

Sorting out the Sources of Inequality: *Policy vs. Global Forces*

Oren M. Levin-Waldman

Research Scholar, Global Institute for Sustainable Prosperity

Professor, School of Public Affairs & Administration, Metropolitan College of

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Research Scholar, Global Institute for Sustainable Prosperity

Professor, School of Public Affairs & Administration, Metropolitan College of New York

Abstract:

The conventional explanation of rising income inequality is often referred to as the skills-biased towards technical change hypothesis. Global forces have led to structural economic changes in which we now have a two-tiered economy: a highly skilled and highly paid economy at the top of the income distribution and a poorly skilled and poorly paid economy at the bottom of the income distribution. However, in recent years, conventional theory has been called into question by what can be characterized as the public policy hypothesis, which holds that it is because of public policy, both active and passive, that labor market institutions, which bolstered poor and middle class incomes, have deteriorated. As a consequence of this deterioration, income inequality has only risen. Through an examination of data from the Current Population Survey for 1982 to 2013, with a greater focus during the 2000s, this paper seeks to resolve which hypothesis would appear to have greater currency. Although there is no question that the data does support the skills-biased towards technical change hypothesis, the data also shows that these forces may have been exacerbated by the deterioration of important labor market institutions.

Keywords: minimum wage, inequality, skill-biased technical change, unions, labor market institutions, right-to-work laws.

JEL codes: D30, D31, D63, E02, J08, J18, J31, J38

Introduction

Over the past few decades, income inequality has increased. Income inequality by most measures is higher in the U.S. than in other OECD countries. Those at the top of the distribution have seen their incomes increase while those at the bottom have seen their incomes decrease in real terms. This has effectively narrowed the middle class, whose wages have stagnated in aggregate terms since the 1970s (Phillips 1990; Newman 1993; Hungerford 1993; Wolff 1994; Danziger and Gottschalk 1995). Although income inequality, in and of itself, may not necessarily be a bad thing, the policy problem is generally understood to be the rate of increase in income inequality,

largely because of what it represents: the disappearance of the middle class. Still, there may be disagreements over the extent to which it is a problem because income inequality may not be the same as wage inequality. Moreover, the extent to which it is a problem may, in the minds of some, be a function of what its sources are.

One school of thought holds income inequality to be the result of globalization and the changing base of the economy, from an industrial manufacturing based economy to a post-industrial service sector economy. By this school, manufacturing jobs that may not have required great technological skill have been replaced with service sector jobs that divide into two tiers: a highly skilled and highly paid economy at the top and a poorly skilled and poorly paid economy at the bottom. This is otherwise known as the skills biased towards technical change hypothesis, which usually implies one of two things: either it is incumbent upon workers to acquire and obtain the necessary skills to command higher wages in an increasingly global economy or government should invest in human capital so that workers can function in today's economy.

The other school holds that income inequality grew because of policies that were pursued beginning in the 1980s that were hostile towards labor. As a result, unionism declined, the minimum wage stagnated, and the National Labor Relations Board was stacked by opponents of labor those whose agenda was to emasculate the National Labor Relations Act (Dannin 2006). In addition, an earlier tax code predicated on progressivism was replaced with one that favored capital and effectively redistributed wealth and income from the poor and middle class to the wealthy (Stiglitz 2012; Gilens 2012; Kelly 2009; McCarty, Poole and Rosenthal 2008). In this paper the alternative hypothesis will be referred to as the public policy hypothesis. The key element of the public policy hypothesis is that because of public policy decisions labor market institutions that served to bolster incomes of the poor and middle class, and effectively maintain the middle class, diminished with the result of their absence being rising income inequality. These labor market institutions have most notably been unions, minimum wages, and, to a lesser extent, progressive taxation. Still, the main focus of the public policy hypothesis is the impact of declining unionism and the deterioration of the minimum wage on inequality.

In this paper, through an examination of data from the Current Population Survey (CPS) on full time wage earners over three decades, with a greater focus during the 2000s, I seek to resolve which hypothesis would appear to have more currency. I am specifically concerned with the issue of wage inequality — what workers earn in exchange for their services — than the broader concept of income inequality, which can include income from wages and other income sources. There is no question from the data that the economic base of the country has changed. Moreover, there is no doubt that inequality has also increased due to the decreasing importance — and the data might even suggest their relegation to statistical irrelevance — of key institutions. What the data will show is that institutions do matter, and that without them wage inequality is bound to increase. The data, however, does not establish a linkage between the decline of these institutions and specific policy decisions. That being said, data revealing that inequality has declined in cases where institutions have been strengthened does provide a reasonable basis for speculation. To be certain, this isn't to say that global forces are irrelevant. On the contrary, they are, but so too are

the policy choices, deliberately made or not, in response to those global forces. If anything, the data gives credence to the institutional arguments that market forces cannot be allowed to go unchecked without some type of public policy response, and if allowed to go unchecked, then a deliberate policy decision of non-decision or acquiescence to globalization has been made.

I. Skills-Biased Technical Change Hypothesis

Wage inequality is not the same as income inequality. Whereas income can include wages and other sources of income, wages are solely what are earned in exchange for work. Subsidies will boost a low-wage worker's income, in which case the gap between the top and bottom might not be nearly as wide. Many studies focus on the more amorphous concept of income inequality. Between 1947 and 1973, the incomes of families in the bottom fifth of the income distribution in the U.S. grew more rapidly than the income of families in any of the other countries. Meanwhile, the incomes of families in the top fifth of the distribution grew more slowly than the incomes of families in other quintiles. However, after 1973, this trend changed. Low-income families in the U.S. experienced a steady decline in real income from the late 1970s through the middle of the 1990s. And it was only because of economic growth that accelerated during the course of the 1990s, that the decline in their incomes came to an end. During the late 1960s and 1970s, the average household income of the top five percent was 16 times the average income of the bottom 20 percent of households. During the 1980s, this ratio rose to 18 and continued into the 1990s where it averaged 20 percent. During the 2000s it rose again to an average of 26 and by 2011 it peaked at 2011. This rise in inequality was principally due to the rapid growth in income of the highest earning families. Between 1979 and 2007, the top one percent of families received 60 percent of the income gains while the bottom 90 percent only had about 9 percent of those income gains (Baleman and Wolfson 2014).

