

# The Effect of Economic Freedom on Labor Market Efficiency and Performance



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## Introduction

The *labor market* is the centerpiece of every economy. It determines how society's human resources are utilized, both over time and across individuals, and how much workers are compensated for their labor services. In all countries, the labor market is the largest market in the economy, with workers receiving roughly 60 percent or more of the total income that is generated by market production.

An equally important issue is how well the labor market functions. The difference between a poorly functioning labor market and a well-functioning labor market can mean millions of lost jobs and billions of dollars in lost incomes.

Government policies and institutions have important effects on the efficiency of the labor market. In some economies, such as the United States, labor markets are not heavily regulated, tax rates are fairly low, and economic freedom is relatively high. In some other countries, labor markets are heavily regulated, tax rates are high, and consequently there is less economic freedom.

This paper summarizes research on how government policies that affect freedom of choice within the labor market impact its performance and efficiency. These policies include taxation, minimum wages, unionization, and occupational licensing requirements.

This review shows that freer labor markets, which have lower tax rates, less regulation, and more competition, are much more efficient and dynamic and are associated with higher employee compensation and greater employment.

These findings have important implications for economic policy making. They indicate that policies that enhance the free and efficient operation of the labor market significantly expand opportunities and increase prosperity. Moreover, they suggest that economic policy reforms can substantially improve economic performance in countries with heavily regulated labor markets and high tax rates.

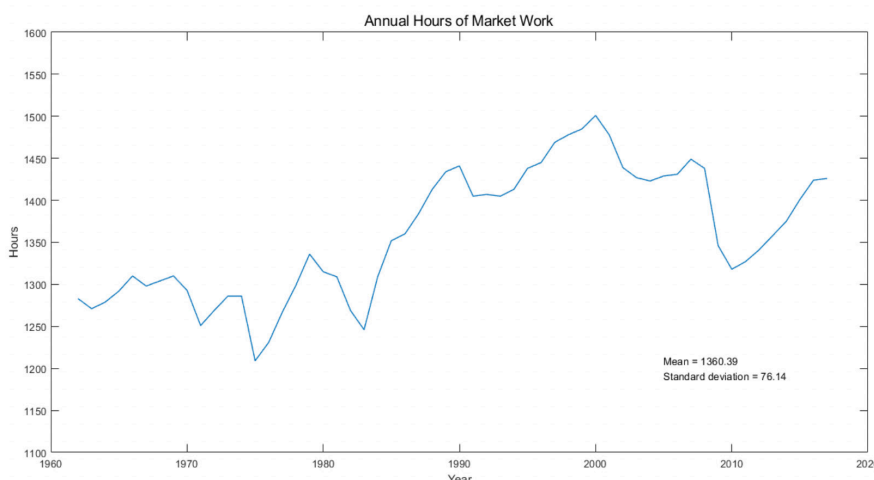
As the United States and the rest of the world continue to address the health, economic, and social challenges presented by the novel coronavirus, sound labor market policies that respect the principles of economic and personal freedom will be central for restoring economic growth, while at the same time promoting public safety.

## The US Labor Market: Stability Enhances Economic Growth

This section presents employment, hours worked, and employee compensation data to summarize the performance of the US labor market. These data will show that the United States has a very dynamic labor market that absorbs the large number of new workers constantly entering the labor force and that also reallocates workers across sectors in response to the enormous changes observed in economic and social conditions that have occurred since 1960.

This section will also show that American worker compensation has increased over time at nearly the same rate as productivity and that the shares of income paid to labor and capital have been roughly constant over time after adjusting for capital depreciation.

Figure 1 shows the total number of market hours worked in the United States relative to the US working age population: those between the ages of sixteen and sixty-four. This is the most complete measure of market work because it combines



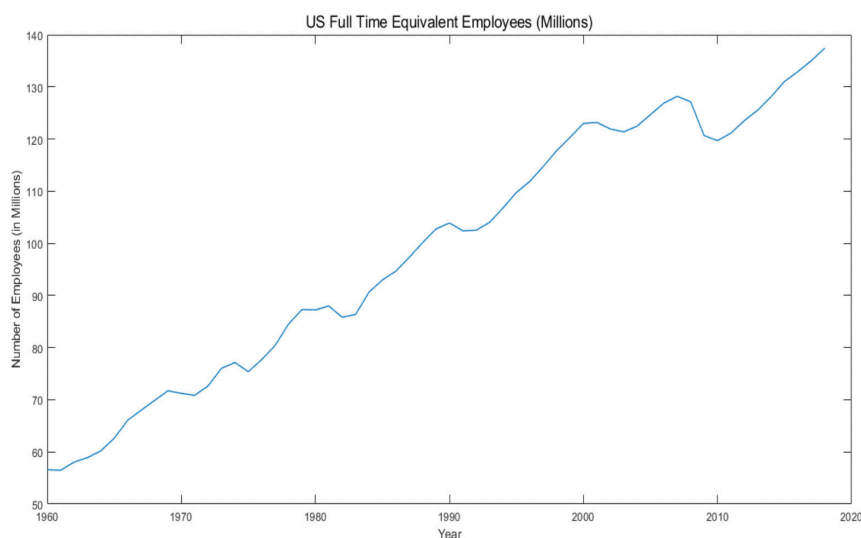
**Figure 1.** US annual hours of market work.

Source: Cociuba, Prescott, and Ueberfeldt (2018)

employment data with the number of hours per worker. This ratio is naturally interpreted as the average annual number of market hours worked per US adult from 1960 to 2019. The data are compiled by Cociuba, Prescott, and Ueberfeldt (2018).

Standard economic principles indicate that hours worked per adult should be relatively stable in a well-functioning market economy. These data are largely consistent with this view. The average annual hours worked per adult per year in these data are about 1,360, with a standard deviation of just seventy-six hours per adult per year, which is about 6 percent of the mean.

The stability of US hours worked per adult is associated with enormous employment growth. Figure 2 shows the number of full-time equivalent US employees between 1960 and 2019. These data, which are constructed by the Bureau of Labor Statistics, highlight the dynamism of the American economy. Full-time employment grew smoothly from about 56.5 million full-time equivalent workers in 1960 to about 127.5 million in 2018. This is a gain of about 142 percent.



**Figure 2.** US full-time equivalent employees (millions).

Source: Bureau of Labor Statistics, US Department of Labor

While there are some fluctuations from trend growth, particularly around the recessions of the early 1980s, 2000–01, and 2008–09, the otherwise fairly smooth operation of the US labor market is striking. Looking at these graphs, one would be hard-pressed to identify many of the large economic and social changes that occurred over this period and that could have significantly impacted the labor market’s ability to absorb and allocate workers through 2019.

One such factor is the 38 million-person baby boom cohort that entered the labor market between the late 1960s and the early 1980s. This large influx of young workers did not

disrupt the US labor market. Rather, the graph shows that the labor market readily absorbed this massive increase in the supply of new workers.

Another major factor impacting the labor market has been an ongoing shift from a goods-producing economy to a services-producing economy, in which manufacturing’s share of employment declined from more than 25 percent in 1960 to less than 10 percent today.

