.

substantially smaller decline compared to the -17 percent decline in the U.S. Overall between 2000 and 2010, the U.S. lost 1 in 3 manufacturing jobs; twice the size of the decline in this sector in South Dakota (-15.7 percent). In recent years, the South Dakota manufacturing sector has experienced a very strong employment rebound growing by 22 percent between 2010 and 2019; double the rate of manufacturing payroll employment gains in the nation during that period.

The professional and business service sector experienced the second largest pace of employment growth in South Dakota between 2010 and 2019. This broad ranging set of service providers added 6,000 jobs, a rise of 20 percent in the state between 2010 and 2019; however, the growth rate was considerably lower than that of the U.S. during this period (26.8 percent) (Table 4).

While the South Dakota construction sector had the third highest relative gain (17.6 percent) in employment among all industry sectors between 2010 and 2019, the pace of the payroll job growth in this sector was half of that of the nation. The 24,000 construction sector payroll jobs in 2019 in South Dakota was the highest payroll employment level attained by the state's construction industry since 1990. In the U.S., construction sector payroll employment levels increased by about 36 percent, the highest growth rate among the 13 sectors in our analysis. However, the level of payroll employment in the nation's construction sector in 2019 was still lower than in 2007 (7.627 million in 2007 versus 7.494 million in 2019).

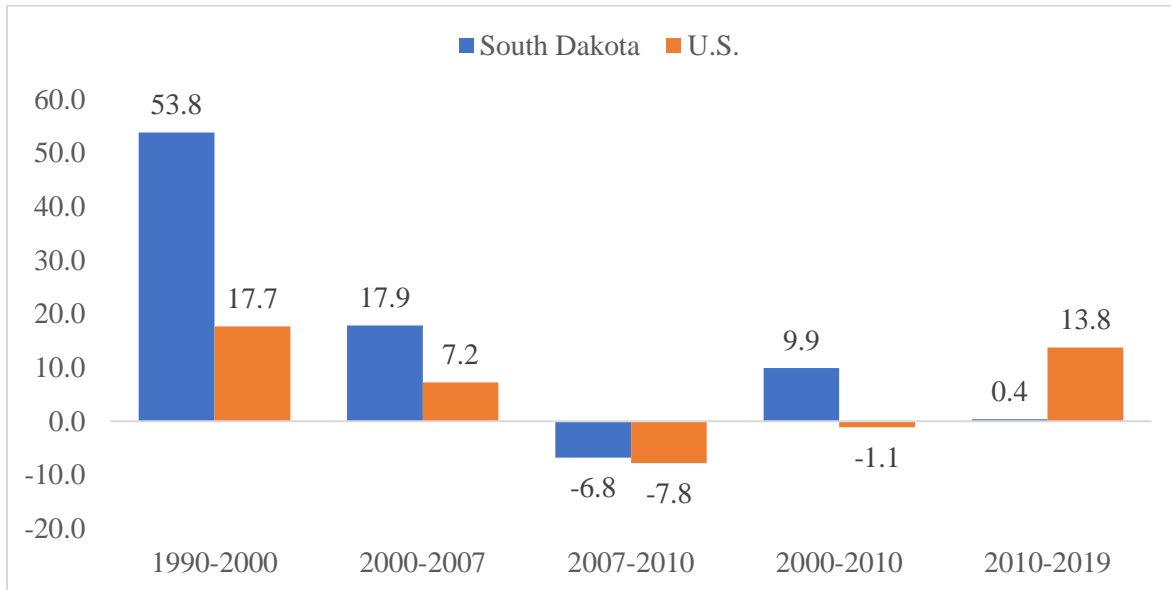
The health care and social assistance sector added 9,000 jobs, increasing payroll employment levels by 15 percent over the 2010-2019 period; however, the rate of growth in employment in South Dakota was equal to just 70 percent of the relative rise in health and social services sector employment in the nation (21.4 percent). The wholesale trade industry in South Dakota recorded employment growth rate of 14.4 percent over the 2010-2019 period, surpassing the 9.4 percent growth rate in payroll employment in the U.S. wholesale trade sector during this period. The educational service sector in South Dakota had a much lower rate of growth of payroll employment than the U.S. (11.8 percent versus 18.7 percent). Employment in the leisure and hospitality sector in South Dakota increased by 10.5 percent over this period, substantially lower than the employment growth rate in this industry in the U.S. (27.2 percent). In transportation/warehousing/utilities, other service, mining/logging, and retail trade industries, the employment growth rate in South Dakota over the 2010-2019 period was 8.2 percent, 7.7 percent, 4.5 percent, and 3.5 percent, respectively. The rate of growth of payroll employment in



three out of these four industries (transportation/warehousing/utilities, other services, and retail trade) in the U.S. was substantially higher (31.3 percent, 10.5 percent, and 8.1 percent, respectively).

Although the financial activities sector in South Dakota accounted for about 7 percent of total employment in the state, there was no growth in finance employment levels over the 2010-2019 period. In the U.S., employment in the financial activities sector increased by nearly 14 percent over this period. We examined employment growth in the financial activities sector over the past 30 years in South Dakota and the U.S. (Chart 5). Between 1990 and 2000, financial

Chart 5:  
Payroll Employment Growth Rate in the Financial Activities Sector in South Dakota  
And the U.S., Selected Periods, 1990-2019 (Numbers in Percent)



sector employment in South Dakota increased by 53.8 percent; the 4<sup>th</sup> highest rate of growth among the states.<sup>85</sup> Finance sector employment in the U.S. during the 1990-2000 period increased by 17.7 percent. Over the 2000-2007 period, employment growth rate in this sector in South Dakota fell to about 18 percent, but still higher than the national growth rate of only 7.2 percent in this sector.(Chart 5). During the Great Recession of 2007-2009 and its aftermath, financial sector employment dropped sharply in the U.S. Between 2007 and 2010, finance sector employment dropped by about 7 percent in South Dakota and 8 percent in the U.S. Overall, over

<sup>85</sup>The other three states with the highest employment growth rate over 1990-2000 period in finance activities sector were Utah (69.9 percent), Nevada (65.5 percent), and Arizona (54.5 percent).

the 2000-2010 period, South Dakota experienced a nearly 10 percent increase in finance sector employment while the nation experienced an employment loss in this sector (-1.1 percent).

The information sector<sup>86</sup> was the only sector in South Dakota that lost employment over the 2010-2019 period. Employment in this sector dropped by nearly 16 percent in South Dakota while increased by 5.8 percent in the U.S. over the same period (2010-2019) (Table 4).

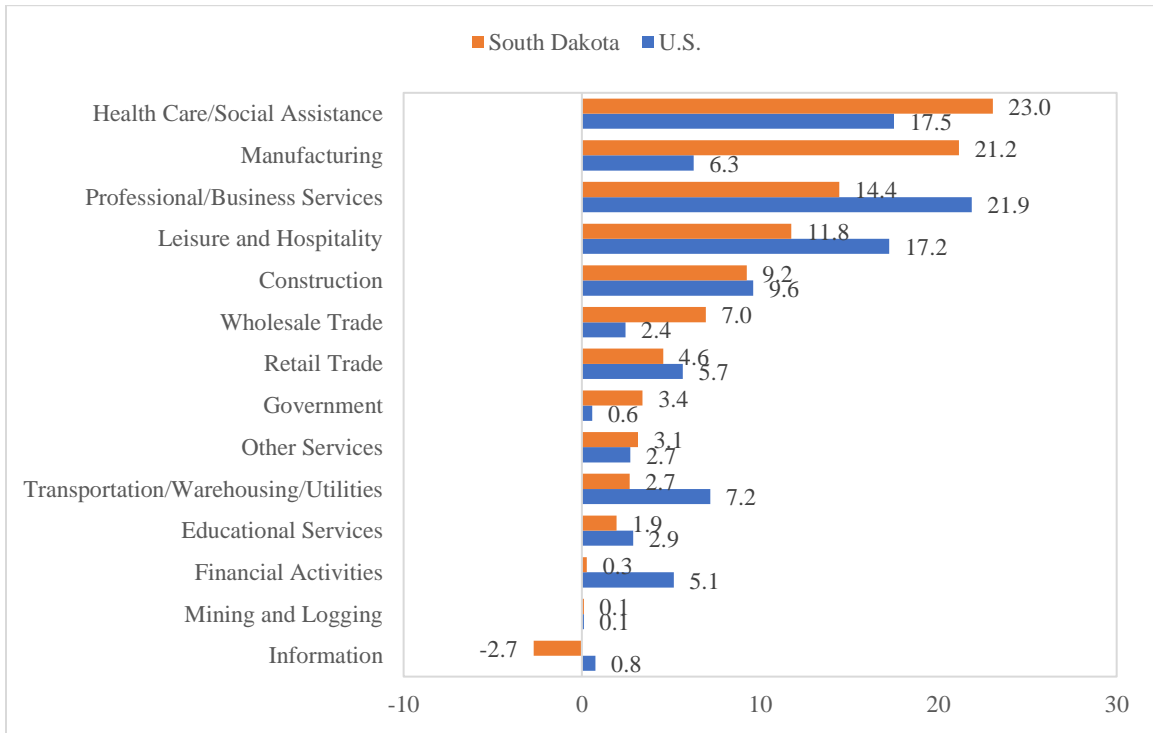
The discussion above focused on the *relative pace of employment growth* in South Dakota and the U.S. for each of the 13 major industries over the 2010-2019 period. This section of the chapter will examine *sources* of job growth across these major industries over the same period. Two industries in South Dakota, healthcare and social assistance and manufacturing, accounted for 44 percent of the overall gain in state payroll employment levels between 2010 and 2019; much higher than the U.S. where about one-quarter of total job growth came from these two industries (Chart 6). It's useful to note that the healthcare, and social assistance sector in South Dakota also contributed substantially to overall job growth in the state during the 2000-2010 period as well. About 46 percent of job growth in the state over the 2000-2010 period was attributable to healthcare and social industry sector alone (Chart 6). Over the same decade (2000-2010), employment in the state's manufacturing sector declined, resulting in a large net negative contribution of this sector to the state's job growth over the decade (Chart 7).

The professional and business services industry accounted for 14 percent of the net increase in payroll employment that occurred in South Dakota between 2010 and 2019. In the U.S., this sector accounted for a much larger share (22 percent) of the overall increase in employment over the same period. Another 12 percent job growth in South Dakota between 2010 and 2019 came from the leisure and hospitality industry; lower than the 17 percent job growth share of this industry sector in the nation. The contribution of the construction sector to the job growth between 2010 and 2019 was about the same in South Dakota and the nation, 9 percent. Five industry sectors, construction, leisure/ hospitality, professional/business services, manufacturing, and healthcare, together accounted for 80 percent job growth in South Dakota between 2010 and 2019. The remaining 20 percent of the state's job growth came from the remaining 8 industries. The information sector was the only industry in South Dakota with net

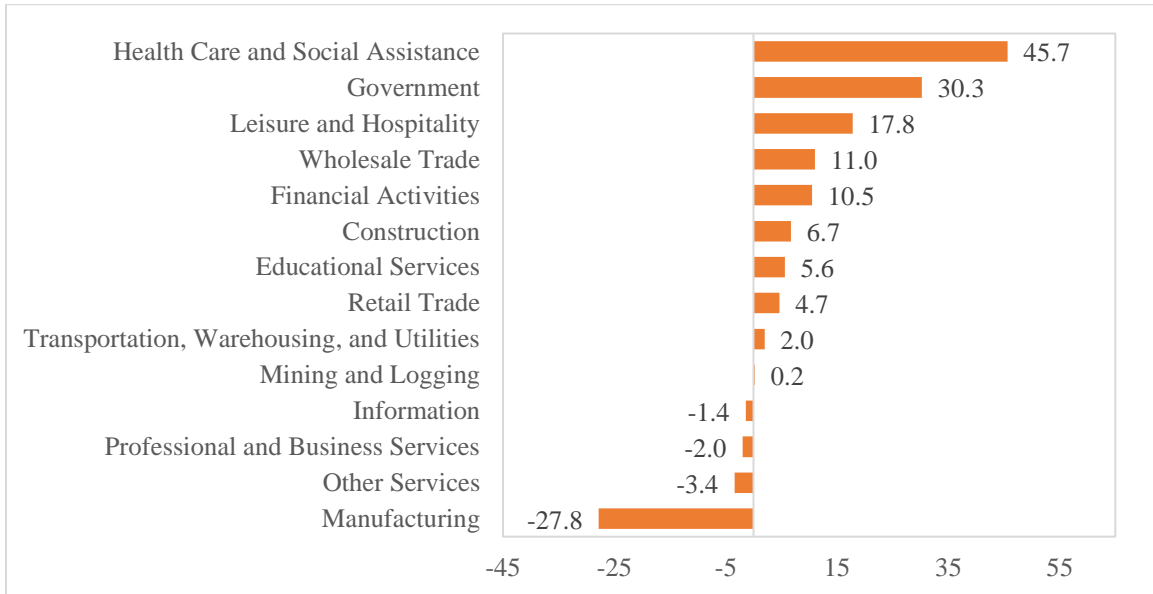
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<sup>86</sup> According to U.S. Bureau of Labor Statistics, information sector consists of publishing industries (except Internet), motion picture and recording industries, broadcasting (except Internet), telecommunication, and other information services such as new syndicates, libraries, archives, exclusive Internet publishing or broadcasting, and Web Search Portals.

**Chart 6:**  
Contributions to Payroll Employment Growth by Major Industry in South Dakota and the U.S., 2010-2019 (Numbers in Percent)



**Chart 7:**  
Contributions to Payroll Employment Growth by Major Industry in South Dakota., 2000-2010 (Numbers in Percent)



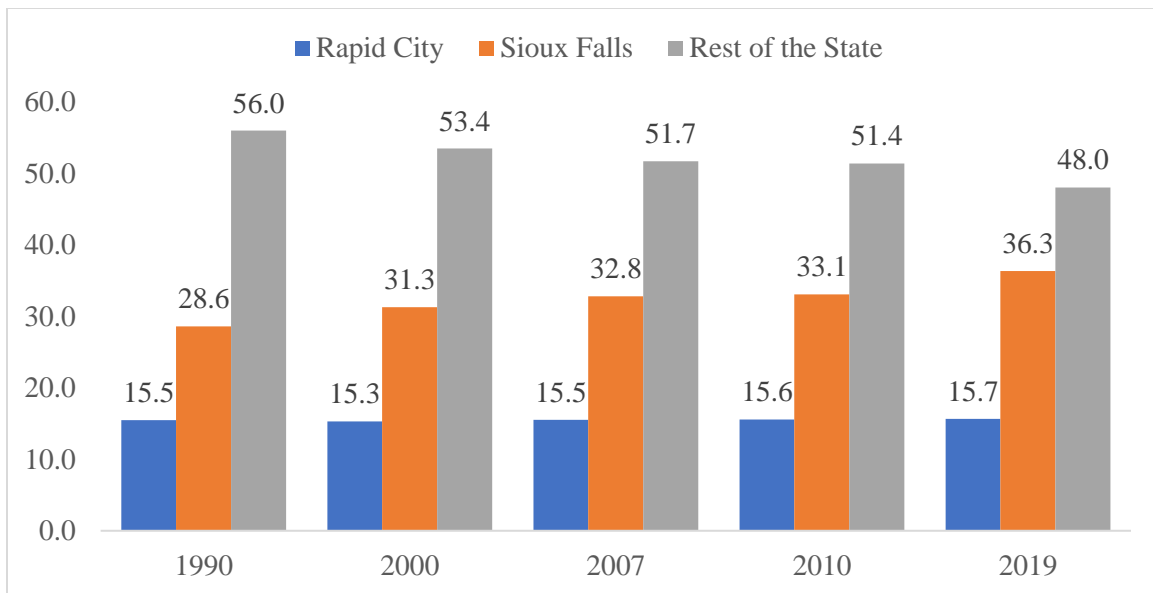
**Note:** Total payroll job level for the U.S. in 2010 was lower than in 2000. For this reason, we cannot estimate job growth contributions for the U.S. over the 2000-2010 period.

negative contribution to job growth as the industry suffered job loss over the 2010-2019 period. Government sector’s contribution to job growth in South Dakota during the 2010-2019 period was 3.4 percent compared to less than 1 percent for the nation over this period (Chart 7).

### Employment Trends in Rapid City and Sioux Fall Area of South Dakota, 1990-2019

The CES employment statistics are also available for Rapid City and Sioux Falls metro areas of South Dakota from 1990. The Sioux Falls area employed 36 percent of the state’s workers in 2019 and Rapid City employed another 16 percent of the state’s workers. Combined the Rapid City and Sioux Falls regions accounted for 52 percent of employment in the state during 2019 (Chart 8). Over the past 30 years, Rapid City’s employment share in the state has remained in 15-16 percent range while Sioux Falls share of state employment increased from 29 percent in 1990 to 36 percent in 2019; much of this increase has occurred since 2010.

**Chart 8:**  
Trends in Employment Shares in Rapid City, Sioux Falls, and the Rest of the State, South Dakota, 1990 to 2019 (Numbers in Percent)



**Source:** Current Employment Statistics (CES), annual averages, selected years, 1979 to 2019, U.S. Bureau of Labor Statistics, tabulations by authors.

Payroll employment rose sharply in both metropolitan Rapid City and Sioux Falls between 1990 and 2000, a period of extraordinary job creation in South Dakota but it’s important to note that employment growth was also strong in the balance of the state. Thus, the 1990s expansion occurred across the entire state. The two metropolitan areas of Rapid City and Sioux

Falls together added 49,000 jobs between 1990 and 2000 a relative rise of 38.5 percent. The Rapid City region expanded payroll employment by a very robust 29.5 percent, but this strong growth was eclipsed by the Sioux Falls region where payroll employment levels increased by 43.3 percent. Areas outside of the two metropolitan regions combined to add 41,000 jobs, a relative increase in employment levels of 25.1 percent.

During the 1990s about 55 percent of net employment increase in the state came from metropolitan Rapid City and Sioux Falls, with the rest of the state also accounting for a large share (45 percent) of overall employment gains. However, this broad base of employment growth was greatly curtailed after 2000 (Chart 9). Between 2000 and 2010, that pace of statewide employment growth slowed sharply (compared to the 1990s) as a consequence of the dot.com recession in 2001 and the Great Recession of 2008-09, but the slowdown was more severe in the balance of the state than in the two metropolitan regions. Over the 2000 and 2010 period, employment in Rapid City and Sioux Falls area increased by 20,000 or 10.1 percent

Table 5:  
Trends in Total Non-Farm Employment in Rapid City and Sioux Falls Area of South Dakota,  
Selected Years, 1979-2019 (Annual Averages in 1000's)

Year	Rapid City	Sioux Falls	Rapid City + Sioux Falls	Rest of the State	South Dakota	Rapid City + Sioux Falls Employment Share (%)
1990	45	82	127	161	288	44.0
2000	58	118	176	202	378	46.6
2007	63	133	196	210	406	48.3
2010	63	133	196	207	402	48.6
2019	69	160	229	211	441	52.0
<b>Absolute Change in Payroll Employment</b>						
1990-2000	13	36	49	41	89	
2000-2007	5	15	20	8	28	
2007-2010	0	0	-1	-3	-4	
2000-2010	5	15	20	5	25	
2010-2019	6	27	33	5	38	
<b>Percentage Change in Payroll Employment (%)</b>						
1990-2000	29.5	43.3	38.5	25.1	31.0	
2000-2007	9.1	12.8	11.6	4.0	7.5	
2007-2010	-0.6	-0.1	-0.3	-1.5	-0.9	
2000-2010	7.8	11.2	10.1	2.4	6.1	
2010-2019	10.1	20.4	17.1	2.3	9.5	

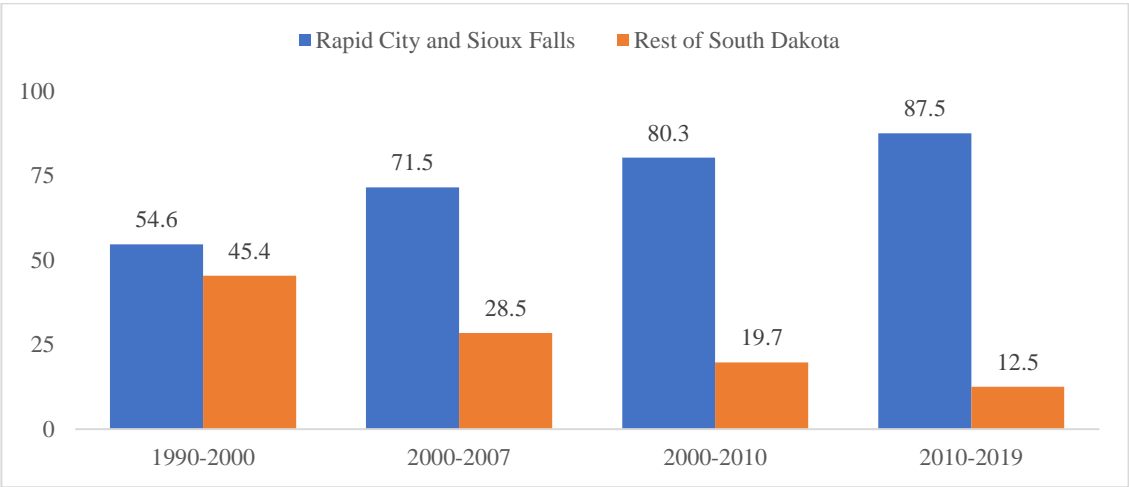
Source: Current Employment Statistics (CES), annual averages, selected years, 1979 to 2019, U.S. Bureau of Labor Statistics, tabulations by authors.

while employment in rest of the state increased by just 2.4 percent. Over the 2000-to-2010-decade, 80 percent of employment growth in South Dakota occurred in the Rapid City and Sioux Falls metro areas (Table 5 and Chart 9).