Peter Gottschalk (1997) suggests that income inequality increases when the growth of income is greater among those at the top than among those at the bottom, even while bottom incomes improve in absolute terms. Although mean wages grew rapidly during the 1950s and 1960s, the dispersion around the growing mean changed very little. But as mean wages grew slowly during the 1970s through the 1990s inequality rapidly increased. It was a foregone conclusion that poverty rates would be kept down so long as those at the bottom of the income distribution gained along with everyone else from secular growth in the mean. Indeed, income growth of those at the top was greater than the growth of those at the bottom. Between 1976 and 2008, the percentage increase in income among the 10th percentile was 316.7 percent compared to 360.4 percent among the 50th percentile and 431 percent among the 90 percentile. Among the bottom quintile, average incomes increased by 326.7 percent compared to 480.2 percent among the top quintile.

The neoclassical model holds rising wage inequality to be a function of structural economic transformation. Technological change has tended to be biased towards those with higher levels of education and skills. As the economy has evolved from industrial-based manufacturing to post-industrial service, there has been a growing mismatch between good paying jobs and the skills

available to workers. According to this school of thought, the labor market is divided into a primary market where high premiums are placed on skilled workers, and a secondary market with unskilled workers trapped in the lowest-wage service sector of the economy. Increasing skills differentials between the two labor markets have only led to the growth in wage inequality (Katz and Murphy 1992; Juhn, Murphy and Pierce 1993; Katz and Krueger 1992; Autor, Katz and Kearney 2008).

In a competitive market where the new and technologically advanced is always replacing the old and obsolete, it is a foregone conclusion that the wages of unskilled workers will be forced down while the wages of the skilled workers are driven up, thereby increasing the gap between the two. Nevertheless, this view has formed the basis for what Frank Levy and Peter Temin (2010) refer to as the “Washington Consensus,” which argues skill-biased technical change to be the source of inequality, stagnating wages for the average worker, and potentially long-term unemployment. This consensus also maintains that the economy could grow through a set of microeconomic policies of deregulation and privatization intended to achieve greater efficiency. Although the consensus has certainly affected wages and middle class living standards, the emphasis on skills-biased technical change has also worked to shift responsibility for the plight of employees, and the policymakers who supported them, from employees, to the workers themselves. And yet, as much as this might be true, it misses the role that policy plays either in exacerbating or hindering the so-called natural process. By adopting this consensus, policymakers ended up supporting a policy track that would, in fact, exacerbate the growing wage inequality.

II. Public Policy Hypothesis

Those who subscribe to the public policy hypothesis attribute rising inequality to public policy decisions favoring the interests of the wealthy over those at the bottom or the middle class. Because of these decisions, the gap between the top and the bottom widened even more. Moreover, this hypothesis includes the failure of public policy to respond to so-called “natural market forces,” like globalization, which create inequality, and that this failure in policy could also have been a function of a political process favoring those at the top of the income distribution over those at the bottom and in the middle. Institutionalists — institutional economists and increasingly political scientists — hold rising wage inequality to be due to a shift in public policy and a corresponding decline in labor market institutions like unions and the minimum wage in the U.S. and wage councils in Britain (Piore 1995; Gordon, 1996; DiNardo and Lemieux, 1997; Fortin & Lemieux 1997; Lee 1997; Machin 1997; Galbraith 1998; Palley 1998; Lemieux 1998; Howell 1999; Wallerstein 1999; Craypo and Cormier 2000; Card and DiNardo 2002). Moreover, countries that have centralized wage-setting institutions also have lower levels of wage inequality (Pontusson 2005; Wallerstein 2008).

One strand of research on the rise of wage inequality in the U.S. emphasizes the role of political and institutional developments, specifically the decline of unions and the failure of the Federal Government to maintain the real value of the minimum wage. That is, there is a strong association between labor market institutions and changes in wage inequality (Howell and

Huebler 2001). From the mid 1990s, there was a continued decline in union density accompanied by a falling union wage premium because the declining demand for union labor fell due to a couple of pressures: increasing competitiveness throughout the U.S. economy and union companies facing non-union competition (Blanchflower and Bryson 2008). Within the union sector wage inequality was low (Freeman 2004), but declining unionism contributed to a steep increase in wage inequality in both the United States and the United Kingdom during the 1980s. In Canada the rise in the real minimum wage may have actually offset the pressure towards increased inequality associated with the decline in union strength during the 1980s and late 1990s while in the U.S. it was approximately constant over the same period (Card, Lemieux and Riddell 2008). Even those that hold that inequality increased due to the skills-biased towards technical change hypothesis concede that a decline in the minimum wage may have contributed to rising wage inequality, at least in the lower tail of the wage distribution. Although on the basis of the 90/10 ratio there has been no impact, there has been on the basis of the 50/10 ratio (Belman and Wolfson 2014; Autor, Katz and Kearney 2008).

Gordon Lafer (2002) observes that while the skills mismatch thesis has become a convenient explanation for falling wages and rising inequality, it is the decline in unionism that has played a greater role in determining wages of most workers than less education. Mismatch theorists have asserted that the economy is undergoing a radical transformation in the way that the mundane tasks of factory workers, secretaries, and service workers are performed. Many institutions that protected the wages of production workers have been eliminated; however, the earnings of professional workers have not fallen thanks to an elaborate system of immigration control, business, educational credentials, and legal mandates. Professional earnings have not been propped up by the rarity of their skills, but by their ability to exert institutional barriers to competition. The deterioration of unions has been the biggest blow to those at the bottom. With this decline came a corresponding decline in wages because union wages were generally 28.4 percent higher than those of unorganized workers. Or as Freeman and Medoff (1984) most famously observed, a 10 percent increase in organizing in manufacturing generates a 1.5 percent increase in the union wage. What mismatch theories have effectively done is obscure the fact that union premiums maintain higher wage rates for workers, not that workers receive wages equal to their marginal productivity as according to traditional human capital theory. In other words, it is institutions that are key in setting wage rates and determining worth (Lafer 2002). It is no coincidence that the value of the minimum wage declined as union membership declined. Among the functions performed by unions is that they got their members out to vote (Hacker and Pierson 2010). Furthermore, the minimum wage tended increase when there was a strong constituency behind it, and that constituency was organized labor. With the decline of unions that constituency effectively disappeared (Levin-Waldman 2001).