The substantial increase in labor force participation by women has been another key factor impacting the labor market. Women’s participation rose from just 35 percent in the mid-1950s to about 60 percent by the mid-1990s.

There are other significant factors that affected the US labor market since 1960. These include the enormous increase in globalization of production, investment, and trade and the development of information and communications technologies, which in turn gave rise to transformational businesses, including Microsoft, Apple, Google, and Amazon.

These businesses have not only completely changed several major sectors of the economy but also have created enormous cultural and social change.

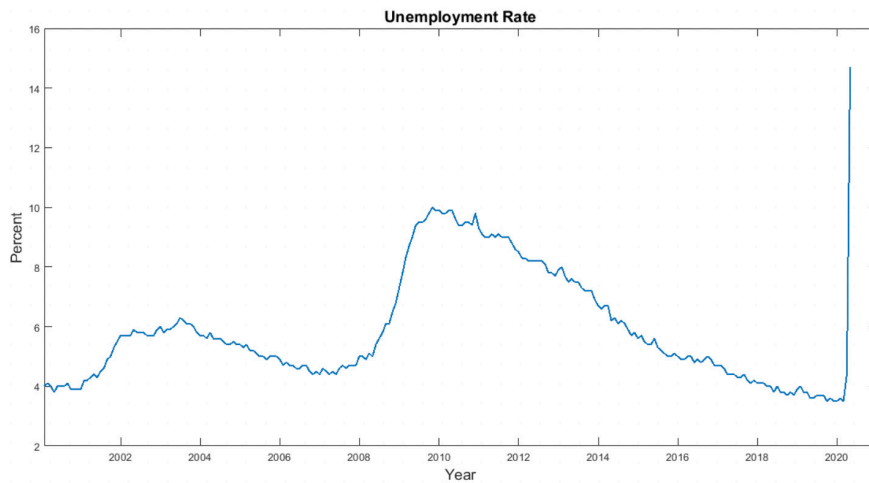
All these developments were permanent, game-changing events in the history of the US economy. Yet the US labor market responded to these changes by efficiently absorbing new workers and also reallocating workers across firms, industries, and sectors.

The rapid reallocation of labor is particularly striking in the United States. About 4 percent of US employment turns over every month as workers leave existing positions and move to new positions. With a current employment level of about 152 million workers, this means the equivalent of about 75 million job changes in the United States each year.

This remarkable level of job reallocation highlights a rapidly evolving and growing economy in which the labor market quickly moves workers from slower growing firms and industries to more rapidly growing firms and industries.

The impact of COVID-19 on the US labor market is not seen in these annual data which end in 2019. Figure 3 shows the monthly US unemployment rate, which clearly shows the impact of COVID-19, combined with federal, state, and local government policy responses on the labor market. These include shelter-at-home orders, social distancing, and restrictions on large gatherings, among others. Retail,

hospitality and leisure, and the travel sectors have been hit particularly hard, as the US unemployment rate increased to over 14 percent in April, a level not seen since the Great Depression.



**Figure 3.** US Unemployment Rate (Monthly)  
Source: Bureau of Labor Statistics

With the anticipation that safe and effective treatments and vaccines ultimately will become available, this paper assumes that COVID-19 will not present the same economic challenges in the long run. The paper presents a policy discussion about how to safely restore work over the next few months before new treatments and vaccines are widely available. This is discussed just before the conclusion.

Figures 4 and 5 present data on average worker compensation, which is the price of labor. These two figures clarify two commonly held but misunderstood views about worker compensation and the distribution of income. One misunderstood view is that inflation-adjusted compensation

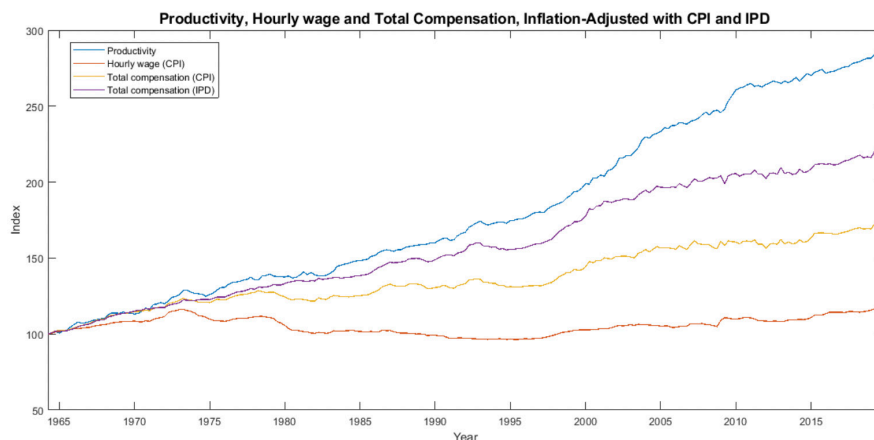
has grown very little over time. The other is that the distribution of net income has substantially shifted from workers to capital.

In a competitive, well-functioning labor market, worker compensation grows with worker productivity. Higher productivity means higher value added and growing worker productivity leads businesses to bid up compensation as they compete for workers.

Figure 4 shows real GDP per worker, which is the most common measure of economy-wide labor productivity, along with three different measures of inflation-adjusted compensation, two of which are commonly used but are plagued by significant conceptual and measurement flaws. Taken together, these three series show why some commentators claim that compensation has grown very little over time and that it has not nearly kept up with productivity increases—and why these views are mistaken.

The brown line shows worker wages divided by the Consumer Price Index (CPI). This measure is frequently cited by commentators who argue that workers have not received any significant, inflation-adjusted salary increase for decades, even though their productivity has increased (Nichols 2019).

There are two key problems with this frequently used measure that make it inappropriate for inferring compensation growth and for comparing compensation to worker productivity. One is that nonwage benefits, which include employer-provided health plans and vacation among other compensation, have become an increasingly large fraction of total compensation.



**Figure 4.** Productivity, hourly wage, and total compensation, inflation-adjusted with CPI and GDP deflator.

Source: US Department of Labor, US Bureau of Economic Analysis

In the 1960s, nonwage benefits accounted for only about 6 percent of employee compensation. Today, they have grown to about one-third of total compensation as the value of employer-provided health plans has grown substantially. This large component of compensation is omitted by those who focus just on wages. Moreover, this indicates that while wages may have been a reasonably accurate measure of compensation sixty years ago, they are not today, and should not be used as a proxy measure of employee compensation now.

The second problem with this measure arises when comparing it to productivity. This is because the GDP deflator is used to construct

worker productivity but the CPI is used to deflate the wage. Comparing worker compensation to productivity requires that the same price index be used to deflate both measures. The appropriate price index for making this comparison is the GDP deflator because it is by far the broadest price index available, covering all market goods and services.

It is well known that the CPI overstates economy-wide inflation. This means that wages deflated by the CPI will not only be biased downward because of omitted nonwage compensation, but also because the CPI grows considerably faster than the GDP deflator.

