CENTER OF THE AMERICAN EXPERIMENT

The State of Minnesota's Economy 2019

Economic growth continues to lag

JOHN PHELAN
AND MARTHA NJOLOMOLE

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Minnesota's Think Tank

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Executive Summary

How is Minnesota performing in terms of economic growth? How is it likely to perform in the future?

The picture that emerges is concerning. We find that Minnesota is a hard working but low productivity economy. Our state lags national averages on output per worker, output per hour worked, and per worker GDP and Personal Income. We are only able to achieve above average levels of GDP or Personal Income per capita because of our above average Labor Force Participation rate. This leaves Minnesotans 6.7 percent—$4,376—worse off in per capita GDP terms than they would be if their rate of productivity matched the nation as a whole. Demographic trends present a challenge for the state, but Minnesota's current economic policies of regulation and taxation are actually set to hinder any attempt to meet it. To generate a level of income commensurate to the efforts of working Minnesotans, these policies will need to change.

In its key growth drivers, Minnesota faces substantial challenges in coming years.

Minnesota's high taxes are driving productive workers out of the state.

Minnesota faces a challenge with its Labor Force Participation rate forecast to fall to 64.6 percent by 2035. To keep per capita incomes growing, the state will need its remaining workers to become more productive. Sadly, Minnesota's economic policies run in the opposite direction. To improve the productivity of its workforce, Minnesota can try to retain the skilled workers it has and attract new ones. Making this more challenging is the fact that the state's top rate of income tax is higher in all but three other states. It is not just "the rich" who are taxed heavily; Minnesota's lowest tax rate is higher than the highest tax rate in 25 states. As a result, since 2011, the state has lost residents in every income category over $50,000 annually. Taking income as a proxy for productivity, Minnesota is suffering a net loss of its more productive workers.

Capital investment lags the national average.

Another way to improve labor's productivity is to give workers tools to work with. Here, too, Minnesota lags the national average. In 2018, the average worker in our state had $100,917 of capital to work with, 5.8 percent below the national figure of $107,170.

Our state lags the national averages in terms of investment and entrepreneurship.

In 2017, the average American worker had $581 of venture capital behind him, in Minnesota that figure was just $185—68.2 percent less. Between 2002 and 2018, Minnesota's inflow of venture capital increased by 74 percent in real terms, compared with a 427 percent increase nationally. In 2014, new and young businesses made up 30 percent of all businesses in our state compared to 34 percent nationally. In 2017, employment in new and young businesses in Minnesota was 8.8 percent of all employment. Nationally, the figure was 11.3 percent. These are the results of Minnesota's high corporate income taxes. We have the fourth highest rate of corporate income tax in the U.S.

On some economic indicators, Minnesota has impressive per capita numbers. However, when we look at per worker numbers the picture is more concerning.

For example, Minnesota's GDP per capita was $65,640 in 2018, 14th highest in the U.S. and 4.6 percent higher than the national average of $62,641. By contrast, our GDP per worker was $123,348 compared to $131,571 nationally. Our state ranked 20th in the nation on this measure, 6.7 percent below the national average. Figures for Personal Income tell a similar story.

These poor per worker numbers are a reflection of the state's below average labor productivity.

If we look at GDP per worker for the private sector, we see that in 2018 Minnesota's workers produced an average GDP totaling $119,671—8.1 percent below the national average of $130,261. On a GDP per hour worked basis, the story is the same. In the goods producing sector, Minnesota's workers produced $82.45 of GDP, 4.7 percent below the national average of $86.52. In services, our state's workers produced $67.63 of GDP per hour worked in 2018, 6.9 percent below the national average of $72.66.

Minnesota is able to achieve above average per capita outcomes with below average productivity thanks to the sheer hard work of its labor force.

In 2018, Minnesota's Labor Force Participation rate was 69.7 percent, the third highest in the country. As we have a greater share of our labor force working to produce GDP or Personal Income, so we have a greater GDP or Personal Income to divide among the population. Minnesota's above average figures for household incomes reinforce this point. Median household income in Minnesota was $71,817 in 2018, 18.8 percent above the national average of $63,179. However, households with two workers accounted for 34.0 percent of households in Minnesota that year compared to just 28.6 percent nationally. Minnesota also had a smaller portion of households with one worker or no workers.

Minnesota needs lower taxes.

Policies from state lawmakers designed to tax Minnesota's residents even more are exactly what our state does not need. Quite the contrary. Our state faces the economic headwind of an aging population. We need to maximize the share of the younger labor force which is working. But we have minimum wage policies blocking young workers from the labor market. We have excessive rates of personal taxation pushing the state's productive workers out and deterring them from coming here from elsewhere. We have high rates of business taxation which deter investment, entrepreneurship, and small business formation.

To boost the productivity of Minnesota's workers so they can generate more output and enjoy the higher standards of living they deserve, these policies need to change. Until then, our economic performance will continue to lag.

Contents

Minnesota's Economic Growth Continues to Lag

In recent years, it became fashionable to question whethercdeveloped countries need further economic growth. "Society" had all the wealth and income it needed, it just needed to be divided up more "fairly." And, anyway, the planet could not sustain further economic growth.[1]

But, as the economist Benjamin M. Friedman argued, material growth had non-material benefits. "Economic growth—meaning a rising standard of living for the clear majority of citizens—more often than not fosters greater opportunity, tolerance of diversity, social mobility, commitment to fairness, and dedication to democracy," he wrote. "[M]any countries with highly developed economies, including America, have experienced alternating eras of economic growth and stagnation in which their democratic values have strengthened or weakened accordingly."[2] It is not true, as the Marxists argued, that society is driven by its economics. But it seems unarguable that some element of the political turmoil of recent years stems from the financial crisis of 2008-2009 and the sluggishness of the subsequent recovery. In short, even the rich world needs economic growth.

How is Minnesota performing in terms of economic growth? How is it likely to perform in the future?

To answer these questions, we take a close look at data on economic inputs (workers, hours worked, capital per worker) and outputs (Gross Domestic Product, Personal Income) to see how Minnesota has been doing. We then use economic growth theory to analyze that data to see what it can tell us about the future.

Minnesota's Economy in the 21st Century

Per capita vs per worker

On a per capita basis, Minnesota's economy is often above the national average on certain key measures. On a per worker basis, however, we are often below it.

Which matters most depends on the question we are asking. Per capita numbers are a general measure of welfare, telling us how much per person is available to be consumed, invested, or put to some other use. Alternatively, per worker numbers reveal more about economic productivity. In this sense, per capita numbers can be thought of as a welfare measure, while per worker numbers are a productivity measure.[3] Ultimately, though, the economic welfare of a country or state depends on its productivity. A strong per worker productivity performance is necessary to underlie a strong per capita welfare performance.

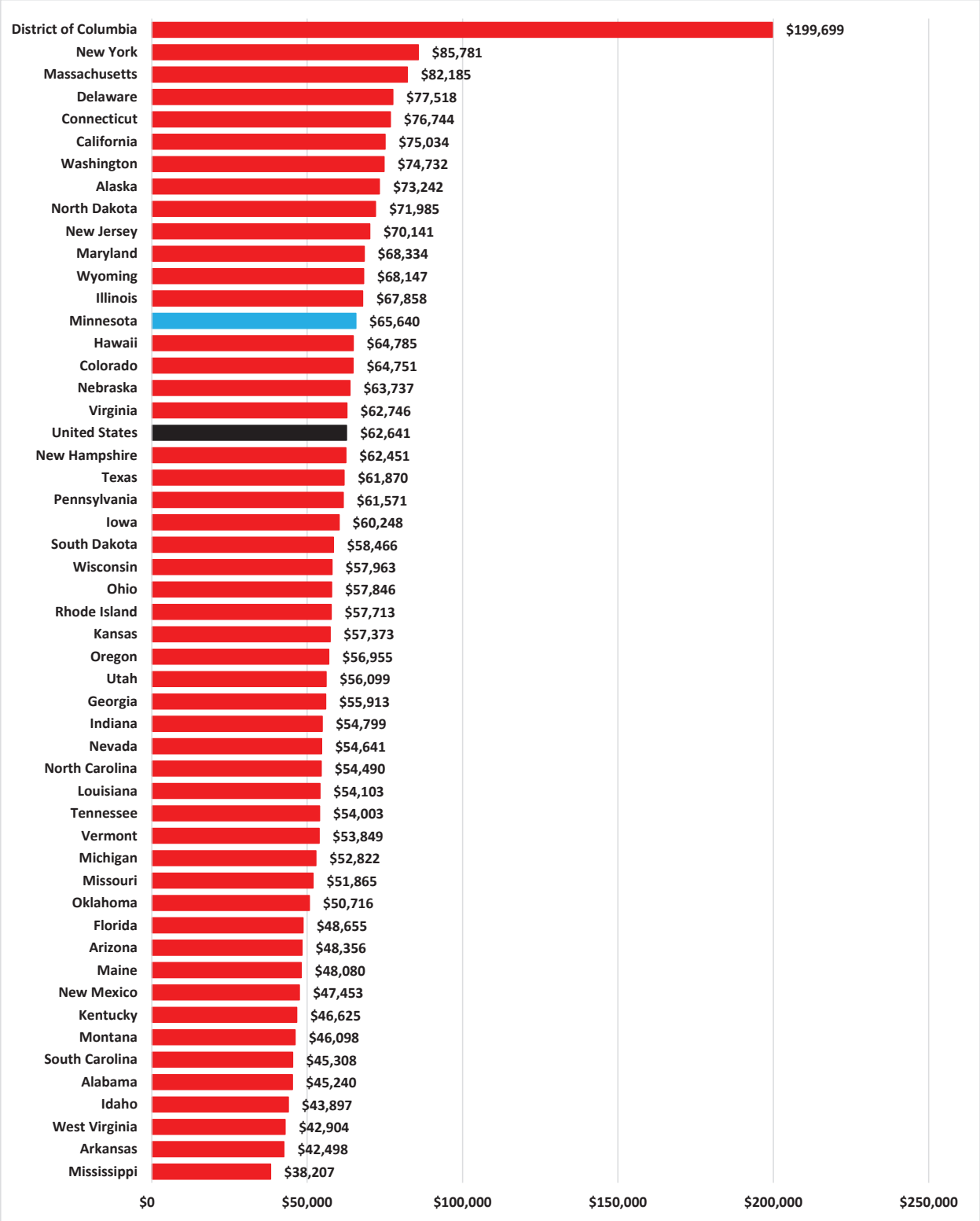
Gross Domestic Product per capita

Gross Domestic Product (GDP), also referred to as Gross State Product (GSP), is the most commonly used measure of economic performance. It measures the total market value of goods and services produced within an economy in a given period.

GDP per capita is a commonly used measure of welfare. This simply divides the amount of GDP by the population to get a clearer idea of living standards. Per capita GDP is a useful "summary statistic" of the level of economic development in the sense that it is highly correlated with other measures of quality of life.[4]

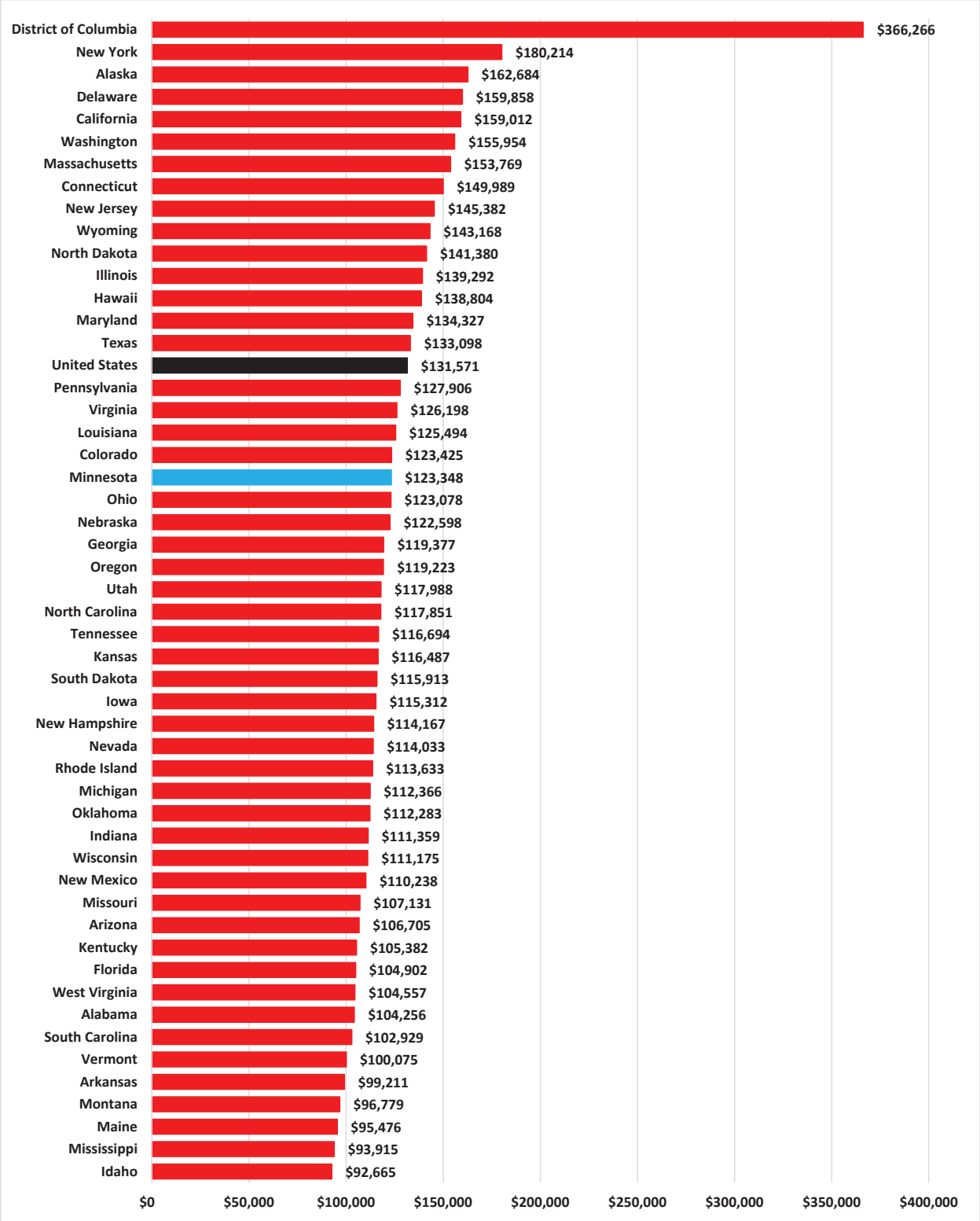
Figure 1 shows Minnesota's per capita GDP compared to the other 49 states and the District of Columbia and also the national average in 2018. Minnesota ranks 14th, with a per capita GDP of $65,640 and performs better than the nation as a whole. The average GDP per capita for the U.S. as a whole was $62,641, 4.6 percent lower.