The institutionalist school will argue that in the absence of institutions to prop up the wages of those at the bottom of the distribution, income inequality is bound to increase. The larger point, however, is that income inequality has increased in part due to the deterioration of the minimum wage (Volscho 2005). The public policy hypothesis goes further and maintains that the decline of institutions which have been central to the maintenance of a more equitable wage distribution

were the result of deliberate public policy decisions. Although, according to Joseph Stiglitz (2012), globalization has certainly played a role in growing inequality. Public policy decisions were also responsible for the collapse of good jobs during the last quarter century. With this collapse, wages also fell with a resultant increase in disparity between the top and the bottom. As a result of labor market polarization, more money has gone to those at the top of the distribution, and less has gone to those in the middle and at the bottom of the distribution. Stiglitz attributes this to government policies that reinforced the political power of those at the top of the distribution at the expense of middle and lower waged workers. This is because the American political system gives inordinate power to those at the top, and those at the top have used their power to shape the rules of the game in their favor and to extract from the public as much as they can for themselves. In short, the American political system is more responsive to those with money, and the more unequal the distribution becomes, it is only a foregone conclusion that policies pursued by elected officials will favor those at the higher end of the distribution (Bartels 2008; Bachrach and Botwinick 1992).

To a certain extent this is a chicken and egg issue. The decline in labor market institutions has resulted in a growth of wage inequality. At the same time, (or Meanwhile,) greater inequality has left those at the top of the distribution with more ability to influence public policy in the direction that serves their interests at the expense of those at the bottom. For Nolan McCarty, Keith Poole, and Howard Rosenthal (2008) this represents polarization whereby those at the top of the income distribution are able to devote more time and resources to supporting a political party strongly opposed to redistribution. Volscho and Kelly (2012) found that congressional shifts to the Republican party along with declining union membership and lower top tax rates in the context of a financial asset bubble strongly contributed to the rise of the super-rich. Moreover, the politics of the labor market is important; as union membership decreased, a greater share of income shifted toward the top 1 percent between 1949 and 2008.

There is good reason to believe that the wealthiest Americans exert more political influence than the less fortunate citizens, and that the wealthiest citizens tend to be highly active in politics, far more so than the typical citizen. Levin-Waldman (2013), for instance, found that those from households with incomes over \$100,000 were far more likely to engage in various forms of civic participation than those from households with less than \$30,000. Moreover, the rate of participation appeared to rise dramatically as one moved from a household of less than \$30,000 to a household of \$30,000-60,000. The gap between the policy preferences of the wealthy and those of other citizens is especially evident when it comes to job programs and income support. The wealthy give high importance to the problem of unemployment, but they overwhelmingly reject government action to help with jobs. (Page, Bartels and Seawright 2013). To the extent that this is true, calls into question whether all groups really do have equal standing. This then implies that a more equitable distribution could conceivably result in more responsiveness, because members of Congress would no longer have incentives to favor the affluent over the less affluent, or better financed interest groups over poorly financed groups.

In measuring the relationship between policy preferences and policy outcomes, Martin Gilens (2012) finds that the link between outcomes and preferences tends to be stronger for higher-income Americans than for the poor. At the same time the inequality in representation between the affluent and slightly less well off also suggests that the political system is tilted much more in favor of those at the very top of the income distribution.

For Jacob Hacker and Paul Pierson (2010), rising American inequality is not primarily the gap between the college educated and the rest, but the pulling away of the very top from everybody else. This didn't just happen; rather it is facilitated by public policy. Even if the rise in wage inequality was due to so-called "natural market forces," the failure to respond was nonetheless a deliberate policy choice. Government policy not only failed to push back against the rising tide at the top of finance, corporate pay, and winner-take-all domains, but it consistently promoted it. The absence of a government response to rising inequality can be regarded as a form of policy when it takes the form of "drift" — the deliberate failure to adapt policies to the shifting realities of a dynamic economy. One example of this is that intense opponents of the minimum wage have worked tirelessly and effectively to prevent it from being increased to prior levels or to rise with inflation. McCarty *et. al* (2008) note that minimum wage laws have always engendered liberal support and conservative opposition. Historically, minimum wage increases and expansive coverage generated a fair amount of bipartisan support. As polarization rose in the 1970s, bipartisanship disappeared. As a consequence of increasing Republican opposition in a period of polarization, there has been a dramatic decline in the real value of the minimum wage.

Much of the public policy hypothesis is underscored by Thomas Piketty's (2014) critique of the standard neoclassical paradigm to explain the growth in inequality, which he also defines as the very top pulling away from the rest. He argues that the history of the distribution of wealth has always been deeply political and cannot be reduced to so-called neutral economic mechanisms. Rather the history of inequality has been shaped by the way that economic, social, and political actors view what is just and what is not, and also the relative power of those actors and the collective choices that result. And yet, much of this has been obscured by what Piketty refers to as the economic discipline's "childish passion for mathematics (p.32)." This obsession has only served to create the appearance of being scientific, without having to answer the far more complex questions posed by the real world in which we live. It is because this preoccupation has also created the appearance of neutrality that it could more easily embrace the skills-biased towards technical change hypothesis without stopping to consider the larger political and social context in which those forces were operating.