To see how much the errors of (1) using wages rather than total compensation and (2) using the CPI instead of the GDP deflator matter for these issues, figure 4 shows two additional measures: total compensation deflated by the CPI and the appropriate measure for comparing to productivity (total compensation divided by the GDP deflator).

The figure shows that total compensation deflated by the CPI grows over time, in contrast to wages. The difference between these two measures shows the difference between using the appropriate measure of total compensation versus wages and highlights the large quantitative error induced by using just wages as a measure of living standards.

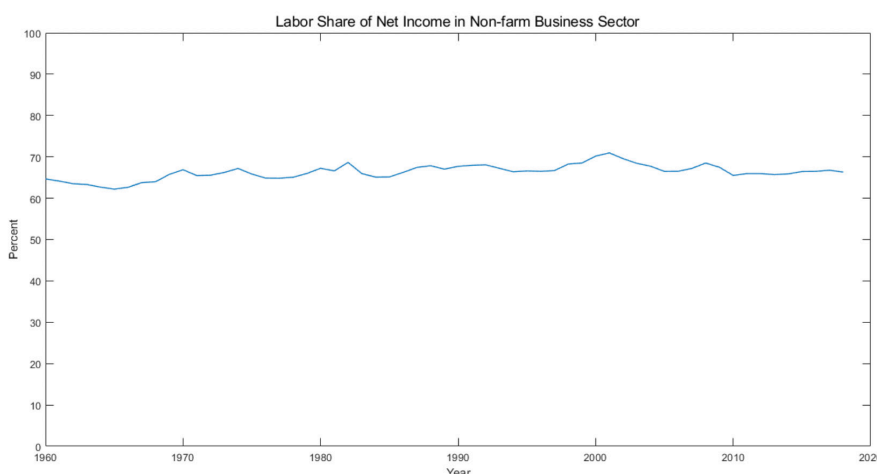
Total compensation divided by the GDP deflator is the third measure presented in the figure. This measure shows very strong growth over time. There is some divergence between productivity growth and compensation growth after 2000. Economists are studying potential factors accounting for this divergence. While this remains an open question, this divergence has not been caused by a shift of net income from workers to capital, which is another widely held perception.

Rather, this view about labor's share of the economic pie is largely based on a conceptual error. To see this, figure 5 shows the distribution of income between labor and capital, net of capital depreciation. The data exclude the self-employed, for whom income attribution between labor and profits is ambiguous. The figure shows a relatively constant share of income paid to labor at about 66 percent. These data stand in sharp contrast to the view that owners of capital are receiving a considerably larger share of net income at the expense of workers.

Rising capital depreciation rates are the reason why labor's share of income net of depreciation has remained constant, even if its share of gross income has declined. The US Bureau of Economic Analysis has changed the definition of capital investments to now include what are known as intangible investments that previously had been expensed items, such as computer software.

These newly classified investments tend to have very high depreciation rates. In addition to expenditures that are now being classified as capital investments, there is also a greater share of business investment in previously existing, high-depreciation categories, such as computer equipment, which depreciates much faster than other investments, such as office buildings and factories.

Higher depreciation means a higher gross payment to capital, all else equal. This is because investors require a specific rate of return, net of depreciation, in order to bear capital risk as well as postpone consumption. This rate of return must allow for depreciated capital that must be replaced. After accounting for higher depreciation, it is striking that the net payments to capital and labor have not changed in any quantitatively important way over time.



**Figure 5:** Labor share of net income in non-farm business sector.  
*Source:* US Bureau of Economic Analysis

Taken together, these data indicate that the US labor market has functioned efficiently over most of the last sixty years in terms of absorbing new workers, reallocating workers across firms, industries, and sectors, and providing compensation that grows roughly with worker productivity and whose share of net income has not changed over time.

American labor market efficiency coincides with a significant amount of economic freedom and lack of economic policy distortions. The next section compares measures of US labor market freedoms with those in some other countries.



## Comparing Labor Market Freedom and Policies across Developed Countries

The efficient operation of the US labor market in absorbing new workers has been the exception more than the rule when compared to other developed countries. Today, several major economies with far fewer young workers than the United States, such as France, Italy, and Spain, currently have youth unemployment rates of at least 20 percent, even ten years after the global financial crisis. This compares to a youth unemployment rate of about 8 percent in the United States (OECD 2019b).

This section provides international perspectives on labor market freedom across countries. This comparison is informative because different countries have adopted very different labor market policies which in turn have had large effects on the incentives and opportunities within the labor market. This comparison will show that the US labor market is much freer than labor markets in most other countries.

The Heritage Foundation (2020) and the Organisation for Economic Co-operation and Development (OECD 2019a) systematically rank countries on labor market freedom and flexibility. Both these rankings have been conducted for many years and they are widely cited and used in making comparisons across countries and analyzing labor market outcomes.

The Heritage Foundation (2020) ranks the United States as having the most labor market freedom among all countries. The ranking is based on six factors: (1) The minimum wage relative to average value added per worker, (2) the cost of hiring new workers, (3) the cost of adjusting worker hours, (4) the cost of dismissing redundant employees, (5) the length of term of mandated notice of dismissal, and (6) the extent and size of mandatory severance pay. Each of these factors in the Heritage Foundation index has important economic implications for the efficient and free operation of the labor market.

The minimum wage relative to average worker productivity gauges how many workers may be negatively affected by the minimum wage because their employment cost exceeds the value of their production. Specifically, if the minimum wage is higher than a worker's productivity, then the worker will not be hired because the hiring organization will take a loss on that worker. Instead, it will focus hiring efforts on workers whose productivity exceeds the minimum wage.

In a free labor market, inexperienced workers would have many more opportunities because employers would not be restricted to paying them a wage exceeding the value of their production. Instead, workers would be paid according to their productivity.

While inexperienced workers may be paid relatively low wages, their pay would rise as their skills increased with experience and job training.

Those who may be priced out of the market due to a high minimum wage include workers who have not yet acquired sufficient skills to realistically compete for higher wage jobs, such as young workers, immigrants, and workers who have been out of the labor force for a considerable period of time, such as parents who left the labor force to raise children and workers recovering from long-term disabilities.

The remaining Heritage Foundation measures of labor market freedom are the expenses associated with adjusting and managing a company's workforce. In an efficient and free labor market, these costs should be relatively small on a per-worker basis. However, these costs can be significant and may materially affect firms' human resource decisions when regulations substantially affect these choices.

These adjustment and management costs include overtime premiums and the costs of dismissing redundant workers, including the amount of severance pay and the mandated notification period of dismissal notice, as well as litigation costs and penalties for noncompliance.

As these costs rise, they tend to reduce employment and economic activity because they raise the cost of employing a worker without increasing worker productivity. Over time, higher employment costs resulting from regulations will tend to reduce wages.

The OECD's ranking (OECD 2019a) focuses on what economists refer to as *labor market flexibility*. The OECD measures the extent of regulations on individual and collective job dismissal across countries. These regulations make it more expensive to dismiss workers, which in turn reduce employment by raising employee costs. High dismissal costs also impede resource reallocation across different sectors of the economy, and this also slows economic growth. The United States is also ranked first in the OECD's index.