Figure 1: Gross Domestic Product per Capita, 2018 (Current Dollars)



Source: Bureau of Economic Analysis

Figure 2: Gross Domestic Product per Worker, 2018 (Current Dollars)



Source: Bureau of Labor Statistics and Bureau of Economic Analysis

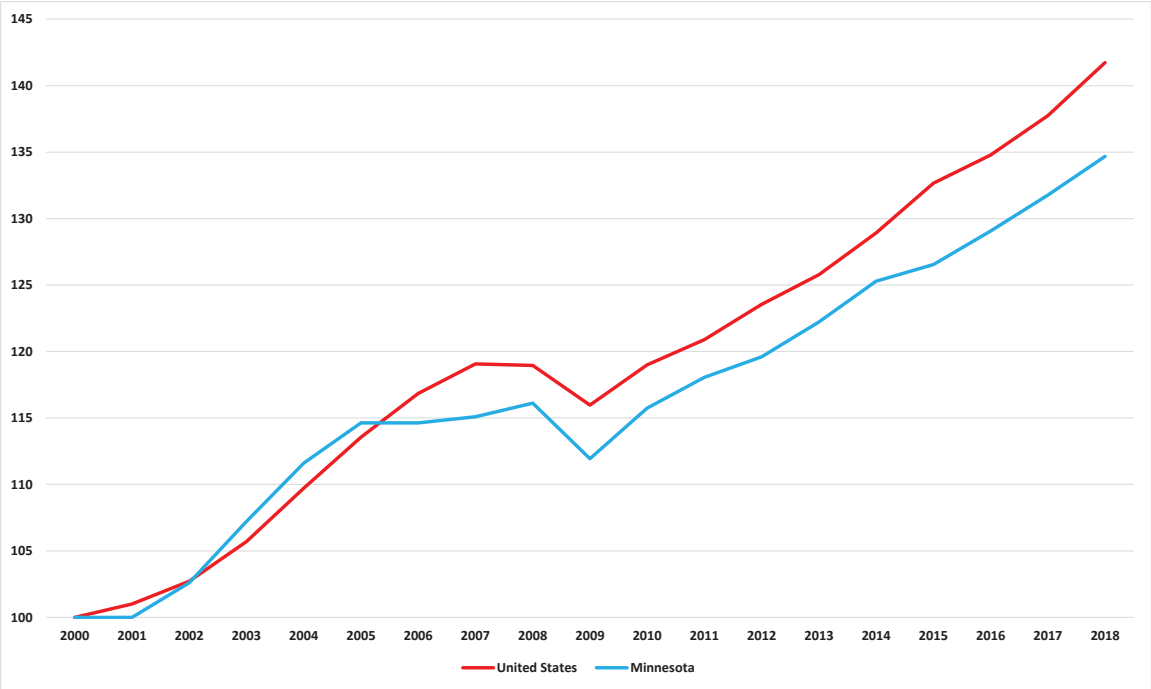
Gross Domestic Product per worker

Figure 2 shows Minnesota's per worker GDP compared to the other 49 states and the District of Columbia and also the national average. On this measure, our state performs worse than the nation as a whole. The average Minnesotan worker produced $123,348 of GDP in 2018, ranking 20th, compared to $131,571 for the average U.S. worker, 6.7 percent higher.

Gross Domestic Product growth

While Minnesota's level of GDP per capita compares favorably with the national average, that has not been the case in recent years for its growth rate of GDP.

Figure 3: Gross Domestic Product Growth in the U.S. and Minnesota, 2000-2018 (2000=100)

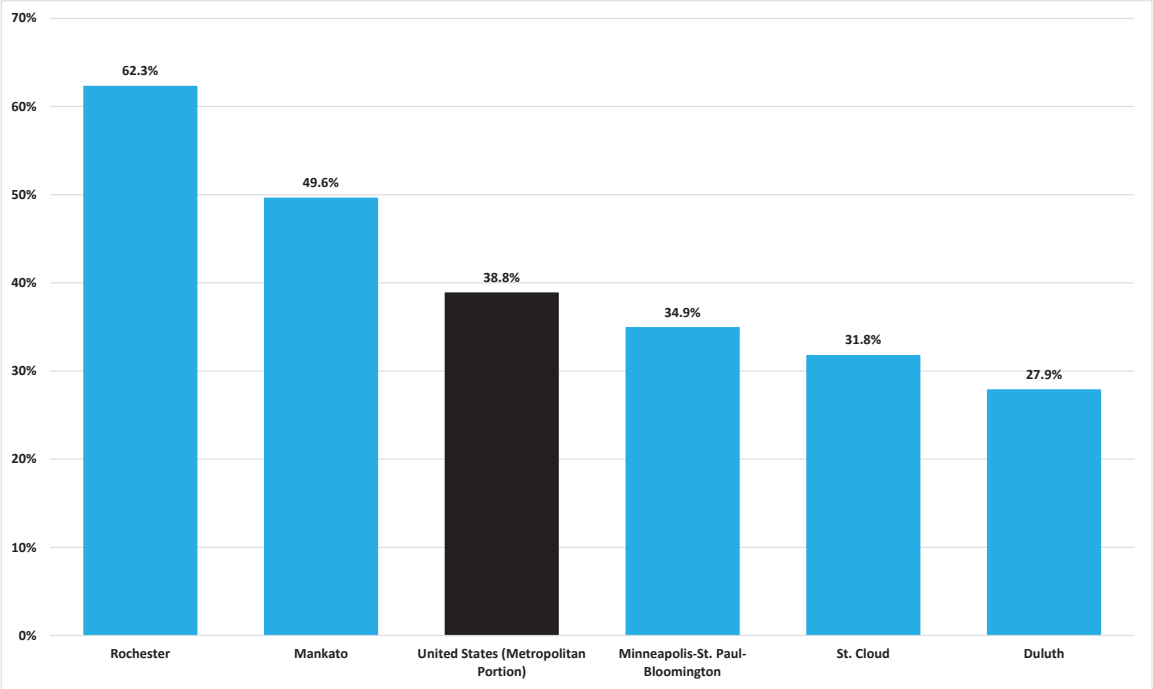


Source: Bureau of Economic Analysis

We look back to 2000. This gives us a good span of time to look at longer term trends and changes in Minnesota's economy. It also means that our data covers two periods of economic downturn and recovery, as dated by the National Bureau of Economic Research.[5]

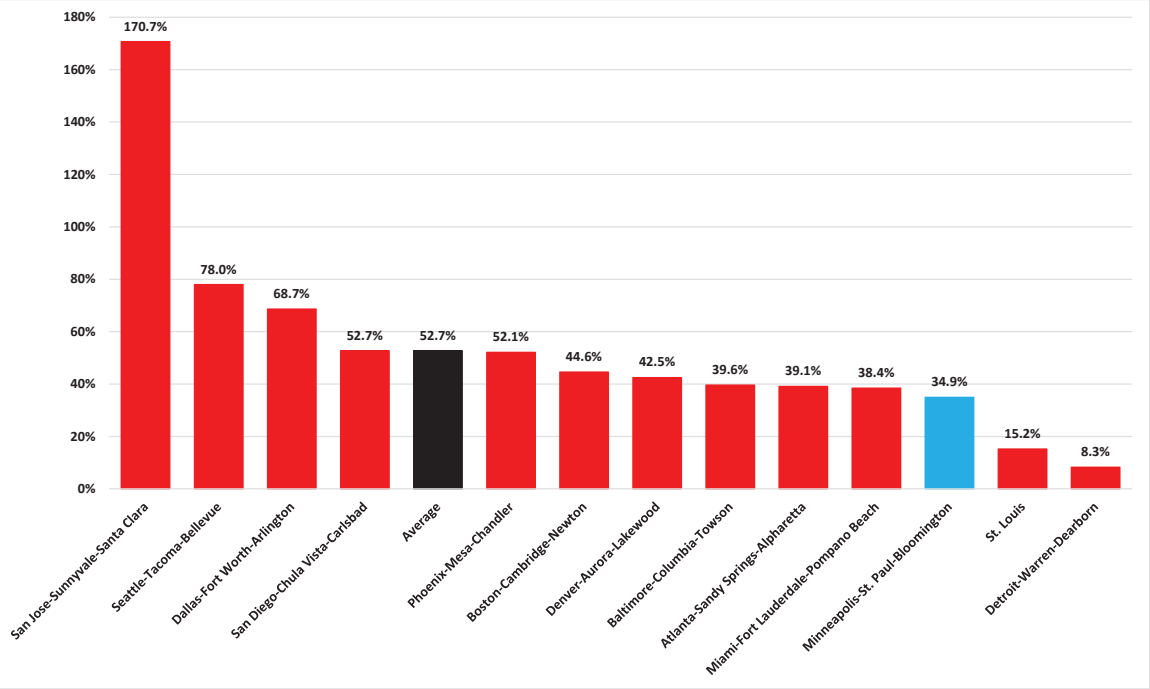
As shown in Figure 3, Minnesota's GDP growth more or less matched that of the United States generally between 2000 and 2005. After that, they diverged. Minnesota's output remained more or less flat from about 2005 to 2008. Then the recession struck, which impacted our state slightly more than the nation as a whole. Since then, Minnesota's growth has matched the national average. It has not regained any of the relative ground it lost in the mid-2000s. Overall, in 2018, the United States' economy was 41.7 percent larger in real terms than it was in 2000 while Minnesota's economy was 34.7 percent larger. If Minnesota's economic growth rate had matched that of the nation since 2000, the state's GDP would have been 5.2 percent higher in 2018 than it actually was.

Figure 4: Real Gross Domestic Product Growth by Metropolitan Statistical Area, 2001-2018



Source: Bureau of Economic Analysis

Figure 5: Real Gross Domestic Product Growth in Metropolitan Statistical Areas, 2001-2018



Source: Bureau of Economic Analysis

It is a similar story when we look at Minnesota's Metropolitan Statistical Areas (MSAs).[6] Between 2001 and 2018, GDP grew in the metropolitan portion of the U.S. by 38.8 percent. As Figure 4 shows, of Minnesota's five MSAs, two beat this growth rate—Mankato (62.3 percent) and Rochester (49.6 percent)—but the other three underperformed—Minneapolis-St. Paul (34.9 percent), St. Cloud (31.8 percent), and Duluth (27.9 percent).

The state's economic hub, the Minneapolis-St. Paul MSA, has fared badly compared with its competitors elsewhere in the country. In 2001, the Minneapolis-St. Paul MSA was the 14th largest in the U.S. by GDP, by 2018, it was 15th. As Figure 5 shows however, for the next six larger and next six smaller MSAs in 2001, the average growth rate from 2001 to 2018 was 57.7 percent, compared to just 34.9 percent for Minneapolis-St. Paul. Of its 2001 peer group, the Twin Cities only outperformed St. Louis and Detroit.

Isn't this just convergence?

It is sometimes argued that Minnesota's below average GDP growth is the result of an already high level of GDP.[7] The economic theory of convergence holds that, all else being equal, poorer economies' per capita incomes will tend to grow at faster rates than those in richer economies; they will catch up, in other words.

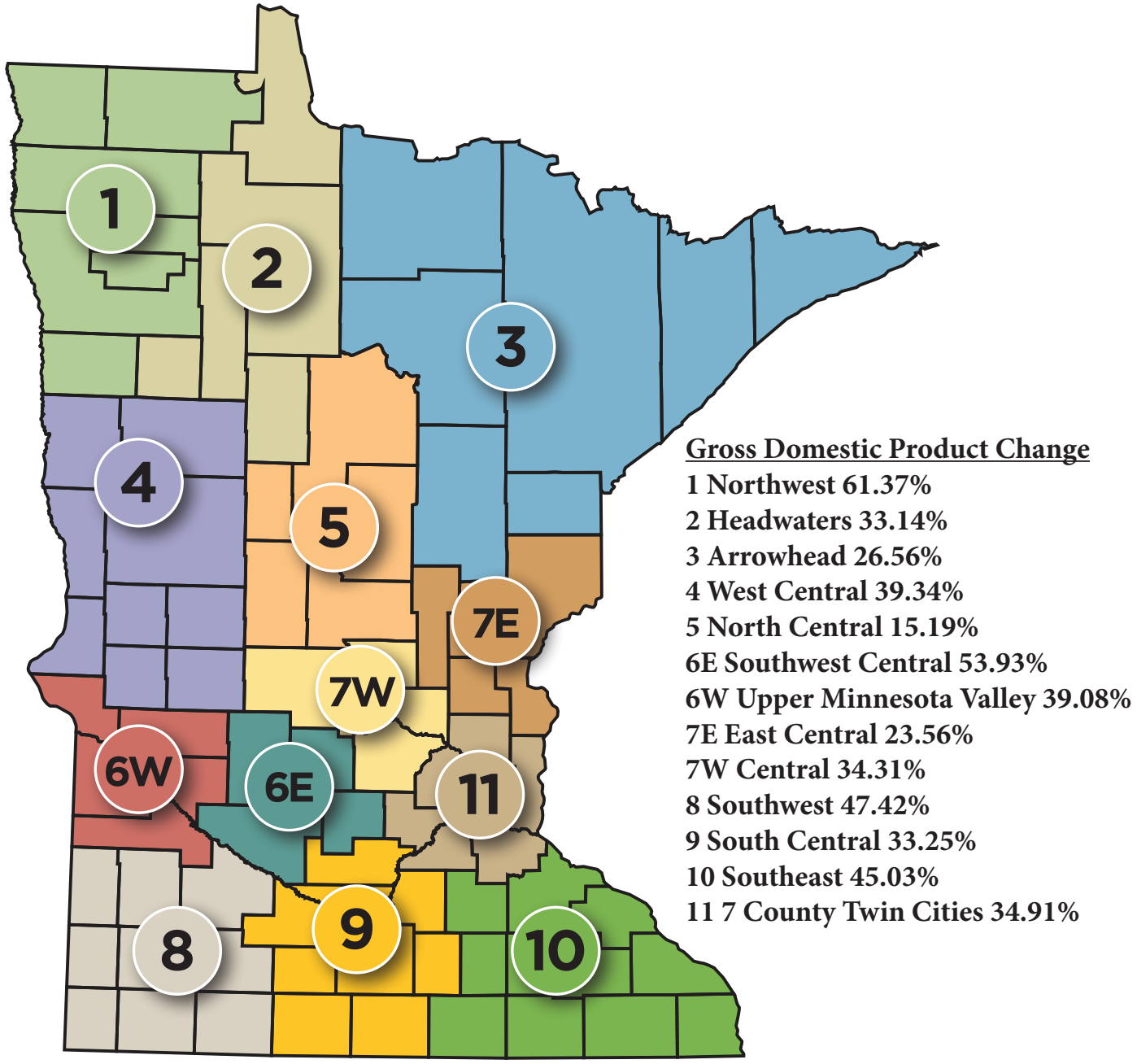
The evidence once supported this theory. During much of the 20th century, poorer states and regions in America caught up with richer ones at a rate of about 2 percent per year, a figure sometimes called the "iron law of convergence."[8] In 1930, for example, workers in Mississippi earned just 20 percent of the wages of workers in New York. By 1980, the proportion had increased to 65 percent. In 1991, the economist Olivier Blanchard wrote, "The convergence of income across regions in the United States is a robust fact." And, back then, it was.

More recent research casts doubt on this. While incomes across states converged at a rate of 1.8 percent per year from 1880 to 1980, there has been hardly any convergence at all since then. Specifically, "The convergence rate from 1990 to 2010 was less than half the historical norm, and in the period leading up to the Great Recession there was virtually no convergence at all."[9] In other words, the "convergence," which is supposed to explain Minnesota's slow rate of economic growth relative to the U.S. average, has not been happening over the period covered in our report. Our economic growth is lagging, and "convergence" does not explain it.