Comparing France to the United States, Piketty observes that the minimum wage in France played a role in reducing wage inequality in the post-World War II years while wage inequality in the U.S. rose as the minimum wage was in decline. In France a national minimum wage was created in 1950, but was seldom increased thereafter and eventually fell farther behind the average wage. It was not until 1970 that the minimum wage was officially indexed to the mean wage. In fact, governments from 1968 to 1983 felt obligated to significantly increase the minimum wage almost every year in a difficult social and political environment. Between 1968

and 1983 the purchasing power of the minimum wage also increased by more than 130 percent, while the mean wage only increased by 50 percent. The result was a significant compression of wage inequality. However, in the U.S, a subclass of “supermanagers” emerged. Inequality had reached its lowest ebb between 1950 and 1980, when the top decile of the income distribution claimed 30-35 percent of the nation’s income. After 1980, income inequality exploded with the top decile share of the national income rising to between 45-50 percent in the 2000s. The causes of rising income inequality in the U.S. are largely due to the unprecedented increase in wage inequality, and especially the extremely high compensation of managers at the top of the distribution. Although the skills-biased towards technological change argument is acknowledged to be the accepted theory for this rise, it does not offer a satisfactory explanation of the rise of the supermanager or of wage inequality in the U.S. after 1980. The implications would appear to be clear. From 1980 into the 1990s, wage inequality in the U.S. may have been less had the wage kept up with inflation as it had in France. The failure of the U.S to maintain the minimum wage should be viewed as a public policy choice.

Nevertheless, the fact that inequality has increased primarily because of the top pulling away from the rest calls into question the impact of institutions like unions and the minimum wage in combatting inequality. Autor et. al. (2008) reject what they call the revisionist alternative to the skills-biased towards technical change hypothesis, arguing that it does not really explain the main problem of the top pulling away from the rest. Using data from the Current Population Survey, they only find partial support for the revisionist literature. They did agree that the declining minimum wage did contribute to a rise in wage inequality in the lower tail — the 50/10 ratio — during the 1980s, but they found little support for the strong focus of major revisionist claims. Inequality in the lower half of the distribution did increase rapidly during the 1980s, but reversed course thereafter. And yet the persistent rise in inequality in the upper tail of the distribution belies the claim that the minimum wage, in and of itself, can provide a coherent explanation in the bulk of the increase in earnings inequality. Rather changes in the U.S. earnings distribution “polarized” with a strong and persistent rise in inequality in the upper half of the distribution and a slowing of inequality trends in the lower half of the distribution. They found that revisionist arguments focusing on nonmarket factors, especially the minimum wage, are unable to provide a compelling explanation for the strong, steady increase in upper tail inequality over the last 25 years and the polarization of employment growth since 1990. Instead, they are confident that skill demand shifts have played a central role in shaping the wage structure both during and after the 1980s. It was afterwards that polarization of wage growth followed. Still, there is a difference between not being able to explain the pulling away effect and that institutions, as a whole, can at least play a role in reducing the increase in inequality. The minimum wage is but one labor market institution; unionization or union density speaks to another. So too do right-to-work laws, which speak to institutions that actually suppress wages.

1. Data

In this section I look at data from the IPUMS Current Population Survey (CPS) in an effort to determine which hypothesis carries more weight. As a historical backdrop, I look at the file for 1982 and 1992, but the real concern is with the years 2002 through 2013. The principal reason for focusing on the years 2000-2013 is because it was during those years that many states tried to strengthen their own labor market institutions through passage of state specific minimum wage laws. My particular focus in this paper is on wage inequality, and the increasing gap between the top and the bottom, largely because that is where the increase has been. One of the hypotheses that I am testing is that deliberate policy decisions — which can broadly include the allowing of labor market institutions to deteriorate — have led to increased inequality. Therefore, I am looking specifically at full-time workers working for wages. Income transfer programs can boost income at the bottom and taxation can reduce the gap between the top and the bottom. I also look specifically at wages because, as I will argue later, the remedy lies less in income transfer programs than in serious wage policies that serve to bolster incomes and the middle class. In terms of policy decisions, we can only look at the consequences in terms of policies that, over time, have led to the absence of labor market institutions. In other words, the deliberate policy hypothesis is broadly defined to include the failure of policy to address rising inequality, as well as those that perhaps exacerbated it. In testing the relevance of the public policy hypothesis, I am not suggesting that policymakers deliberately sought to increase inequality, or to even turn a blind eye to the problem. Instead, I suggest that there were forces other than changing economies in the global market place that contributed to the rise in inequality and that these forces simply cannot be dismissed.

When it comes to labor market institutions there are a number of different issues. Minimum wage laws, at the federal and state levels, along with union membership have been the major institutions to bolster wages. There is no significant reading on the union coverage variable in the CPS data, but unionism can still be measured by looking at the level of union density in each state, which has declined considerably over the last three decades, with a precipitous decline occurring since 2002. But there is also the issue of right-to-work laws that could be classified as anti-labor market institutions because they were designed to make union organizing more difficult. Such laws could potentially be seen as having the power to suppress wages. In recent years, more states have passed right-to-work laws, especially in response to the growth of public sector unionism. In this vein, right-to-work laws can be seen as a deliberate policy choice at the state level with the potential to exacerbate wage inequality. General trends in wage inequality can be seen in Table 1.

Table 1: General Trends in Wage Inequality (Percent)

	90/10	90/50	50/10	Ratio of Top Quintile to Bottom Quintile
1982	20.0	2.2	8.9	15.6
1992	12.3	2.3	5.4	12.4
2002	8.5	2.4	3.5	13.1
2003	9.0	2.5	3.6	13.3
2004	8.5	2.4	3.6	13.0
2005	8.8	2.5	3.6	13.6
2006	8.9	2.4	3.7	12.9
2007*	8.5	2.4	3.5	12.3
2008*	8.7	2.4	3.6	12.2
2009*	8.8	2.4	3.5	11.3
2010	8.4	2.4	3.5	11.5
2011	8.3	2.4	3.4	11.3
2012	8.6	2.5	3.5	11.9
2013	8.3	2.5	3.3	12.5

* Years that there were increases in the federal minimum wage.

Overall wage inequality appears to have declined between 1982 and 2013, but at least by the measure of the ratio between the top quintile and the bottom quintile it increased between 1992 and 2002. By the other measures it decreased. Despite variations in the rates of inequality, there was a decline in wage inequality between 2006 and 2009. Then, beginning in 2010 inequality, according to the Quintile ratio measure, ticked up again. What is important about this period is that in 2007, the first phase of a three-phase increase in the minimum wage took effect, with the last phase occurring in 2009. Between 2009 and 2013, inequality increased because the mean income of the top quintile increased by 10.9 percent while it decreased by .4 percent among the bottom quintile. However, between 2006 and 2009, the mean income of the bottom quintile increased by 28 percent while it only increased by 11.9 percent among the top quintile.