The Heritage Foundation and OECD measures of labor market freedom and flexibility summarize factors that directly affect business's demand for labor by affecting the cost of labor. Labor supply, which is the other side of the labor market, is directly affected by other policies.

Some of the most important policies that affect labor supply are tax rates. Tax rates change the incentives to work either by reducing a worker's take-home pay (labor income taxes) or by making consumption goods more expensive (sales taxes or value-added taxes).

In the standard model of labor supply, an individual weighs the costs and benefits of working and chooses how much to work at the point where the incremental cost of working, which tends to rise with hours worked, is equated to the incremental benefit of working, which tends to decrease with hours worked. Higher taxes reduce the benefit of working, which means that taxes induce workers to reduce their labor supply and work less, all else equal.

McDaniel (2007, 2011) has constructed panel data covering fifteen OECD countries beginning in 1950. These data have been updated to 2015. These data show that there have been enormous changes over time and across countries in the labor and consumption tax rates that affect labor supply.

Since labor income taxes and consumption taxes have similar effects on labor supply, I have combined McDaniel's data on labor income taxes and consumption taxes into a single composite tax rate by adding them together.<sup>1</sup>

**Table 1.** Combined 2015 Tax Rate on Labor Income and Consumption, in Percent

Austria	Belgium	Canada	France	Germany	Italy	Netherlands	Spain	UK	US
63.1	58.2	38.7	64.8	55.8	61.5	58.1	47.4	42.7	28.7

Source: McDaniel 2011

**Table 2.** Percentage Point Change in Tax Rates: 1950–2015

Austria	Belgium	Canada	France	Germany	Italy	Netherlands	Spain	UK	US
36.7	31.0	19.5	26.1	26.5	36.6	27.9	31.9	17.8	11.6

Source: McDaniel 2011

Table 1 shows this composite tax rate for selected countries, including several European countries where these tax rates are particularly high. The data are for 2015, which is the most recent year that the data are available, and include national as well as state and local rates.

The table shows that the United States by far has the lowest composite tax rate at 28.7 percent. The composite tax rate for the European countries is much higher, ranging from 42.7 percent (United Kingdom) to 64.8 percent (France).

European tax rates were not always so high. In the 1950s, some European tax rates were lower than the American tax rate. These tax rates rose substantially in the 1970s and early 1980s as many European countries expanded the size and scope of government during that period. Table

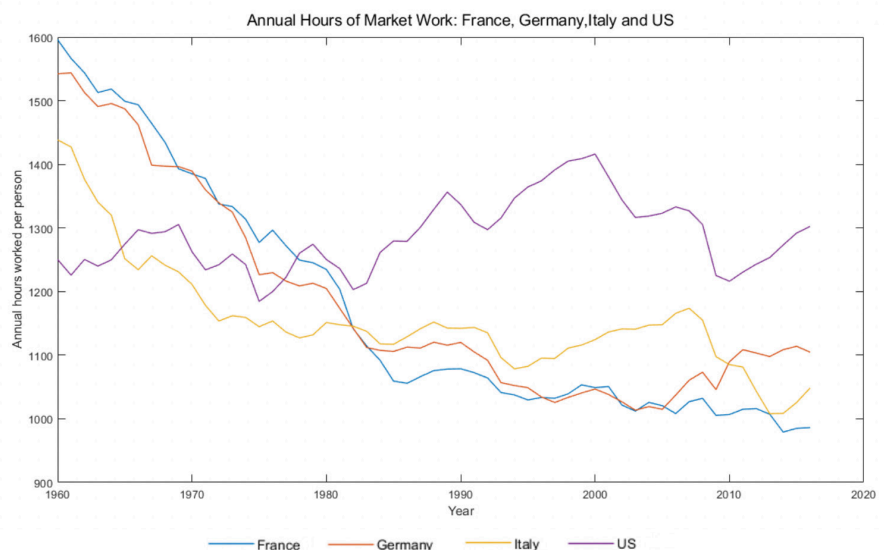
2 shows how these tax rates have changed between 1950 and 2015. The table shows the difference between each country's 2015 tax rate and its 1950 tax rate in percentage points.

In Europe, these tax rate increases range from 26.5 percentage points (Germany) to 36.7 percentage points (Italy). The mean tax rate increase among the continental European countries is 31 percentage points. In contrast, the US tax rate increased by only 11.6 percentage points. The next section summarizes research that uses tax rate data to analyze how tax rates have affected labor supply in the OECD countries.

## How Tax Rates and Other Policies Affect Labor Markets across Countries

Figure 6 shows hours worked per adult for the United States and for three major European countries: France, Germany, and Italy. The most striking feature of these data is the large drop in the number of market hours of work in the European countries, which are the countries with the largest increase in tax rates.

Hours of market work per adult in France fall from about 1,600 in 1950 to about 1,000 in 2015. Similarly, hours of market work per adult fall in Germany from about 1,550 to about 1,100, and from about 1,450 to about 1,050 in Italy. These are enormous declines. In contrast, US hours worked change little, rising from about 1,250 to about 1,300.



**Figure 6.** Annual hours of market work: France, Germany, Italy, and United States. Source: Ohanian, Raffo, and Rogerson (2008)

These very different patterns in hours worked coincide quite closely with changes in the tax rate reported in the previous section. In particular, the composite tax rate increases by about 30 percentage points on average in the three European countries. Hours worked in those same countries decline by about 31 percent. US tax rates rise modestly and US hours worked are unchanged.

Several studies have found that a standard model of labor supply that includes taxation accounts quite closely for these very different changes in hours worked.

Prescott (2004) studied how changes in tax rates affected hours worked per adult in Canada, Germany, France, Italy, Japan, the United Kingdom, and the United States. He used national income account data to construct tax rates and then used a standard economic model to predict how observed tax rate changes between 1970–74 and 1993–96 changed hours worked. He found that changes in tax rates accounted for almost all the changes in hours worked across these countries. He summarizes his main findings: “In this article, I determine the importance of tax rates in accounting for these differences in labor supply for the major advanced industrial countries and find that tax rates alone account for most of them.”

Ohanian, Raffo, and Rogerson (2008) also employ a standard model of labor supply and analyze a larger panel of countries, covering fifteen OECD countries, and over a longer time period, from 1956 to 2004. They use the McDaniel (2007, 2011) tax rate series, which was not available at the time of Prescott’s analysis.

Table 3 summarizes their findings. The model predicts the significant decreases in labor supply for Austria, Belgium, Germany, Netherlands, and the United Kingdom. The model’s prediction error is large for Spain, although that is understandable. Despite higher taxes, Spain implemented many promarket economic reforms and a shift to more democratic government after Francisco Franco left power. Those factors, which positively affect labor supply, likely attenuated the impact of higher taxes.

The Netherlands is a particularly interesting case. After suffering a nearly one-third drop in hours worked per adult, the nation implemented lower taxes in the 1980s. Following this tax reform, hours subsequently rose by about 12 percent. The model accurately generates the very large drop from the 1950s to the 1980s and the partial recovery in hours worked afterward.