Other recent research finds that convergence has declined in cities too. Between 1940 and 1980, poor cities caught up with rich ones at a rate of 1.4 percent a year. Since then, they have lagged behind.[10]

Minnesota's Department of Employment and Economic Development divides our state into 13 Economic Development Regions. Looking at these allows us to get an idea of how the economy has been performing statewide. As Figure 6 illustrates, in real terms GDP growth from 2001 to 2018 ranges from 61.37 percent in the Northwest to just 15.19 percent in North Central.

Figure 6: Real Gross Domestic Product Change by Economic Development Region, 2001-2018



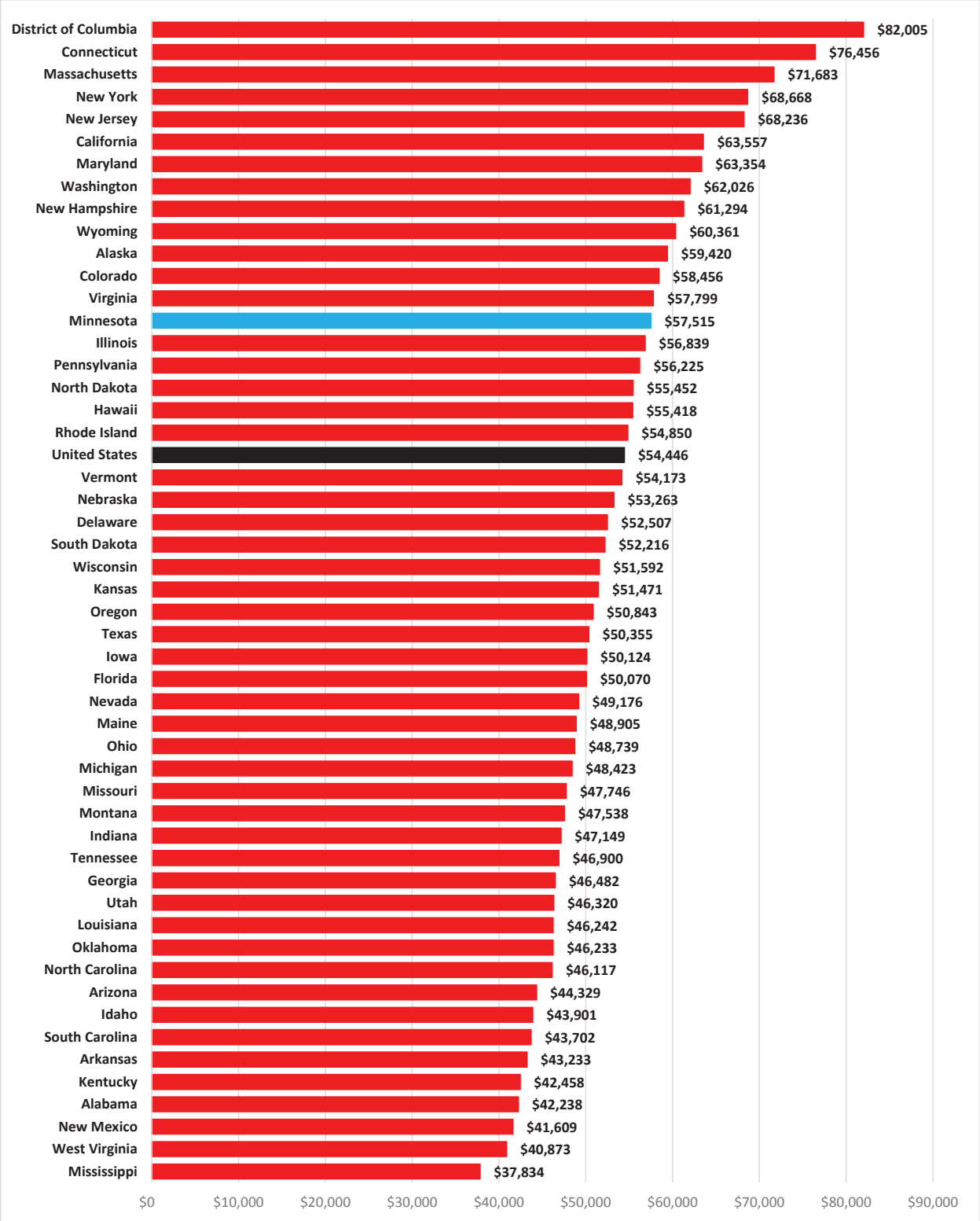
Source: Bureau of Economic Analysis

Personal Income per capita and per worker

We see the same pattern when we look at data on Personal Income.[11]

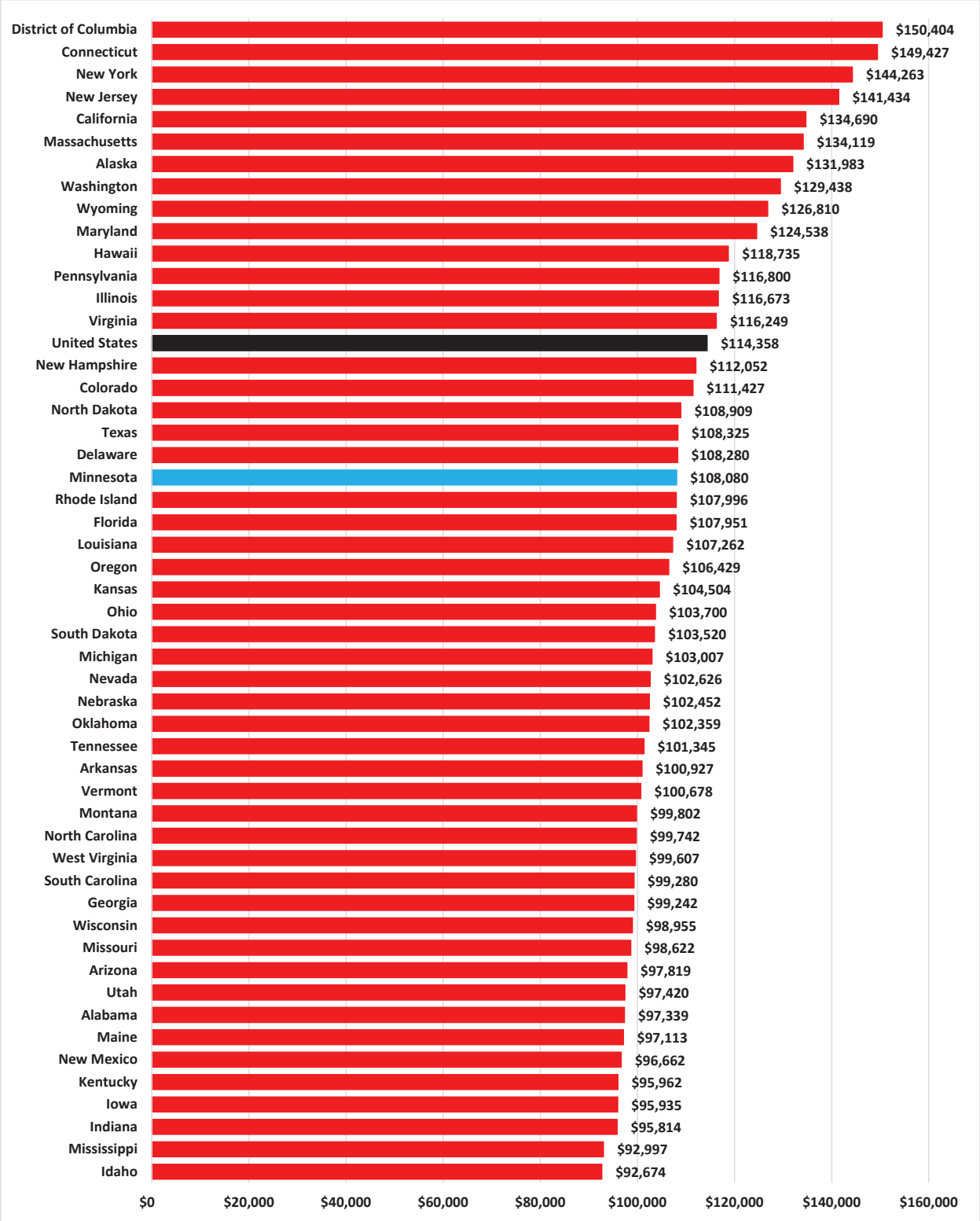
As Figure 7 shows, in 2018 per capita Personal Income in Minnesota stood at $57,515, ranking 14th nationally and 5.6 percent above the national average of $54,446. In per worker terms, however, as Figure 8 shows, in 2018 Minnesota's Personal Income of $108,080 was 5.5 percent below the national figure of $114,358.

Figure 7: Personal Income per Capita, 2018 (2018 Dollars)



Source: Bureau of Economic Analysis

Figure 8: Personal Income per Worker, 2018 (2018 Dollars)



Source: Bureau of Labor Statistics and Bureau of Economic Analysis

How do we explain the difference between per capita and per worker outcomes?

On the face of it, this difference in results between per capita and per worker outcomes would seem to be a puzzle. In fact, the answer is quite simple.

Per capita figures divide GDP or Personal Income by the entire population.[12] Per worker figures divide it by the total employed. There are two important factors that go into these equations. The first is the productivity of the labor force. This determines how much GDP or Personal Income each worker will generate. The second is the employment ratio. This tells you how many workers as a share of the population are producing GDP or Personal Income.

Productivity

Productivity is the ability to produce outputs from a given amount of inputs, such as labor or capital.[13] The ability to produce more outputs from a given amount of inputs is the essence of economic growth. Indeed, as the economist Paul Krugman has written, "Productivity isn't everything, but in the long run it is almost everything. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker."[14]

Per worker

One common measure of an economy's productivity is its labor productivity. One way to measure this is the average amount of GDP produced per worker.[15] As Figure 9 shows, Minnesota's per worker productivity in the private sector has consistently been below the national average since at least 2000. In 2018, Minnesota's workers each produced $119,671 of GDP (in 2012 dollars). This was 8.1 percent below the national average of $130,261.

Per hour worked

A measure of GDP per worker, while useful, can be skewed by part-time workers, who count the same as full-time workers but work fewer hours and produce less. It can also obscure the variation between sectors of the economy.

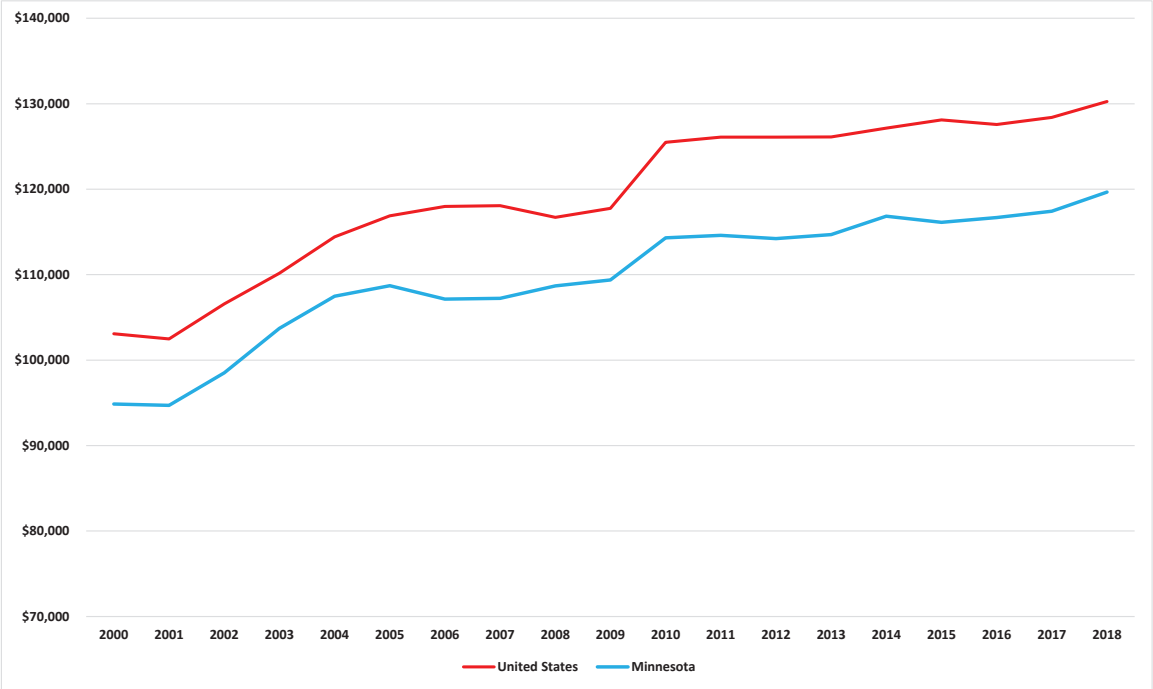
To take this into account, Figure 10 shows GDP per hour worked in Minnesota's goods producing sector.[16] The workers in this part of the state's economy are less productive than the U.S. average, producing $82.45 of GDP per hour worked in 2018. This was 4.7 percent less than the national average of $86.52. It must be stressed that Minnesota's flat performance here matches that of the U.S. generally.

Figure 11 shows GDP per hour worked for the service sector. Here, too, Minnesota is below the national average. In 2018, each Minnesota worker in the service sector produced $67.63 of GDP per hour worked. This was 6.9 percent below the national figure of $72.66.

Jobs

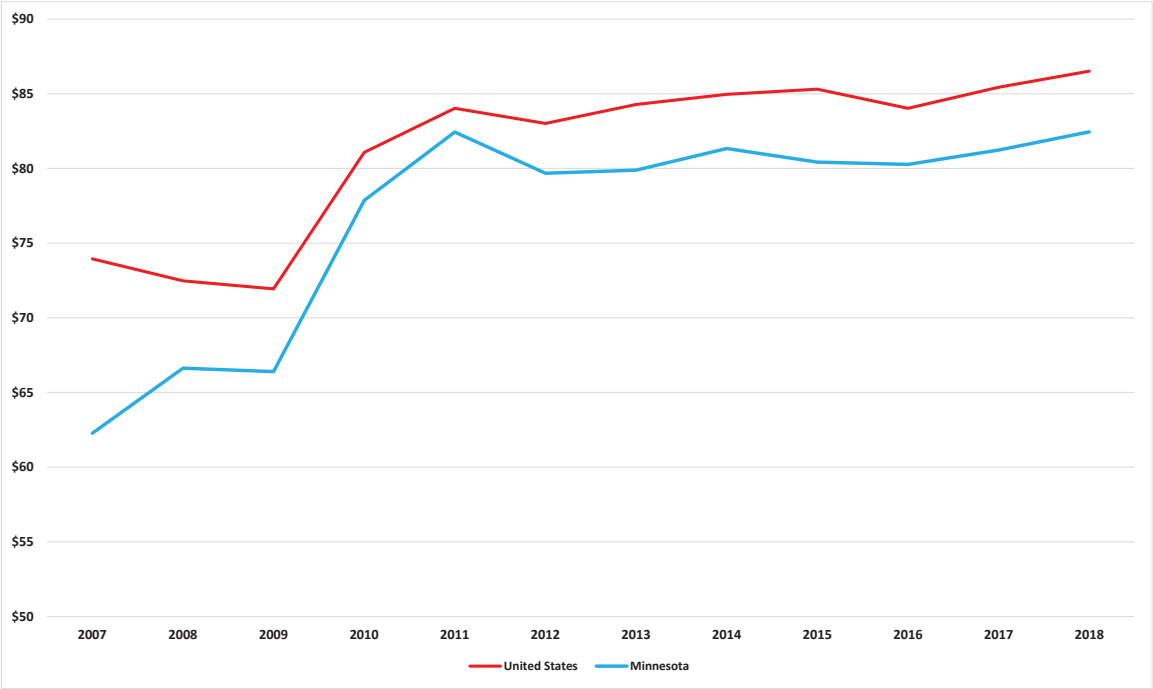
One of the major factors in Minnesota's poor productivity—and that of the U.S. generally in recent years—is the large share of new jobs which are being generated in low productivity sectors of the economy.