Since 2010, geographic disparities in job creation have become substantially greater. South Dakota added 38,000 payroll jobs between 2010 and 2019; just 5,000 of these new jobs were created outside the state’s two metropolitan regions (Table 5). Indeed, employment in the balance of the state increased by just 2.3 percent. South Dakota job growth has been increasingly concentrated in the Sioux Falls region that saw payroll employment growth of 27,000 jobs, accounting for more than 70 percent of overall employment gains in the state during 2010 to 2019 (Table 5).

Over the past 30 years, the state has seen urbanization of non-farm payroll employment with employment expanding by 80 percent in the Rapid City and Sioux Falls regions, while employment levels rising by just 31 percent in the balance of the state. The result is that two-thirds of all new jobs created in South Dakota between 1990 and 2019 were located either the Rapid City or Sioux Falls region with this urbanization trend accelerating quite substantially after 2000.

**Chart 9:**  
**Contributions to Employment Growth in South Dakota Attributable to Rapid City and Sioux Falls, Selected Periods, 1990-2019 (In Percent)**



**Note:** Data for 2007-2010 cannot be estimated because employment in all three areas (Rapid City, Sioux Falls, and rest of South Dakota) fell between 2007 and 2010.

## Appendix Tables

**Table A-1:**  
**Trends in Non-Farm Payroll Employment Between 2010 and 2019, by State**  
**(Employment Numbers are Annual Averages in 1000's)**

Rank	State	2010	2019	Absolute Change	% Change
1	Utah	1,183	1,557	375	31.7
2	Nevada	1,118	1,422	304	27.2
3	Idaho	603	760	157	26.1
4	Colorado	2,221	2,790	569	25.6
5	Florida	7,175	8,966	1,791	25.0
6	Texas	10,378	12,814	2,436	23.5
7	Arizona	2,386	2,943	557	23.3
8	Washington	2,836	3,469	634	22.3
9	California	14,281	17,432	3,151	22.1
10	Oregon	1,605	1,954	349	21.8
11	South Carolina	1,811	2,190	379	20.9
12	Georgia	3,860	4,620	760	19.7
13	Tennessee	2,618	3,123	506	19.3
14	North Carolina	3,865	4,581	715	18.5
15	North Dakota	377	441	64	17.1
16	Massachusetts	3,222	3,701	480	14.9
17	Michigan	3,867	4,443	575	14.9
18	New York	8,545	9,789	1,245	14.6
19	Montana	428	485	56	13.2
20	Minnesota	2,637	2,983	346	13.1
21	Delaware	413	467	53	12.9
22	Indiana	2,800	3,160	359	12.8
23	District of Columbia	712	798	85	12.0
24	Hawaii	588	658	70	12.0
25	Virginia	3,646	4,059	413	11.3
26	Ohio	5,036	5,595	559	11.1
27	Kentucky	1,760	1,945	185	10.5
28	Arkansas	1,163	1,280	117	10.1
29	New Hampshire	622	684	62	10.1
30	Maryland	2,521	2,770	249	9.9
31	Alabama	1,890	2,075	185	9.8
32	Wisconsin	2,725	2,988	263	9.7
33	Oklahoma	1,556	1,705	150	9.6
<b>34</b>	<b>South Dakota</b>	<b>402</b>	<b>441</b>	<b>38</b>	<b>9.5</b>
35	Rhode Island	462	504	42	9.2

36	Missouri	2,669	2,915	246	9.2
37	Illinois	5,610	6,126	516	9.2
38	New Jersey	3,844	4,197	353	9.2
39	Nebraska	945	1,027	82	8.7
40	Iowa	1,469	1,587	118	8.0
41	Pennsylvania	5,622	6,066	444	7.9
42	Maine	593	637	44	7.4
43	Kansas	1,331	1,424	93	7.0
44	New Mexico	802	855	53	6.6
45	Vermont	298	316	18	6.1
46	Mississippi	1,092	1,158	66	6.0
47	Louisiana	1,888	1,993	106	5.6
48	Connecticut	1,617	1,696	79	4.9
49	Wyoming	284	290	6	2.1
50	Alaska	325	330	5	1.6
51	West Virginia	717	721	4	0.6
	U.S.	130,337	150,900	20,563	15.8

Source: Current Employment Statistics (CES), annual averages, selected years, 2010 and 2019,  
U.S. Bureau of Labor Statistics, tabulations by authors.



Table A-2:  
Trends in Non-Farm Payroll Employment Between 2007 and 2010 by State  
(Employment Numbers are Annual Averages in 1000's)

Rank	State	2007	2010	Absolute Change	% Change
1	North Dakota	359	377	18	5.0
2	District of Columbia	694	712	19	2.7
3	Alaska	318	325	7	2.2
4	Texas	10,430	10,378	-52	-0.5
<b>5</b>	<b>South Dakota</b>	<b>406</b>	<b>402</b>	<b>-4</b>	<b>-0.9</b>
6	West Virginia	726	717	-9	-1.2
7	Louisiana	1,918	1,888	-30	-1.6
8	Wyoming	289	284	-5	-1.7
9	Nebraska	962	945	-17	-1.7
10	New York	8,719	8,545	-174	-2.0
11	Oklahoma	1,595	1,556	-39	-2.5
12	Massachusetts	3,306	3,222	-84	-2.5
13	Pennsylvania	5,799	5,622	-178	-3.1
14	Iowa	1,519	1,469	-50	-3.3
15	Virginia	3,771	3,646	-125	-3.3
16	Vermont	308	298	-10	-3.3
17	Arkansas	1,204	1,163	-41	-3.4
18	Maryland	2,611	2,521	-90	-3.4
19	Montana	444	428	-16	-3.6
20	New Hampshire	645	622	-24	-3.7
21	Kansas	1,382	1,331	-51	-3.7
22	Maine	618	593	-25	-4.0
23	Washington	2,968	2,836	-132	-4.5
24	Colorado	2,330	2,221	-109	-4.7
25	Minnesota	2,769	2,637	-131	-4.7
26	New Mexico	843	802	-41	-4.9
27	Missouri	2,807	2,669	-138	-4.9
28	Connecticut	1,705	1,617	-88	-5.2
<b>29</b>	<b>Kentucky</b>	<b>1,856</b>	<b>1,760</b>	<b>-97</b>	<b>-5.2</b>
30	Wisconsin	2,876	2,725	-152	-5.3
31	Mississippi	1,154	1,092	-62	-5.3
32	Utah	1,253	1,183	-71	-5.6
33	New Jersey	4,074	3,844	-230	-5.6
34	Delaware	439	413	-25	-5.8
35	Hawaii	626	588	-38	-6.0
36	Illinois	5,977	5,610	-367	-6.1
37	Indiana	2,991	2,800	-191	-6.4

38	Tennessee	2,800	2,618	-183	-6.5
39	North Carolina	4,136	3,865	-270	-6.5
40	Alabama	2,023	1,890	-133	-6.6
41	Rhode Island	495	462	-34	-6.8
42	South Carolina	1,945	1,811	-134	-6.9
43	Ohio	5,427	5,036	-391	-7.2
44	Georgia	4,166	3,860	-306	-7.3
45	Oregon	1,734	1,605	-129	-7.5
46	California	15,462	14,281	-1,181	-7.6
47	Idaho	655	603	-52	-7.9
48	Michigan	4,271	3,867	-403	-9.4
49	Florida	8,000	7,175	-825	-10.3
50	Arizona	2,679	2,386	-294	-11.0
51	Nevada	1,292	1,118	-174	-13.5
	U.S.	137,978	130,337	-7,641	-5.5

Source: Current Employment Statistics (CES), annual averages, selected years, 2007 and 2010, U.S. Bureau of Labor Statistics, tabulations by authors.

# Chapter 10

## Job Openings and Unemployment

### Introduction

Measures of unemployment and the unemployment rate are eagerly awaited each month as indicators of labor market conditions and sometimes as a gauge of the ability of the economy to create sufficient employment opportunities for those who are out of work. Despite its many uses and the insights that it provides about the labor market, measures of unemployment are largely restricted to the supply side of the labor market and tell us nothing about labor demand. Dating back to the 1960s, the Bureau of Labor Statistics (BLS) has recognized this limitation and has sought to create a measure of unfilled job vacancies that represent labor demand. The measure of job vacancies that represents unfilled labor demand is conceptually similar to the unemployment measure, which is a measure of unutilized labor supply.

The BLS introduced a new Job Openings and Labor Turnover Survey (JOLTS) in 1999 to address the need for data on unmet labor demand and turnover across the U.S.<sup>87</sup> Estimates from the JOLTS program were first released in 2002 on a monthly basis beginning December 2000. The JOLTS program produces estimates of job openings, hires, layoffs and discharges, and separation by key industries in the U.S. and its regions from the sample of 21,000 business establishments in non-farm sector. The JOLTS concept of a job vacancy (or job opening, the two terms are used interchangeably) parallels that of the unemployment concept, a job is classified as open when:

- A specific unfilled payroll position exists, and work is available to be completed for a new hire into that position,
- A new hire could start work in this position within a month of the posting, and
- The employer is actively recruiting workers outside the firm, including various media advertising methods, Internet postings and word of mouth recruitment efforts.

The job vacancy rate is designed to measure the share of total employment opportunities (filled payroll jobs +unfilled payroll jobs) that are unfilled. Thus, as the unemployment rate is a

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<sup>87</sup> For information about the JOLTS program, see: (i) BLS Handbook of Methods “Job Openings and Labor Turnover Survey,” U.S. Bureau of Labor Statistics (<https://www.bls.gov/opub/hom/jlt/home.htm>); (ii) Clark, Kelly A and Rosemary Hyson, “New Tools for Labor Market Analysis: The Job Openings and Labor Turnover Survey,” *Monthly Labor Review*, December 2001, pp. 32-37 (<https://www.bls.gov/opub/mlr/2001/12/art4full.pdf>).

measure of the share of the labor force (labor supply) that is unemployed, the job vacancy rate is a measure of the share of total employment opportunities (labor demand) in the economy that are unfilled. Similar to the unemployment rate that provides an approximate statistical measure of unutilized labor supply at a point in time, the job vacancy rate provides an approximate statistical measure of unutilized labor demand at a point in time.<sup>88</sup>

In this chapter, we connect findings from newly released state level data on job openings for South Dakota with the measure of unemployment to identify and examine the nature of labor market imbalances in the state over time as well as gain insights into the potential role of frictional, structural, and demand-deficient unemployment in South Dakota.

### Unemployment and Job Openings in South Dakota and the U.S., December 2000 to September 2021

The BLS JOLTS sample survey program has produced national monthly measures of the stock of job openings, new hires, and separations from work at employers (both voluntary and involuntary) at the national level for more than two decades. Very recently, the BLS released a new time series of state measures of job openings, new hires, and separations that date back to 2000 and are updated and released each month.<sup>89</sup> The state level job openings data are produced by combining the available sample from JOLTS at the state level with model-based estimates.<sup>90</sup>

The U.S. Bureau of Labor Statistics' monthly estimates of unemployed persons produced from the monthly Current Population Survey (CPS) combined with job opening estimates from the JOLTS program provides us valuable information about labor market conditions over time. The balance between unemployment and vacant jobs (the U/V ratio) is a fundamental way to determine the 'full employment' level of output and employment in an economy. Full employment is considered to be the condition in which all available resources for production that are offered at market prices are utilized in production. Full employment is used to describe the productive capacity of an economy, the maximum level of output and income and employment

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<sup>88</sup> We use the terms approximate measures of labor demand and supply advisedly; labor demand and labor supply are price quantity relationships about the willingness and ability of employers to hire new workers and job seekers to accept employment. The unemployment rate and the job vacancy rate are thus rough proxies of these relationships.

<sup>89</sup> See: Skyla Skopovi, Paul Calhoun, and Larry Akinyooye, "Job openings and labor turnover trends for States in 2020," *Beyond the Numbers: Employment & Unemployment*, vol. 10, no. 14 (U.S. Bureau of Labor Statistics, October 2021) (<https://www.bls.gov/opub/btn/volume-10/jolts-2020-state-estimates.htm>).

<sup>90</sup> See: U.S. Bureau of Labor Statistics, "JOLTS State Estimate Methodology" ([https://www.bls.gov/jlt/jlt\\_statedata\\_methodology.htm](https://www.bls.gov/jlt/jlt_statedata_methodology.htm)).

that an economy can produce given the limited resources and technologies available for production. The measure of full employment of resources in the labor market is referred to as the Beveridge measure of full employment, an approximate equality between the number of unemployed job seekers and the number of unfilled jobs.<sup>91</sup> The Beveridge definition of full employment does NOT require that every unemployed worker be employed, nor that every job opening be filled. Rather, full employment occurs when there are enough job openings to employ all those who are unemployed. Even at the Beveridge level of full employment, substantial unemployment may exist due to several barriers to work, including geographic, skill and ability mismatches, job search unemployment and financial disincentives to work, to name a few.

The U/V ratio measures the comparative degree of labor shortage/surplus in the economy and in any given industry. Job vacancies well in excess of the number of unemployed persons imply the existence of a labor shortage.<sup>92</sup>

In this chapter, we examine trends in the U/V ratio in South Dakota and the U.S. between December 2000 and September 2021. The job openings estimate for both South Dakota and the U.S. are from the U.S. Bureau of Labor Statistics' JOLTS program and are seasonally adjusted. Unemployment estimates for the U.S. consist of seasonally adjusted counts produced by the BLS from the monthly Current Population Survey (CPS). For South Dakota, the seasonally adjusted unemployment counts are produced by the U.S. Bureau of Labor Statistics and the Labor Market Information Unit of the South Dakota Department of Labor and Regulation from the Local Area Unemployment Statistics (LAUS) program. The JOLTS statistics are for non-farm payroll positions in private for-profit, private non-profit, and public sector establishments only, but the unemployed counts are for all sectors, including the agriculture sector.<sup>93</sup>

In December 2000 when the U.S. labor market was at its peak, the unemployment rate in South Dakota was only 2.7 percent and ranked the lowest among all states. In December 2000, there were just 11,000 unemployed job seekers in the state, but 17,000 job vacancies, yielding an

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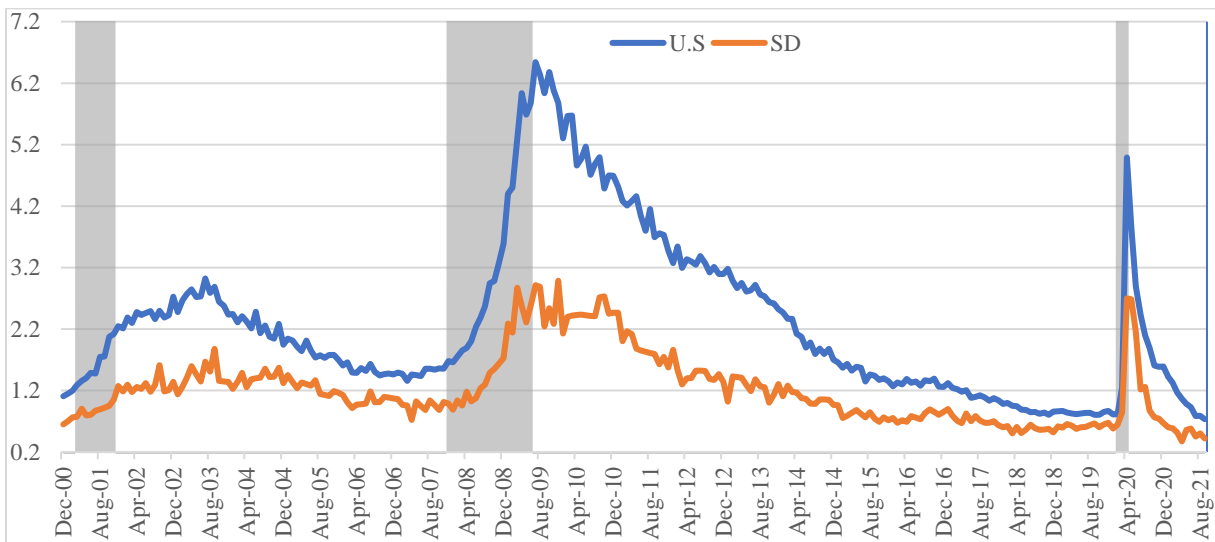
<sup>91</sup> William Beveridge, *Full Employment in a Free Society*, W.W. Norton, London, 1945.

<sup>92</sup> It would be highly desirable to examine U/V ratios by industry and occupation that are available nationally. However, job openings data by industry and occupation sectors from the JOLTS program are not currently available at the state level.

<sup>93</sup> Our analysis of 2019 Current Population Survey (CPS) shows that the U.S. agriculture sector employed 1.5 percent all of workers. The number of experienced unemployed workers in the agricultural sector in 2019 was only 140,000. Hence, the ratio of unemployed workers to job openings will not be influenced significantly by including all unemployed estimates from the CPS survey.

unemployed to job vacancy ratio of to 0.65. This means that there were 1.5 job openings for every unemployed person in the state. The unemployed to job vacancy ratio of 0.65 in South Dakota ranked 5<sup>th</sup> lowest among the 50 states. For the U.S, the unemployment level in December 2000 was slightly higher than the job vacancy level. There were 5.634 million unemployed persons and 5.088 million job vacancies, yielding unemployment to job vacancy ratio of 1.11, i.e., there were 1.11 unemployed persons for every job vacancy in the nation.

**Chart 1:**  
Unemployment to Job Vacancy Ratio in South Dakota and the U.S., December 2000 to September 2021(Shaded Areas Represent NBER-Defined Economic Recession Periods)



Source: U.S. Bureau of Labor Statistics, authors tabulations.

The U.S. slipped into technology sector-led recession that started in March 2001 and ended in November 2001. The unemployment level across the U.S. rose and firm hiring slowed. In South Dakota, the unemployment level remained lower than the job opening level until the third quarter of 2001; however, the demand for workers was slowing, and the unemployment level began to rise reaching 13,000 in the third quarter of 2001 as the number of vacancies declined to 14,000 (Table 1). Even though the unemployment to job vacancy ratio in South Dakota was less than 1 until the third quarter of 2001, the ratio increased from 0.65 in December 2000 to 0.90 in the third quarter of 2001. For the U.S., the unemployment level rose during the 2001 recession and its aftermath and hiring slowed substantially. The unemployment to job vacancy ratio in the nation increased from 1.11 at the end of 2000 to 1.66 in the third quarter of 2001.

From the fourth quarter of 2001, job vacancy levels in South Dakota began to shrink and did not recover until the third quarter of 2003 (Table 1). Job vacancies in the state declined from

Table 1:  
Levels of Unemployment and Job Openings in South Dakota and the U.S., December 2000 to  
2007-Q4 (Seasonally Adjusted Numbers in 1000s, Except Ratios,  
Quarterly Averages of Monthly Data)

Date	South Dakota			U.S.		
	Number Unemployed	Number of Job Openings	Unemployed to Job Openings Ratio	Number Unemployed	Number of Job Openings	Unemployed to Job Openings Ratio
2000_q4*	11	17	0.65	5,634	5,088	1.11
2001_q1	11	15	0.75	6,084	5,031	1.21
2001_q2	12	14	0.83	6,327	4,467	1.42
2001_q3	13	14	0.90	6,922	4,181	1.66
2001_q4	14	13	1.08	7,985	3,720	2.15
2002_q1	14	12	1.22	8,234	3,582	2.30
2002_q2	14	11	1.27	8,464	3,447	2.46
2002_q3	13	10	1.34	8,315	3,395	2.45
2002_q4	13	11	1.24	8,489	3,387	2.51
2003_q1	14	11	1.26	8,575	3,256	2.63
2003_q2	15	10	1.46	9,022	3,262	2.77
2003_q3	15	9	1.67	8,943	3,087	2.90
2003_q4	15	11	1.35	8,542	3,348	2.55
2004_q1	15	11	1.35	8,343	3,494	2.39
2004_q2	15	11	1.34	8,223	3,519	2.34
2004_q3	16	11	1.46	8,018	3,725	2.15
2004_q4	16	11	1.43	7,976	3,830	2.08
2005_q1	16	12	1.34	7,834	3,938	1.99
2005_q2	16	12	1.31	7,616	4,006	1.90
2005_q3	15	12	1.21	7,435	4,250	1.75
2005_q4	14	12	1.16	7,433	4,238	1.75
2006_q1	13	13	1.01	7,107	4,485	1.58
2006_q2	13	13	0.98	7,034	4,622	1.52
2006_q3	13	12	1.07	7,038	4,614	1.53
2006_q4	13	12	1.09	6,787	4,619	1.47
2007_q1	13	13	0.99	6,925	4,808	1.44
2007_q2	12	14	0.88	6,865	4,735	1.45
2007_q3	12	13	0.96	7,129	4,599	1.55
2007_q4	12	13	0.96	7,374	4,609	1.60

Source: U.S. Bureau of Labor Statistics, tabulations by authors.