The question, however, is how anti-labor market and labor market institutions, alike, affect this inequality? Many states following passage of the Taft-Hartley Act in 1947 passed right-to-work

laws that prohibited closed union shops. Workers could no longer be forced to join a union as a condition of employment, which effectively made union organizing more difficult. Declines in union membership are, in part, attributable to these laws, but also to the mobility of capital from high union density states to right-to-work states. Differences between right-to-work and non-right-to-work states can be seen in Table 2.

Table 2: Wage Inequality in Right-to-Work States and non-Right-to-Work States (Percent)

	RTW				non-RTW			
	90/10	90/50	50/10	Ratio of Top Quintile to Bottom Quintile	90/10	90/50	50/10	Ratio of Top Quintile to Bottom Quintile
1982	7.0	2.3	30.0	20.5	13.4	2.1	6.4	12.4
1992	14.5	2.3	6.4	13.7	11.1	2.2	5.1	11.7
2002	8.3	2.3	3.6	12.6	8.3	2.3	3.5	13.1
2003	8.9	2.4	3.7	12.2	8.9	2.4	3.6	13.3
2004	8.8	2.3	3.8	12.1	8.3	2.4	3.5	12.8
2005	9.0	2.4	3.8	13.3	8.7	2.3	3.8	13.0
2006	8.3	2.5	3.3	12.2	8.9	2.4	3.6	13.0
2007	8.2	2.4	3.5	12.6	9.0	2.5	3.6	13.8
2008	8.0	2.4	2.8	11.4	8.7	2.4	3.6	11.3
2009	8.2	2.3	3.5	11.3	8.9	2.5	3.6	11.9
2010	8.3	2.4	3.5	11.8	10.7	2.5	3.5	12.4
2011	8.5	2.4	3.5	12.2	8.3	2.5	3.3	12.9
2012	8.2	2.5	3.3	10.8	8.3	2.5	3.3	12.9
2013	7.6	2.4	3.1	10.5	8.6	2.5	3.5	13.1

In 1982 and 1992 wage inequality was lower by most measures in non-right to work states than in right to work states. In the 2000s, save for a few exceptions, this does not appear to be the case. In 2004, 2005, and 2011 wage inequality on the 90/10 measure was higher in the right-to-work states than in the non-right-to-work states. Also in 2004 and 2011 wage inequality on the 50/10 measure was higher in the right-to-work states than in the non-right-to-work states, which suggests that the absence of labor market institutions did have an effect in the lower tail of the distribution. Nevertheless, the overall comparisons raise the question of why wage inequality would be higher in non-right-to-work states. Intuitively, we would expect inequality to be higher in right-to-work states because the effect, if not the purpose, of such laws is to suppress wages, especially wages at the bottom of the distribution. One reason for why inequality might be less in right-to-work states is because these laws are suppressing the overall wage structure in these states, thereby resulting in less of a gap between the top and the bottom. Right-to-work laws might have the effect of compressing wages. Another reason may have something do with the overall impact of right-to-work laws on unionism. We would expect unionism, as measured by union density, to be even less in those states. In other words, it may not even be so much that right-to-work laws are suppressing wages as it is union density raising wages. But if unionism is in decline, union density will have less of an impact on wages and the degree to which there is wage inequality.

The next question, then, becomes just what is the impact of union density on wage structure and the degree to which there is wage inequality? Comparisons between high-union density states and non-high-union density states can be seen in Table 3.

Table 3: Wage Inequality in High Union Density States and Low Union Density States (Percent)

	High Union Density				Low Union Density			
	90/10	90/50	50/10	Ratio of Top Quintile to Bottom Quintile	90/10	90/50	50/10	Ratio of Top Quintile to Bottom Quintile
1982	12.5	2.1	6.0	12.3	53.1	2.3	22.6	20.1
1992	10.4	2.2	4.8	11.8	14.3	2.3	6.3	8.2
2002	8.3	2.3	3.6	13.1	8.5	2.3	3.6	11.9
2003	8.7	2.4	3.6	13.1	8.8	2.3	3.8	12.6
2004	8.3	2.4	3.4	12.8	8.8	2.3	3.8	12.6
2005	8.5	2.3	3.6	13.0	9.4	2.5	3.8	13.4
2006	8.6	2.4	3.5	13.0	8.7	2.4	3.6	13.1
2007	9.0	2.5	3.6	13.7	8.4	2.4	3.5	13.2
2008	8.2	2.4	3.5	11.2	8.3	2.4	3.5	11.8
2009	8.7	2.4	3.6	11.8	8.7	2.4	3.6	12.2
2010	8.8	2.5	3.6	12.0	8.9	2.5	3.6	12.4
2011	8.3	2.5	3.3	12.0	8.2	2.4	3.4	10.5
2012	8.3	2.5	3.3	12.7	8.5	2.4	3.4	11.6
2013	8.3	2.5	3.3	13.1	7.9	2.4	3.3	11.4

In most years, on the basis of the 90/10 ratio, wage inequality was lower in high union density states than in low union density states. On the basis of the quintile ratio, wage inequality was lower in high union density states than in low union density states in 1982, 1992, from 2004-2006, and from 2008-2010. It is also interesting to note that from 1982 through 2006, with the exception of 2002, that wage inequality was lower on the 50/10 ratio in high union density states than in low union density states. However, on the quintile ratio, wage inequality was higher in high union density states than in low union density states. These findings raise the question of what the effect of declining union density is on relative wage inequality.

As much as union density may be a factor in explaining why some states are more likely to have greater inequality than others, minimum wage laws, too, can help explain inequality. Whereas Table 1 is suggestive that increases in the federal minimum wage may have been partially responsible for decreases in wage inequality, the real test for minimum wage impacts on the states are state minimum wage laws. Several states have their own minimum wage laws that are higher than the federal minimum wage. Comparisons between states with higher state minimum wages to those that do not have higher minimum wages or minimum wages at all can be seen in Table 4.