Figure 9: Private Sector Productivity, 2000-2017 (Real GDP per Employee, 2012 Dollars)



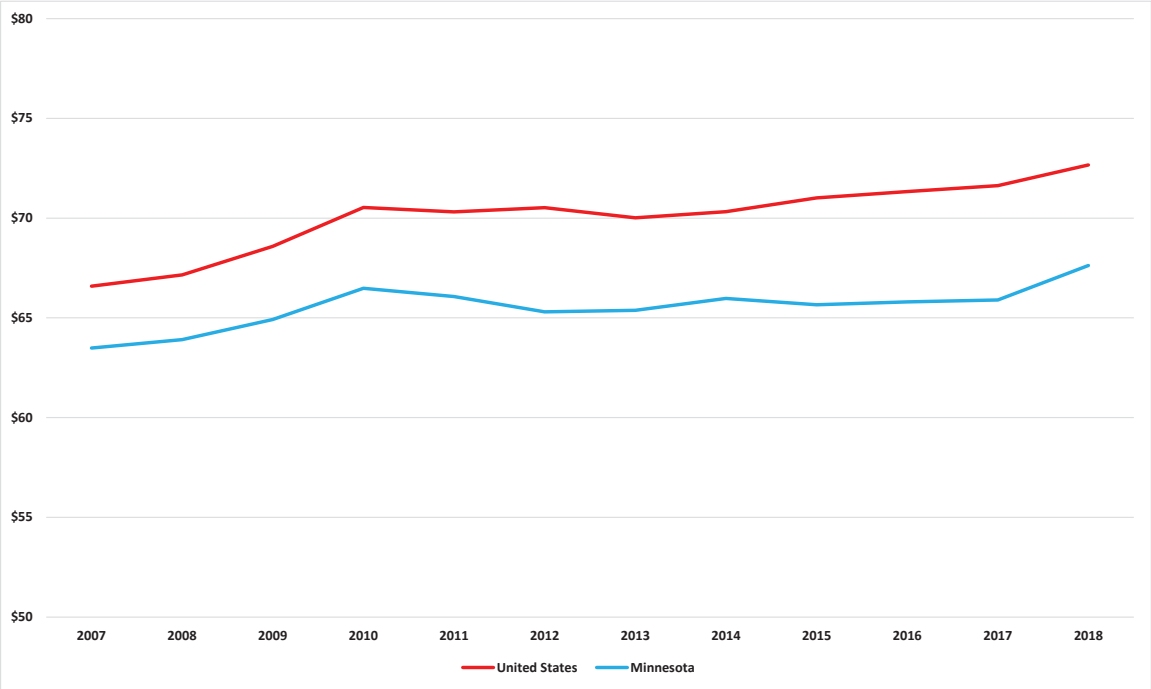
Source: Bureau of Economic Analysis and Bureau of Labor Statistics

Figure 10: Goods Producing Productivity, 2007-2018 (Real GDP per Hour Worked, 2012 Dollars)



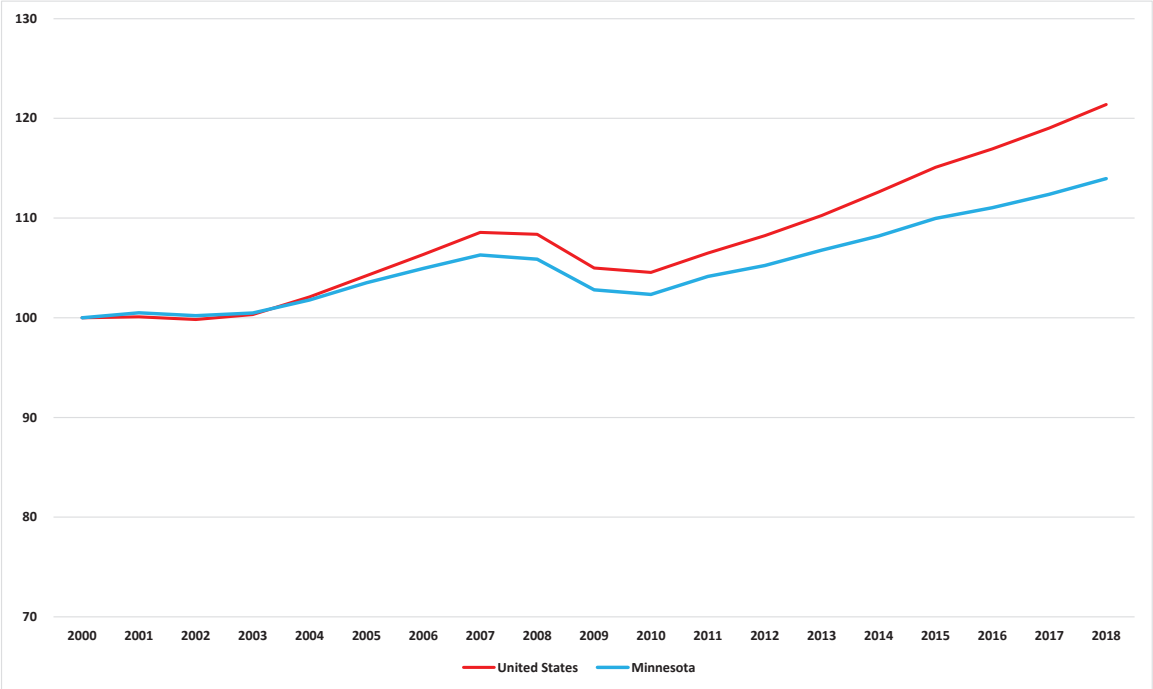
Source: Bureau of Economic Analysis and Bureau of Labor Statistics

Figure 11: Service Producing Productivity, 2007-2018 (Real GDP per Hour Worked, 2012 Dollars)



Source: Bureau of Economic Analysis and Bureau of Labor Statistics

Figure 12: Total Employment Growth in the U.S. and Minnesota, 2000-2018 (2000=100)

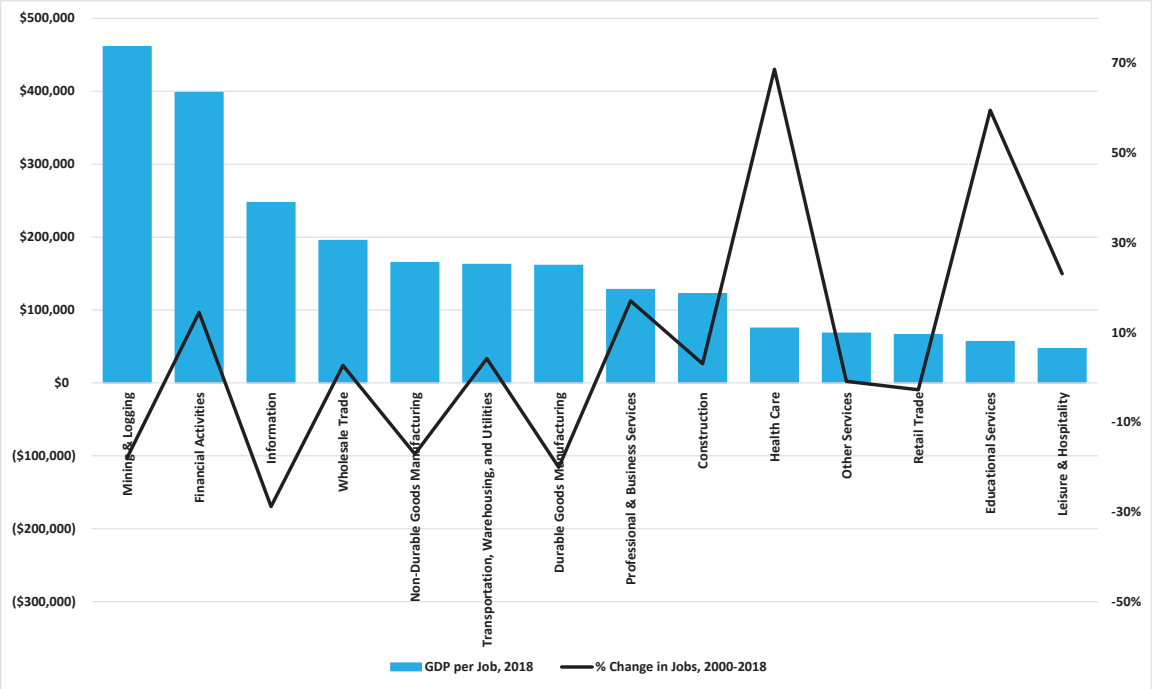


Source: Bureau of Economic Analysis

As Figure 12 shows, Minnesota's job growth has lagged that of the nation as a whole since 2000. Since the turn of the century, employment across the U.S. has grown by 21.4 percent but by just 14.0 percent in Minnesota. This ranks our state 32nd out of the 50 states and District of Columbia over the period.

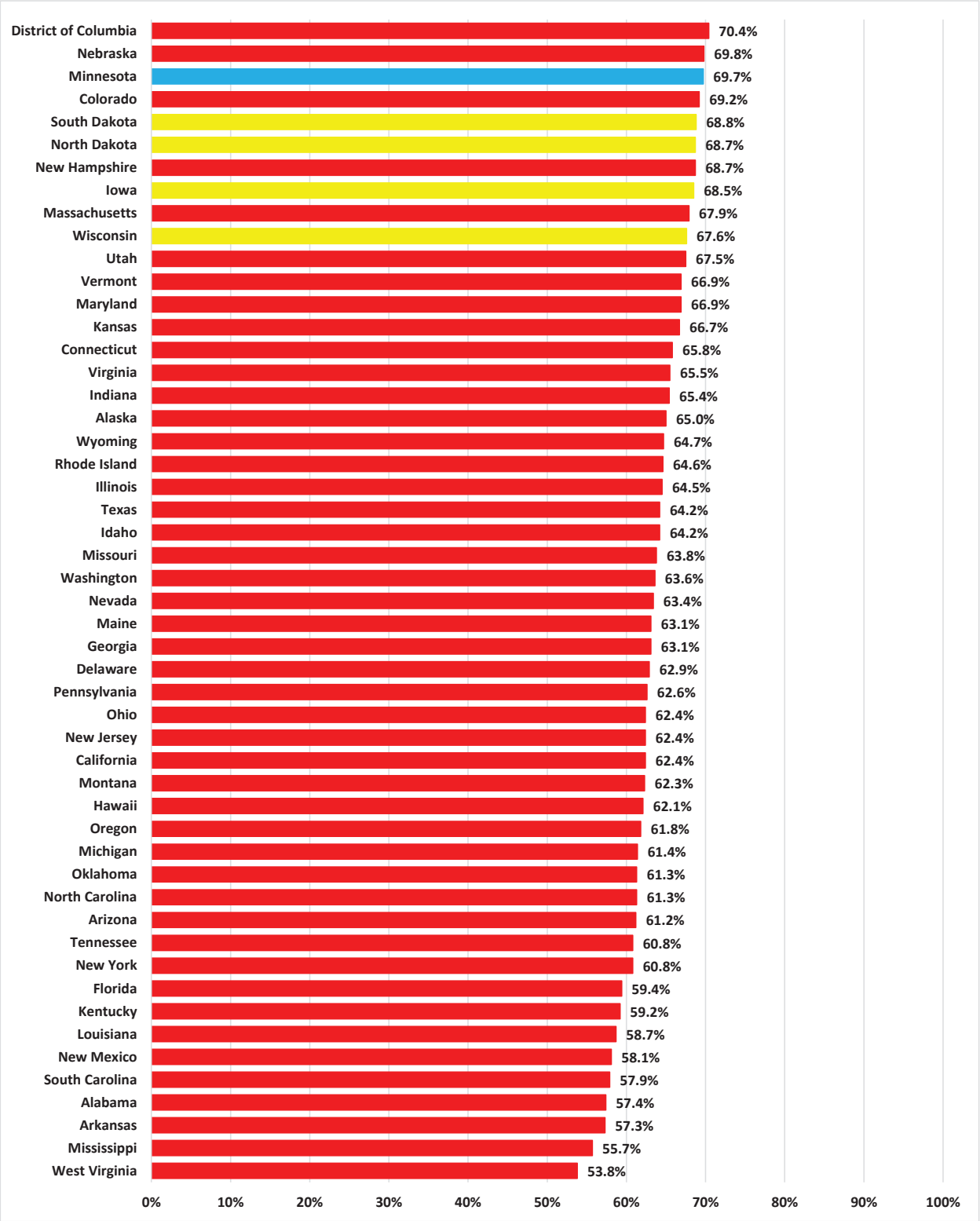
But there are further concerns when we look at the types of jobs that are being created here. Figure 13 shows the GDP associated with the average job in various occupational categories, as well as the percentage increase or decrease in those jobs since 2000. In some occupations with a high GDP per job, such as mining and logging, information, and manufacturing, the number of jobs has stagnated or even fallen. Mining & Logging, for example, generated $460,839 of GDP per job in 2018 and Information $247,280. But, since 2000, Minnesota lost 17.9 percent of its jobs in Mining & Logging and 28.8 percent of those in Information. In contrast, the fastest growing occupations, Health Care and Educational Services, have a relatively low GDP per job. Health Care jobs, for example, generate an average of $75,094 of GDP annually, but jobs there have increased by 68.6 percent since 2000. Educational Services jobs generate an average of $56,894 of GDP annually, and employment in that sector has risen by 59.5 percent over the same period. For as long as this continues to be the case, net job growth may not imply rising per capita GDP.

Figure 13: Minnesota Gross Domestic Product per Job, 2018, and Job Growth by Sector, 2000-2018



Source: Bureau of Economic Analysis and Bureau of Labor Statistics

Figure 14: Labor Force Participation Rate, 2018



Source: Bureau of Economic Analysis

Labor Force Participation

The Labor Force Participation rate is the share of a population which is in the labor force.

GDP and Personal Income are generated by the share of the population which is working. So, even if that population has, on average, relatively low per worker labor productivity, as Minnesota does, it might still produce above average levels of GDP per capita if a relatively large share of it is working. In other words, higher than average labor force participation might offset low per worker productivity to allow higher than average levels of GDP per capita.