**Table 3.** Actual and Predicted Percentage Change in Hours Worked: 1950–2015

Country	Austria	Belgium	Canada	France	Germany	Italy	Netherlands	Spain	UK	US
Actual	-36	-34	8	-38	-40	-29	-21	-13	-22	4
Predicted	-31	-31	-11	-21	-34	-43	-21	-41	-16	-9

*Source:* Ohanian, Raffo, and Rogerson (2008)

Of the twelve countries that experienced at least a 15 percent decline in hours worked, tax changes account for about 85 percent of the overall drop.<sup>2</sup>

Some economists have argued that taxes play a smaller role than in the studies cited here. Blanchard (2004) and Alesina, Glaeser, and Sacerdote (2005) argue that cultural differences between Europe and the United States may explain why Europeans work so much less today than Americans. But there are some shortcomings with these different views. One is that they are either silent on why Europeans worked so much more than Americans in the 1950s or, alternatively, why European immigrants to the United States do not appear to work systematically less than other American workers. Moreover, these studies do not measure these potential cultural differences, which precludes a formal analysis of this alternative view.

Economists have studied how other policies have affected labor market performance, particularly unemployment. As discussed above, Europe has adopted political institutions and economic policies that have increased labor market rigidity and reduced economic freedom within the labor market.

Blanchard and Wolfers (2000) analyzed panel data from European countries to study how the level of unemployment benefits, the duration of benefits, unionization, and employment protection laws affected European unemployment over time and across countries.

Economists have focused on European data because unemployment in many European countries has been much higher than in the United States. Since 1985, French unemployment has averaged around 9 percent per year and German unemployment has averaged around 8 percent per year.

Blanchard and Wolfers found that labor market policies that have increased labor market rigidity and reduced economic freedom have had very large effects on unemployment. They find that the maximum benefit rate, which is the average unemployment benefit measured as a percent of the average wage, has increased European unemployment on average by 1.3 percentage points. They find that the duration of benefits, which has been very high in Europe, increased unemployment



by about 0.75 percentage points. Employment protection policies, which raise the cost of dismissing redundant workers, raised unemployment by about 1 percentage point and unionization raised unemployment by about 0.6 percentage point.

Taken together, the findings of Blanchard and Wolfers indicate that observed policies could have potentially increased European unemployment by as much as 4.6 percentage points per year. Note that this is the difference between a very healthy labor market and one that is perpetually in a severe recession.

In another influential study, Ljungqvist and Sargent (1998) assess how labor market policies affect European unemployment with a focus on long-term unemployment, which is very prevalent in Europe. They hypothesize that European policies tend to increase long-term unemployment because worker skills deteriorate as unemployment duration rises. In particular, their hypothesis is that some workers ultimately become chronically unemployed as their skills deteriorate so much that unemployment benefits, which have been quite high in Europe, become higher than their market wage. They find that well-intentioned policies account for much of the rise in long-term European unemployment and long-lasting benefits trap European workers in a persistent cycle of unemployment.

These findings have been confirmed for emerging economies. Bernal-Verdugo, Furceri, and Guillaume (2012) study a panel of eighty-five countries, many of which are developing countries, and find that “after controlling for other macroeconomic and demographic variables, increases in the flexibility of labor market regulations and institutions have a statistically significant negative impact both on the level and the change of unemployment outcomes (i.e., total, youth, and long-term unemployment). Among the different labor market flexibility indicators analyzed, hiring and firing regulations and hiring costs are found to have the strongest effect.”

Botero et al. (2004) report similar findings from an eighty-five-country study. They find that highly regulated labor markets reduce labor force participation and raise unemployment, particularly for young workers.

### **Minimum Wages: Theory and Evidence**

At one time, there was nearly universal agreement among economists and policy makers that high minimum wages depressed employment, particularly for young people who were still in the process of accumulating skills and experience.

The economic logic behind this once-standard view is simple: fixing the price of any good or service above its market price

will result in lower demand. In the labor market, this means that any worker who does not deliver enough value to offset an artificially high minimum wage will be unemployed.

Youth unemployment statistics highlight the impact of minimum wages. In mid-2012, more than two years after the end of the last recession, teenage unemployment (ages sixteen to nineteen) was 25 percent, compared to a 6.7 percent unemployment rate for prime age workers (ages twenty-five to fifty-four). Even in 2019, with the strongest job market in the last fifty years, teenage unemployment was 12.6 percent, compared to a prime age worker unemployment rate of 2.9 percent (US Bureau of Labor Statistics 2020a, 2020b).

Despite the simple economic logic described above, and the observed large difference in unemployment rates by age, some commentators today hold the view that raising the minimum wage will have little, if any, effect on unemployment and instead will substantially raise the standard of living among nearly all low-wage workers.

Perhaps the major factor driving this change in opinion was research by David Card and Alan Krueger (1994, 2015). In an influential paper, Card and Krueger (1994) compared changes in employment in fast-food restaurants between New Jersey, which increased its hourly wage from \$4.25 to \$5.05 in 1992, and Pennsylvania, which kept its minimum wage at \$4.25. They surveyed about four hundred fast-food restaurants near the New Jersey-Eastern Pennsylvania border by phone and asked restaurant managers about employment levels before and after the New Jersey minimum wage change.

They reported that the New Jersey restaurants had expanded employment by nearly three full-time equivalent workers relative to Pennsylvania restaurants. This result was extremely surprising, as it defies the most basic economic argument that artificially raising wages of low-skilled labor depresses the demand for that labor.

However, there are problems with Card and Krueger’s analysis, including data collection and their research design. In terms of data collection, Card and Krueger (1994) relied on telephone surveys with the restaurants. Subsequent research based on better data collection showed very different results.

In a series of papers and a book, David Neumark and William Wascher (2000, 2008) review many minimum wage studies, including that of Card and Krueger (1994). In contrast to Card and Krueger (1994), Neumark and Wascher redo the New Jersey and Pennsylvania fast-food restaurant study by using administrative payroll data from fast-food restaurants rather than telephone interviews. Payroll data are more reliable than the telephone interview responses obtained by Card and



Krueger (1994) because restaurants have a legal obligation to report taxable income and costs.

In contrast to the Card and Krueger study, Neumark and Wascher found that the higher minimum wage in New Jersey had reduced New Jersey employment by about 4 percent relative to Pennsylvania, in which the minimum wage was not changed. This finding is in line with standard economic logic and with the majority of previous empirical estimates of the impact of a minimum wage.

Neumark's most recent review (2019, 321) of many short-run minimum wage studies concludes as follows: "The preponderance of evidence indicates that minimum wages reduce employment of the least-skilled workers. Earlier estimates suggested an 'elasticity' of about -0.1 to -0.2. Many estimates are still in this range ... More definitively, though, it is indisputable that there *is* a body of evidence pointing to job losses from higher minimum wages. Characterizations of the literature as providing no evidence of job loss are simply inaccurate."