Note: Data for 2000\_q4 refer to December 2000 as the JOLTS program data started from December 2000.

13,000 in the fourth quarter of 2001 to 9,000 in the third quarter of 2003 and the unemployment level remained elevated (at 15,000) during the period. The unemployed to job vacancy ratio rose from 1.08 in the fourth quarter of 2001 to 1.67 in the third quarter of 2003. The unemployed to job vacancy ratio during this period in the U.S. increased from 2.15 in the fourth quarter of 2001 to 2.90 in the third quarter of 2003.

By the first quarter of 2006, the level of job openings in South Dakota had improved along with falling unemployment levels. The level of job openings and unemployment in the state were almost at parity by the first quarter of 2006. The unemployed to job openings ratio in the U.S. also improved, falling from 2.90 in the third quarter of 2003 to 1.58 by the first quarter of 2006. Before the onset of the Great Recession of 2007-2009, the unemployed to job openings ratio in the U.S. reached 1.44 in the first quarter of 2007, the lowest since the first quarter of 2001. In South Dakota, conditions were much different; there were more job openings than unemployed workers during the four quarters of 2007 through the first quarter of 2008, suggesting a yearlong widespread labor shortage in the state at that time.

During the Great Recession of 2007-2009, massive job losses occurred across the U.S. Unemployment levels soared and job opening levels dropped steeply. In the third and the fourth quarter of 2009, the unemployed to job openings ratio in the U.S. rose to over 6, i.e., there were six job seekers for every job opening (Table 2) signaling a massive excess labor supply in the nation. The U/V ratio was substantially smaller in South Dakota. In the third and the fourth quarter of 2009, the unemployed to job openings ratio in the state reached as high as 2.6, a sharp reversal into excess labor supply from the prior labor shortage conditions. As noted in Chapter 5, even during the Great Recession of 2007-2009, the unemployment rate in South Dakota remained low and ranked one of the lowest among the states.

The Great Recession of 2007-2009 ended in the second quarter of 2009, but the U.S. labor market recovery proceeded very slowly. The pace of growth in employment increased slowly and the result was a gradual decline in the unemployment level in both South Dakota and the U.S. By the fourth quarter of 2014, the unemployed to job openings ratio in South Dakota was reached near full-employment level (1.02). In the U.S., the unemployment to job openings ratio was 1.79, lowest since the first quarter of 2008, but still indicating substantial excess unemployment.



**Table 2:**  
**Levels of Unemployment and Job Openings in South Dakota and the U.S. 2008-Q1 to 2014-Q4**  
**(Seasonally Adjusted Numbers in 1000s, Except Ratios, Quarterly Averages of Monthly Data)**

Date	South Dakota			U.S.		
	Number Unemployed	Number of Job Openings	Unemployed to Job Openings Ratio	Number Unemployed	Number of Job Openings	Unemployed to Job Openings Ratio
2008_q1	12	12	0.96	7,668	4,376	1.75
2008_q2	12	11	1.09	8,202	4,020	2.04
2008_q3	14	11	1.34	9,290	3,548	2.62
2008_q4	16	10	1.64	10,633	3,251	3.27
2009_q1	19	8	2.40	12,794	2,712	4.72
2009_q2	21	8	2.48	14,353	2,449	5.86
2009_q3	20	8	2.64	14,808	2,352	6.30
2009_q4	21	8	2.58	15,223	2,492	6.11
2010_q1	22	9	2.31	15,120	2,727	5.54
2010_q2	22	9	2.43	14,883	2,981	4.99
2010_q3	22	9	2.51	14,580	3,000	4.86
2010_q4	22	9	2.54	14,648	3,168	4.62
2011_q1	22	10	2.20	13,857	3,197	4.33
2011_q2	21	11	1.95	13,925	3,298	4.22
2011_q3	20	11	1.81	13,843	3,575	3.87
2011_q4	19	12	1.65	13,330	3,651	3.65
2012_q1	18	12	1.53	12,774	3,835	3.33
2012_q2	18	13	1.44	12,666	3,846	3.29
2012_q3	18	12	1.48	12,414	3,809	3.26
2012_q4	18	13	1.39	12,142	3,874	3.13
2013_q1	17	14	1.26	12,037	4,001	3.01
2013_q2	17	13	1.29	11,722	4,094	2.86
2013_q3	16	13	1.30	11,295	4,033	2.80
2013_q4	16	14	1.13	10,776	4,154	2.59
2014_q1	15	13	1.18	10,310	4,296	2.40
2014_q2	15	14	1.10	9,674	4,765	2.03
2014_q3	15	15	1.01	9,490	5,036	1.88
2014_q4	15	14	1.02	8,932	4,995	1.79

Source: U.S. Bureau of Labor Statistics, tabulations by authors.

The U.S. labor market improved steadily, gaining considerable strength after 2014. The labor market was very tight in 2018 and 2019 as the unemployment rate reached a 50-year low and wages of workers were rising. In South Dakota, there were more job openings than

unemployed residents from the first quarter of 2015 through the first quarter of 2020 just prior to the onset of the Covid pandemic (Table 3).

Table 3:  
Unemployment and Job Opening Levels in South Dakota and the U.S. 2015-Q1 to 2019-Q4  
(Seasonally Adjusted Numbers in 1,000s, Except Ratios, Quarterly Averages of Monthly Data)

Date	South Dakota			U.S.		
	Number Unemployed	Number of Job Openings	Unemployed to Job Openings Ratio	Number Unemployed	Number of Job Openings	Unemployed to Job Openings Ratio
2015_q1	14	17	0.83	8,666	5,340	1.62
2015_q2	14	17	0.85	8,544	5,470	1.56
2015_q3	14	17	0.78	8,022	5,670	1.41
2015_q4	13	18	0.72	7,943	5,775	1.38
2016_q1	13	18	0.72	7,763	5,970	1.30
2016_q2	13	18	0.74	7,821	5,774	1.35
2016_q3	14	17	0.82	7,793	5,836	1.34
2016_q4	15	17	0.84	7,628	5,842	1.31
2017_q1	14	18	0.79	7,320	5,797	1.26
2017_q2	14	19	0.73	7,026	6,082	1.16
2017_q3	14	20	0.72	6,915	6,261	1.10
2017_q4	14	21	0.67	6,670	6,340	1.05
2018_q1	14	24	0.57	6,528	6,673	0.98
2018_q2	13	24	0.56	6,397	7,056	0.91
2018_q3	13	22	0.60	6,111	7,255	0.84
2018_q4	13	24	0.55	6,219	7,435	0.84
2019_q1	14	22	0.62	6,257	7,289	0.86
2019_q2	14	23	0.60	5,958	7,234	0.82
2019_q3	14	22	0.64	5,899	7,129	0.83
2019_q4	14	21	0.64	5,891	6,995	0.84

Source: U.S. Bureau of Labor Statistics, tabulations by authors.

During the first quarter of 2015, there were 14,000 job seekers in South Dakota and 17,000 job openings, yielding an unemployment to job openings ratio of just 0.83. In 2018 and 2019, the unemployment to job openings ratio in the state ranged from 0.56 to 0.64. These data reveal a long period of widespread and sustained labor shortages in South Dakota. In the U.S., the unemployment to job openings ratio declined from 1.62 in the first quarter of 2015 to 0.82 to 0.84 in the fourth quarter of 2019. This U/V ratio was the lowest recorded for the U.S. over the

past two decades and was reflective of a sustained labor shortage in the nation, likely the first time that such a development has occurred since the end of World War II.

# Chapter 11

## The Pandemic Recovery

### Introduction

The U.S. economy was operating in a full employment environment before the onset of Covid-19 global pandemic in spring 2020. By the end of 2017, the ratio of unemployed jobseekers to current job openings had fallen to one unemployed jobseeker per one available job opening. The real GDP in the U.S. was growing at very healthy rate, the unemployment rate was at a 50-year low, real wages were rising, and inflation was below the Fed's target rate of 2 percent. The median real weekly earnings of full-time workers in the fourth quarter of 2019 were \$934, the highest since 1979. The national unemployment rate in the fourth quarter of 2019 was 3.6 percent, a 50-year low. The last time the 3.6 percent unemployment rate prevailed in the U.S. was in the third and fourth quarter of 1969. The employment-to-population ratio in the fourth quarter of 2019 was 61 percent, highest since 2008.

Yet this period of growth and prosperity came to a sudden and dramatic halt with the onset of the Covid-19 pandemic in late February 2020. By April 2020, the government ordered business lockdowns combined with consumer and producer fears and uncertainty about what appeared to be a major threat to the health of the U.S. population, sharply curtailed the level of economic activity in the U.S. Payroll employment in the U.S. declined by 22.36 million or 14.7 percent between February and April (152.523 million jobs). The number of unemployed persons increased from 5.717 million in February 2020 to 23.109 million in April 2020, representing an increase of 17.392 million or 300% in just two months. The unemployment rate in the U.S. reached 14.8 percent in April 2020, the highest since the Great Depression of the 1930s. The impact of Covid-19, however, was not uniform across the states. Some states fared much better than the others during the pandemic.

In the following section of the report, we examine changes in 8 key economic and labor market indicators for South Dakota and the U.S. from the last quarter of 2019 and the first two months of 2020 to the third quarter of 2021.

### *Real GDP*

Among the most visible aspects of the Covid-19 pandemic was a sharp slowdown in the level of economic activity of the nation. In mid-March of 2020, state governments responded to

the pandemic threat to public health with various actions that limited personal interactions of the population. Restrictions on interactions were widespread but varied across states with many states (especially in the Northeast, Midwest and far West) ordering large parts of their economy closed while other states were less restrictive. As states acted in mid-March, the effects were felt immediately on the real GDP of the nation which contracted by 1.3 percent compared to the fourth quarter of 2019.

South Dakota did not impose restrictions on economic activity (although schools were closed) and the state's real GDP was able to increase by 3.7 percent during the first quarter of 2020. South Dakota and 10 other states (Idaho, Utah, Montana, Arizona, Washington, New Hampshire, Maine, Arkansas, Nebraska, and Mississippi) experienced growth in real GDP between the fourth quarter of 2019 and the first quarter of 2020 (Appendix Table A-1). South Dakota's 3.7 percent GDP growth rate between the fourth quarter of 2019 and the first quarter of 2020 ranked the highest among these 11 states with positive real GDP growth over the period. In contrast, five states with the highest decline in real GDP between the fourth quarter of 2019 and the first quarter of 2020 were Hawaii (-7.5%), New York (-4.3%), Connecticut (-3.5%), Oklahoma (-3.2%), and Delaware (-3.2%).

The full economic effects of government-mandated business restrictions along with consumer and producer caution associated with uncertainty about the risks of Covid-19-related illness, hospitalization, disability, and death resulted in an enormous decline in the nation's GDP of 8.9 percent between the first and second quarters of 2020; the largest quarter-over-quarter decline since World War II. In South Dakota, the adverse economic impact of Covid-19 was felt quite strongly in the second quarter of 2020 as the real GDP declined steeply by 9.7 percent from the first quarter of 2020. South Dakota's real GDP decline of 9.7 percent in the second quarter of 2020 was larger than that of the U.S. and ranked 13<sup>th</sup> highest among the states (Appendix Table A-2).

Among the states, the decline in real GDP between the first and the second quarter of 2020 ranked from lows of 5.7 percent in D.C. and 6.3 percent in North Dakota to highs of 12.9 percent in Tennessee and 14.2 percent in Nevada. Overall, real GDP decline in South Dakota from the fourth quarter of 2019 to the second quarter of 2020 was 6.4 percent, which was substantially smaller than that for the U.S. (-10.1 percent) over the same period. The smaller decline in South Dakota's GDP from the fourth quarter of 2019 to second quarter of 2020 was

due to the increase in real GDP in the first quarter of 2020 when the real GDP declined in the U.S. and a majority of the states. The 6.4 percent decline in real GDP in South Dakota from the fourth quarter of 2019 to the second quarter of 2020 was the second lowest decline among states, only preceded by Utah (-5.8 percent).

**Table 1:**  
**Trends in Real GDP in South Dakota and the U.S., 2019-Q4 to 2021-Q2**  
**(GDP Numbers in Millions of Constant 2012 Dollars)**

<b>Time Period</b>	<b>South Dakota</b>	<b>U.S.</b>
2019:Q4	46,688	19,202,310
2020:Q1	48,417	18,951,992
2020:Q2	43,721	17,258,205
2020:Q3	46,959	18,560,774
2020:Q4	47,634	18,767,778
2021:Q1	48,368	19,055,655
2021:Q2	48,862	19,368,310
<b>Absolute Change</b>		
2019:Q4-2020:Q1	1,730	-250,318
2020:Q1-2020:Q2	-4,696	-1,693,787
<b>2019:Q4-2020:Q2</b>	<b>-2,967</b>	<b>-1,944,105</b>
2020:Q2-2020:Q3	3,239	1,302,569
2020:Q3-2020:Q4	675	207,004
2020:Q4-2021:Q1	734	287,877
2021:Q1-2021:Q2	495	312,655
<b>2019:Q4-2021:Q2</b>	<b>2,175</b>	<b>166,000</b>
<b>% Change</b>		
2019:Q4-2020:Q1	3.7	-1.3
2020:Q1-2020:Q2	-9.7	-8.9
<b>2019:Q4-2020:Q2</b>	<b>-6.4</b>	<b>-10.1</b>
2020:Q2-2020:Q3	7.4	7.5
2020:Q3-2020:Q4	1.4	1.1
2020:Q4-2021:Q1	1.5	1.5
2021:Q1-2021:Q2	1.0	1.6
<b>2019:Q4-2021:Q2</b>	<b>4.7</b>	<b>0.9</b>

Source: U.S. Bureau of Economic Analysis (BEA), U.S. Commerce Department, tabulations by authors.

In the third quarter of 2020, when the Covid-19 lockdown measures were eased across many states, the real GDP in the U.S. increased by 7.5 percent. In fact, each of the 50 states and D.C. experienced sharp increases in real GDP between the second quarter of 2020 and the third quarter of 2020, ranging from highs of 9-10 percent in Vermont, Mississippi, Indiana, Nevada,

and Tennessee, to lows of 4-6 percent in D.C., North Dakota, Delaware, Alaska, Maryland, and New York. In South Dakota, the real GDP during this period increased by 7.4 percent (Appendix Table A-3); ranked only 32<sup>nd</sup> highest among the states.

From the third quarter of 2020 to the second quarter of 2021, the quarterly real GDP growth rate in both South Dakota and the U.S. remained between 1 to 1.6 percent. Even though the quarterly real GDP grew from the second quarter of 2020 to the first quarter of 2021, the nation’s real GDP in the second quarter of 2021 was still below the peak level in the fourth quarter of 2019. In contrast, South Dakota’s real GDP was 3.7 percent higher in the first quarter of 2020 compared to the fourth quarter of 2019 (Table 1).

In the second quarter of 2021 (the most recent quarter for which real GDP data by state are available as of this writing), the real GDP level was lower compared to the fourth quarter of 2019 in 21 states and higher in 30 states (See Appendix Table A-4). South Dakota’s real GDP growth rate over this period was 4.7 percent and ranked second highest among the 50 states and D.C., preceded only by Washington state (Appendix Table A-4).

Another other way to look at the real GDP performance of states over the past seven quarters (2019-Q4 to 2021-Q2) is to examine the pattern of real GDP growth/decline over the six

Table 2:  
Numbers of Quarters from 2019-Q4 to 2021-Q2 with Real GDP Decline  
in Comparison to 2019-Q4, by State

Numbers of Quarters (2019-Q4 to 2021-Q2) of Real GDP Decline Compared to 2019-Q4	Number of States	% of States	Name of States
1	3	6%	Idaho, <b>South Dakota</b> , and Utah
2	4	8%	Arizona, Maine, Nebraska, and Washington
3	4	8%	Arkansas, Montana, Oregon, and South Carolina
4	10	20%	California, Indiana, Iowa, Kansas, Kentucky, Mississippi, New Hampshire, North Carolina, North Dakota, and Tennessee
5	9	18%	Colorado, Florida, Georgia, Maryland, Massachusetts, Minnesota, Missouri, Texas, and Virginia
6	21	41%	Alabama, Alaska, Connecticut, Delaware DC, Hawaii, Illinois, Louisiana, Michigan, Nevada, New Jersey, New Mexico, New York, Ohio, Oklahoma, Pennsylvania, Rhode Island, Vermont, West Virginia, Wisconsin, Wyoming
Total	51	100%	

Source: U.S. Bureau of Economic Analysis (BEA), U.S. Commerce Department, tabulations by authors.

consecutive quarters in comparison to the real GDP level prior to the Covid-19 pandemic, i.e., the fourth quarter of 2019. Table 2 displays distribution of states by numbers of quarters of real GDP decline over the fourth quarter of 2019 and the second quarter of 2021. There were three states (Idaho, South Dakota, and Utah) that experienced only one quarter of real GDP decline over the 2019-Q4 to 2021-Q2 period. In contrast, there were 21 states that experienced all six quarters of real GDP decline over this period. Thus South Dakota, Idaho and Utah were able to mitigate the economic effects of the pandemic.

### *Payroll Employment*

During the first wave of Covid-19 pandemic, the U.S. lost 22 million jobs in the months of March and April of 2020, the largest job loss ever posted by the Current Employment Statistics (CES) program. The payroll employment declined from 152.379 million in January/February 2020 to 130.161 million in April 2020, an absolute decline of 22.218 million or 14.6 percent. In South Dakota, payroll employment in April 2020 declined by 42,000 or 10 percent from the peak in January/February 2020. The 10 percent job loss in the state during this period ranked 7<sup>th</sup> lowest in the rate of job losses among the 50 states and D.C. (Appendix Table

Table 3:  
Trends in Monthly Payroll Employment in South Dakota and the U.S.,  
January 2020 to September 2021

<b>Month</b>	<b>Numbers of Payroll Job (In 1,000s)</b>		<b>Monthly Change in Payroll Jobs</b>	
	<b>South Dakota</b>	<b>U.S.</b>	<b>South Dakota</b>	<b>U.S.</b>
Jan/Feb 2020	443	152,379		
Mar-20	441	150,840	-2	-1,539
Apr-20	398	130,161	-42	-20,679
May-20	404	132,994	6	2,833
Jun-20	413	137,840	9	4,846
Jul-20	419	139,566	6	1,726
Aug-20	425	141,149	6	1,583
Sep-20	429	141,865	4	716
Oct-20	430	142,545	1	680
Nov-20	430	142,809	-1	264
Dec-20	432	142,503	2	-306
Jan-21	432	142,736	0	233
Feb-21	433	143,272	1	536
Mar-21	435	144,057	2	785
Apr-21	436	144,326	1	269



Month	Numbers of Payroll Job (In 1,000s)		Monthly Change in Payroll Jobs	
	South Dakota	U.S.	South Dakota	U.S.
May-21	435	144,940	-1	614
Jun-21	436	145,902	1	962
Jul-21	438	146,993	2	1,091
Aug-21	437	147,359	-1	366
Sep-21	438	147,553	1	194
Absolute Change, Jan/Feb 2020 to April 2020	-44	-22,218		
% Change, Jan/Feb 2020 to Apr. 2020	-10.0%	-14.6%		
Absolute Change, Jan/Feb 2020 to Sept. 2021	-5	-4,826		
% Change, Jan/Feb 2020 to Sept. 2021	-1.1	-3.2		

Source: Current Employment Statistics (CES), U.S. Bureau of Labor Statistics, tabulations by authors.

A-5). Alabama was the only state that experienced employment growth over this period as Covid-19 measures in the state were less restrictive in comparison to other states. The other top five states that experienced the least employment job loss during the period between January/February 2020 and April 2020 were Utah (-8.9 percent), Wyoming (-9.1 percent), Nebraska (-9.3 percent), Oklahoma (-9.9 percent), and Arkansas (-9.9 percent). There were six states that experienced massive job losses of 20 to 24 percent during these months. These states were New York (-20.1 percent), Vermont (-20.2 percent), Rhode Island (-21.2 percent), Nevada (-22.9 percent), Hawaii (-23.0 percent), and Michigan (-23.7 percent) (Appendix Table A-5).