As Figure 14 shows, that is certainly the case in Minnesota. With an average participation rate of 69.7 percent in 2018, Minnesota ranked third nationally. This is good in one sense; all else being equal it is better to have a higher share of your population working. But, to increase GDP and Personal Income per capita, they need to be working productively. And, as we saw in Figures 9, 10, and 11, they are not, at least compared to the U.S. average. Minnesotans are making up for their low labor productivity with more workers. But, to increase per capita incomes, we need to see increased output per worker, not simply an increased number of workers.

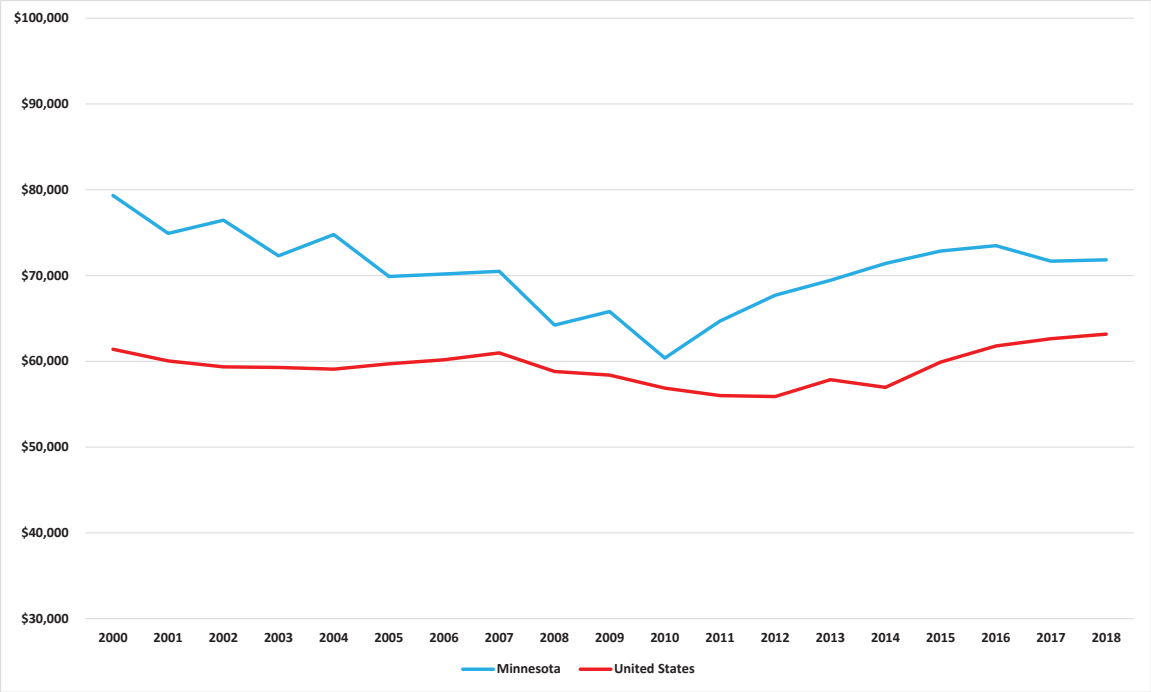
Another point to note is that all four of Minnesota's neighbors were in the top 10. Considering the similarity in outcome despite the broad range of economic policies found across these states, this suggests that there is some other driver at work besides state policy.

Household Income

Another way to look at this is to examine household incomes. As Figure 15 shows, median household income in Minnesota was $71,817 in 2018, 18.8 percent above the national median of $63,179. In 2000, the median household income in Minnesota was 129.2 percent that of the United States. In 2018, that was down to 113.7 percent.

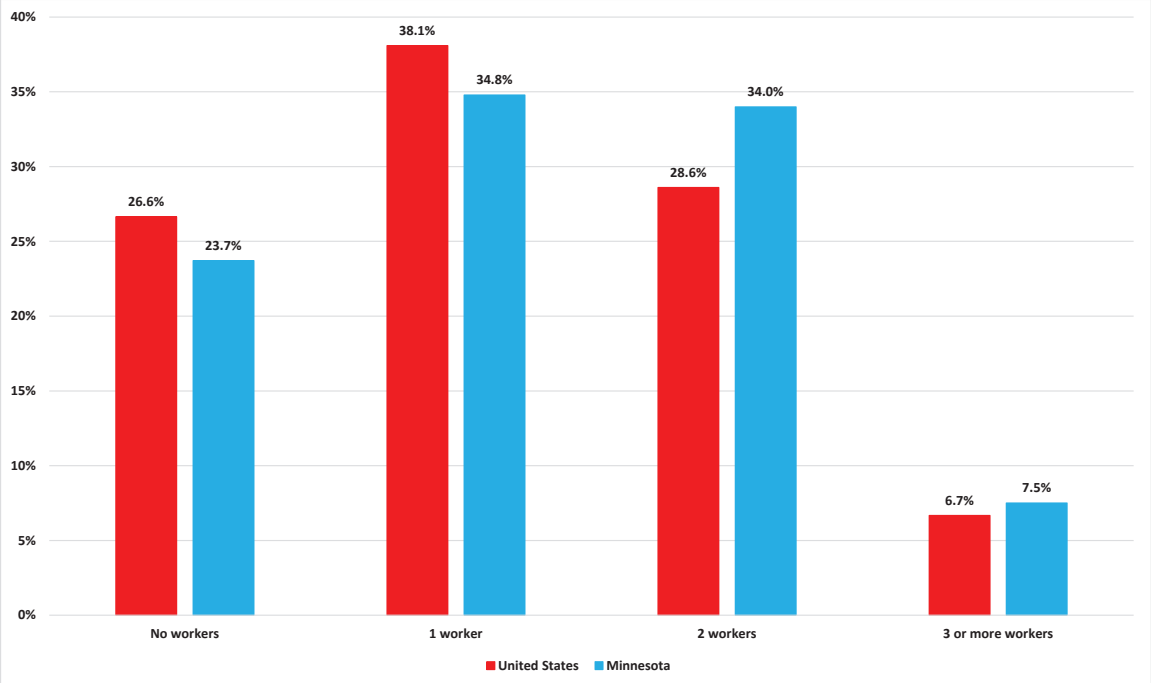
But this is partly down to the fact that each household has, on average, more people in it who are working. As Figure 16 shows, households with two workers accounted for 34.0 percent of Minnesota households in 2017, but only 28.6 percent of households nationally. Minnesota also had a smaller portion of households with one worker or no workers. Once again, one of the headline statistics of Minnesota's economic success turns out to be based on the hard work of the state's population, rather than a particularly strong economy.

Figure 15: Median Household Income for the U.S. and Minnesota, 2000-2018 (2018 Dollars)



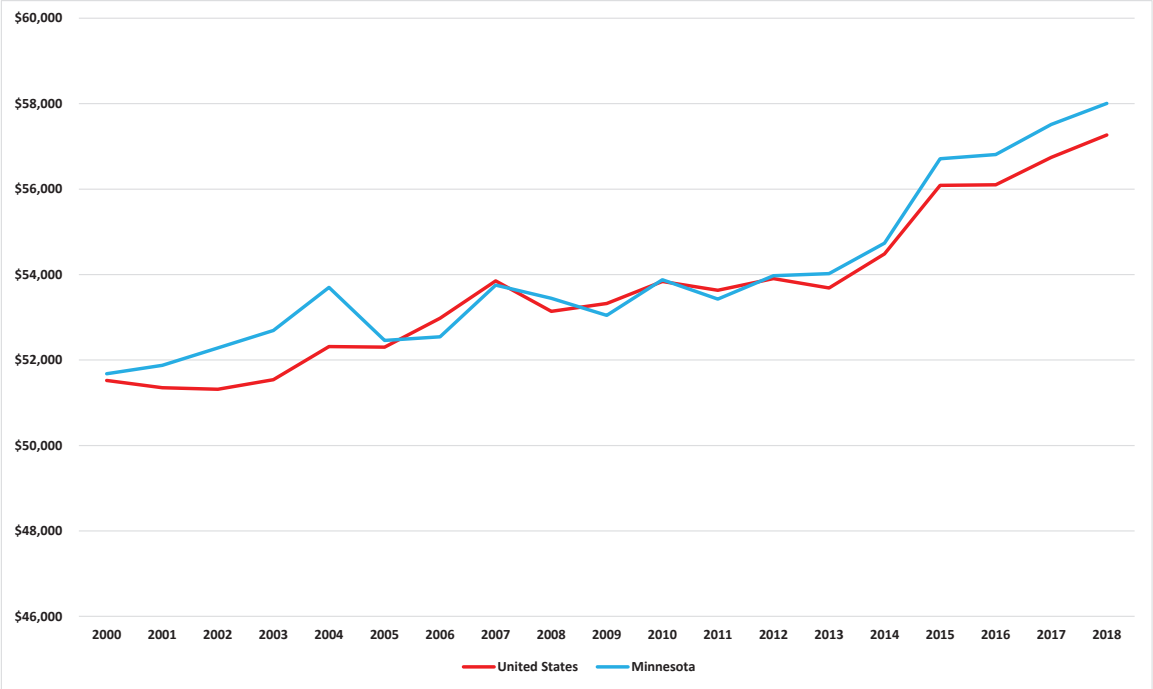
Source: Census Bureau

Figure 16: Proportion of Households by Number of Workers, 2017



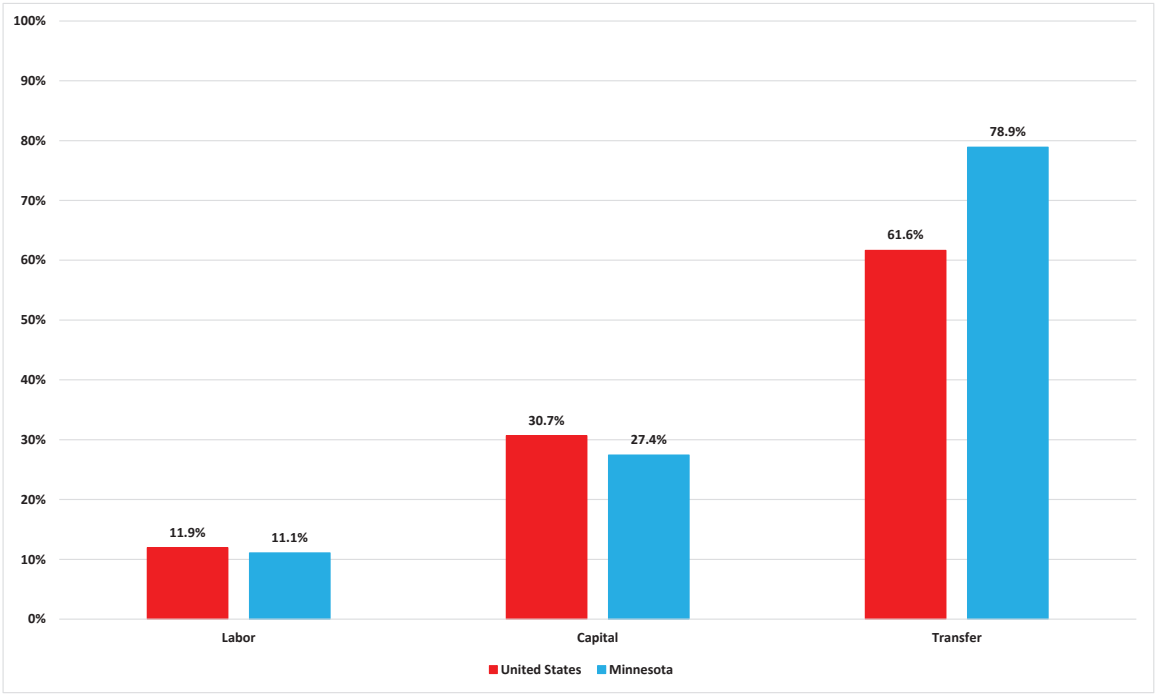
Source: Census Bureau

Figure 17: Average Annual Wage for the U.S. and Minnesota, 2000-2018 (2018 Dollars)



Source: Bureau of Labor Statistics

Figure 18: Real per Capita Income Growth by Component of Income, 2000-2018 (2018 Dollars)



Source: Bureau of Economic Analysis

Wages

Minnesota has performed slightly above the U.S. average on wages generally since 2000. As Figure 17 shows, in 2018 the average annual wage in Minnesota was $58,007 compared to $57,266 nationally.

Personal Income

Wages are just one part of total remuneration. In recent decades, they have fallen as a share of total worker compensation. In 1973, non-wage benefits accounted for 13 percent of employee compensation. By 2012 that figure had risen by half, with 20 percent of employee earnings now coming in benefits.[17]

Personal Income data can capture some of this. It contains income from three categories: labor income, capital income, and transfer income. Minnesota's Personal Income per capita leads the national average, but the per worker figures lag that same average.

The Personal Income data contain further causes for concern. As Figure 18 shows, Minnesota has experienced much stronger growth in transfer income—e.g., Social Security, Medicaid, Medicare, welfare, and other government program distributions—than in other categories, compared to the nation as a whole. While real per capita income from transfers increased by 61.6 percent nationally, in Minnesota that increase was 78.9 percent. In the other two categories of income, our increase lagged the U.S. average from 2000 to 2018.

Minnesota's Economic Prospects

What might the future hold for Minnesota's economy?

To repeat, what matters for Minnesotans is per capita or per person economic growth. The growth rate of the economy must outstrip the growth rate of the population. If the number of Minnesotans increases by 50 percent and state GDP also increases by 50 percent, then the average person is no better off. With this in mind, here we identify the sources of per capita income growth and look at indicators and prospects for Minnesota.

Sources of per capita income growth

Theories of economic growth

There are three sources of per capita GDP growth: an increase in the workforce; a rise in capital per worker; and higher Total Factor Productivity (TFP). The first two relate to the accumulation of factors of production and the third to the quality of those factors and the skill with which they are utilized.

Older economic growth theories held that there were constant returns to scale. This means that any increase of labor or capital would increase output proportionally.[18] Subsequent theories held that there were, beyond a point, diminishing returns. In this case, the addition of an extra unit of labor or capital would increase output, but by less than the addition of the previous unit. According to this theory, increases in longrun economic growth came from improvements in technology which made labor more productive. These improvements were driven by factors, such as innovation, which were determined outside the model.[19]

Still more modern are theories of increasing returns to scale. This theory states that an additional unit of input can actually increase output by more than the previous unit. This is because improved knowledge and entre-

preneurship can improve productivity. As a result, they are key for economic growth in the long run. Economists who support this theory argue that policymakers can have some influence on this and on technological improvements through education and research and development spending. With these factors being determined inside the model, they are known as endogenous growth theories.[20] The two key factors, technological change and productivity, are what make up Total Factor Productivity. Theory and evidence have shown that this is the main driver of long-run growth.[21]

Minnesota's Labor Force Participation rate

The Labor Force Participation rate is the percentage of the population that is either employed or unemployed and actively seeking work. GDP per capita is simply total GDP divided by the number of people in the state. If more of those people are working to produce GDP, then there is more of it to divide among them. As a result, a higher Labor Force Participation rate can drive greater per capita GDP.[22]

The outlook here is not good, as Figure 19 shows. The Minnesota State Demographic Center projects that the Labor Force Participation rate will fall to 64.6 percent in 2035, lower than at any time since at least 1976.[23] For the next two decades, this will be a negative value in our per capita GDP growth equation.