Table 4: Inequality by States with Higher Minimum Wages v. Those Without (Percent)

	States with Higher Minimum Wages				States without Higher Minimum Wages			
	90/10	90/50	50/10	Ratio of Top Quintile to Bottom Quintile	90/10	90/50	50/10	Ratio of Top Quintile to Bottom Quintile
1982	19.4	2.2	9.0	13.5	2000	2.3	8.7	15.3
1992	10.4	2.2	4.8	11.8	12.9	2.3	5.7	12.2
2002	9.4	2.4	4.0	13.6	8.2	2.3	3.5	12.8
2003	9.4	2.3	4.0	14.2	8.8	2.5	3.5	13.1
2004	10.0	2.4	4.1	14.1	8.3	2.4	3.4	12.4
2005	10.0	2.4	4.3	14.0	8.5	2.4	3.6	13.2
2006	8.9	2.4	3.6	13.9	8.6	2.4	3.6	13.2
2007	8.9	2.5	3.5	13.4	8.8	2.3	3.7	13.0
2008	8.3	2.4	3.4	10.6	8.3	2.4	3.5	12.7
2009	8.6	2.4	3.5	11.6	8.3	2.4	3.5	11.6
2010	8.6	2.4	3.6	11.8	8.4	2.4	3.5	11.8
2011	8.2	2.5	3.3	11.4	8.5	2.4	3.5	12.4
2012	8.7	2.5	3.5	12.7	8.2	2.4	3.4	11.5
2013	8.5	2.5	3.4	13.2	7.9	2.4	3.3	11.5

On the face of it, it would appear that states that have their own minimum wages that are higher than the federal minimum wage do not necessarily have less wage inequality than states that do not. And this could very well be because there really are not that many states that have minimum wages, let alone ones that are higher than the federal minimum wage.

The next question is what may have been the impact of changing industrial and occupational compositions on wage structure, and how that might have affected wage inequality? The skills-biased towards technical change hypothesis maintains that economic transformation is key to understanding increasing wage inequality. Tables 5 and 6 show the extent to which there may have been transformation through changing industrial and occupational compositions.

Table 5: Occupational Composition (Percent)

	1982	1992	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Professional, Technical	19.0	20.6	23.3	23.7	24.0	24.0	23.7	24.5	25.1	26.4	26.9	27.5	27.4	27.6
Farmers	2.0	1.3	1.0	.9	.9	.9	.8	.8	.8	.8	.9	.9	.8	.7
Managers, Officials, Proprietors	12.5	16.0	17.8	15.3	15.3	15.0	15.3	14.9	15.1	16.0	15.5	15.4	15.5	15.9
Clerical and Kindred	17.1	16.9	14.1	15.9	15.4	15.5	15.4	15.2	15.5	15.0	15.3	15.0	14.7	14.5
Sales Workers	5.8	5.7	5.6	5.7	5.6	5.6	5.6	5.8	5.4	5.2	5.2	5.0	5.0	5.0
Craftsmen	13.9	11.7	11.3	11.8	11.8	12.1	11.8	11.5	11.2	10.4	10.1	10.0	9.8	9.7
Operatives	15.0	12.4	10.7	10.7	10.7	10.7	10.7	10.5	10.2	9.8	9.5	9.5	9.8	9.7
Service Workers (private household)	.4	.3	.3	.9	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8
Service Workers (non- private household)	9.2	10.4	11.3	11.3	11.1	11.4	11.6	11.6	11.6	11.8	12.1	11.9	12.1	12.2
Farm Laborers	1.2	.8	.6	.5	.6	.6	.5	.5	.6	.5	.5	.5	.6	.5
Laborers	3.9	3.9	4.0	3.2	3.5	3.6	3.7	3.8	3.7	3.3	3.2	3.3	3.4	3.4

Table 6: Industry Composition (Percent)

	1982	1992	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Agriculture, Forestry, Fishing	4.0	3.0	2.5	2.4	2.7	2.7	2.6	2.6	2.6	2.5	2.6	2.6	2.7	2.6
Mining	1.6	.9	.6	.6	.6	.7	.7	.8	.8	.8	.8	.9	1.0	1.1
Construction	6.2	6.1	7.7	8.0	8.1	8.4	8.9	8.9	8.3	7.6	7.1	6.8	6.8	6.8
Manufacturing	23.2	19.6	15.3	14.3	14.3	14.0	13.7	13.2	13.0	12.3	11.8	12.2	12.1	12.0
Transportation, Communication & Other Utilities	7.1	6.5	6.8	5.9	5.7	5.5	5.7	5.7	6.0	5.9	5.9	5.6	5.7	5.7
Wholesale Trade	4.7	4.2	3.9	3.4	3.7	3.5	3.3	3.3	3.0	3.0	3.0	3.0	2.7	2.7
Retail Trade	12.4	13.5	13.5	14.3	13.9	14.3	14.1	13.7	14.1	13.9	13.6	13.4	13.8	13.7
Finance, Insurance & Real Estate	6.6	7.2	6.9	7.4	7.4	7.3	7.3	7.2	7.2	7.2	7.2	7.2	7.3	7.4
Business & Repair Services	4.7	6.0	7.9	8.0	8.0	7.7	7.9	8.4	8.3	8.5	8.6	8.7	9.1	9.1
Personal Services	2.9	2.9	2.9	2.8	2.7	2.6	2.5	2.7	2.7	2.6	2.5	2.6	2.6	2.6
Entertainment & Recreation	1.1	1.6	2.0	2.1	2.0	2.0	2.1	2.0	2.1	2.1	2.3	2.2	2.1	2.2
Professional & Related	19.1	21.9	23.6	24.7	24.8	24.9	24.7	25.2	25.6	26.9	27.8	27.8	27.5	27.3
Public Administration	6.3	6.4	6.2	5.9	6.3	6.4	6.4	6.4	6.4	6.6	6.8	7.0	6.5	6.7