Job losses during the first wave of the Covid-19 pandemic (March/April 2020) were highly concentrated in the service-producing sectors across the U.S. and in South Dakota. Employment levels in the state's service-producing sector declined by 42,000 or 11 percent between January/February of 2020 to April 2020. The pace of job losses in the service producing sector was substantially greater in the U.S. with services employment falling by 15 percent during those early months.

The South Dakota goods-producing sector was largely insulated from the pandemic job losses compared to the nation's goods-producing sector. Employment in South Dakota's good-producing sector fell by only 3 percent by April 2020, while goods producers in the nation saw

their employment levels fall by 12 percent in just two months as many states locked down construction and manufacturing producers.

Of the 44,000 jobs lost in South Dakota between January/February 2020 and April 2020, 42,000 or 96 percent were from service sector industries and the remaining 4 percent were from goods-producing industries. In the U.S., of the 22.217 million jobs lost between January/February 2020 and April 2020, 19.672 million or 88.5 percent were from service sector and the remaining 11.5 percent were from the goods-producing sector (Table 4).

Table 4:  
Trends in Monthly Payroll Employment in South Dakota and the U.S.  
January 2020 to April 2021

Industry	South Dakota				U.S.	
	Jan/Feb 2020	Apr-2020	Absolute Change	% Change	Absolute Change	% Change
All	443	398	-44	-10%	-22,217	-15%
<b>Good Producing</b>	<b>69</b>	<b>68</b>	<b>-2</b>	<b>-3%</b>	<b>-2,546</b>	<b>-12%</b>
Mining and Logging	1	1	0	-5%	-68	-10%
Construction	24	24	0	1%	-1,097	-14%
Manufacturing	45	43	-2	-4%	-1,382	-11%
Durable	28	27	-1	-4%	-943	-12%
Non-Durable	16	16	-1	-4%	-439	-9%
<b>Service Producing</b>	<b>373</b>	<b>331</b>	<b>-42</b>	<b>-11%</b>	<b>-19,672</b>	<b>-15%</b>
Wholesale Trade	21	21	-1	-3%	-412	-7%
Retail Trade	51	45	-6	-12%	-2,372	-15%
Transportation/Warehousing/Utilities	14	13	-1	-6%	-566	-9%
Information	6	5	-1	-9%	-279	-10%
Financial Activities	29	28	-1	-2%	-266	-3%
Professional and Business Services	34	32	-2	-5%	-2,371	-11%
Educational Services	7	6	-1	-14%	-529	-14%
Health Care and Social Assistance	67	65	-3	-4%	-2,288	-11%
Leisure and Hospitality	48	28	-20	-42%	-8,196	-49%
Other Services	17	15	-2	-10%	-1,407	-24%
Government	80	74	-6	-8%	-986	-4%

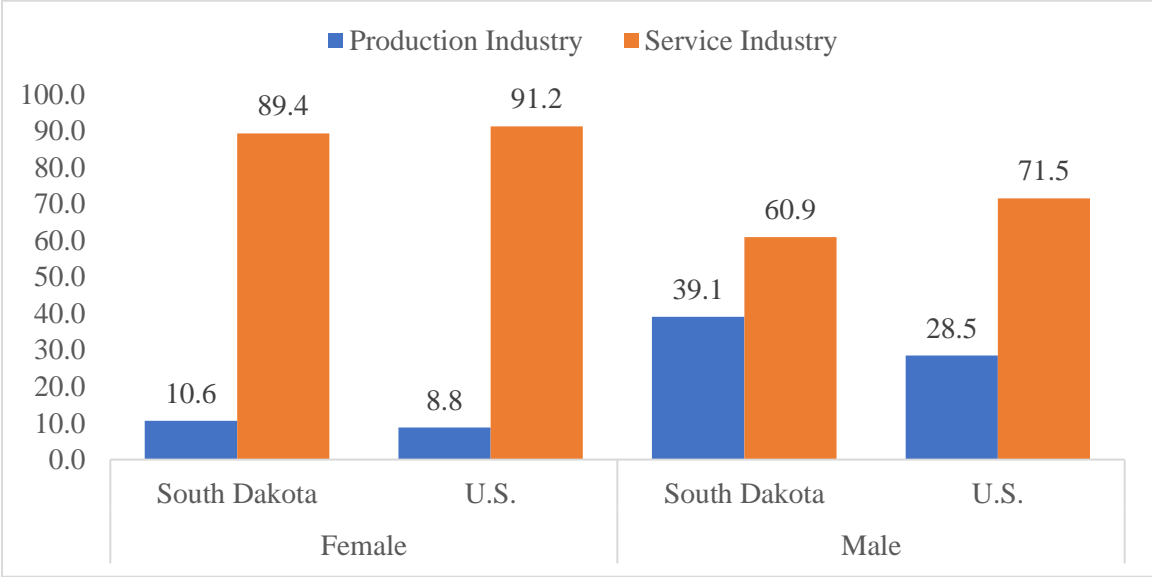
Source: Current Employment Statistics (CES), U.S. Bureau of Labor Statistics, tabulations by authors.

The findings in Table 4 (above) reveal that job losses over the January/February 2020 and April 2020 period in both South Dakota and the U.S. were not uniform across the key industrial components of the service-producing industries. In South Dakota, 46 percent of the job decline over this period was concentrated in the leisure and hospitality industry as consumers altered their behavior around dining, entertainment, and travel. Employment decline in retail trade and

government sectors combined in South Dakota accounted for another 28 percent of the overall employment loss in the state over the January/February 2020 and April 2020 period (13.8 percent in retail trade and 13.6 percent in government sector). In the U.S., the contribution of these two sectors to the overall job loss was much smaller (15 percent). In South Dakota, leisure and hospitality, retail trade, and government sectors combined accounted for 72 percent of the overall employment drop over the January/February 2020 and April 2020 period. The findings further reveal that the early pace of job loss in both the leisure and hospitality and retail trade industries was lower in South Dakota than in the U.S.

The combination of relatively modest job losses in South Dakota’s goods-producing industries compared to the U.S. as well as more modest declines in employment across the state’s service sector, especially leisure and hospitality and retail trade resulted in much smaller declines in employment in South Dakota compared to the nation, as states reacted in varying ways to the uncertainty of the effects of Covid-19 in the early days of the pandemic.

**Chart 1:**  
Share of Employed Male and Female (16+) in Production and Service Industry in South Dakota and the U.S., 2018-2019 (2-Year Averages)



Source: Monthly CPS public use files, 2018 and 2019, U.S. Census Bureau, tabulations by authors.

Pandemic job loss in South Dakota was likely to be more concentrated among women than men as women were more likely to be employed than men in service sector industries. Our analysis of Current Population Survey (CPS) data for 2018/2019 show that 9 out of 10 employed women in South Dakota held jobs in the service sector and only 1 out of 10 in the production

sector. Among employed men in South Dakota, only 61 percent worked in the service sector and the remaining 39 percent worked in the production sector. In the U.S., 71 percent of employed men worked in the service sector and remaining 29 percent worked in the production sector (Chart 1).

Job losses in both South Dakota and the U.S. stopped after April 2020 when some states eased lockdown measures and consumption spending re-emerged as massive federal stimulus payments were sent around the nation. The economy began re-opening in May through September of 2020, and South Dakota's job market rebounded quite crisply during that time creating 31,000 payroll jobs in just 4 months (Table 3). During the same months, the U.S. created 11.704 million payroll jobs. Job creation after September 2020 in South Dakota slowed considerably, as the nation entered into a new period of stagnation as Covid-19 cases began to rise, schools closed, and lockdowns were re-imposed in some states. However, during the early winter of 2021 Covid-19 vaccines became available for members of the most at-risk populations in most states. The vaccination program rollout helped reduce pressure for lockdowns and reduced consumer and business uncertainty about the risks of Covid-19 infection. Between September 2020 and September 2021, South Dakota added only 9,000 net jobs or 2 percent from the base of September 2020. The 2 percent job creation rate of South Dakota ranked 10<sup>th</sup> lowest among the 50 states and D.C. During the same period, the U.S. created 5.688 million net new jobs representing a 4 percent increase (Table 3). Thus, South Dakota lagged among other states in job creation between September 2020 and September 2021.

Payroll job levels in September 2021 were still below their levels in January/February 2020 in most (48) states. Only Utah and Idaho had higher payroll employment levels in September 2021 compared to the pre-pandemic peak employment months of January/February 2020. In South Dakota, payroll employment levels were near their pre pandemic peak by September 2021. Total employment in the state was just 5,000 jobs or 1.1 percent lower than in January/February 2020. South Dakota had the fifth highest job recovery rate. Arizona and Texas were the only two states with a lower rate of job loss than South Dakota between January/February 2020 and September 2021. In Louisiana, New York, and Hawaii, the rate of job loss over this period was 9-13 percent (Table 5). Appendix Table A-6 displays findings for all states on payroll employment growth/decline during the period between January/February 2020 and September 2021.

Table 5:  
Payroll Employment Growth/Decline in Top 10 and Bottom 10 States Between January/February 2020 and September 2021 (Employment Numbers in 1000s, Except Percent)

Rank	State	Jan/Feb 2020	Sept-2021	Absolute Change	% Change
<b>Top 10</b>					
1	Utah	1,572	1,619	47	3.0
2	Idaho	773	785	12	1.6
3	Arizona	2,991	2,972	-19	-0.6
4	Texas	12,963	12,857	-106	-0.8
<b>5</b>	<b>South Dakota</b>	<b>443</b>	<b>438</b>	<b>-5</b>	<b>-1.1</b>
6	Montana	489	482	-7	-1.4
<b>7</b>	Nebraska	1,033	1,018	-15	-1.5
8	Arkansas	1,293	1,270	-23	-1.8
9	Georgia	4,665	4,578	-87	-1.9
10	Tennessee	3,152	3,094	-59	-1.9
<b>Bottom 10</b>					
42	Pennsylvania	6,093	5,734	-359	-5.9
43	New Mexico	863	812	-51	-5.9
44	Vermont	315	296	-19	-6.0
45	Michigan	4,451	4,181	-270	-6.1
46	Nevada	1,442	1,349	-93	-6.4
47	Dist. of Columbia	804	752	-52	-6.5
48	Alaska	330	306	-24	-7.3
49	Louisiana	1,993	1,818	-175	-8.8
50	New York	9,833	8,959	-874	-8.9
51	Hawaii	662	576	-86	-13.0
	U.S.	152,379	147,553	-4,826	-3.2

Source: Current Employment Statistics (CES), U.S. Bureau of Labor Statistics, tabulations by authors.

By September 2021, payroll employment in South Dakota’s goods-producing sector had recovered to the peak level in January/February 2020. In September 2021, the goods-producing sector in South Dakota had 2,000 more jobs than in January/February 2020. Most of the gains in this sector was attributable to increase in payroll jobs in the construction sector of the state. In the U.S., payroll employment in the goods-producing sector in September 2021 was still 2.7 percent lower than in January/February 2020 (Table 6).

With the exception of the retail trade sector and “other services” industries in South Dakota, payroll employment was lower in all other service industries in September 2021 compared to January/February 2020. Industries in South Dakota with the largest job deficit in

this period were information (-14.5 percent), education services (-9.1 percent), and leisure and hospitality (-6.3 percent).

Table 6:  
Trends in Monthly Payroll Employment in South Dakota and the U.S.  
January/February 2020 to September 2021

Industry	South Dakota				U.S.	
	Jan/Feb 2020	Sept- 2021	Absolute Change	% Change	Absolute Change	% Change
All	443	438	-5	-1.1	-4,826	-3.2
<b>Good-Producing</b>	<b>114</b>	<b>116</b>	<b>2</b>	<b>1.4</b>	<b>-926</b>	<b>-2.7</b>
Mining and Logging	1	1	0	-4.8	-43	-6.2
Construction	24	26	2	7.9	-185	-2.4
Manufacturing	45	44	0	-0.2	-350	-2.7
Durable	28	27	-1	-3.6	-265	-3.3
Non-Durable	16	17	1	5.5	-85	-1.8
<b>Service-Producing</b>	<b>373</b>	<b>367</b>	<b>-6</b>	<b>-1.7</b>	<b>-4,249</b>	<b>-3.2</b>
Wholesale Trade	21	21	0	-0.5	-162	-2.8
Retail Trade	51	52	1	1.0	-200	-1.3
Transportation/Warehousing/Utilities	14	13	-1	-3.7	74	1.2
Information	6	5	-1	-14.5	-106	-3.6
Financial Activities	29	28	-1	-3.1	-12	-0.1
Professional and Business Services	34	34	0	0.9	-369	-1.7
Educational Services	7	7	-1	-9.1	-176	-4.7
Health Care and Social Assistance	67	66	-1	-1.9	-698	-3.4
Leisure and Hospitality	48	45	-3	-6.3	-1,566	-9.3
Other Services	17	18	1	5.3	-207	-3.5
Government	80	79	-1	-1.1	-828	-3.6

Source: Current Employment Statistics (CES), U.S. Bureau of Labor Statistics, tabulations by authors.

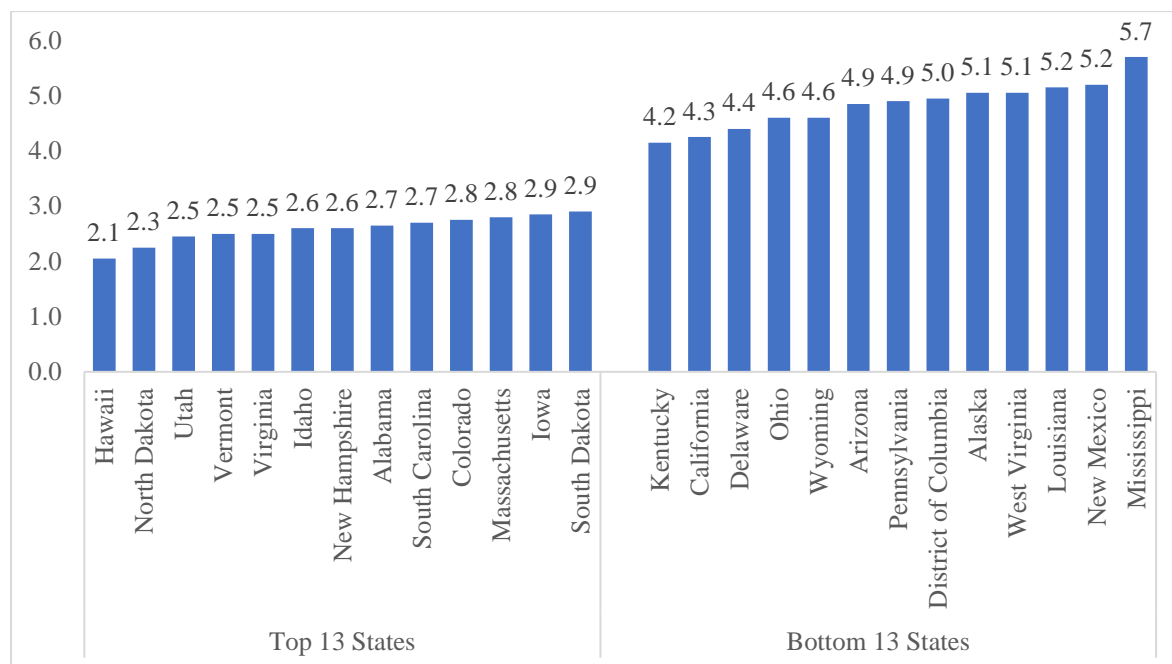
For the U.S., service sector employment level in September 2021 was 4.249 million below their peak in January/February 2020. With the exception of transportation, warehousing, and utilities industry, every major service sector industry had lower employment levels in September 2021 in comparison to payroll job levels in January/February 2020 (Table 6). The four industrial sectors with the largest job deficit over this period were leisure and hospitality<sup>94</sup> (-9.3 percent), educational services (-4.7 percent), information (-3.6 percent), and government sector (-3.6 percent).

<sup>94</sup> Leisure and hospitality industry consists of the arts, entertainment and recreation, and accommodation and food services sectors.

## Unemployment

In January/February 2020, the unemployment rate in the U.S. was only 3.6 percent, which was a 50-year low. In South Dakota, the unemployment rate in January/February 2020 stood at 2.9 percent. South Dakota's unemployment rate of 2.9 percent in January/February 2020 ranked 13<sup>th</sup> lowest among the 50 states and D.C., tied with Iowa. In January/February 2020, the unemployment rate ranged from lows of 2.1-2.5 percent in Hawaii, North Dakota, Utah, Vermont, and Virginia to highs of 5-5.7 percent in D.C., Alaska, West Virginia, Louisiana, New Mexico, and Mississippi (Chart 2).

**Chart 2:**  
**Unemployment Rate in Top the 13 and Bottom 13 States in January/February 2020**  
**(In Percent)**



Source: Local Area Unemployment Statistics (LAUS), U.S. Bureau of Labor Statistics, tabulations by authors.

In April 2020 when the lockdown measures were adopted in many states with the hope of reducing the spread of the Covid-19 infection, the unemployment levels and rate in the U.S. rose at an unprecedented level not seen since the start of the unemployment data series in 1948. The numbers of unemployed in April 2020 in the U.S. swelled to 23.109 million, an increase of 17.353 million or 301% from January/February level (5.757 million). In South Dakota, the numbers of unemployed workers increased from 13,000 in January/February 2020 to 43,000 in

April 2020, an increase of 30,000 or 221%. The 221% increase in the unemployment level; however, ranked 17<sup>th</sup> lowest rise among the states (Table 7).

The increase in unemployment level varied widely by state. Table 7 displays top 5 and bottom 5 states ranked by the increase in level of unemployment between January/February 2020 and April 2020. The top 5 states with the lowest increase in unemployment level were Wyoming (+16 percent), New Mexico (+81 percent), D.C. (+117 percent), Connecticut (+121 percent), and Alaska (+129 percent). The bottom 5 states with the highest increase in unemployment level between January/February 2020 to April 2020 were New Hampshire (+487 percent), Michigan (+489 percent), Vermont (+511 percent), Nevada (+647 percent), and Hawaii (+913 percent) (Table 7). Appendix Table A-7 display changes in levels of unemployment by state between January/February 2020 and April 2021.

Table 7:  
Increase in the Numbers of Unemployed Persons Between January/February 2020 and April 2020 in Top 5 and Bottom 5 States (Seasonally Adjusted Numbers in 1000s, Except Percent, States Ranked by Lowest to Highest Increase in Unemployment Level)

Rank	State	Jan/Feb 2020	Apr 2020	Abs. Change	% Change
	<b>Top 5 States</b>				
1	Wyoming	14	16	2	16
2	New Mexico	50	91	41	81
3	District of Columbia	21	45	24	117
4	Connecticut	71	157	86	121
5	Alaska	18	41	23	129
<b>17</b>	<b>South Dakota</b>	<b>13</b>	<b>43</b>	<b>30</b>	<b>221</b>
	<b>Bottom 5 States</b>				
47	New Hampshire	20	118	98	487
48	Michigan	184	1084	900	489
49	Vermont	9	52	44	511
50	Nevada	59	442	383	647
51	Hawaii	14	140	126	913
	U.S.	5,757	23,109	17,353	301

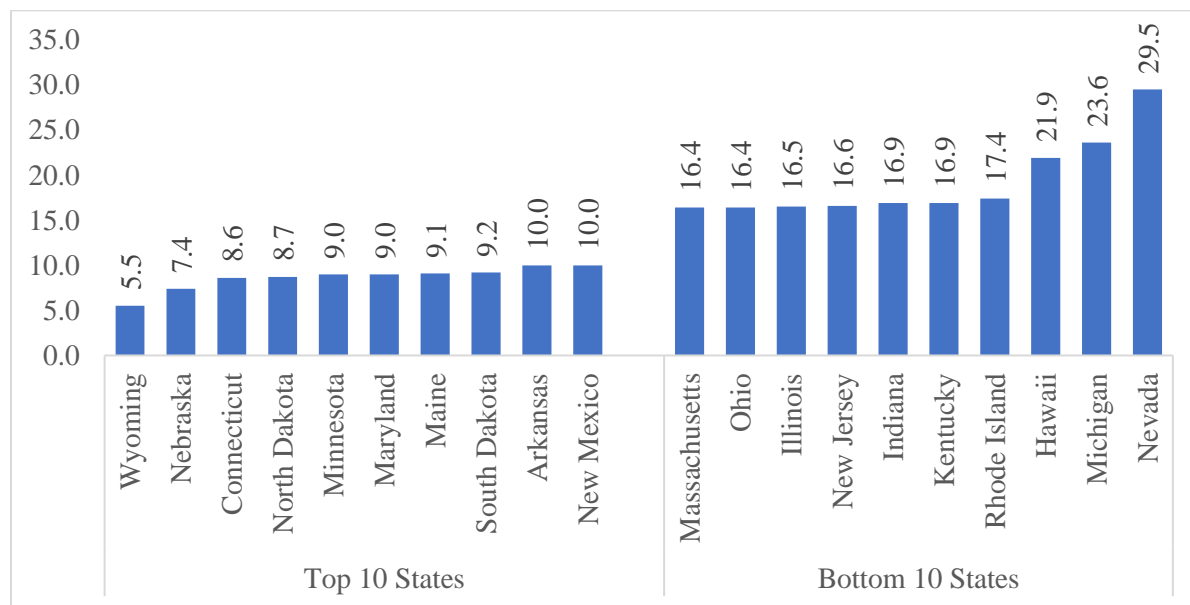
Source: Local Area Unemployment Statistics (LAUS), U.S. Bureau of Labor Statistics, tabulations by authors. The U.S. unemployment level are seasonally adjusted numbers published by the U.S. Bureau of Labor Statistics.