More recently, economists have begun to study the long-run effects of minimum wages on employment. This is important, as the short-run responses to a higher minimum wage, which are the focus of much of the literature, may be very different from long-run responses. This is because it takes time for employers to make adjustments in response to minimum wage changes, including installation of new capital investments and adoption of new technologies, both of which can substitute for workers.

Research by Isaac Sorkin (2015) shows that the difference between the short-run and long-run effects of minimum wage legislation can be enormous. Sorkin measures the responsiveness of employment to a wage change using the economic concept of demand elasticity, which is the percentage change in labor demand in response to a given percentage change in the wage.

He shows that the contemporaneous elasticity of labor demand can be virtually zero upon impact of a minimum wage change, in which he estimates that a 10 percent change in the wage generates an immediate .02 percent drop in employment. However, he finds that this sensitivity rises to -.252, meaning that a 10 percent change in the wage generates a 2.5 percent drop in employment after six years, which is roughly one hundred times larger than the immediate effect.

This large difference reflects the fact that as labor costs rise, businesses economize on labor by substituting capital and new technologies for workers and also by offshoring some tasks to lower-cost providers of labor services. This large difference

between short- and long-run effects is incredibly important but rarely is documented by empirical studies.

Minimum wage research has important implications for current policy discussions. In particular, there are a number of proposals to raise the federal minimum wage from its current level of \$7.25 per hour to \$15 per hour.

At its current level, the minimum wage affects very few workers, just 0.28 percent of the labor force. According to the Labor Department, almost half of minimum wage workers are workers younger than twenty-five, who account for only about 20 percent of the overall labor force (US Bureau of Labor Statistics 2019). However, if the minimum wage were raised to \$15 per hour, then it would affect over 40 percent of American workers (Rodgers and Novello 2019). Alan Krueger, one of the authors of the New Jersey-Pennsylvania study cited above and a former economic adviser to President Obama, warned of job loss if the minimum wage were raised to \$15 per hour (Krueger 2015).

An important risk of a \$15 federal minimum wage is that low earners in relatively poor states would be particularly hard hit. For example, the average hourly wage in Mississippi is under \$15 per hour.<sup>3</sup>

There are policies that will improve the efficiency of the labor market while promoting compensation growth for those who may be adversely affected by the minimum wage. These policies include expanding the earned income tax credit, increasing the scope and scale of enterprise zones which incentivize businesses to locate in poor neighborhoods, improving our K-12 education system, and expanding preschool programs.

**The Impact of Unions on Labor Market Performance**  
This section summarizes how unions have historically affected labor market efficiency and opportunities. In the late nineteenth and early twentieth centuries, unions focused on increasing worker safety, protecting worker civil rights, supporting education, and limiting the use of child labor (Ohanian 2009).

These efforts were important because labor markets were much less competitive at that time than they are now. In the nineteenth and early twentieth centuries, there were often just a few large employers in a community, which gave employers much more market power than employers have today.

Because worker safety, human rights, and child labor regulations are now well established at the federal, state, and local levels, unions have shifted their focus to increasing compensation and increasing employment, the latter through a process known as featherbedding. A large body of research

finds that these aspects of unionization have benefited union members, particularly in the short run, but at the expense of others by depressing economic growth, particularly in heavily unionized industries. Moreover, research shows that unions depress long-run compensation for their members by reducing firm innovation and investments.

Unions have considerable market power in collective bargaining agreements since they are the sole supplier of labor services to the firm. There are hundreds of studies estimating union wage premia. Lewis's survey (1986) finds estimated premia around 15–20 percent, meaning that union market power drives up compensation by 15–20 percent over the estimated free market compensation level. More recently, Farber et al. (2018), with many references, also report similar union premia estimates.

One way this wage premium depresses economic activity is by raising employer costs. This in turn raises prices and reduces customer demand. Moreover, some of the methods by which unions have generated wage premia, which include strikes, independently depress economic activity. This is because a strike is a tax on investment. By idling a firm's capital stock, a strike, or even the threat of a strike, lowers the expected return to investment, which in turn lowers investment, innovation, and productivity growth. This has very negative consequences for the long-run health of the firm and, ironically, for the long-run health of the union.

Alder, Lagakos, and Ohanian (2014) analyze the impact of strike behavior and provide both theoretical arguments and empirical evidence that the frequent use of strikes and strike threats in major Rust Belt industries, such as autos and steel, is the main factor responsible for the Rust Belt's long-run economic decline.

The Rust Belt is typically defined as states bordering the Great Lakes, including Ohio, Pennsylvania, Michigan, Illinois, and New York. It accounted for more than 50 percent of the nation's manufacturing employment in 1950. That share declined chronically throughout the 1950s, 1960s, and 1970s, falling to about 38 percent by 1980. This decline preceded the large shift to globalization that began around the mid-1980s and that is widely believed to have negatively affected US manufacturing. However, the timing of the Rust Belt's decline means that Alder, Lagakos, and Ohanian (2014) find that the historical use of the strike threat by Rust Belt unions accounts for about two-thirds of the decline of the Rust Belt's manufacturing employment share. They also find that it accounts for much of the Rust Belt's failure to innovate at the same rate as non-Rust Belt producers.

Their most striking conclusion is that in the absence of labor market conflict with unions, the Rust Belt's manufacturing employment share would have held steady at about 51 percent, even with stronger foreign competition. This is because globalization doesn't just replace domestic sales with imports but provides opportunities for competitive domestic producers to sell abroad, thus creating new markets.

Galdón-Sánchez and Schmitz (2002) and Schmitz (2005) study how union work rules that severely limit the tasks that employees can perform in order to increase employment can depress worker productivity by 50 percent or more. These work rules can be as restrictive as not allowing a worker to perform minor maintenance on a machine or change a light bulb. They show that when iron-ore producers were subjected to increased competition, union work rules were reformed to permit workers to perform more tasks, which doubled worker productivity.

Similarly, Holmes (1998) studies job creation and economic performance right at state borders, in which one state is relatively heavily unionized and the state just across the border is a "right to work" state which outlaws the union shop. He finds that employment growth over time is much higher in manufacturing plants in the right-to-work states very close to the border than in manufacturing plants that are close to the border in the heavily unionized states.

Union representation among private-sector workers has declined from a high of about 35 percent in the early 1950s to only around 6 percent today. This likely reflects several economic shifts since World War II that have led today's workers to find union representation less attractive.

Perhaps the most important factor is changes in competition. As described above, yesteryear's unions imposed significant economic inefficiencies within bargaining at a time when many American producers faced little competition, either domestically or internationally. But in today's increasingly competitive marketplace, any form of inefficiency threatens firm survival. The fact that public-sector unions have fared much more successfully than private-sector unions supports this competition view. In the public sector, there rarely is any competition among producers and providers of government services. Not surprisingly, union membership among public-sector workers is about 45 percent among local government employees (Ohanian 2011).

A second reason why union organization is much less popular today is that collective bargaining agreements invariably offer a "one-size-fits-all" compensation package for its members. But as workers have become increasingly skilled, and as job responsibilities have become much more specialized, collective bargaining has become outdated.