The Minnesota State Demographic Center predicts this decline will be driven by the retirement of Baby Boomers, those born between 1946 and 1964. But there are other concerning signs when we look at the recent record on labor force participation. Between 2000 and 2018, Minnesota's overall Labor Force Participation rate fell by 3.9 percentage points, from 75.1 percent to 71.2 percent. But, as Figure 20 shows, younger workers as well as older workers were leaving—or failing to enter—the workforce. Indeed, for workers between the ages of 16 and 19, labor force participation has slumped by 19.1 percentage points since 2000. By contrast, in the two oldest categories, labor force participation has actually increased, by 9.6 and 4.4 percentage points, respectively.

Why are younger Minnesotans less likely to be in the labor force? One answer is minimum wage legislation. Minnesota is one of 26 states and the District of Columbia to have a state minimum wage above the federal level of $7.25 per hour. For employers with an annual sales volume of $500,000 or more, the minimum wage in Minnesota is currently $9.50. Most empirical studies have found negative effects of minimum wages on youth employment.[24] Other research pinpoints further causes of declining labor force participation, including increased expanded trade particularly with China, adoption of industrial robots, increased recourse to disability benefits, increased rates of incarceration, and a rise in occupational licensing.[25]

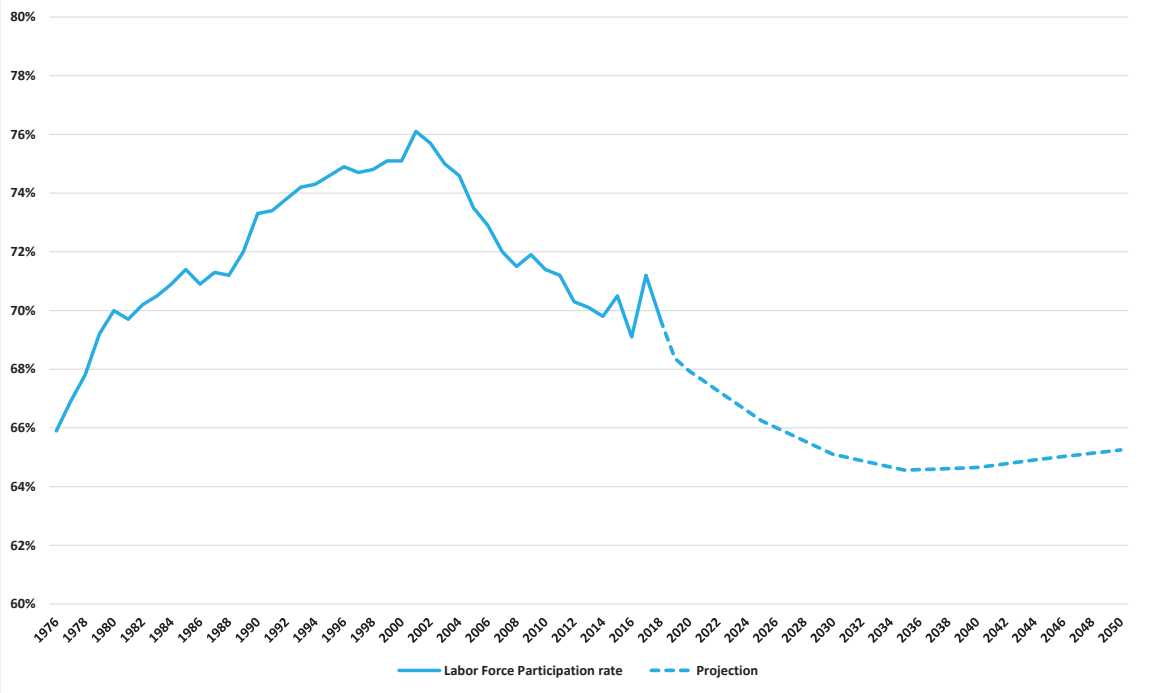
The prospects for labor force productivity

One way to maintain growth rates of per capita GDP in the face of a stagnant or falling labor force is to increase the productivity of that labor force. If each worker produces a greater amount of GDP, then GDP per capita can continue to increase even in the face of a shrinking labor force.

There is scope for Minnesota to improve here. In the next two sections, we look at ways productivity might be improved with increased capital per worker and improved TFP. But Minnesota could also improve its productivity prospects by attracting high productivity workers to the state or holding onto those it already has.

Sadly, Minnesota has performed poorly on this front. Using income as a proxy for productivity, Figure 21

Figure 19: Minnesota's Labor Force Participation Rate, 1976-2050



Source: Bureau of Labor Statistics and Minnesota State Demographic Center

shows that Minnesota attracts lower-income residents and loses higher-income ones. Furthermore, these losses are not limited to the so-called "rich" who might be fleeing the state's high top rate of tax. Between 2011 and 2018, Minnesota saw a net outflow of people above a threshold of $50,000 in income annually.

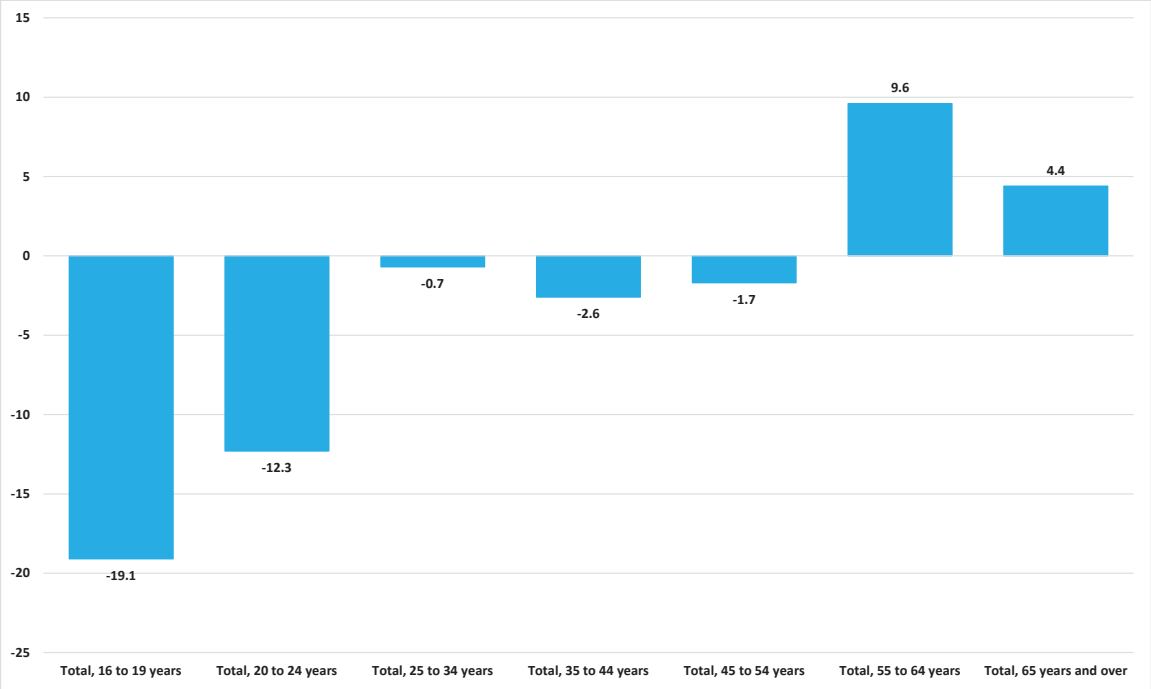
There is evidence that high personal tax rates are a factor driving these population flows.[26] And Minnesota's taxes are some of the highest in the U.S. It is one of the 43 states to have its own income tax, but, as Figure 22 shows, the top rate—9.85 percent on taxable incomes over $163,890—is higher than anywhere else apart from California, Hawaii, New Jersey, and Oregon. Equally significant, perhaps, is the fact that Minnesota's lowest income tax rate of 5.35 percent is higher than the highest tax bracket in 25 states.

A common misconception is that this out-migration is primarily accounted for by "snow birds," older Minnesotans leaving the state for friendlier climates. This is not the case. As Figure 23 shows, between 2011 and 2018 Minnesota lost residents in every age group over age 35. People aged 45 to 54—people in the prime of their working lives—made up a substantial share of the loss.

Growth of Capital Per Worker

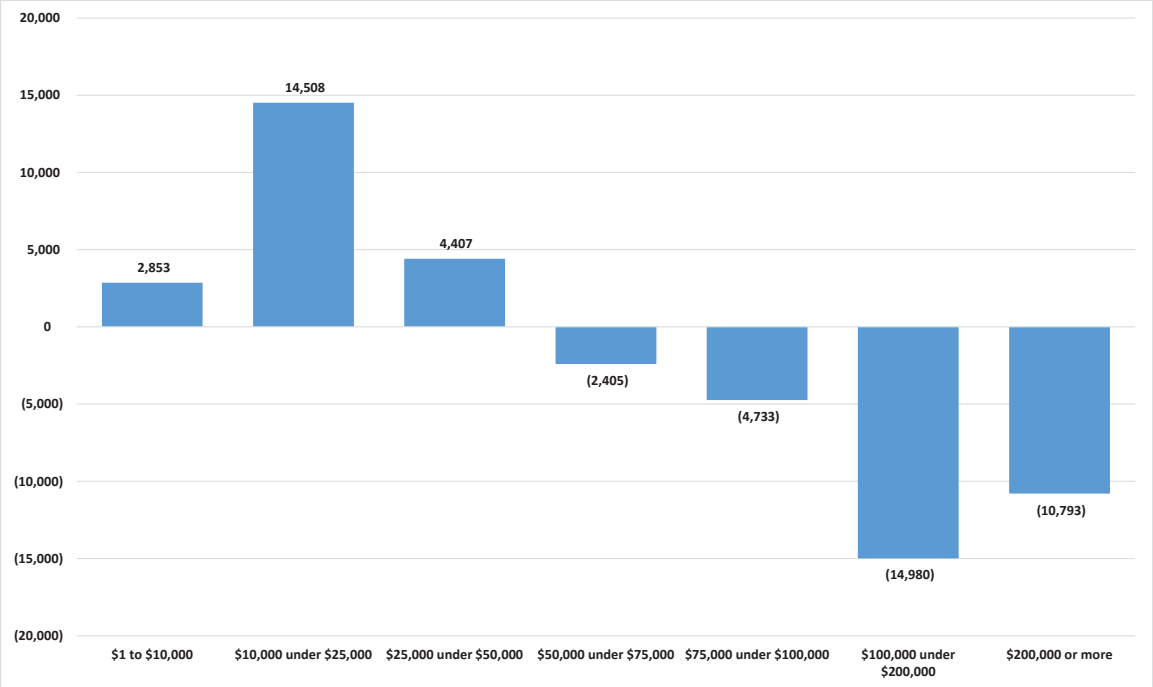
Capital per worker refers to the amount of capital each worker has to work with. Increasing capital per worker makes workers more productive, until the point where diminishing returns set in. By enabling workers to produce more, it raises wages and GDP per capita.

Figure 20: Percentage Point Change in Labor Force Participation in Minnesota, 2000-2018



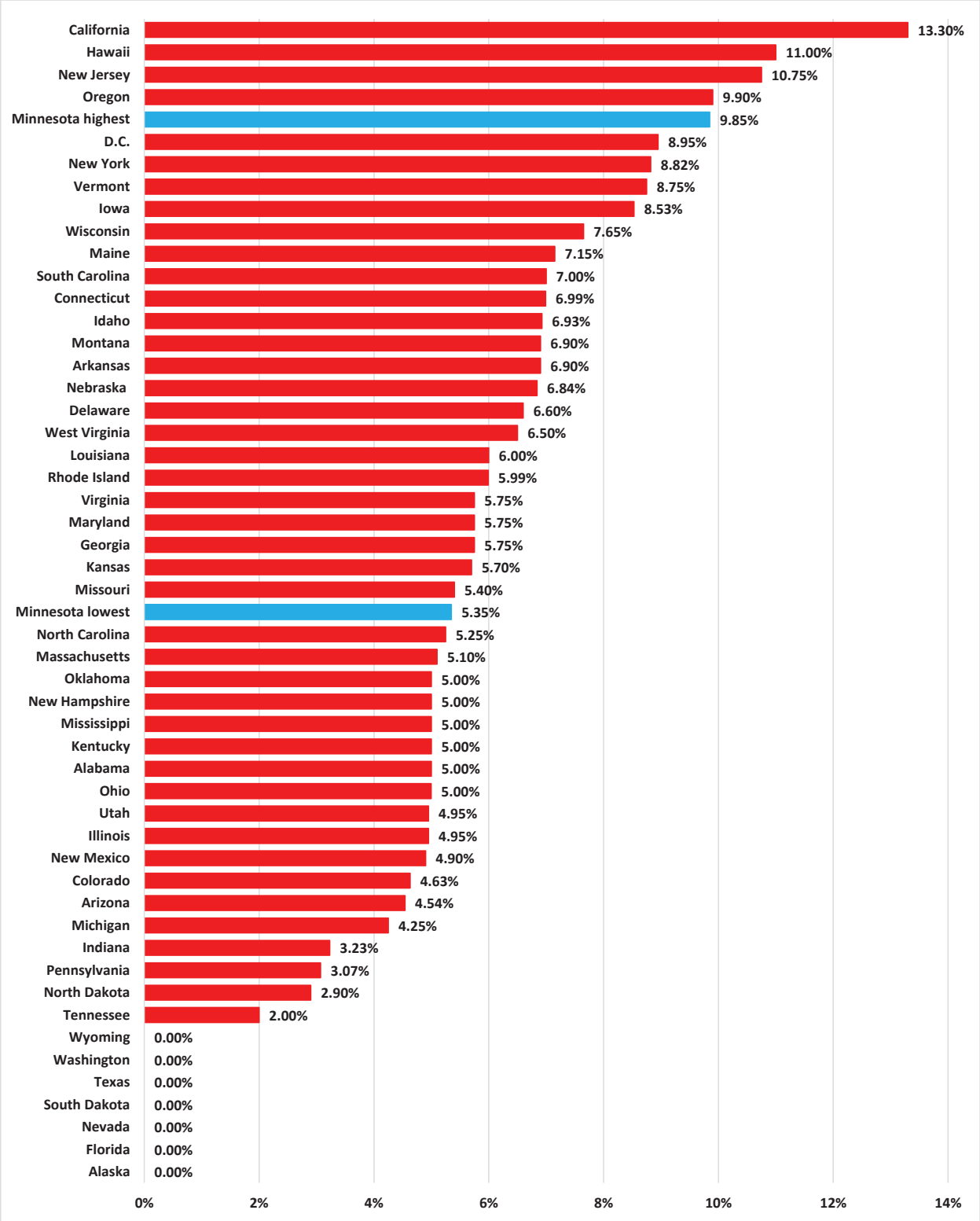
Source: Bureau of Labor Statistics

Figure 21: Net Flow of Taxpayers and Dependents to Minnesota by Income of Primary Taxpayer, 2011-2018