Workers across the U.S. faced the worst unemployment problems in April 2020. The magnitude of the unemployment problem in the U.S. in April 2020 was not seen since the Great Depression of the 1930s. In South Dakota, the unemployment rate of workers increased from 2.9



percent in January/February 2020 to 9.2 percent in April—a threefold increase. Still, South Dakota’s unemployment rate of 9.2 percent was lower than the majority of other states and ranked 8<sup>th</sup> lowest among the 50 states and D.C. The unemployment rate in April 2020 varied widely by state, ranging from a low of 5.5 percent in Wyoming to a high of 29 percent in Nevada (Chart 3). Chart 3 displays the unemployment rate in April 2020 in the top 10 and the bottom 10 states. In the bottom (lowest unemployment rate) 10 states, the unemployment rate ranged from lows of 5.5 percent in Wyoming and 7.4 percent in Nebraska to highs of 10 percent in Arkansas and Mexico. In the top (highest unemployment rate) 10 states, the unemployment rate ranged from lows of 16-17 percent in Massachusetts, Ohio, Illinois, New Jersey, Indiana, Kentucky, and Rhode Island to highs of 22-29 percent in Hawaii, Michigan, and Nevada.

**Chart 3:**  
**Unemployment Rate in Top 10 and Bottom 10 States in April 2020 (In Percent)**



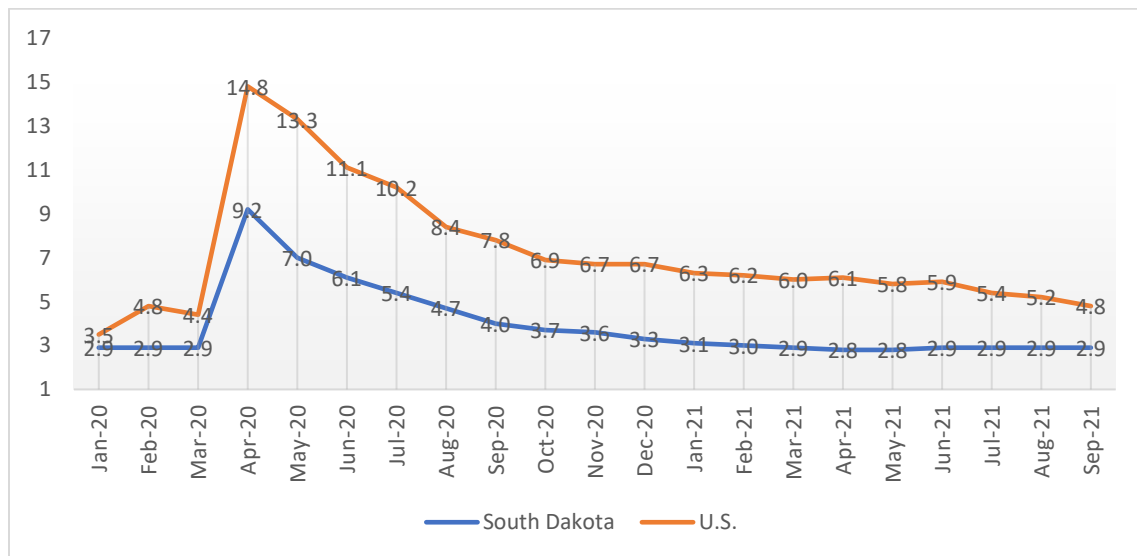
Source: Local Area Unemployment Statistics (LAUS), U.S. Bureau of Labor Statistics, tabulations by authors.

The unemployment rate across the U.S. started to decline from the peak in April 2020 as re-opening began in a number of states at that time. In South Dakota, the unemployment rate declined very quickly from 9.2 percent in April 2020 to 7 percent in May 2020 to 4.7 percent at the end of summer in August 2020 and to 3.3 percent in December 2020 (Chart 4). In the U.S. too, the unemployment rate declined from 14.8 percent in April 2020 to 13.3 percent in May 2020 to 8.4 percent in August and to 6.7 percent in December 2020. South Dakota’s unemployment rate in April and May of 2020 was 5-6 percentage points lower than that of the

U.S. The unemployment rate gap between South Dakota and the U.S. remained at 3-percentage points between October to December 2020 in favor of South Dakota.

By January 2021, the unemployment rate in South Dakota had reached 3.1 percent and remained at 2.8-2.9 percent range thereafter until September 2021 (the most recent month for which LAUS data are available as of this writing). In the U.S., the unemployment rate in January 2021 was 6.3 percent (twice the South Dakota’s rate) and had fallen to 4.8 percent by September 2021. The gap in the unemployment rate between South Dakota and the U.S. in September 2021 was under 2 percent in favor of South Dakota.

Chart 4:  
Monthly Unemployment Rate South Dakota and the U.S., January 2020 to September 2021  
(Seasonally Adjusted, In Percent)



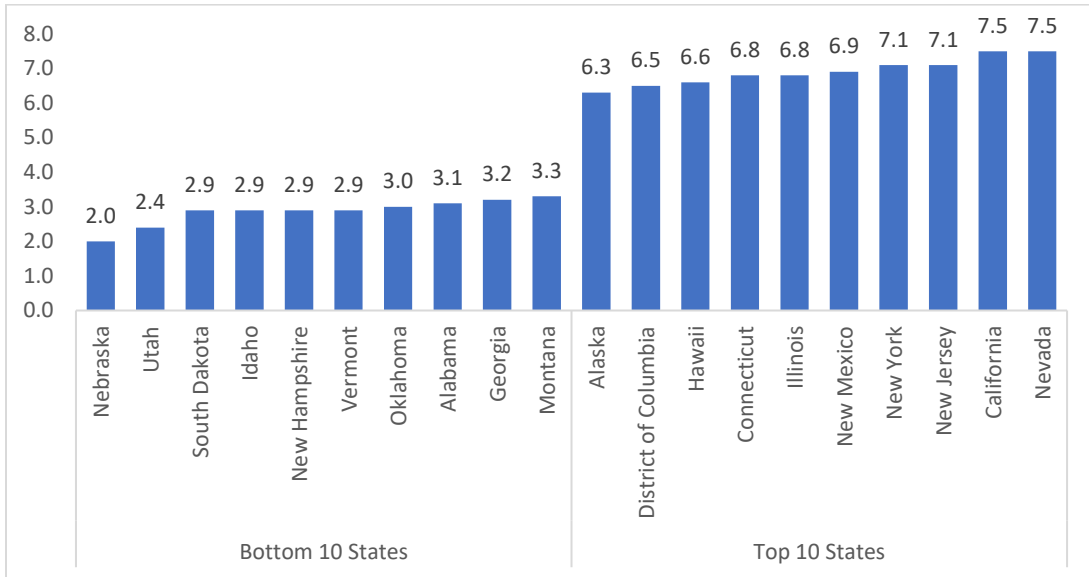
Source: Local Area Unemployment Statistics (LAUS), U.S. Bureau of Labor Statistics, tabulations by authors. The U.S. unemployment level are seasonally adjusted numbers published by the U.S. Bureau of Labor Statistics.

South Dakota’s unemployment rate of 2.8-2.9 percent from March to September 2021 was the same as its pre-Covid-19 unemployment in January/February 2020; however, the U.S. unemployment rate of 4.8 percent was 1.3 percentage points higher than it was prior to the pandemic in January 2020.

In September 2021, the unemployment rate varied widely by state, ranging from a low of just 2 percent in Nebraska to a high of 7.5 percent in California and Nevada. South Dakota’s unemployment rate of 2.9 percent ranked third lowest, trailing behind Nebraska (2.0 percent) and Utah (2.4 percent) (Chart 5). The September 2021 unemployment rate in the bottom 10 states

ranged from 2-3.3 percent while in the top 10 states, the unemployment rate ranged from 6.3-7.5 percent.

**Chart 5:**  
**Unemployment Rate in Top 10 and Bottom 10 States in September 2021**  
**(Seasonally Adjusted, In Percent)**



**Source:** Local Area Unemployment Statistics (LAUS), U.S. Bureau of Labor Statistics, tabulations by authors.

The September 2021 unemployment rate had dropped down at or below the pre-pandemic level (January/February 2020) in just eight states. These states were Nebraska (2.0 percent), West Virginia (4.6 percent), Montana (3.3 percent), Georgia (3.2 percent), Oklahoma (3.0 percent), Wyoming (4.5 percent), Utah (2.4 percent), and South Dakota (2.9 percent). The remaining 42 states and D.C. had a higher unemployment rate in September 2021 than in January/February 2020. There were seven states (Connecticut, California, New York, Illinois, New Jersey, Nevada, and Hawaii) with the unemployment rate in September 2021 that was 3 percentage points or higher than in January/February 2020 (Table 8). In the remaining states, the unemployment rate in September 2021 was 0.1 to 2.9 percentage points higher than in the pre-pandemic months of January/February 2020 (Table 8).

A comparison of the September 2021 and pre-pandemic unemployment rates found that the unemployment rate in September 2021 compared to January/February 2020 was nearly identical or slightly lower (0.0 to -1.0 percentage points) in 8 states, 0.1 to 0.9 percentage points

higher in 20 states, 1.2 to 1.8 percentage points higher in 12 states, 2.0 to 2.9 percentage points higher in four states, and 3 to 4.6 percentage points in the remaining seven states (Table 8).

Table 8:  
Changes in Unemployment Rate by State, January/February 2020, and September 2021  
(Unemployment Rates are Seasonally Adjusted)

<b>Rank</b>	<b>State</b>	<b>Jan/Feb 2020</b>	<b>Sep 2021</b>	<b>Percentage Points Change</b>
1	Nebraska	3.0	2.0	-1.0
2	West Virginia	5.1	4.6	-0.5
3	Montana	3.7	3.3	-0.4
4	Georgia	3.4	3.2	-0.2
5	Oklahoma	3.1	3.0	-0.1
6	Wyoming	4.6	4.5	-0.1
7	Utah	2.5	2.4	-0.1
8	South Dakota	2.9	2.9	0.0
9	Mississippi	5.7	5.8	0.1
10	Kentucky	4.2	4.3	0.1
11	Missouri	3.6	3.8	0.2
12	Arkansas	3.8	4.0	0.3
13	Idaho	2.6	2.9	0.3
14	New Hampshire	2.6	2.9	0.3
15	Vermont	2.5	2.9	0.4
16	Alabama	2.7	3.1	0.5
17	Minnesota	3.3	3.7	0.5
18	Wisconsin	3.3	3.9	0.6
19	Tennessee	3.8	4.4	0.6
20	Louisiana	5.2	5.8	0.6
21	North Carolina	3.6	4.2	0.7
22	Kansas	3.2	3.9	0.8
23	Indiana	3.2	4.0	0.8
24	Ohio	4.6	5.4	0.8
25	Arizona	4.9	5.7	0.9
26	Washington	4.1	4.9	0.9
27	Delaware	4.4	5.3	0.9
28	Michigan	3.7	4.6	0.9
29	Iowa	2.9	4.0	1.2
30	Alaska	5.1	6.3	1.3
31	Oregon	3.5	4.7	1.3
32	North Dakota	2.3	3.5	1.3
33	Pennsylvania	4.9	6.2	1.3
34	Virginia	2.5	3.8	1.3
35	Rhode Island	3.9	5.2	1.3

<b>Rank</b>	<b>State</b>	<b>Jan/Feb 2020</b>	<b>Sep 2021</b>	<b>Percentage Points Change</b>
36	South Carolina	2.7	4.1	1.4
37	District of Columbia	5.0	6.5	1.6
38	Florida	3.3	4.9	1.6
39	New Mexico	5.2	6.9	1.7
40	Maine	3.1	4.8	1.8
41	Texas	3.7	5.6	2.0
42	Massachusetts	2.8	5.2	2.4
43	Maryland	3.5	5.9	2.5
44	Colorado	2.8	5.6	2.9
45	Connecticut	3.7	6.8	3.1
46	California	4.3	7.5	3.3
47	New York	3.9	7.1	3.3
48	Illinois	3.6	6.8	3.3
49	New Jersey	3.7	7.1	3.4
50	Nevada	3.7	7.5	3.8
51	Hawaii	2.1	6.6	4.6
	U.S.	3.5	4.8	1.3

Source: Local Area Unemployment Statistics (LAUS), U.S. Bureau of Labor Statistics, tabulations by authors. The U.S. unemployment level are seasonally adjusted numbers published by the U.S. Bureau of Labor Statistics.

### *Unemployment and Job Vacancy Relationship*

The relationship between the number of unemployed jobseekers and the number of job openings for which firms are actively seeking workers sheds critical insights into the nature of labor market conditions in the nation and in states. South Dakota's labor market had been operating at what could best be described as an overfull employment level of unemployment since 2015 through the beginning of 2020, just prior to the onset of the pandemic. Over these five years the state had substantially more vacant jobs than unemployed workers signaling widespread labor shortages and a labor supply constraint on growth in producer output and employment. During early 2020 there were a total of 13,000 working-age persons officially classified as unemployed in South Dakota and 20,000 job openings. This meant that there were 153 job openings for every 100 unemployed job seekers. The ratio of unemployed jobseekers to job openings had fallen well below 1:1; down to just 0.67:1 during the first quarter of 2020.

With the onset of the pandemic in late March, South Dakota's output and employment levels fell sharply while the number of unemployed jobseekers skyrocketed, creating substantial excess labor supply conditions and widespread underutilization problems in the state's labor

markets. The ratio of unemployed jobseekers to job openings increased sharply in South Dakota to 2.5:1, and in the U.S. to 3.8:1 during the second quarter of 2020.

The labor market began to improve after April across the U.S. and in South Dakota. Between April and June of 2020, the ratio of unemployed jobseekers to job openings fell from 2.7:1 to 2.2:1. The rapid gain in employment levels that occurred in the summer of 2020 reduced unemployment and the rising labor demand is reflected in rising job openings with the number of job openings rising to its pre-covid level of 20,000 vacancies by the fall of 2020. Indeed, during the third quarter of 2020 the South Dakota labor market had achieved near full employment conditions with 22,000 unemployed jobseekers and 20,000 vacant jobs at that time. Since then,

Table 9:  
Unemployment and Job Opening Levels in South Dakota and the U.S. 2020-Q1 to 2021-Q3  
(Seasonally Adjusted Numbers in 1,000s, Except Ratios, Quarterly Averages of Monthly Data)

Date	South Dakota			U.S.		
	Unemployed	Job Opening	Unemployed to Job Opening Ratio	Unemployed	Job Opening	Unemployed to Job Opening Ratio
2020_q1	13	20	0.67	6,233	6,645	0.94
2020_q2	34	14	2.52	20,594	5,396	3.82
<b>April 2020</b>	<b>43</b>	<b>16</b>	<b>2.69</b>	<b>23,109</b>	<b>4,630</b>	<b>4.99</b>
<b>May 2020</b>	<b>32</b>	<b>12</b>	<b>2.67</b>	<b>20,975</b>	<b>5,447</b>	<b>3.85</b>
<b>June 2020</b>	<b>28</b>	<b>13</b>	<b>2.15</b>	<b>17,697</b>	<b>6,112</b>	<b>2.90</b>
2020_q3	22	20	1.10	14,128	6,593	2.14
2020_q4	17	23	0.73	10,838	6,797	1.59
2021_q1	14	25	0.57	9,937	7,638	1.30
2021_q2	13	27	0.49	9,537	9,620	0.99
2021_q3	14	30	0.46	8,253	10,722	0.77

Source: U.S. Bureau of Labor Statistics, tabulations by authors.

statewide labor shortages re-emerged with the number of unemployed workers seeming to reach a minimum of 13,000 to 14,000 by the first quarter of 2021 while the stock of job openings rose from 20,000 in the third quarter of 2020 to 30,000 by the third quarter of 2021, the largest number of vacant jobs in South Dakota dating back the beginning of the job openings data series in 2001. By the third quarter of 2021 the labor shortage in the state had become quite severe with more than 200 job openings for every 100 unemployed resident jobseekers. The slowdown in payroll employment growth in South Dakota that has occurred during the last year is largely the

result of insufficient labor supply to accommodate the sharp rise in demand for workers among employers in South Dakota.

### *Labor Force Underutilization Problems*

The labor market problems of U.S. workers go beyond the official measure of unemployment that are widely cited by media, academics, legislators, and policy makers. The U.S. Bureau of Labor Statistics (BLS) provides estimates of six types of labor underutilization problems at the state and the national level using data from the monthly Current Population Surveys (CPS). These six types of labor force underutilization problems were re-designed by the Bureau in 1994.<sup>95</sup> However, state estimates are produced with four-quarter moving averages for better reliability.

Table 10 displays definition of six types of labor force underutilization measures produced by the BLS using monthly CPS data. The first underutilization rate measure, U-1, is the most restrictive measure and includes only workers with unemployment spells of 15 weeks and longer. This measure is derived by dividing persons with 15 weeks or longer unemployment spells by the civilian labor force. The sixth measure, U-6, is the broadest measure where all unemployed jobseekers, those marginally attached to the labor force, and those working part-

Table 10:  
U.S. Bureau of Labor Statistics' Definition of Six Alternative Measures of  
Labor Force Underutilization Problems

1.	U-1: persons unemployed 15 weeks or longer, as a percent of the civilian labor force
2.	U-2: job losers and persons who completed temporary jobs, as a percent of the civilian labor force
3.	U-3: total unemployed, as a percent of the civilian labor force (this is the definition used for the official unemployment rate)
4.	U-4: total unemployed plus discouraged workers, as a percent of the civilian labor force plus discouraged workers
5.	U-5: total unemployed, plus discouraged workers, plus all other marginally attached workers, as a percent of the civilian labor force plus all marginally attached workers
6.	U-6: total unemployed, plus all marginally attached workers, plus total employed part time for economic reasons, as a percent of the civilian labor force plus all marginally attached workers.

<sup>95</sup> See: John E. Bregger and Steven E. Haugen, "BLS Introduces New Range of Alternative Unemployment Measures", Monthly Labor Review, U.S. Bureau of Labor Statistics, October 1995, <https://www.bls.gov/opub/mlr/1995/10/art3full.pdf>

time for economic reasons are included.<sup>96</sup> These six measures move in the same direction over business cycle fluctuations. Since all of these six measures are inter-related, the higher (lower) unemployment spells of states translate to higher (lower) values of all of the six labor force underutilization measures.

Table 11 displays six different types of labor force underutilization problems defined in Table 10 for South Dakota and the U.S. before and during the Covid-19 pandemic. As noted above, these estimates are produced with four-quarter moving averages for more reliability. In four-quarter averages ending in the first quarter of 2020, the U-1 measure (unemployed for 15 weeks or longer divided by civilian labor force) in South Dakota was only 1.1 percent. The U-2 underutilization measure (job losers and persons who completed temporary jobs as a percent of the civilian labor force) in the state during the four quarters that ended in 2020-Q1 was only 1.2 percent. The U-3 measure, the official unemployment rate, in South Dakota during the period was estimated to be 3.5 percent. The fourth underutilization measure, U-4, that includes

**Table 11:**  
**Trends in Alternative Measures of Labor Force Underutilization Rate in South Dakota and the U.S., Four-Quarter Moving Averages, Selected Time Period, 2019-Q2 to 2021-Q3**  
**(Not Seasonally Adjusted Numbers in Percent)**

Measure/Area	Alternative Measures of Labor Underutilization Rate			South Dakota's Ranking of the Underutilization Rate (Lowest to Highest)		
	2019-Q2 to 2020-Q1	2020-Q2 to 2021-Q1	2020-Q4 to 2021-Q3	2019-Q2 to 2020-Q1	2020-Q2 to 2021-Q1	2020-Q4 to 2021-Q3
<b>South Dakota</b>						
U-1	1.1	1.3	0.9	13 <sup>th</sup> Lowest	Lowest	Lowest
U-2	1.2	3.2	1.4	10 <sup>th</sup> Lowest	2 <sup>nd</sup> Lowest	Lowest
U-3	3.5	4.4	2.8	10 <sup>th</sup> Lowest	Lowest	Lowest
U-4	3.6	4.5	3.0	10 <sup>th</sup> Lowest	Lowest	Lowest
U-5	4.0	4.9	3.4	18 <sup>th</sup> Lowest	Lowest	Lowest
U-6	5.5	7.9	4.8	10 <sup>th</sup> Lowest	Lowest	Lowest
<b>United States</b>						
U-1	1.3	3.4	3.2			
U-2	1.7	6.6	3.8			
U-3	3.7	8.7	6.0			
U-4	3.9	9.0	6.3			
U-5	4.5	9.9	7.1			
U-6	7.2	14.5	10.4			

Source: "Alternative Measures of Labor Underutilization for States (Archived Tables)," U.S. Bureau of Labor Statistics, <https://www.bls.gov/lau/stalt-archived.htm>

<sup>96</sup> The denominator for measures U-4, U-5, and U-6 include civilian labor force and all marginally attached persons that are excluded from the labor force.



unemployed and discouraged workers, was 3.6 percent. The fifth measure, U-5, for South Dakota that includes all unemployed, discouraged workers, and all other marginally attached workers, rose to 4.0 percent during the period. The last measure, U-6, which is considered a very broad measure that includes all employed, discouraged, and marginally attached workers, and those working part-time for economic reasons, yielded labor force underutilization rate of 5.5 percent for South Dakota during the four quarters that ended in 2020-Q1.