The fact that private-sector workers are not choosing union representation is the strongest evidence in supporting the view that the union model of yesteryear is not sufficiently valued by today's private-sector workers. This is also reflected in the fact that former union stronghold states, including Indiana, Michigan, and Wisconsin, have voted to become right-to-work states in the last few years.

Private-sector unions have responded to these long-run trends driven by substantially changing bargaining practices to focus on forming cooperative relationships with management and enhancing firm efficiency and performance to increase competitiveness. As an example of this change in union practices, former United Auto Workers (UAW) president Robert King summarized the very significant changes in UAW practices as quoted on a website: "The 20th-century UAW fell into a pattern with our employers where we saw each other as adversaries rather than partners. Mistrust became embedded in our relations . . . [which] hindered the full use of the talents of our members and promoted a litigious and time-consuming grievance culture" (Walsh 2010).

These long-run changes in private-sector unionization density and bargaining practices are natural reactions to increasingly competitive markets and they are generally improving labor market function by reducing inefficiencies.

### **The Inefficiency of Occupational Licensing**

Licensing occupational practices by a professional bureau has been employed for many years in skilled professions where there is potential for substantial consumer harm. These practices include medicine, law, and dentistry. Licensing is intended to protect consumers by providing objective, third-party confirmation that a provider is professionally qualified to perform a trade.

More recently, professional licensing has spread to many other occupations, particularly occupations where potential consumer damage is extremely modest, such as tour guides, cashiers, card dealers, florists, interior decorators, and hair shampooers. Licensing even extends to professions that are as much or more about providing entertainment as providing a service, such as Maryland, which requires licenses for fortune tellers, and Arizona, which requires licenses for rainmakers (Kleiner 2000).

Today, 29 percent of workers require a professional license, up from 18 percent in 2000 and about 5 percent in the 1950s. Put differently, this means that nearly one of every three workers must have government approval to work in his or her chosen profession.

Most research analyzing occupational licensing has concluded that much of this licensing is not in the interest of protecting consumers, but rather exists to insulate incumbent producers from competition at the expense of consumers.

Licensing limits entry of new professionals, which in turn reduces competition in the industry. Licensing fees also raise the cost of doing business. Both these factors drive up prices, thus reducing demand and harming consumers. Kleiner (2000) finds wage premia as high as 30 percent due to restricting entry.

Ironically, licensing can also harm incumbent licensees once political and social pressure builds to force regulators to allow reforms. For example, in New York, livery drivers, particularly taxi drivers, required a taxi medallion, which simply gave a driver the legal right to operate (Williams 2019). Before the popularity of ridesharing, including Uber and Lyft, the market price of these medallions was as high as \$1 million.

However, this price has now fallen to about \$100,000, given the introduction of competition from Uber and Lyft. This decline in the price of medallions has led to the loss of virtually all of the wealth of some drivers who purchased their medallions at very high prices.

Occupational licensing has also been found to negatively impact historically disadvantaged groups by imposing long training or internship periods (Gittleman, Klee, and Kleiner 2018). For example, more than 1,700 hours of training are required to become a licensed cosmetologist in California while 4,000 hours of training are required to work with electrical signs in Michigan. Note that this latter requirement may exceed the number of hours used by law students in taking classes, studying, and preparing for the bar exam.

The negative impacts of occupational licensing led then president Obama to commission a special study (US Treasury Department 2015) of this issue by his Council of Economic Advisers and the Treasury Department. They concluded:

The current licensing regime in the United States also creates substantial costs, and often the requirements for obtaining a license are not in sync with the skills needed for the job. There is evidence that licensing requirements raise the price of goods and services, restrict employment opportunities, and make it more difficult for workers to take their skills across State lines. Too often, policymakers do not carefully weigh these costs and benefits when making decisions about whether or how to regulate a profession through licensing.



## Policies to Safely Restore Work During the COVID-19 Crisis

Without safe and effective vaccines available, all economies will need to contend with the novel coronavirus for the near term. Policies should be focused on incentivizing low-risk workers—those who are young and middle-aged and without the risk factors of significant hypertension, diabetes, and cardiopulmonary disease—to return to work.

One policy shift is to convert existing unemployment benefits to unconditional cash transfers. We want low-risk workers to return to work and we do not want social support to be tied to them remaining unemployed. We also can directly subsidize health insurance for workers who do not receive insurance that is not provided by their employers. Businesses should be incentivized to take precautions to protect their workers from the virus. They could receive tax credits if few of their workers test positive after returning to work. This is in the same spirit as unemployment insurance ratings for businesses, in which the insurance premium paid by a business depends on the frequency that its workers are laid off. This is needed because workers need to feel safe in returning to their places of employment.

## Summary and Conclusion

This study has summarized research on how economic freedom affects the labor market. Research shows that high tax rates, high regulations (including occupational licensing), inefficient unionization bargaining practices, and high minimum wages depress the efficient functioning of the labor market. It also shows that many of these policies have benefits for very few while imposing significant costs on the rest of society.

The research cited here has important implications for economic policies. It shows that policy reforms that reduce tax rates, eliminate burdensome regulations, and enhance competition can significantly increase economic growth and job creation. Moreover, the increased economic growth would dwarf the costs to those who currently benefit from the inefficient policies. This means that those who would lose from such reforms could in principle be easily compensated for their losses.

## References

Alder, Simeon, David Lagakos, and Lee Ohanian. 2014. “Competitive Pressure and the Decline of the Rust Belt: A Macroeconomic Analysis.” National Bureau of Economic Research working paper 20538.

- Alesina, Alberto, Edward Glaeser, and Bruce Sacerdote. 2005. “Work and Leisure in the U.S. and Europe: Why So Different?” *NBER Macroeconomics Annual*.
- Bernal-Verdugo, Lorenzo E., Davide Furceri, and Dominique Guillaume. 2012. “Labor Market Flexibility and Unemployment: New Empirical Evidence of Static and Dynamic Effects.” *Comparative Economic Studies* 54, no. 2 (May): 251–73.
- Blanchard, Olivier. 2004. “The Economic Future of Europe.” *Journal of Economic Perspectives* 18, no. 4 (Fall): 3–26.
- Blanchard, Olivier, and Justin Wolfers. 2000. “The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence.” *Economic Journal* 110, no. 462 (March): C1–33.
- Botero, Juan, Simeon Djankov, Rafael LaPorta, Florencio López-de-Silanes, and Andrei Shleifer. 2004. “The Regulation of Labor.” *Quarterly Journal of Economics* 119, no. 4: 1339–82.
- Card, David, and Alan B. Krueger. 1994. “Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania.” *American Economic Review* 84, no. 4 (September): 772–93.
- . 2015. *Myth and Measurement: The New Economics of the Minimum Wage*, 20th anniversary ed. Princeton, NJ: Princeton University Press.
- Cociuba, Simona E., Edward C. Prescott, and Alexander Ueberfeldt. 2018. “US Hours at Work.” *Economics Letters* 169: 87–90.
- Farber, Henry S., Daniel Herbst, Ilyana Kuziemko, and Suresh Naidu. 2018. “Unions and Inequality over the Twentieth Century: New Evidence from Survey Data.” National Bureau of Economic Research working paper 24587.
- Galdón-Sánchez, José E., and James Schmitz Jr. 2002. “Competitive Pressure and Labor Productivity: World Iron-Ore Markets in the 1980’s.” *American Economic Review* 92, no. 4 (September): 1222–35.
- Gittleman, Maury, Mark A. Klee, and Morris M. Kleiner. 2018. “Analyzing the Labor Market Outcomes of Occupational Licensing.” *Industrial Relations* 57, no. 1 (January): 57–100.
- Heritage Foundation. 2020. Index of Economic Freedom. <https://www.heritage.org/index/ranking>.