What stands out is that between 1982 and 2013, the number of wage earners working as craftsmen declined by 30.2 percent, the number working as operatives declined by 35.3 percent, the number working as laborers declined by 12.8 percent, and the number working as sales workers declined by 13.8 percent. Meanwhile, the number of wage earners working in Professional and Technical occupations increased by 40 percent, and the number working as Managers, Officials, and Proprietors increased by 27.2 percent. Between 1982 and 2002, the number of clerical workers decreased by 17.5 percent, but increased by 2.8 percent between 2002 and 2013. Still, the total decline in clerical workers was 15.2 percent between 1982 and 2013. Sales workers also decreased by 13.8 percent. On the industry side, those working in manufacturing and in Retail Trade decreased by 48.3 and 10.5 percent respectively. During the same period, those working in Professional and Related industries increased by 42.9 percent and those working in Business and Repair Services increased by 93.6 percent. With the exception of those working as laborers, most of the significant changes in industrial composition occurred between 1982 and 2002, but the changes that occurred during the 2000s are by no means inconsequential.

In terms of occupations, those working in Professional and Technical industries increased by 22.6 percent between 1982 and 2002, and by an additional 18.1 percent between 2002 and 2013. Those working as Managers, Officials, and Proprietors increased by 42.4 percent between 1982 and 2002 but decreased by 11.8 percent between 2002 and 2013. Those working as sales workers decreased by 3.4 percent between 1982 and 2002, and by an additional 10.7 percent between 2002 and 2013 while those working as craftsmen decreased by 18.7 percent between 1982 and 2002 and by another 14.2 percent between 2002 and 2013. During the same period, those working as Operatives declined by 28.7 percent between 1982 and 2002 and by an additional 9.3 percent between 2002 and 2013. Contrastingly, those working as Laborers actually increased by 2.6 percent between 1982 and 2002, but decreased by 15 percent between 2002 and 2013. Meanwhile, in terms of industries, the number of people working in manufacturing decreased by 34.1 percent between 1982 and 2002 and by another 16.1 percent between 2002 and 2013. Those working in Retail trade increased by 8.9 percent between 1982 and 2002 and by another 1.5 percent between 2002 and 2013 while those working in Business and Repair Services increased by 68.1 percent between 1982 and 2002 and by another 15.2 percent between 2002 and 2013. Finally, those employed in Professional and Related occupations increased by 23.6 percent between 1982 and 2002, and by another 10.5 percent between 2002 and 2013.

Looking at these trends alone, it would appear that jobs that pay well have been lost and those paying less well have been increasing, especially during the 2002-2013 period. That is, fewer people are working in manufacturing, and more people are working in Professional and Related, Professional and Technical, and Managerial jobs, which is consistent with what we would expect from the skills-biased towards technical change hypothesis. This becomes clearer by looking at the median wages for these key industries and occupations, which can be seen in Table 7.

Table 7: Annual Median Wages of Key Occupations and Industries (In Nominal and Adjusted for 2013)*

	1982	1992	Percentage Change	2002	Percentage Change	2013	Percentage Change	Overall Change
<i>Occupations</i>								
Professional, Technical	\$18,500	\$30,000	+62.2	\$42,000	+40.0	\$55,000	+31.0	+197.3
	\$44,660	\$49,817	+11.5	\$54,387	+9.2		+1.1	+23.2
Managers, Officials, Proprietors	\$18,000	\$28,500	+53.3	\$41,000	+43.9	\$55,500	+34.1	+205.6
	\$43,453	\$47,332	+8.9	\$53,092	+12.3		+4.5	+27.7
Sales Workers	\$13,978	\$21,400	+53.1	\$32,000	+49.5	\$40,000	+25.0	+186.2
	\$33,744	\$35,533	+5.3	\$41,438	+16.6		-3.5	+18.5
Craftsmen	\$17,000	\$23,666	+39.2	\$31,720	+34.0	\$40,000	+26.1	+135.3
	\$41,039	\$39,296	-4.2	\$41,075	+4.5		-2.6	-2.5
Operatives	\$12,000	\$17,455	+45.5	\$25,000	+43.2	\$32,000	+28.0	+166.7
	\$28,969	\$28,983	-.05	\$32,773	+13.1		-2.4	+10.5
Laborers	\$11,000	\$14,560	+32.4	\$20,000	+37.4	\$25,000	+25.0	+127.3
	\$26,555	\$24,176	-9.0	\$25,899	+7.1		-3.5	-5.9
Clerical	\$11,404	\$18,000	+57.8	\$25,000	+38.9	\$32,000	+28.0	+180.6
	\$27,530	\$29,888	-8.6	\$32,373	+8.3		-1.6	+16.2
<i>Industry</i>								
Manufacturing	\$15,741	\$24,000	+52.5	\$34,000	+41.7	\$44,563	+31.1	+183.1

	\$38,000	\$39,850	+4.9	\$44,027	+10.5		1.2	+17.3
Retail Trade	\$9,000	\$14,560	+61.8	\$21,840	+50.0	\$27,301	+25.0	+203.3
	\$21,727	\$24,175	+11.3	\$28,281	+12.0		-3.5	+25.7
Business and Repair Services	\$11,000	\$18,000	+63.6	\$30,000	+66.7	\$40,000	+33.3	+263.6
	\$26,555	\$29,888	+12.6	\$38,848	+30.0		+3.0	+50.6
Professional and Related	\$13,000	\$22,100	+70.0	\$31,000	+40.7	\$42,440	+36.9	+226.5
	\$31,382	\$36,695	+16.9	\$40,143	+9.4		+5.7	+35.2

* Figures in bold are adjusted to 2013 dollars

Wages for those at the top appear to have grown considerably more than those at the bottom, at the same time that industries like manufacturing, and occupations like craftsmen, have fewer people in them. While more people are working in Business and Repair Services, and perhaps this is where those who were displaced from manufacturing are now, the median wages are lower.