South Dakota's labor force underutilization rate in each of these six measures before the pandemic was lower than those for the U.S. (Table 11). In the U.S., the labor force underutilization rate ranged from a low of 1.3 percent under measure U-1 to a high of 7.6 under measure U-6 during the four quarters that ended in 2020-Q1. These six labor force underutilization measures for South Dakota ranked 10<sup>th</sup> to 18<sup>th</sup> lowest among the 50 states and D.C. over this period.

During the Covid-19 pandemic, labor force underutilization problems in the U.S. rose at the level not seen since the Great Depression of 1930s. The size of the unemployed, underemployed, marginally attached, and discouraged workers underutilization rate (U-6) doubled from its pre-pandemic level to the second quarter of 2020. During the four quarters that ended in 2021-Q1, the U-1 underutilization measure for the U.S. was 3.4 percent, which was 2.1 percentage points higher than the rate that prevailed during the four quarters that ended in 2020-Q1. The U-3 measure for the nation was 8.7 percent and the U-6 measure was as high as 14.5 percent. South Dakota's labor force underutilization rates in each of these six measures during the four quarters that ended in 2021-Q1 were lower than that of the nation and ranked the lowest among the 50 states and D.C. (Table 11).

The U.S. labor market gradually started to improve after April 2020 when some states relaxed stringent lockdown measures resulting in declines in the size of labor force underutilization problems across the states. South Dakota's underutilization rates during the four quarters that ended in 2021-Q3 (across each of the six labor force underutilization measures) were lower than those that prevailed over the four quarters that ended in 2020-Q1. In South Dakota, even the broadest measure of underutilization U-6 fell below 5 percent to just 4.8 percent in the 4 quarters ending in 2021 Q3. The U-6 underutilization rate for South Dakota was less than half that of the nation as a whole. One in ten U.S. workers during the four quarters that ended in the third quarter of 2021 fell under measure U-6, i.e., 10 percent of U.S. workers were

either unemployed, marginally attached, or working part-time for economic reasons. (Table 11). South Dakota's outsized labor shortage problem has meant that employers have tapped into much of the available labor supply in the state reducing the size of the underutilized population including those who are marginally attached to the labor force in the state to about the same as the number of vacant jobs available in South Dakota. In the context of South Dakota's higher labor force participation rate, higher employment-to-population ratio, and lower unemployment rate in comparison to a majority of other states, the very low U-6 underutilization rate in the state suggests that the additional labor supply possibilities have been exhausted as the state has experience a very robust recovery from the adverse labor market effects of the Covid-19 pandemic.

### *Labor Force*

Higher unemployment rates across the states during the first wave of Covid-19 pandemic in the spring of 2020 was only a part of bigger labor market problems. The decline in the labor force during the pandemic was equally worse. In the U.S., the labor force level started to shrink in March 2020 from the peak level in January/February 2020. By April 2020, the size of the U.S. labor force had shrunk by 7.974 million or 4.8 percent compared to January/February 2020 (164.452 million) (Table 12). In sharp contrast, the labor force level in South Dakota rose in March-April 2020, after remaining flat in February 2020. Between January/February 2020 and April 2020, the size of the labor force in South Dakota increased by 6,000. In May 2020, South Dakota's labor force declined by 10,000 while the labor force in the U.S. increased by 1.722 million. The labor force level in South Dakota continued to drop until August 2020 but rebounded in September 2020 growing by 22,000 persons. The U.S. labor force increased from May 2020 to August 2020 and fell in September and November 2020 due to the second wave of Covid-19. Between April 2020 and September 2020, South Dakota's labor force increased by 6,000, all of which came from September's 22,000 increase in the labor force. During the same period, U.S. labor force grew by 4.242 million persons (Table 12).

The second wave of Covid-19 pandemic that occurred in early fall of 2020 hit South Dakota hard. In November 2020, South Dakota's labor force level fell by 19,000, before rising by 16,000 in December 2020. The U.S. also experienced a labor force decline of 151,000 in November 2020. Between October 2020 and December 2020, South Dakota's labor force level dropped by 3,000 or 0.6 percent; higher than that for the U.S. (-0.1 percent). The Covid-19

vaccination across the U.S. was administered starting in December 2020, but the labor force growth in South Dakota seemed to stall throughout 2021. Between December 2020 and September 2021, the labor force in South Dakota declined by 1,000 while the nation added

**Table 12:**  
**Changes in Labor Force Level in South Dakota and the U.S. from January/February 2020 to September 2021 (Seasonally Adjusted Numbers in 1,000s)**

Period	Numbers of Labor Force		Monthly Change in the Labor Force	
	South Dakota	U.S.	South Dakota	U.S.
Jan/Feb 2020	464	164,452		
Mar-20	463	162,721	-1	-1,731
Apr-20	469	156,478	6	-6,243
<b>Abs. Change, Jan/Feb 2020-April 2020</b>	<b>5</b>	<b>-7,974</b>		
<b>% Change, Jan/Feb 2020-April 2020</b>	<b>1.1</b>	<b>-4.8</b>		
May-20	459	158,200	-10	1,722
Jun-20	456	159,797	-3	1,597
Jul-20	455	160,085	-2	288
Aug-20	454	160,818	-1	733
Sep-20	476	160,078	22	-740
Oct-20	474	160,718	-1	640
<b>Abs. Change, April 2020-October 2020</b>	<b>6</b>	<b>4,240</b>		
<b>% Change, April 2020-October 2020</b>	<b>1.2</b>	<b>2.7</b>		
Nov-20	455	160,536	-19	-182
Dec-20	472	160,567	16	31
<b>Abs. Change, October 2020-Dec 2020</b>	<b>-3</b>	<b>-151</b>		
<b>% Change, October 2020-Dec 2020</b>	<b>-0.6</b>	<b>-0.1</b>		
Jan-21	470	160,161	-1	-406
Feb-21	472	160,211	2	50
Mar-21	469	160,558	-3	347
Apr-21	469	160,988	0	430
May-21	470	160,935	1	-53
Jun-21	470	161,086	0	151
Jul-21	471	161,347	0	261
Aug-21	471	161,537	1	190
Sep-21	471	161,354	0	-183
<b>Abs. Change, December 2020-September 2021</b>	<b>-1</b>	<b>787</b>		
<b>% Change, December 2020-September 2021</b>	<b>-0.1</b>	<b>0.5</b>		
<b>Abs. Change, Jan/Feb 2020-September 2021</b>	<b>7</b>	<b>-3,098</b>		
<b>% Change, December 2020-September 2021</b>	<b>1.6</b>	<b>-1.9</b>		

Source: Local Area Unemployment Statistics (LAUS), U.S. Bureau of Labor Statistics, tabulations by authors. The U.S. unemployment level are seasonally adjusted numbers published by the U.S. Bureau of Labor Statistics.

787,000 persons to the labor force during the period. Overall, between January/February 2020 and September 2021, the South Dakota labor force increased by 7,000 or 1.6 percent while the nation's labor force level still below 3.1 million or 1.9 percent from the peak of January/February 2020.

Only 12 states had some gains in the labor force between January/February 2020 and September 2021. In remaining 38 states and D.C., labor force levels in September 2021 were

**Table 13:**  
**Changes in Labor Force Level in Top 12 and Bottom 12 States from January/February 2020 to September 2021 (Seasonally Adjusted Numbers in 1,000s, Except Percent)**

Rank		Jan/Feb 2020	Sep 2021	Abs. Change	% Change
	<b>Top 12 States</b>				
1	Oregon	2,108	2,170	61	2.9
2	Rhode Island	562	577	15	2.7
3	Utah	1,631	1,670	39	2.4
4	Idaho	890	906	16	1.8
5	Arizona	3,583	3,644	61	1.7
6	South Carolina	2,366	2,405	39	1.7
7	South Dakota	464	471	7	1.6
8	Florida	10,460	10,593	133	1.3
9	Colorado	3,154	3,192	38	1.2
10	Wisconsin	3,080	3,114	34	1.1
11	Kansas	1,499	1,515	16	1.0
12	Oklahoma	1,849	1,861	12	0.7
	<b>Bottom 12 States</b>				
40	New Jersey	4,580	4,432	-148	-3.2
41	Hawaii	672	647	-26	-3.8
42	Pennsylvania	6,530	6,277	-253	-3.9
43	Michigan	4,932	4,738	-194	-3.9
44	Ohio	5,897	5,661	-236	-4.0
45	Iowa	1,731	1,660	-71	-4.1
46	Louisiana	2,151	2,062	-89	-4.1
47	Kentucky	2,079	1,987	-92	-4.4
48	Virginia	4,451	4,244	-207	-4.7
49	Maryland	3,298	3,143	-155	-4.7
50	Connecticut	1,920	1,812	-107	-5.6
51	Vermont	343	318	-25	-7.3
	U.S.	164,452	161,354	-3,098	-1.9

**Source:** Local Area Unemployment Statistics (LAUS), U.S. Bureau of Labor Statistics, tabulations by authors. The U.S. unemployment level are seasonally adjusted numbers published by the U.S. Bureau of Labor Statistics.

lower than in January/February 2020 (Table 13). In 12 states with an increase in labor force over this period, the size of the increase ranged from lows of 0.7 percent to under 2 percent in Idaho, Arizona, South Carolina, South Dakota, Florida, Colorado, Wisconsin, Kansas, and Oklahoma to highs of 2.4 to 2.9 percent in Utah, Rhode Island, and Oregon.

In the bottom 12 states, the size of the labor force decline over this period ranked from lows of 3.2-3.9 percent in New Jersey, Hawaii, Pennsylvania, and Michigan to highs of 4.7-7.3 percent in Virginia, Maryland, Connecticut, and Vermont (Table 13). Appendix Table A-8 presents findings for all 50 states and D.C.

### *Labor Force Participation Rate*

A key concern in the post-pandemic labor market in the U.S. has been the inability of the U.S. to overcome the labor force withdrawals that occurred during the pandemic and restore the size of the nation's labor force and its labor force participation rate to pre-pandemic levels. The nation's labor force participation rate (labor force divided by civilian population (16+)) dropped sharply (by 3.1 percentage points) from January/February 2020 to April 2020; by far the largest decline over the three-month period for which data are available. In South Dakota, the situation was much different with the labor force participation rate increasing slightly from 68.4 percent in January 2020 to April 69.0 percent by April 2020. However, in the following month, the labor force participation rate in the state fell abruptly to 67.5 percent in May (-1.5 percentage points drop from April 2020) (Table 14). The participation rate in South Dakota continued falling until August 2020 when it reached its pandemic bottom at 66.7 percent. During this same time period, the labor force participation rate in South Dakota has largely remained in the 68.5 to 69.0 percent range with some month-to-month fluctuations but returning to its pre-pandemic levels.

In contrast the U.S. has been unable to return its labor force participation rate to pre-pandemic levels. By September 2021, the national labor force participation rate was 1.7 percentage points lower than in January/February 2020 (Table 14). As discussed in the earlier section of the report, South Dakota's labor force participation rate has been historically one of the highest among the states but has been declining over the years as the baby-boom generation has fully entered into the pre-retirement and retirement years.

**Table 14:**  
**Changes in Labor Force Participation Rate in South Dakota and the U.S. from January/February 2020 to September 2021 (Seasonally Adjusted Numbers in Percent)**

Period	Labor Force Participation Rate		Monthly Change in the LFPR	
	South Dakota	U.S.	South Dakota	U.S.
Jan/Feb 2020	68.4	63.4		
Mar-20	68.2	62.6	-0.2	-0.7
Apr-20	69.0	60.2	0.8	-2.4
<b>Abs. Change, Jan/Feb 2020-April 2020</b>	<b>0.6</b>	<b>-3.1</b>		
May-20	67.5	60.8	-1.5	0.6
Jun-20	67.1	61.4	-0.4	0.6
Jul-20	66.9	61.5	-0.2	0.1
Aug-20	66.7	61.7	-0.2	0.2
Sep-20	69.8	61.4	3.1	-0.3
Oct-20	69.6	61.6	-0.2	0.2
<b>Abs. Change, April 2020-October 2020</b>	<b>0.6</b>	<b>1.4</b>		
Nov-20	66.8	61.5	-2.8	-0.1
Dec-20	69.1	61.5	2.3	0.0
<b>Abs. Change, October 2020-Dec 2020</b>	<b>-0.5</b>	<b>-0.1</b>		
Jan-21	68.9	61.4	-0.2	-0.1
Feb-21	69.1	61.4	0.2	0.0
Mar-21	68.6	61.5	-0.5	0.1
Apr-21	68.7	61.7	0.1	0.2
May-21	68.7	61.6	0.0	-0.1
Jun-21	68.7	61.6	0.0	0.0
Jul-21	68.7	61.7	0.0	0.1
Aug-21	68.7	61.7	0.0	0.0
Sep-21	68.7	61.6	0.0	-0.1
<b>Abs. Change, December 2020-September 2021</b>	<b>-0.4</b>	<b>0.1</b>		
<b>Abs. Change, Jan/Feb 2020-September 2021</b>	<b>0.3</b>	<b>-1.7</b>		

Source: Local Area Unemployment Statistics (LAUS), U.S. Bureau of Labor Statistics, tabulations by authors. The U.S. unemployment level are seasonally adjusted numbers published by the U.S. Bureau of Labor Statistics.

For 45 states and D.C., the labor force participation rate in September 2021 was still below their pre-pandemic levels (January/February 2020). Table 15 displays top 12 and bottom 12 states ranked by highest to lowest change in the labor force participation rate between January/February 2020 and September 2021. Rhode Island and Oregon were the two states that

experienced 1.9 and 0.9 percentage points increase in the labor force participation rate, respectively, between January/February 2020 and September 2021. The participation rates were about 4-5 percentage points lower in September 2021 than in January/February 2020 in Connecticut, Virginia, and Vermont (Table 15). Findings for all states are presented in Appendix Table A-9.

**Table 15:**  
Changes in Labor Force Participation Rate in Top 12 and Bottom 12 States from  
January/February 2020 to September 2021  
 (Seasonally Adjusted Numbers in 1000s, Except Percent)

Rank		Jan/Feb 2020	Sep 2021	Percentage Points Change
	<b>Top 12 States</b>			
1	Rhode Island	65.0	66.8	1.8
2	Oregon	61.5	62.4	0.9
3	Kansas	67.2	67.6	0.4
<b>4</b>	<b>South Dakota</b>	<b>68.4</b>	<b>68.7</b>	<b>0.3</b>
5	Wisconsin	66.3	66.6	0.3
6	Mississippi	56.1	55.8	-0.3
7	Oklahoma	60.7	60.4	-0.3
8	Florida	59.6	59.2	-0.3
9	South Carolina	57.7	57.2	-0.5
10	Alaska	64.7	64.2	-0.5
11	Colorado	68.8	68.2	-0.5
12	New York	60.9	60.3	-0.5
	<b>Bottom 12 States</b>			
40	Minnesota	70.2	67.9	-2.3
41	Michigan	61.7	59.3	-2.4
42	Pennsylvania	63.5	61.1	-2.4
43	New Hampshire	68.5	65.9	-2.6
44	Ohio	63.7	61.1	-2.6
45	Kentucky	59.4	56.5	-2.8
46	Iowa	69.9	66.8	-3.1
47	Maryland	69.1	65.8	-3.3
48	Nevada	64.9	61.6	-3.3
49	Connecticut	66.6	63.0	-3.6
50	Virginia	66.4	62.8	-3.6
51	Vermont	66.2	61.3	-4.9
	U.S.	63.4	61.6	-1.7

Source: Local Area Unemployment Statistics (LAUS), U.S. Bureau of Labor Statistics, tabulations by authors. The U.S. unemployment level are seasonally adjusted numbers published by the U.S. Bureau of Labor Statistics.

## *Employment to Population Ratio*

Employment loss in the U.S. at the beginning of Covid-19 pandemic was unprecedented. The following section examines employment-to-population developments in South Dakota and the U.S. from pre-pandemic months to the current period. The employment-to-population ratio is much broader labor market indicator than the unemployment rate because it captures the rate of utilization of the entire working-age population in the state. Higher employment-to-population ratios indicate a greater use of the working-age adult population in production, bolstering output, employment, and income.

The employment-population ratio decline associated with the pandemic between January/February 2020 and April 2020 in the U.S. was the largest such decline ever recorded. In April 2020, the employment-to-population ratio in the U.S. had declined by 9.8 percentage points from the pre-pandemic peak of January/February 2020 of 61.1 percent to just 51.3 percent by April (Table 16). In South Dakota, the employment-to-population ratio decline over this period was much smaller, just 3.7 percentage points. The 3.7 percentage point decline in the employment-to-population ratio in South Dakota between January/February 2020 and April was one of the lowest among all states, ranking South Dakota with the 3<sup>rd</sup> smallest decline among the states and D.C.

The employment-to-population ratio started to increase slowly after April 2020 in South Dakota and the U.S. By October 2020, the employment-to-population ratio in South Dakota reached 67 percent, just above its pre-pandemic level, rising by 4.3 percentage points between April and October of 2020. In the U.S., the employment-to-population ratio increased by 6.1 percentage points to 57.4 percent over this period, but still remained well below the level achieved by South Dakota (67.0 percent) in October of 2020. Both the state and the nation remained at their respective levels (with some monthly fluctuations) through September 2021.

By September 2021 the employment-to-population ratio in South Dakota was 66.7 percent, 0.3 percentage points higher than the pre-pandemic level (January/February 2020). In the U.S., the employment-to-population ratio increased only slowly from January to September 2021. In September 2021, the employment-to-population ratio was 58.7 percent, which was 1.3 percentage points lower than the pre-pandemic level (January/February 2020).



Table 16:  
Changes in Employment-to-Population Ratio in South Dakota and the U.S. from  
 January/February 2020 to September 2021 (Seasonally Adjusted Numbers in Percent)

Period	E/P Ratio		Monthly Change in E/P Ratio	
	South Dakota	U.S.	South Dakota	U.S.
Jan/Feb 2020	66.4	61.1		
Mar-20	66.2	59.9	-0.2	-1.2
Apr-20	62.7	51.3	-3.5	-8.6
<b>Abs. Change, Jan/Feb 2020-April 2020</b>	<b>-3.7</b>	<b>-9.8</b>		
May-20	62.8	52.8	0.1	1.5
Jun-20	63.0	54.6	0.2	1.8
Jul-20	63.3	55.2	0.3	0.6
Aug-20	63.5	56.5	0.2	1.3
Sep-20	67.0	56.6	3.5	0.1
Oct-20	67.0	57.4	0.0	0.8
<b>Abs. Change, April 2020-October 2020</b>	<b>4.3</b>	<b>6.1</b>		
Nov.20	64.4	57.4	-2.6	0.0
Dec-20	66.8	57.4	2.4	0.0
<b>Abs. Change, October 2020-Dec 2020</b>	<b>-0.2</b>	<b>0.0</b>		
Jan-21	66.8	57.5	0.0	0.1
Feb-21	67.1	57.6	0.3	0.1
Mar-21	66.7	57.8	-0.4	0.2
Apr-21	66.7	57.9	0.0	0.1
May-21	66.8	58.0	0.1	0.1
Jun-21	66.7	58.0	-0.1	0.0
Jul-21	66.7	58.4	0.0	0.4
Aug-21	66.8	58.5	0.1	0.1
Sep-21	66.7	58.7	-0.1	0.2
<b>Abs. Change, December 2020-September 2021</b>	<b>-0.1</b>	<b>1.3</b>		
<b>Abs. Change, Jan/Feb 2020-September 2021</b>	<b>0.3</b>	<b>-2.4</b>		

Source: Local Area Unemployment Statistics (LAUS), U.S. Bureau of Labor Statistics, tabulations by authors. The U.S. unemployment level are seasonally adjusted numbers published by the U.S. Bureau of Labor Statistics.