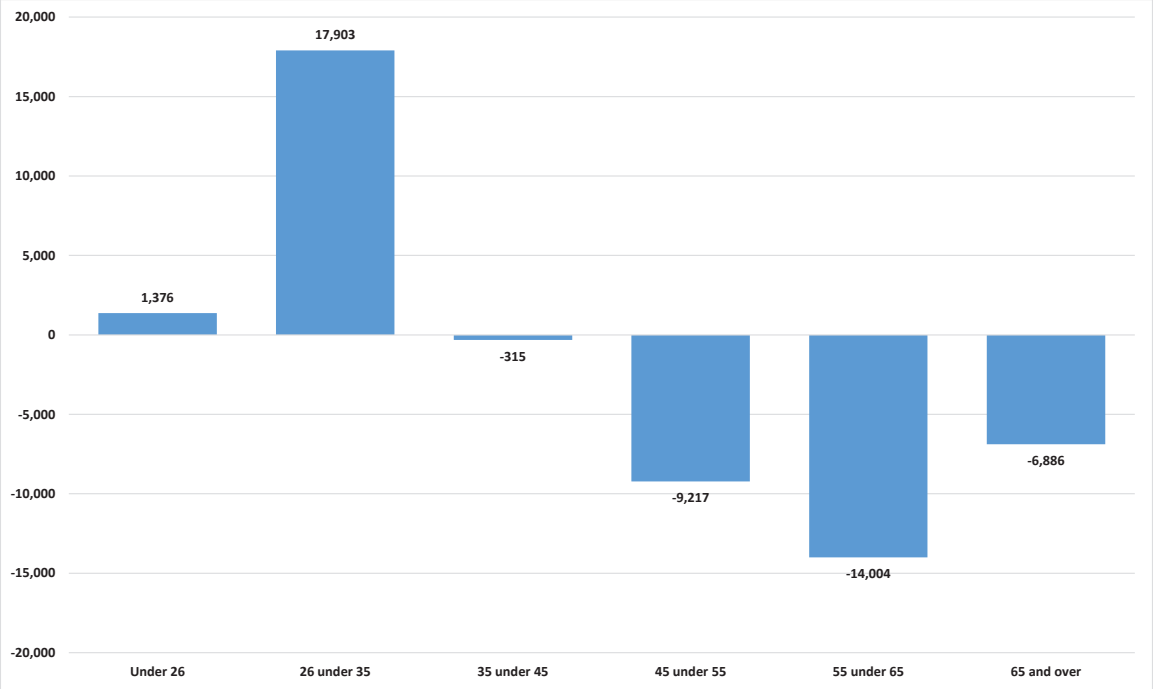
Source: Internal Revenue Service

Figure 22: Top Rates of State Personal Income Tax and Minnesota's Top and Lowest Rate, 2019



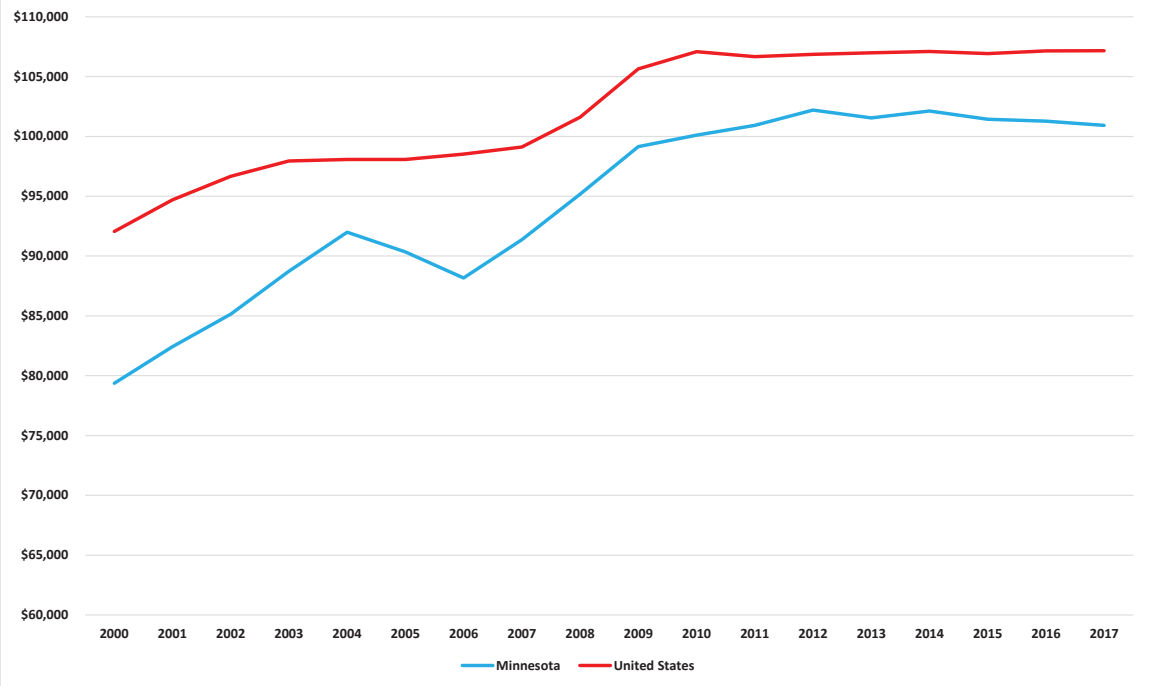
Source: The Tax Foundation

Figure 23: Net Flow of Taxpayers and Dependents to Minnesota by Age of Primary Taxpayer, 2011-2018



Source: Internal Revenue Service

Figure 24: Capital per Worker in the U.S. and Minnesota, 2000-2017 (2009 Dollars)



Source: Bureau of Economic Analysis

Minnesota performs relatively poorly here. The state's levels of capital per worker have been below the national average since at least 2000, as Figure 24 shows. In 2017, the average Minnesota worker had $100,917 of capital to work with, 5.8 percent below the national figure of $107,170.[28] Although the gap narrowed a little from the mid-2000s, it has widened again since 2014.

Growth in the capital available to Minnesota's workers is driven by the amount of investment capital to which business owners have access. This will move with the expected after-tax rate of return on investment, which is a measure of the flow of income generated by an investment in the stock of capital. It is primarily affected by tax rates.[29] Evidence indicates that corporate income taxes have a large negative effect on aggregate investment and entrepreneurial activity.[30] They are also a major influence on foreign investment decisions.[31] Evidence shows that high rates of corporate tax reduce entrepreneurship[32] and significantly influence firm and household location.[33]

Minnesota's taxes are not conducive to capital investment. The Tax Foundation ranks Minnesota 43rd out of the 50 states for its business tax climate.[34] Minnesota's top rate of Corporate Income Tax is 9.80 percent. As Figure 25 shows, this is the fourth highest in the U.S. Only Iowa (12 percent), New Jersey (11.50 percent), and Pennsylvania (9.99 percent) have higher rates.

The impacts of these tax rates can be seen in other data. Minnesota has a poor recent record of attracting venture capital, as shown in Figure 26. In 2018, the average American worker had $581 of venture capital behind him or her. In Minnesota, the figure was just $185—68.2 percent less. Over the period 2002 to 2018, Minnesota's inflow of venture capital increased by 74 percent in real terms, compared with a 427 percent increase for the nation as a whole.

Research has found that tax rates have a mixed to negative effect on entrepreneurial activity.[35] Corporate income tax rates are associated with lower levels of entrepreneurship,[36] and may also uniquely harm entrants over incumbent firms.[37]

Total Factor Productivity

The third source of per capita GDP growth is an increase in Total Factor Productivity. This is a measure of technological improvement and productivity.

Is immigration the answer?

One policy often suggested as a remedy for the state's shrinking workforce is increased immigration. But this relies on two assumptions.[27]

The first is that the new arrivals will have a Labor Force Participation rate at least as high as that of the population already here. If they do not, they actually will lower the Labor Force Participation rate, exacerbating the very problem they are proposed to solve. There is good news here. According to U.S. Census Bureau data, the Labor Force Participation rate among Minnesota's foreign-born population was 72.7 percent in 2016, above that for native-born Minnesotans.

The second assumption depends on the new arrivals being at least as productive as the workers already here. Considering GDP per capita, immigrant workers add to the denominator (population) as well as the numerator (GDP). If these workers increase the population by a greater percentage than they increase GDP, they will lower GDP per head.

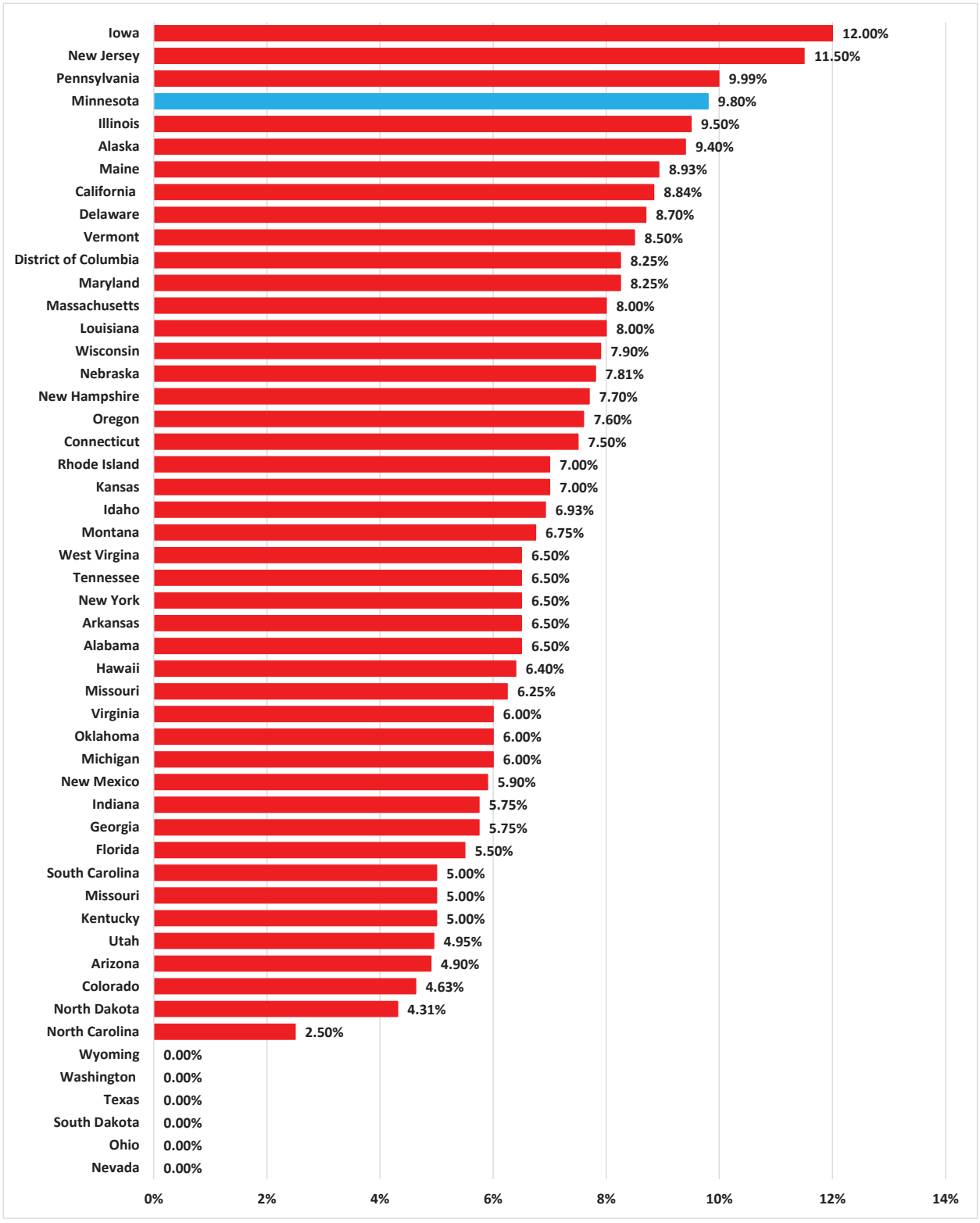
What matters is the skill level of the workers. Here the picture is less positive. There are 32.6 percent of immigrants aged 25 or older who have bachelor's degrees or higher, a figure similar to native-born Minnesotans' 35 percent. However, whereas 34 percent of native-born Minnesotans have attended some college or earned an associate's degree, that figure is just 21.6 percent for foreign-born Minnesotans and falls to 15.5 percent for foreign-born non-citizens. While 30.8 percent of native-born Minnesotans have a high school diploma or less and just 4.9 percent are not high school graduates, for foreign-born Minnesotans these numbers are 45.8 percent and 27.1 percent, respectively. For foreign-born residents who are not citizens these figures rise to 52.7 percent and 34.4 percent.

This is reflected in the jobs Minnesota's immigrants do. Foreign-born workers are found more often in service occupations, which include health care support, protective service, food preparation and serving, building and grounds cleaning, and personal care occupations. These are lower-productivity jobs that generate relatively low levels of GDP.

Reflecting on these gaps in education and skills, it is clear that many immigrants will need access to education to be prepared for the workforce. But this will come at a cost to Minnesota taxpayers. From an economic-growth perspective, would it not be better to focus on attracting educated, highly skilled immigrants who do not need to be trained at taxpayer expense?

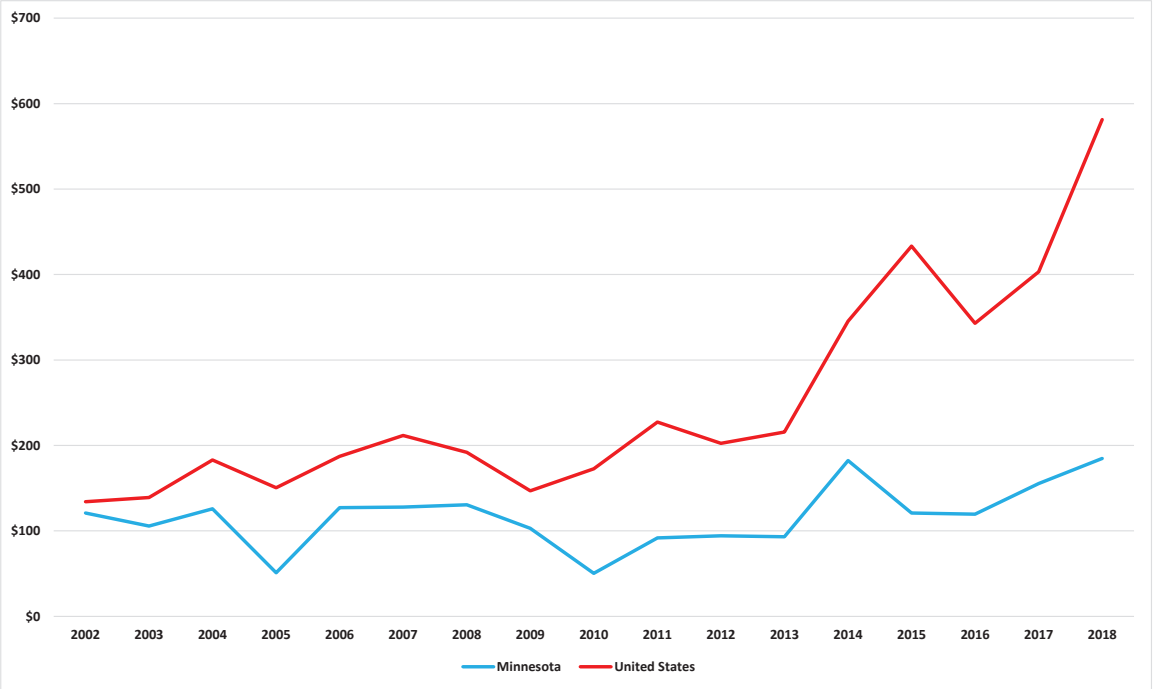
Immigrants can play a part in boosting Minnesota's economic growth in years to come. But "immigrants" is a broad term covering everyone from tech company CEOs to refugees, and it is analytically unhelpful to lump them all together. Where economic growth is concerned, our state needs to attract those with more skills.