- Holmes, Thomas J. 1998. "The Effect of State Policies on the Location of Manufacturing: Evidence from State Borders." *Journal of Political Economy* 106, no. 4 (August): 667–705.
- Kleiner, Morris M. 2000. "Occupational Licensing." *Journal of Economic Perspectives* 14, no. 4 (Fall): 189–202.
- Krueger, Alan B. 2015. "The Minimum Wage: How Much Is Too Much?" *New York Times*. October 9. <https://www.nytimes.com/2015/10/11/opinion/sunday/the-minimum-wage-how-much-is-too-much.html>.
- Lewis, H. Gregg. 1986. "Union Relative Wage Effects." In *Handbook of Labor Economics*, vol. 2, edited by Richard Layard and Orley Ashenfelter, 1139–81. Amsterdam: North-Holland.
- Ljungqvist, Lars, and Thomas Sargent. 1998. "The European Unemployment Dilemma." *Journal of Political Economy* 106, no. 3 (June): 514–50.
- McDaniel, Cara. 2007. "Average Tax Rates on Consumption, Investment, Labor and Capital in the OECD 1950–2003." Unpublished manuscript.
- . 2011. "Forces Shaping Hours Worked in the OECD, 1960–2004." *American Economic Journal: Macroeconomics* 3, no. 4 (October): 27–52.
- Neumark, David. 2019. "The Econometrics and Economics of the Employment Effects of Minimum Wages: Getting from Known Unknowns to Known Knowns." *German Economic Review* 20, no. 3: 293–329.
- Neumark, David, and William L. Wascher. 2000. "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania: Comment." *American Economic Review* 90, no. 5 (December): 1362–96.
- . 2008. *Minimum Wages*. Cambridge, MA: MIT Press.
- Nichols, Chris. 2019. "Tom Steyer claimed '90% of Americans have not had a raise for 40 years.' Is he right?" *Politifact*. October 16. <https://www.politifact.com/california/statements/2019/oct/16/tom-steyer/tom-steyers-half-true-claim-90-americans-have-not->
- OECD (Organisation for Economic Co-operation and Development). 2019a. Strictness of Employment Protection—Individual and Collective Dismissals (Regular Contracts), [https://stats.oecd.org/Index.aspx?DataSetCode=EPL\\_OV](https://stats.oecd.org/Index.aspx?DataSetCode=EPL_OV).
- . 2019b. Youth Unemployment Rate (indicator), <https://data.oecd.org/unemp/youth-unemployment-rate.htm>.
- Ohanian, Lee E. 2009. "What—or Who—Started the Great Depression?" *Journal of Economic Theory* 144, no. 6 (November): 2310–35.
- . 2011. "America's Public Sector Union Dilemma." American Enterprise Institute, November 26, <https://www.aei.org/articles/americas-public-sector-union-dilemma>.
- Ohanian, Lee, Andrea Raffo, and Richard Rogerson. 2008. "Long-term Changes in Labor Supply and Taxes: Evidence from OECD Countries, 1956–2004." *Journal of Monetary Economics* 55, no. 8 (November): 1353–62.
- Prescott, Edward C. 2004. "Why Do Americans Work So Much More Than Europeans?" National Bureau of Economic Research working paper 10316.
- Rodgers, William M. III, and Novello, Amanda. 2019. "Making the Economic Case for a \$15 Minimum Wage." Century Foundation. January 28. <https://tcf.org/content/commentary/making-economic-case-15-minimum-wage>.
- Schmitz, James A., Jr. 2005. "What Determines Productivity? Lessons from the Dramatic Recovery of the US and Canadian Iron Ore Industries Following Their Early 1980s Crisis." *Journal of Political Economy* 113, no. 3: 582–625.
- Sorkin, Isaac. 2015. "Are There Long-run Effects of the Minimum Wage?" *Review of Economic Dynamics* 18, no. 2: 306–33.
- US Bureau of Labor Statistics. 2019. "Characteristics of Minimum Wage Workers, 2018." March. <https://www.bls.gov/opub/reports/minimum-wage/2018/pdf/home.pdf>.
- . 2020a. "Unemployment Rate: 16 to 19 Yrs." Federal Reserve Bank of St. Louis. January 9. <https://fred.stlouisfed.org/series/LNS14000012>.
- . 2020b. "Unemployment Rate: 25 to 54 Yrs." Federal Reserve Bank of St. Louis. January 9. <https://fred.stlouisfed.org/series/LNU04000060>.
- US Treasury Department. 2015. "Occupational Licensing: A Framework for Policymakers," [https://obamawhitehouse.archives.gov/sites/default/files/docs/licensing\\_report\\_final\\_nonembargo.pdf](https://obamawhitehouse.archives.gov/sites/default/files/docs/licensing_report_final_nonembargo.pdf).

Walsh, David. 2010. "UAW's Bob King Offers Up Auto Workers as Fodder for Exploitation." *World Socialist Web Site*. August 4. <https://www.wsws.org/en/articles/2010/08/king-a04.html>.

Williams, Zach. 2019. "What Is a Taxi Medallion Worth?" *City & State New York*. August 27. <https://www.cityandstateny.com/articles/personality/interviews-profiles/what-are-taxi-medallions-worth.html>.

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## Endnotes

<sup>1</sup> Labor income taxes and sales taxes on consumption have fairly similar effects on labor supply, as labor taxes reduce take-home pay, which reduces the amount of consumption workers can purchase, while consumption taxes raise the cost of the goods, which also reduces the amount of consumption workers can purchase.

<sup>2</sup> Canada, New Zealand, and Australia were the other countries in the dataset that had small changes in tax rates. All had relatively constant labor supplies. These countries are omitted from the table because of space considerations.

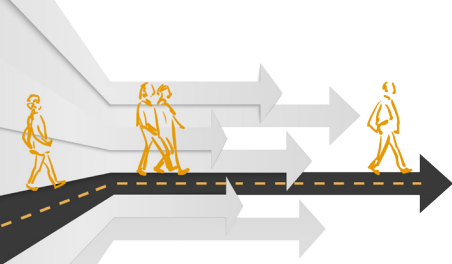
<sup>3</sup> PayScale, "Average Hourly Rate for State: Mississippi," <https://www.payscale.com/research/US/State=Mississippi/Salary>.



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