The employment-to-population ratio decline among states between January/February 2020 and April 2020 varied widely. Table 17 displays employment-to-population ratios in the top 12 and the bottom 12 states ranked by smallest to largest decline in the employment-to-population ratio between January/February 2020 and April 2020.

In the top 12 states, the decline in the employment-to-population ratio ranged from lows of -2.3 to -3.8 percentage points in Wyoming, Nebraska, South Dakota, and Arkansas to highs of -6.0 to -6.2 percentage points in New Mexico, Connecticut, and Minnesota. In the bottom 12 states, the decline in the employment-to-population ratio ranged from lows of -9.9 to 10.6 percentage points in Tennessee, Colorado, Rhode Island, and North Carolina to highs of -14.7 to -19.9 percentage points in Hawaii, Michigan, and Nevada.

**Table 17:**  
**Changes in Employment to Population Ratio in Top 12 and Bottom 12 States from January/February 2020 to April 2020 (Seasonally Adjusted Numbers in Percent)**

Rank		Jan/Feb 2020	Apr- 2020	Percentage Points Change
	<b>Top 12</b>			
1	Wyoming	62.9	60.6	-2.3
2	Nebraska	68.3	65.6	-2.7
3	<b>South Dakota</b>	<b>66.4</b>	<b>62.7</b>	<b>-3.7</b>
4	Arkansas	56.2	52.4	-3.8
5	North Dakota	68.1	64.1	-4.0
6	Montana	61.0	55.7	-5.3
7	South Carolina	56.1	50.7	-5.3
8	Alaska	61.5	55.9	-5.6
9	Utah	66.9	61.1	-5.7
10	New Mexico	55.5	49.5	-6.0
11	Connecticut	64.1	57.9	-6.2
12	Minnesota	67.9	61.7	-6.2
	<b>Bottom 12</b>			
40	Colorado	66.9	57.0	-9.9
41	Rhode Island	62.6	52.2	-10.4
42	North Carolina	59.2	48.6	-10.6
43	Ohio	60.8	50.0	-10.8
44	New York	58.6	47.6	-11.0
45	Indiana	62.0	50.9	-11.1
46	Illinois	61.5	50.4	-11.1
47	New Hampshire	66.8	54.7	-12.1
48	Massachusetts	64.7	50.5	-14.2
49	Hawaii	60.5	45.8	-14.7
50	Michigan	59.4	43.8	-15.6
51	Nevada	62.6	42.7	-19.9
	U.S.	61.1	51.3	-9.8

Source: Local Area Unemployment Statistics (LAUS), U.S. Bureau of Labor Statistics, tabulations by authors. The U.S. unemployment level are seasonally adjusted numbers published by the U.S. Bureau of Labor Statistics.

By September 2021, most states had not recovered to the employment-to-population ratio that prevailed in January/February of 2020, prior to the outbreak of the Covid-19 pandemic. Nine states (Rhode Island, South Dakota, Oregon, Wisconsin, Kansas, Oklahoma, West Virginia, Mississippi, and Utah) had nearly the same employment-to-population ratio in September 2021 as they did in January/February 2020 (Table 18). In 40 states and D.C., the employment-to-population ratio in September 2021 was 1 to 5.6 percentage points lower than in September 2021.

**Table 18:**  
**Changes in Employment to Population Ratio in Top 12 and Bottom 12 States from January/February 2020 to September 2021 (Seasonally Adjusted Numbers in Percent)**

Rank	Top 12 States	Jan./Feb. 2020	Sep. 2021	Percentage Points Change
1	Rhode Island	62.6	63.3	0.8
<b>2</b>	<b>South Dakota</b>	<b>66.4</b>	<b>66.7</b>	<b>0.3</b>
3	Oregon	59.4	59.5	0.2
4	Wisconsin	64.1	64.0	-0.1
5	Kansas	65.1	64.9	-0.1
6	Oklahoma	58.8	58.6	-0.2
7	West Virginia	52.9	52.6	-0.2
8	Mississippi	52.9	52.5	-0.4
9	Utah	66.9	66.3	-0.5
10	Missouri	61.9	60.8	-1.1
11	Montana	61.0	59.9	-1.1
12	South Carolina	56.1	54.9	-1.2
	<b>Bottom 12 States</b>			
40	Ohio	60.8	57.8	-3.0
41	Pennsylvania	60.4	57.3	-3.1
42	California	59.9	56.6	-3.2
43	Maine	60.8	57.5	-3.3
44	Iowa	67.9	64.1	-3.8
45	New Jersey	62.3	58.2	-4.1
46	Virginia	64.7	60.4	-4.3
47	Hawaii	60.5	56.0	-4.5
48	Maryland	66.8	62.0	-4.8
49	Vermont	64.5	59.6	-4.9
50	Connecticut	64.1	58.7	-5.3
51	Nevada	62.6	57.0	-5.6
	U.S.	61.1	58.7	-2.4

**Source:** Local Area Unemployment Statistics (LAUS), U.S. Bureau of Labor Statistics, tabulations by authors. The U.S. unemployment level are seasonally adjusted numbers published by the U.S. Bureau of Labor Statistics.

## Appendix Tables

Appendix Table A-1:  
Growth Rate of Real GDP Between 2019-Q4 to 2020-Q1 by State  
(Real GDP in Billions of Dollars, Except Percent. States Ranked by Highest to Lowest Real  
GDP Growth Rate)

Rank	State	2019:Q4	2020:Q1	Absolute Change	% Change
<b>1</b>	<b>South Dakota</b>	<b>46,688</b>	<b>48,417</b>	<b>1,730</b>	<b>3.7</b>
2	Idaho	74,152	76,724	2,571	3.5
3	Utah	171,734	176,881	5,147	3.0
4	Montana	46,965	47,879	914	1.9
5	Arizona	325,102	331,069	5,967	1.8
6	Washington	539,757	545,351	5,594	1.0
7	New Hampshire	77,780	78,447	667	0.9
8	Maine	60,040	60,497	458	0.8
9	Arkansas	117,823	118,651	828	0.7
10	Nebraska	119,720	120,272	552	0.5
11	Mississippi	102,956	103,121	164	0.2
12	South Carolina	214,411	214,563	152	0.1
13	Oregon	220,267	220,318	51	0.0
14	Kansas	161,760	161,415	-344	-0.2
15	North Carolina	517,384	515,916	-1,469	-0.3
16	California	2,764,535	2,753,260	-11,275	-0.4
17	Florida	978,676	974,512	-4,164	-0.4
18	Indiana	341,533	339,976	-1,557	-0.5
19	Tennessee	332,814	331,222	-1,592	-0.5
20	Alabama	204,907	203,561	-1,346	-0.7
21	Colorado	360,531	357,919	-2,612	-0.7
22	Virginia	490,566	486,994	-3,572	-0.7
23	Missouri	293,030	290,839	-2,191	-0.7
24	New Mexico	96,448	95,582	-865	-0.9
25	Texas	1,807,565	1,786,527	-21,038	-1.2
26	Kentucky	192,968	190,721	-2,247	-1.2
27	Alaska	53,487	52,801	-686	-1.3
28	District of Columbia	126,515	124,718	-1,797	-1.4
29	Ohio	616,989	607,823	-9,165	-1.5
30	Nevada	157,274	154,831	-2,443	-1.6
31	Wisconsin	305,812	300,941	-4,871	-1.6
32	Georgia	562,305	553,333	-8,972	-1.6
33	Minnesota	341,939	335,920	-6,019	-1.8
34	Vermont	30,214	29,680	-534	-1.8
35	Maryland	371,202	364,504	-6,699	-1.8
36	Massachusetts	523,981	514,080	-9,901	-1.9

Rank	State	2019:Q4	2020:Q1	Absolute Change	% Change
37	Rhode Island	53,851	52,807	-1,045	-1.9
38	Iowa	175,828	172,171	-3,657	-2.1
39	New Jersey	567,411	555,210	-12,200	-2.2
40	Wyoming	38,981	38,059	-921	-2.4
41	Pennsylvania	723,286	706,180	-17,106	-2.4
42	Michigan	470,230	458,069	-12,160	-2.6
43	Illinois	781,872	761,034	-20,838	-2.7
44	West Virginia	73,762	71,726	-2,036	-2.8
45	North Dakota	57,095	55,452	-1,643	-2.9
46	Louisiana	237,624	230,452	-7,172	-3.0
47	Delaware	65,282	63,224	-2,058	-3.2
48	Oklahoma	205,163	198,591	-6,572	-3.2
49	Connecticut	252,865	244,065	-8,800	-3.5
50	New York	1,513,100	1,447,431	-65,669	-4.3
51	Hawaii	79,676	73,678	-5,999	-7.5
	United States	19,202,310	18,951,992	-250,318	-1.3

Source: U.S. Bureau of Economic Analysis (BEA), U.S. Commerce Department, tabulations by authors.

Appendix Table A-2:  
Growth Rate of Real GDP Between 2020-Q1 to 2020-Q2 by State  
(Real GDP in Billions of Dollars, Except Percent. States Ranked by Highest to Lowest Real  
GDP Growth Rate)

Rank	State	2020:Q1	2020:Q2	Absolute Change	% Change
1	District of Columbia	124,718	117,581	-7,137	-5.7
2	North Dakota	55,452	51,958	-3,495	-6.3
3	Delaware	63,224	58,833	-4,392	-6.9
4	New York	1,447,431	1,344,389	-103,041	-7.1
5	Washington	545,351	503,804	-41,547	-7.6
6	Iowa	172,171	158,346	-13,825	-8.0
7	Virginia	486,994	447,669	-39,325	-8.1
8	Rhode Island	52,807	48,405	-4,401	-8.3
9	Maryland	364,504	333,950	-30,553	-8.4
10	Georgia	553,333	506,201	-47,133	-8.5
11	New Mexico	95,582	87,432	-8,150	-8.5
12	Utah	176,881	161,711	-15,170	-8.6
13	West Virginia	71,726	65,547	-6,178	-8.6
14	Minnesota	335,920	306,537	-29,383	-8.7
15	Nebraska	120,272	109,678	-10,594	-8.8
16	Colorado	357,919	326,238	-31,681	-8.9
17	Missouri	290,839	265,050	-25,789	-8.9
18	Florida	974,512	887,929	-86,583	-8.9
19	Massachusetts	514,080	468,363	-45,717	-8.9
20	Arizona	331,069	301,463	-29,606	-8.9
21	California	2,753,260	2,505,762	-247,498	-9.0
22	Illinois	761,034	692,469	-68,566	-9.0
23	Maine	60,497	54,977	-5,521	-9.1
24	Texas	1,786,527	1,623,209	-163,318	-9.1
25	Montana	47,879	43,494	-4,386	-9.2
26	Ohio	607,823	552,057	-55,766	-9.2
27	Michigan	458,069	415,504	-42,565	-9.3
28	Pennsylvania	706,180	640,314	-65,866	-9.3
29	South Carolina	214,563	194,535	-20,027	-9.3
30	North Carolina	515,916	467,612	-48,303	-9.4
31	Kentucky	190,721	172,797	-17,924	-9.4
32	Connecticut	244,065	220,982	-23,083	-9.5
33	Alabama	203,561	184,304	-19,257	-9.5
34	Wisconsin	300,941	272,261	-28,680	-9.5
35	Kansas	161,415	146,027	-15,389	-9.5
36	Oregon	220,318	199,313	-21,005	-9.5
37	New Jersey	555,210	502,102	-53,108	-9.6
38	Arkansas	118,651	107,250	-11,401	-9.6

Rank	State	2020:Q1	2020:Q2	Absolute Change	% Change
<b>39</b>	<b>South Dakota</b>	<b>48,417</b>	<b>43,721</b>	<b>-4,696</b>	<b>-9.7</b>
40	Louisiana	230,452	208,003	-22,450	-9.7
41	Indiana	339,976	305,981	-33,995	-10.0
42	Wyoming	38,059	34,126	-3,933	-10.3
43	Hawaii	73,678	65,970	-7,708	-10.5
44	Mississippi	103,121	92,330	-10,790	-10.5
45	Idaho	76,724	68,672	-8,051	-10.5
46	Vermont	29,680	26,560	-3,120	-10.5
47	New Hampshire	78,447	70,142	-8,306	-10.6
48	Oklahoma	198,591	177,443	-21,149	-10.6
49	Alaska	52,801	47,143	-5,658	-10.7
50	Tennessee	331,222	288,439	-42,783	-12.9
51	Nevada	154,831	132,863	-21,969	-14.2
	United States	18,951,992	17,258,205	-1,693,787	-8.9

Source: U.S. Bureau of Economic Analysis (BEA), U.S. Commerce Department, tabulations by authors.

Appendix Table A-3:  
Growth Rate of Real GDP Between 2020-Q2 to 2020-Q3 by State  
 (Real GDP in Billions of Dollars, Except Percent. States Ranked by Highest to Lowest Real  
 GDP Growth Rate)

Rank	State	2020:Q2	2020:Q3	Absolute Change	% Change
1	Tennessee	288,439	319,851	31,413	10.9
2	Nevada	132,863	145,873	13,010	9.8
3	Indiana	305,981	334,687	28,706	9.4
4	Mississippi	92,330	100,992	8,661	9.4
5	Vermont	26,560	29,047	2,487	9.4
6	Kentucky	172,797	188,222	15,425	8.9
7	New Hampshire	70,142	76,292	6,151	8.8
8	Michigan	415,504	451,812	36,308	8.7
9	Kansas	146,027	158,623	12,596	8.6
10	South Carolina	194,535	211,271	16,736	8.6
11	Wisconsin	272,261	295,511	23,250	8.5
12	Oklahoma	177,443	192,596	15,153	8.5
13	Idaho	68,672	74,514	5,842	8.5
14	Iowa	158,346	171,643	13,297	8.4
15	Arkansas	107,250	116,255	9,006	8.4
16	Maine	54,977	59,499	4,522	8.2
17	Nebraska	109,678	118,677	8,999	8.2
18	Alabama	184,304	199,019	14,715	8.0
19	Oregon	199,313	215,212	15,899	8.0
20	Louisiana	208,003	224,518	16,515	7.9
21	Ohio	552,057	595,820	43,763	7.9
22	Texas	1,623,209	1,751,735	128,526	7.9
23	Massachusetts	468,363	505,062	36,699	7.8
24	North Carolina	467,612	503,864	36,251	7.8
25	Pennsylvania	640,314	689,889	49,576	7.7
26	Missouri	265,050	285,525	20,475	7.7
27	Hawaii	65,970	71,039	5,069	7.7
28	Minnesota	306,537	329,763	23,226	7.6
29	California	2,505,762	2,693,845	188,083	7.5
30	New Jersey	502,102	539,547	37,444	7.5
31	West Virginia	65,547	70,427	4,880	7.4
<b>32</b>	<b>South Dakota</b>	<b>43,721</b>	<b>46,959</b>	<b>3,239</b>	<b>7.4</b>
33	Connecticut	220,982	237,297	16,315	7.4
34	Illinois	692,469	743,469	51,001	7.4
35	Florida	887,929	952,763	64,834	7.3
36	Arizona	301,463	323,446	21,983	7.3
37	Rhode Island	48,405	51,847	3,442	7.1
38	Washington	503,804	538,822	35,018	7.0



Rank	State	2020:Q2	2020:Q3	Absolute Change	% Change
39	Montana	43,494	46,516	3,022	6.9
40	New Mexico	87,432	93,504	6,071	6.9
41	Utah	161,711	172,936	11,225	6.9
42	Georgia	506,201	540,891	34,690	6.9
43	Virginia	447,669	477,279	29,610	6.6
44	Colorado	326,238	347,704	21,466	6.6
45	Wyoming	34,126	36,365	2,239	6.6
46	New York	1,344,389	1,432,423	88,034	6.5
47	Maryland	333,950	355,060	21,110	6.3
48	Alaska	47,143	50,102	2,959	6.3
49	Delaware	58,833	62,471	3,639	6.2
50	North Dakota	51,958	55,147	3,190	6.1
51	District of Columbia	117,581	122,709	5,128	4.4
	United States	17,258,205	18,560,774	1,302,569	7.5

Source: U.S. Bureau of Economic Analysis (BEA), U.S. Commerce Department, tabulations by authors.

Appendix Table A-4:  
Growth Rate of Real GDP Between 2019-Q4 to 2021-Q2 by State  
(Real GDP in Billions of Dollars, Except Percent; States Ranked by Highest to Lowest Real  
GDP Growth Rate)

Rank	State	2019:Q4	2021:Q2	Absolute Change	% Change
1	Washington	539,757	566,227	26,470	4.9
<b>2</b>	<b>South Dakota</b>	<b>46,688</b>	<b>48,862</b>	<b>2,175</b>	<b>4.7</b>
3	Nebraska	119,720	124,818	5,098	4.3
4	Utah	171,734	178,378	6,643	3.9
5	Iowa	175,828	182,532	6,704	3.8
6	Montana	46,965	48,650	1,685	3.6
7	Idaho	74,152	76,807	2,654	3.6
8	Indiana	341,533	351,737	10,204	3.0
9	Arkansas	117,823	120,905	3,082	2.6
10	North Carolina	517,384	530,374	12,990	2.5
11	California	2,764,535	2,832,619	68,084	2.5
12	Tennessee	332,814	340,765	7,951	2.4
13	South Carolina	214,411	219,462	5,051	2.4
14	Arizona	325,102	331,353	6,252	1.9
15	Kansas	161,760	164,824	3,064	1.9
16	Maine	60,040	61,074	1,034	1.7
17	Kentucky	192,968	196,042	3,074	1.6
18	Florida	978,676	994,182	15,507	1.6
19	Oregon	220,267	223,693	3,426	1.6
20	Missouri	293,030	297,315	4,286	1.5
21	North Dakota	57,095	57,906	811	1.4
22	New Hampshire	77,780	78,836	1,056	1.4
23	Colorado	360,531	364,737	4,206	1.2
24	Mississippi	102,956	103,872	916	0.9
25	Texas	1,807,565	1,820,854	13,289	0.7
26	Minnesota	341,939	344,051	2,112	0.6
27	Georgia	562,305	563,805	1,500	0.3
28	Virginia	490,566	491,838	1,272	0.3
29	Maryland	371,202	371,915	713	0.2
30	Massachusetts	523,981	524,342	361	0.1
31	Ohio	616,989	616,825	-163	0.0
32	Michigan	470,230	469,793	-436	-0.1
33	New York	1,513,100	1,510,827	-2,273	-0.2
34	Illinois	781,872	780,344	-1,529	-0.2
35	New Jersey	567,411	565,520	-1,891	-0.3
36	District of Columbia	126,515	126,020	-494	-0.4
37	Alabama	204,907	203,962	-945	-0.5
38	New Mexico	96,448	95,669	-779	-0.8
39	Wisconsin	305,812	303,184	-2,629	-0.9
40	Vermont	30,214	29,840	-374	-1.2
41	Rhode Island	53,851	53,168	-684	-1.3

Rank	State	2019:Q4	2021:Q2	Absolute Change	% Change
42	Pennsylvania	723,286	714,048	-9,238	-1.3
43	West Virginia	73,762	72,619	-1,143	-1.5
44	Delaware	65,282	63,553	-1,728	-2.6
45	Nevada	157,274	153,028	-4,246	-2.7
46	Connecticut	252,865	245,803	-7,062	-2.8
47	Louisiana	237,624	228,814	-8,810	-3.7
48	Oklahoma	205,163	196,405	-8,758	-4.3
49	Wyoming	38,981	37,014	-1,966	-5.0
50	Alaska	53,487	50,252	-3,236	-6.0
51	Hawaii	79,676	74,288	-5,389	-6.8
	United States	19,202,310	19,368,310	166,000	0.9

Source: U.S. Bureau of Economic Analysis (BEA), U.S. Commerce Department, tabulations by authors.