Figure 25: Top Rates of Corporate Income Tax, 2019



Source: The Tax Foundation

Figure 26: Venture Capital per Worker, 2002-2018 (2018 Dollars)



Source: PwC/NVAC Money Tree Report, Bureau of Economic Analysis

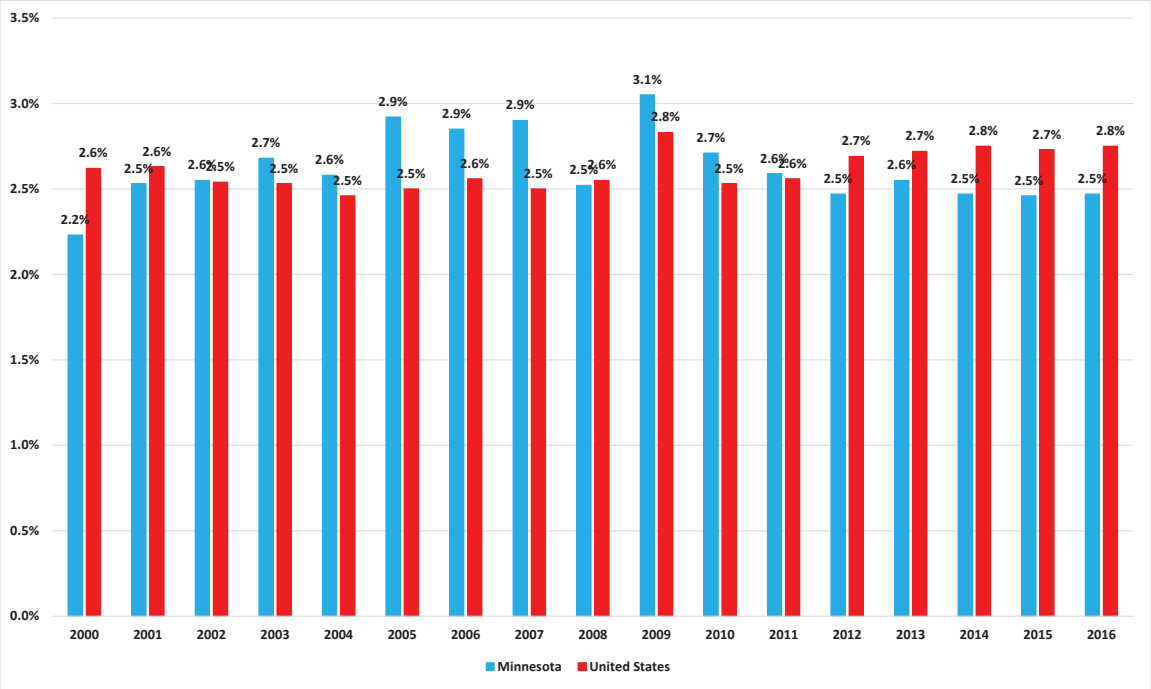
Research and development spending in Minnesota

The first of these factors, technological improvement, simply refers to the improvement in the quality of capital, rather than its quantity (which was previously discussed). A farm's workers, for example, might initially become more productive if they were given more tractors. But, if they had more than one tractor each or too many to operate usefully on the farm's land, then any further increase in the number of tractors would bring diminishing returns. By contrast, the adoption of new technology, such as enhancement of seed planting efficiency, will raise productivity by raising the quality of technology.

The quality of physical capital can be improved by Research and Development (R&D). Research also finds that R&D increased employee departures to new start-ups that are venture capital backed, high tech, high wage, and in different sectors than the parent firm.[38]

Figure 27 shows the R&D intensity for Minnesota and the national average. This is the ratio of total R&D performed in a state to its state GDP. The state currently lags the national average on this measure of R&D spending. Between 2003 and 2011, as a share of GDP, Minnesota devoted more resources to R&D than the national average. But since 2012, our state has lagged the nation. In 2016, the figure for the U.S. was 2.75 percent, in Minnesota it was 2.47 percent. Once again, research has shown that high tax rates, such as Minnesota's, reduce innovation.[39]

Figure 27: Research and Development Intensity, 2000-2016



Source: Organisation for Economic Co-operation and Development and the National Science Foundation

Entrepreneurship in Minnesota

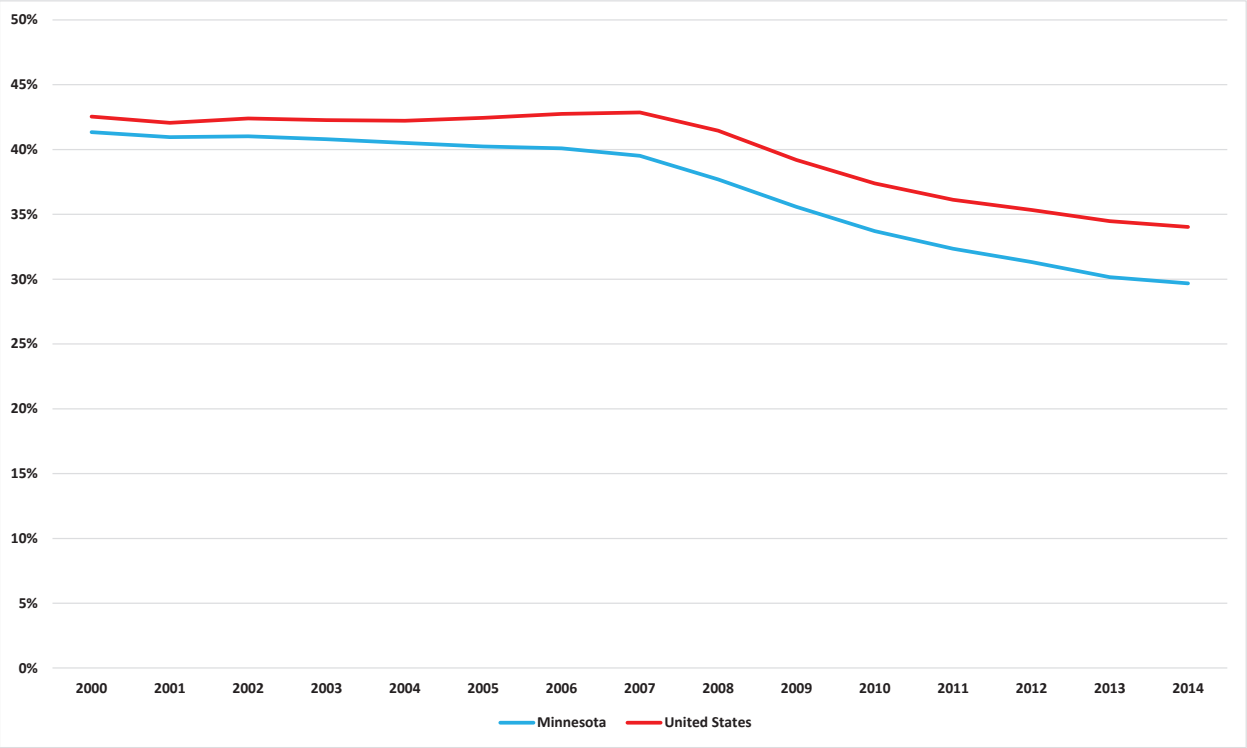
The second of these factors refers to the skill with which inputs such as land, labor, and capital are combined. It might be termed entrepreneurship. An example here would be Henry Ford's pioneering of the production line technique, which enabled his workforce to produce a vastly greater quantity of motor cars.

Minnesota has a relatively poor record on new business creation. These businesses are of vital economic importance. Evidence shows they contribute disproportionately to both gross and net job creation,[40] play a major role in business cycles,[41] and account for an outsized share of the innovation and aggregate productivity growth that raises living standards.[42]

Figure 28 shows the share of new and young businesses (those aged 0 through 5 years) for Minnesota and the U.S. In 2000, new and young businesses as a share of all businesses were 41 percent in Minnesota and 43 percent nationally. By 2014, the most recent year for which we have data, that number had fallen nationally to 34 percent but in Minnesota to 30 percent.

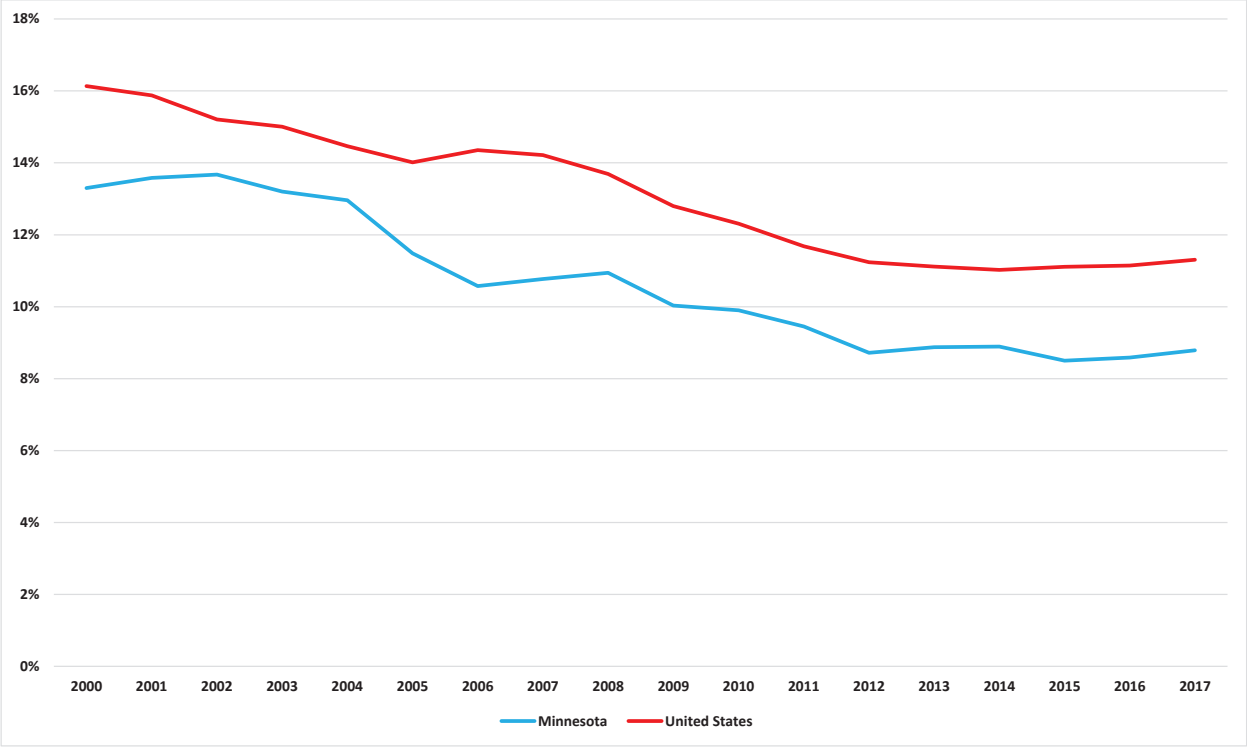
To bring the analysis further up to date, we can look at employment in new and young businesses. Figure 29 shows the share of employment in new and young businesses. Since 2000, Minnesota has consistently lagged the U.S. average, but both have fallen. For Minnesota, the fall has been 4.5 percentage points from 13.3 percent in 2000 to 8.8 percent in 2017. For the U.S., the fall has been 4.8 percentage points, from 16.1 percent to 11.3 percent.

Figure 28: New and Young Businesses as a Share of All Businesses, 2000-2014



Source: Census Bureau

Figure 29: Employment in New and Young Businesses as a share of Employment in All Businesses, 2000-2017



Source: Census Bureau

Education in Minnesota

Research shows that states with better educational attainment, as well as greater investment in research and development, see faster growth in TFP.[43] We can think of the workforce in the same way we think of our capital stock. Increasing the investment in our stock of human capital through education can yield rewards just like investments in physical capital.[44] Of course, as with investment in physical capital, investment in human capital can be wasted or hit diminishing returns. Research shows that in Minnesota, between 1970 and 2011, SAT scores adjusted for participation and demographics showed no noticeable increase while, over the same period, inflation adjusted per pupil spending increased by 80 percent.[45]

Minnesota's education system frequently features toward the top of state rankings. We rank 7th with *U.S. News & World Report* and 4th on National Assessment of Educational Progress (NAEP) scores. But research suggests that this might be more to do with the make-up of the student body than anything else. Students from different socioeconomic and ethnic backgrounds tend to perform differently on NAEP tests regardless of the state they are in but the popular state rankings usually ignore this. Because of this, comparing aggregated NAEP scores "often renders conventional state rankings as little more than a proxy for a jurisdiction's demography." A state, like Minnesota, that does well on such aggregated scores might be benefiting from its socioeconomic make up rather than any great achievement by its education system. When we disaggregate the data to take these factors into account, Minnesota slumps to 33rd nationally.[46]

Conclusion

In 1973, *Time* magazine famously labeled Minnesota "The State that Works." This is still true. As shown by statistics on labor force participation and workers per household, Minnesotans are a hard working bunch of people.

And it is this work ethic, not state government policy, which is the key to their apparent prosperity as seen in figures for GDP or Personal Income per capita. Through sheer effort, Minnesotans have managed to elevate their per capita levels of GDP and Personal Income above national averages while their per worker levels have been below national averages.

This shortfall in Minnesota's productivity has real implications for the state. Remedying it could have great benefits. If Minnesota's workers were as productive as the national average, our state's GDP would have been 6.7 percent larger in 2018 than it was. GDP per capita would be $4,376 or 6.7 percent higher.

But we do not have the policies in place to do that. Quite the contrary.

Our state faces the economic headwind of an aging population. We need to maximize the share of the younger labor force which is working, but we have minimum wage policies blocking young workers from the labor market. We have excessive rates of personal taxation pushing the state's productive workers out and deterring them from coming here from elsewhere. We have high rates of business taxation which deter investment, entrepreneurship, and small business formation.

To boost the productivity of Minnesota's workers so they can generate more output and enjoy the higher standards of living they deserve, these policies need to change. Until then, our economic performance will remain unimpressive.

Appendix

It may seem a little counter-intuitive that a state can have below average productivity and above average GDP per capita. The numeric example shown below illustrates how this is possible.

	State A	State B
GDP	**100**	**110**
Labor Force	**50**	**75**
Population	**100**	**100**
GDP per Capita	**1**	**1.1**
GDP per Worker	**2**	**1.5**

State A has a low Labor Force Participation rate (50 percent) but higher productivity (2 units of GDP per worker). State B (corresponding to Minnesota) has a higher Labor Force Participation rate (75 percent) but lower productivity (1.5 units of GDP per worker). As a result, State B has a higher level of GDP and GDP per capita, but a lower level of GDP per worker. ■

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