Appendix Table A-5:  
Payroll Employment in January/February and April 2020 by State  
(Employment Numbers in 1,000s, Except Percent)

Rank	State	January/ February 2020	April 2020	Abs. Change	% Change
1	Alabama	2,087	1,840	88	4.2
2	Utah	1,572	1,432	-139	-8.9
3	Wyoming	289	263	-26	-9.1
4	Nebraska	1,033	937	-96	-9.3
5	Oklahoma	1,703	1,535	-168	-9.9
6	Arkansas	1,293	1,165	-128	-9.9
<b>7</b>	<b>South Dakota</b>	<b>443</b>	<b>398</b>	<b>-44</b>	<b>-10.0</b>
8	Idaho	773	694	-79	-10.2
9	District of Columbia	804	721	-83	-10.4
10	Arizona	2,991	2,662	-329	-11.0
11	Kansas	1,430	1,271	-159	-11.1
12	Texas	12,963	11,517	-1,446	-11.2
13	Iowa	1,592	1,413	-180	-11.3
14	Washington	3,508	3,101	-407	-11.6
15	Virginia	4,090	3,611	-479	-11.7
16	Tennessee	3,152	2,774	-379	-12.0
17	New Mexico	863	758	-104	-12.1
18	Missouri	2,928	2,569	-359	-12.3
19	North Dakota	441	386	-55	-12.4
20	North Carolina	4,625	4,051	-574	-12.4
21	Montana	489	426	-63	-12.8
22	Mississippi	1,163	1,012	-151	-13.0
23	Georgia	4,665	4,057	-608	-13.0
24	Colorado	2,819	2,443	-376	-13.3
25	Illinois	6,147	5,319	-829	-13.5
26	Wisconsin	2,996	2,590	-406	-13.6
27	Alaska	330	285	-45	-13.7
28	Minnesota	2,997	2,580	-417	-13.9
29	Florida	9,068	7,803	-1,265	-13.9
30	South Carolina	2,198	1,889	-309	-14.1
31	West Virginia	720	618	-102	-14.2
32	Louisiana	1,993	1,710	-283	-14.2
33	Oregon	1,971	1,688	-284	-14.4
34	Maryland	2,779	2,379	-400	-14.4
35	Delaware	468	399	-69	-14.7
36	Maine	641	545	-95	-14.8
37	Kentucky	1,957	1,662	-295	-15.1
38	California	17,641	14,946	-2,695	-15.3

Rank	State	January/ February 2020	April 2020	Abs. Change	% Change
39	Indiana	3,165	2,665	-500	-15.8
40	Ohio	5,612	4,721	-890	-15.9
41	New Hampshire	688	573	-116	-16.8
42	New Jersey	4,228	3,512	-716	-16.9
43	Connecticut	1,697	1,404	-293	-17.3
44	Massachusetts	3,730	3,042	-688	-18.5
45	Pennsylvania	6,093	4,963	-1,130	-18.5
46	New York	9,833	7,852	-1,981	-20.1
47	Vermont	315	251	-64	-20.2
48	Rhode Island	507	399	-107	-21.2
49	Nevada	1,442	1,112	-330	-22.9
50	Hawaii	662	510	-153	-23.0
51	Michigan	4,451	3,398	-1,053	-23.7
	U.S.	152,379	130,161	-22,218	-14.6

Source: Current Employment Statistics (CES), U.S. Bureau of Labor Statistics, tabulations by authors.

Appendix Table A-6:  
Payroll Employment in January/February 2020 and September 2021 by State (Employment  
Numbers in 1,000s, Except Percent)

Rank	State	Jan/Feb 2020	Sep 2021	Absolute Change	% Change
1	Utah	2,087	2,044	47	3.0
2	Idaho	330	306	12	1.6
3	Arizona	2,991	2,972	-19	-0.6
4	Texas	1,293	1,270	-106	-0.8
<b>5</b>	<b>South Dakota</b>	<b>17,641</b>	<b>16,670</b>	<b>-5</b>	<b>-1.1</b>
6	Montana	2,819	2,741	-7	-1.4
<b>7</b>	Nebraska	1,697	1,610	-15	-1.5
8	Arkansas	468	449	-23	-1.8
9	Georgia	804	752	-87	-1.9
10	Tennessee	9,068	8,867	-59	-1.9
11	Alabama	4,665	4,578	-43	-2.1
12	Washington	662	576	-73	-2.1
13	Mississippi	773	785	-25	-2.1
14	Florida	6,147	5,814	-201	-2.2
15	North Carolina	3,165	3,059	-103	-2.2
16	South Carolina	1,592	1,538	-50	-2.3
17	Colorado	1,430	1,387	-78	-2.8
18	Missouri	1,957	1,882	-82	-2.8
19	Kansas	1,993	1,818	-43	-3.0
20	Oklahoma	641	612	-53	-3.1
21	Indiana	2,779	2,670	-106	-3.3
22	Iowa	3,730	3,516	-54	-3.4
23	Kentucky	4,451	4,181	-74	-3.8
24	New Hampshire	2,997	2,870	-26	-3.8
25	Virginia	1,163	1,138	-161	-3.9
26	Maryland	2,928	2,846	-110	-3.9
27	West Virginia	489	482	-29	-4.0
28	Delaware	1,033	1,018	-19	-4.0
29	Wisconsin	1,442	1,349	-120	-4.0
30	Minnesota	688	662	-127	-4.2
31	Maine	4,228	4,001	-29	-4.5
32	Ohio	863	812	-256	-4.6
33	Oregon	9,833	8,959	-91	-4.6
34	Connecticut	4,625	4,522	-87	-5.2
35	Rhode Island	441	416	-26	-5.2
36	New Jersey	5,612	5,356	-228	-5.4
37	Illinois	1,703	1,650	-334	-5.4
38	North Dakota	1,971	1,881	-24	-5.5
39	California	6,093	5,734	-971	-5.5

Rank	State	Jan/Feb 2020	Sep 2021	Absolute Change	% Change
40	Massachusetts	507	480	-214	-5.7
41	Wyoming	2,198	2,148	-17	-5.9
42	Pennsylvania	443	438	-359	-5.9
43	New Mexico	3,152	3,094	-51	-5.9
44	Vermont	12,963	12,857	-19	-6.0
45	Michigan	1,572	1,619	-270	-6.1
46	Nevada	315	296	-93	-6.4
47	Dist. of Columbia	4,090	3,929	-52	-6.5
48	Alaska	3,508	3,435	-24	-7.3
49	Louisiana	720	691	-175	-8.8
50	New York	2,996	2,876	-874	-8.9
51	Hawaii	289	272	-86	-13.0
	U.S.	152,379	147,553	-4,826	-3.2

Source: Current Employment Statistics (CES), U.S. Bureau of Labor Statistics, tabulations by authors.

Appendix Table A-7:  
Changes in Unemployment Levels by State, January/February 2020, and April 2020 (Seasonally  
Adjusted Numbers in 1,000s, Except Percent)

Rank	State	Jan/Feb 2020	Apr 2020	Abs. Change	% Change
1	Wyoming	14	16	2	16
2	New Mexico	50	91	41	81
3	District of Columbia	21	45	24	117
4	Connecticut	71	157	86	121
5	Alaska	18	41	23	129
6	Louisiana	111	268	158	142
7	Maryland	113	282	170	151
8	Nebraska	31	78	47	151
9	Mississippi	73	191	118	161
10	Arkansas	51	137	86	169
11	Minnesota	101	272	171	169
12	Maine	21	60	38	181
13	Arizona	174	505	331	190
14	West Virginia	41	119	79	192
15	Delaware	22	63	42	194
16	Pennsylvania	320	1023	703	220
<b>17</b>	<b>South Dakota</b>	<b>13</b>	<b>43</b>	<b>30</b>	<b>221</b>
18	Montana	20	64	44	222
19	Ohio	273	909	635	232
20	Missouri	112	374	262	235
21	Texas	512	1728	1216	237
22	North Carolina	182	635	453	250
23	Georgia	177	621	444	251
24	California	835	2966	2132	255
25	Oregon	73	271	198	271
26	Iowa	50	190	141	283
27	North Dakota	9	36	26	286
28	Florida	346	1365	1019	295
29	New York	364	1436	1072	295
30	Kansas	47	187	140	295
31	Tennessee	127	504	377	296
32	Utah	40	164	124	307
33	Washington	160	652	492	308
34	Kentucky	86	353	266	309
<b>35</b>	<b>Oklahoma</b>	<b>58</b>	<b>237</b>	<b>179</b>	<b>311</b>
36	Colorado	86	362	276	321
37	South Carolina	64	271	207	323
38	Rhode Island	22	95	73	336
39	Idaho	23	101	78	337



Rank	State	Jan/Feb 2020	Apr 2020	Abs. Change	% Change
40	New Jersey	169	742	574	340
41	Wisconsin	102	453	351	345
42	Illinois	224	996	773	345
43	Virginia	111	496	385	348
44	Alabama	59	288	229	388
45	Indiana	108	545	437	407
46	Massachusetts	106	558	453	429
47	New Hampshire	20	118	98	487
48	Michigan	184	1084	900	489
49	Vermont	9	52	44	511
50	Nevada	59	442	383	647
51	Hawaii	14	140	126	913
	U.S. (In 1,000s- CPS)	5,757	23,109	17,353	301

Source: Local Area Unemployment Statistics (LAUS), U.S. Bureau of Labor Statistics, tabulations by authors. The U.S. unemployment level are seasonally adjusted numbers published by the U.S. Bureau of Labor Statistics.

Appendix Table A-8:  
Changes in Labor Force Levels by State, January/February 2020, and September 2021  
(Seasonally Adjusted Numbers in 1,000s, Except Percent)

Rank	State	Jan/Feb 2020	Sep 2021	Abs. Change	% Change
1	Oregon	2,108	2,170	61	2.9
2	Rhode Island	562	577	15	2.7
3	Utah	1,631	1,670	39	2.4
4	Idaho	890	906	16	1.8
5	Arizona	3,583	3,644	61	1.7
6	South Carolina	2,366	2,405	39	1.7
<b>7</b>	<b>South Dakota</b>	<b>464</b>	<b>471</b>	<b>7</b>	<b>1.6</b>
8	Florida	10,460	10,593	133	1.3
9	Colorado	3,154	3,192	38	1.2
10	Wisconsin	3,080	3,114	34	1.1
11	Kansas	1,499	1,515	16	1.0
12	Oklahoma	1,849	1,861	12	0.7
13	Texas	14,181	14,166	-15	-0.1
14	Montana	542	541	-1	-0.2
15	Tennessee	3,336	3,322	-14	-0.4
16	Washington	3,959	3,937	-23	-0.6
17	Georgia	5,200	5,168	-32	-0.6
18	Mississippi	1,284	1,275	-8	-0.7
19	Indiana	3,366	3,342	-25	-0.7
20	Missouri	3,099	3,070	-29	-0.9
21	Massachusetts	3,756	3,721	-35	-0.9
22	Delaware	494	489	-5	-1.0
23	Arkansas	1,372	1,358	-14	-1.0
24	Alaska	353	349	-4	-1.1
25	North Dakota	407	402	-5	-1.3
26	New Mexico	965	952	-13	-1.3
27	Alabama	2,238	2,208	-31	-1.4
28	North Carolina	5,107	5,022	-85	-1.7
29	Wyoming	299	294	-5	-1.7
30	West Virginia	806	792	-14	-1.7
31	Nebraska	1,044	1,023	-21	-2.0
32	New York	9,511	9,316	-195	-2.1
33	California	19,435	19,013	-422	-2.2
34	Illinois	6,363	6,223	-140	-2.2
35	Nevada	1,599	1,563	-36	-2.3
36	Dist. of Columbia	420	411	-10	-2.3
37	Minnesota	3,117	3,035	-82	-2.6
38	Maine	699	679	-20	-2.9
39	New Hampshire	772	750	-23	-2.9

Rank	State	Jan/Feb 2020	Sep 2021	Abs. Change	% Change
40	New Jersey	4,580	4,432	-148	-3.2
41	Hawaii	672	647	-26	-3.8
42	Pennsylvania	6,530	6,277	-253	-3.9
43	Michigan	4,932	4,738	-194	-3.9
44	Ohio	5,897	5,661	-236	-4.0
45	Iowa	1,731	1,660	-71	-4.1
46	Louisiana	2,151	2,062	-89	-4.1
47	Kentucky	2,079	1,987	-92	-4.4
48	Virginia	4,451	4,244	-207	-4.7
49	Maryland	3,298	3,143	-155	-4.7
50	Connecticut	1,920	1,812	-107	-5.6
51	Vermont	343	318	-25	-7.3
	U.S.	164,452	161,354	-3,098	-1.9

Source: Local Area Unemployment Statistics (LAUS), U.S. Bureau of Labor Statistics, tabulations by authors. The U.S. unemployment level are seasonally adjusted numbers published by the U.S. Bureau of Labor Statistics.

Appendix Table A-9:  
Changes in Labor Force Participation Rate by State, January/February 2020, and September  
2021 (Seasonally Adjusted Numbers in Percent)

Rank	State	Jan/Feb 2020	Sep 2021	Percentage Points Change
1	Rhode Island	65.0	66.8	1.8
2	Oregon	61.5	62.4	0.9
3	Kansas	67.2	67.6	0.4
<b>4</b>	<b>South Dakota</b>	<b>68.4</b>	<b>68.7</b>	<b>0.3</b>
5	Wisconsin	66.3	66.6	0.3
6	Mississippi	56.1	55.8	-0.3
7	Oklahoma	60.7	60.4	-0.3
8	Florida	59.6	59.2	-0.3
9	South Carolina	57.7	57.2	-0.5
10	Alaska	64.7	64.2	-0.5
11	Colorado	68.8	68.2	-0.5
12	New York	60.9	60.3	-0.5
13	West Virginia	55.7	55.1	-0.6
14	Massachusetts	66.5	65.9	-0.6
15	Utah	68.6	67.9	-0.6
16	Indiana	64.0	63.0	-0.9
17	Illinois	63.8	62.8	-1.0
18	Missouri	64.2	63.2	-1.0
19	Arkansas	58.3	57.2	-1.1
20	North Dakota	69.6	68.5	-1.1
21	Alabama	57.8	56.6	-1.2
22	Arizona	61.7	60.5	-1.2
23	Tennessee	61.6	60.3	-1.3
24	Montana	63.3	61.9	-1.4
25	New Mexico	58.5	57.1	-1.4
26	California	62.5	61.1	-1.4
27	Georgia	62.9	61.5	-1.4
28	Washington	65.2	63.7	-1.5
29	Idaho	64.0	62.4	-1.6
30	Texas	64.1	62.4	-1.7
31	Hawaii	61.8	60.0	-1.8
32	Delaware	62.7	60.9	-1.8
33	Wyoming	65.9	64.1	-1.8
34	District of Columbia	72.1	70.2	-1.9
35	Nebraska	70.4	68.4	-1.9
36	New Jersey	64.7	62.7	-2.0
37	North Carolina	61.4	59.2	-2.1
38	Maine	62.7	60.4	-2.3

Rank	State	Jan/Feb 2020	Sep 2021	Percentage Points Change
39	Louisiana	60.0	57.7	-2.3
40	Minnesota	70.2	67.9	-2.3
41	Michigan	61.7	59.3	-2.4
42	Pennsylvania	63.5	61.1	-2.4
43	New Hampshire	68.5	65.9	-2.6
44	Ohio	63.7	61.1	-2.6
45	Kentucky	59.4	56.5	-2.8
46	Iowa	69.9	66.8	-3.1
47	Maryland	69.1	65.8	-3.3
48	Nevada	64.9	61.6	-3.3
49	Connecticut	66.6	63.0	-3.6
50	Virginia	66.4	62.8	-3.6
51	Vermont	66.2	61.3	-4.9
	U.S.	63.4	61.6	-1.7

Source: Local Area Unemployment Statistics (LAUS), U.S. Bureau of Labor Statistics, tabulations by authors. The U.S. unemployment level are seasonally adjusted numbers published by the U.S. Bureau of Labor Statistics.

Appendix Table A-10:  
Changes in Employment-to-Population Ratio by State, January/February 2020, and April 2020  
(Seasonally Adjusted Numbers in Percent)

Rank	State	Jan/Feb 2020	Apr- 2020	Percentage Points Change
1	Wyoming	62.9	60.6	-2.3
2	Nebraska	68.3	65.6	-2.7
<b>3</b>	<b>South Dakota</b>	<b>66.4</b>	<b>62.7</b>	<b>-3.7</b>
4	Arkansas	56.2	52.4	-3.8
5	North Dakota	68.1	64.1	-4.0
6	Montana	61.0	55.7	-5.3
7	South Carolina	56.1	50.7	-5.3
8	Alaska	61.5	55.9	-5.6
9	Utah	66.9	61.1	-5.7
10	New Mexico	55.5	49.5	-6.0
11	Connecticut	64.1	57.9	-6.2
12	Minnesota	67.9	61.7	-6.2
13	Vermont	64.5	58.1	-6.4
14	Iowa	67.9	61.4	-6.5
15	District of Columbia	68.6	62.0	-6.6
16	Arizona	58.7	52.1	-6.6
17	Virginia	64.7	58.0	-6.7
18	Oklahoma	58.8	52.0	-6.8
19	Kansas	65.1	58.2	-6.8
20	Idaho	62.3	55.4	-6.9
21	Maryland	66.8	59.7	-7.1
22	Alabama	56.3	49.0	-7.3
23	Kentucky	56.9	49.5	-7.3
24	Louisiana	57.0	49.5	-7.5
25	Maine	60.8	53.3	-7.5
26	Oregon	59.4	51.8	-7.6
27	Washington	62.6	54.8	-7.8
28	Missouri	61.9	54.0	-7.8
29	Delaware	60.0	52.1	-7.9
30	West Virginia	52.9	44.9	-8.0
31	Wisconsin	64.1	56.1	-8.0
32	Mississippi	52.9	44.9	-8.0
33	Georgia	60.8	52.7	-8.1
34	Pennsylvania	60.4	51.5	-8.9
35	Texas	61.7	52.4	-9.3
36	New Jersey	62.3	52.8	-9.5
37	California	59.9	50.3	-9.6
38	Florida	57.6	47.7	-9.8

Rank	State	Jan/Feb 2020	Apr- 2020	Percentage Points Change
39	Tennessee	59.3	49.4	-9.9
40	Colorado	66.9	57.0	-9.9
41	Rhode Island	62.6	52.2	-10.4
42	North Carolina	59.2	48.6	-10.6
43	Ohio	60.8	50.0	-10.8
44	New York	58.6	47.6	-11.0
45	Indiana	62.0	50.9	-11.1
46	Illinois	61.5	50.4	-11.1
47	New Hampshire	66.8	54.7	-12.1
48	Massachusetts	64.7	50.5	-14.2
49	Hawaii	60.5	45.8	-14.7
50	Michigan	59.4	43.8	-15.6
51	Nevada	62.6	42.7	-19.9
	U.S.	61.1	51.3	-9.8

Appendix Table A-11:  
Changes in Employment-to-Population Ratio by State, January/February 2020, and September  
2021 (Seasonally Adjusted Numbers in Percent)

Rank	State	Jan/Feb 2020	Sep- 2021	Percentage Points Change
1	Rhode Island	62.6	63.3	0.8
<b>2</b>	<b>South Dakota</b>	<b>66.4</b>	<b>66.7</b>	<b>0.3</b>
3	Oregon	59.4	59.5	0.2
4	Wisconsin	64.1	64.0	-0.1
5	Kansas	65.1	64.9	-0.1
6	Oklahoma	58.8	58.6	-0.2
7	West Virginia	52.9	52.6	-0.2
8	Mississippi	52.9	52.5	-0.4
9	Utah	66.9	66.3	-0.5
10	Missouri	61.9	60.8	-1.1
11	Montana	61.0	59.9	-1.1
12	South Carolina	56.1	54.9	-1.2
13	Florida	57.6	56.3	-1.3
14	Georgia	60.8	59.5	-1.3
15	Nebraska	68.3	67.0	-1.3
16	Arkansas	56.2	54.9	-1.3
17	Alaska	61.5	60.1	-1.4
18	Alabama	56.3	54.8	-1.5
19	Indiana	62.0	60.5	-1.5
20	Tennessee	59.3	57.6	-1.7
21	Idaho	62.3	60.6	-1.7
22	Wyoming	62.9	61.2	-1.7
23	Arizona	58.7	57.0	-1.7
24	North Dakota	68.1	66.1	-2.0
25	Washington	62.6	60.6	-2.0
26	Massachusetts	64.7	62.5	-2.2
27	New Mexico	55.5	53.2	-2.3
28	Delaware	60.0	57.6	-2.4
29	Minnesota	67.9	65.4	-2.5
30	North Carolina	59.2	56.7	-2.5
31	New York	58.6	56.0	-2.6
32	Colorado	66.9	64.3	-2.6
33	Louisiana	57.0	54.3	-2.7
34	Texas	61.7	58.9	-2.8
35	Kentucky	56.9	54.0	-2.8
36	Michigan	59.4	56.5	-2.8
37	New Hampshire	66.8	63.9	-2.9
38	Illinois	61.5	58.6	-2.9



Rank	State	Jan/Feb 2020	Sep- 2021	Percentage Points Change
39	District of Columbia	68.6	65.6	-3.0
40	Ohio	60.8	57.8	-3.0
41	Pennsylvania	60.4	57.3	-3.1
42	California	59.9	56.6	-3.2
43	Maine	60.8	57.5	-3.3
44	Iowa	67.9	64.1	-3.8
45	New Jersey	62.3	58.2	-4.1
46	Virginia	64.7	60.4	-4.3
47	Hawaii	60.5	56.0	-4.5
48	Maryland	66.8	62.0	-4.8
49	Vermont	64.5	59.6	-4.9
<b>50</b>	Connecticut	64.1	58.7	-5.3
51	Nevada	62.6	57.0	-5.6
	U.S.	61.1	58.7	-2.4