2. Analysis

The question that needs to be addressed is just what are the factors that might lead to lower levels of wage inequality. The central question is whether wage inequality is lower in those states where labor market institutions like minimum wages have been stronger. Or stated the other way, has wage inequality been higher in those states where labor market institutions have been weaker? The skills biased technical change hypothesis would argue that wage inequality is higher in those states where levels of educational attainment as a proxy for skills levels are lower and there are fewer higher paying and more lower paying jobs because of industrial and occupational changes. If it is the skills-biased towards technical change hypothesis, then we would expect changes in the industrial and occupational compositions, as well as other demographic factors. However, if it is the public policy hypothesis, institutions should make a difference. States that have certain labor market characteristics, like labor market institutions, are more likely to have lower levels of wage inequality (as compared to the national ratio) than those states without those institutions. If it's the skills-biased toward technical change hypothesis, we would expect to have lower levels of inequality in those states where levels of educational attainment is also lower insofar as they serve as proxies for skill level. Alternatively, if it is the deliberate policy hypothesis, then we would expect inequality to be lower in those states where there are labor market institutions, or at least where they have been strengthened. Much of this can be sorted out through a logistical regression analysis. With having a lower level of wage inequality than the national level on the basis of the quintile ratio as the dependent variable, I test for the effects of right-to-work laws, having less than a 12th grade education, being female, being in manufacturing, being in retail, being in business and repair services, being in clerical services, being in sales, being an operative, and being a laborer. I also test for whether the state minimum wage is higher than the federal minimum wage, whether the state has high union density, and whether the state's 20th wage percentile is higher than the nation's 20th wage percentile. Each variable is set to a value of 1.

Table 8: Regression Coefficients

	1982	1992	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Right-To-Work	-.213	38.809	1.193	1.204	1.245	1.407	1.610	2.543	2.592	3.439	3.400	3.289	1.870	2.056
	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Female	.093	.117	.119	.086	.080	.121	.126	.112	.091	.091	.088	.106	.065	.094
	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.000
Less < 12 th Grade	-.076	.146	-.131	-.170	-.107	-.184	-.168	-.181	-.180	-.199	-.226	-.325	-.281	-.314
	.001	.003	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Manufacturing	.348	.241	.336	.317	.339	.318	.331	.338	.314	.259	.286	.235	.214	.283
	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Retail	.068	.006	.104	.086	.143	.152	.149	.105	.101	.078	.105	.102	.157	.134
	.031	.904	.000	.000	.000	.000	.000	.000	.000	.003	.000	.000	.000	.000
Business & Repair Services	.417	.317	-.053	-.065	-.032	-.003	-.039	-.037	-.080	-.066	-.029	-.022	.020	-.016
	.000	.000	.086	.034	.303	.935	.212	.234	.011	.044	.389	.504	.516	.611
Clerical	.186	.047	.039	.065	.074	.065	.103	.080	.075	.050	.100	.115	.062	.085
	.000	.300	.115	.006	.002	.007	.000	.002	.003	.059	.000	.000	.000	.001
Sales	.088	.173	.042	.052	.047	-.007	.002	.001	-.027	-.068	-.010	.024	.036	-.002
	.050	.011	.243	.153	.197	.847	.966	.982	.499	.103	.811	.573	.380	.968
Craftsmen	.078	-.028	.109	.140	.117	.239	.226	.196	.168	.161	.127	.217	.130	.131

	.019	.601	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Operatives	-.031	-.083	.278	.261	.264	.274	.253	.318	.283	.212	.235	.304	.250	.195
	.379	.130	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Laborer	.135	.086	.191	.235	.236	.290	.245	.307	.194	.168	.187	.351	.225	.287
		.294	.000	.000	.000	.000	.000	.000	.000	.001	.000	.000	.000	.000
Higher State Min Wage	-1.308	-19.210	-.728	-.743	-.689	-.715	-.584	1.975	2.040	2.709	2.695	2.663	-.316	.218
	.000	.919	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Higher 20 th percentile		41.225	2.717	2.736	2.749	2.642	2.889	2.897	2.922	2.910	2.909	2.873	2.955	3.038
			.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
High Union Density	1.565	19.272	-.934	-.931	-.901	-.593	-.450	-1.438	-1.452	-1.157	-1.179	-1.221	-.573	-.667
	.000	.919	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Constant	-.256	39.771	1.538	1.542	1.578	1.762	1.957	3.432	3.485	4.440	4.432	4.346	2.267	2.553
	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

The argument of the skills-biased towards technical change hypothesis is that growing inequality is a function of a changing economic base, especially from manufacturing to services. Services requiring great skill may result in higher wages while services requiring little skill will be at the bottom of the wage distribution. Fewer people in manufacturing would appear to reflect that trend. The public policy hypothesis might indicate that it was unionism that historically made manufacturing jobs higher paying jobs, which while higher paying, created the appearance that they were also higher skilled jobs (Glicksman 1997). Manufacturing in all the years tested had positive effects which were statistically significant for lower wage inequality, but was by no means the biggest effect. Still, what is interesting is that the size of the coefficient became smaller over time, which would appear to reinforce the idea of the declining influence of manufacturing. Retail sales also appeared to have small positive effects, which, with the exception of 1992, were statistically significant, but the importance of retail would also have been contingent on the specific occupations in retail or the types of retail operations. Craftsmen had small positive effects throughout, although they were stronger during the 2000s. This, of course, entreats the question of whether or not these jobs required higher skills. The results of operatives and laborers are perhaps more interesting to consider. In both 1982 and 1992, the effects were negative for operatives as well as not statistically significant. For laborers, the effects were positive and statistically significant during the 2000s. This, too, may have had something to do with the changing nature of the economy. The size of the coefficients might suggest that those in manufacturing earned higher wages than those who were specifically operatives and laborers. That the effects were positive for these two occupational categories raises the question of whether or not it is because of growing low-wage service jobs that are lower paying than operatives and laborers. In other words, it is that their relative position in the overall wage structure has changed.

There is nothing in these regression coefficients to suggest that the changing nature of the economy that required greater skills was not a factor. We would expect the coefficient for the less than a 12th grade education, to the extent that educational attainment may serve as a proxy for skills. Its effects were negative and statistically significant for being in a state with lower wage inequality throughout. In fact, the effects became even more negative as time went on, which might add support to the skills-biased towards technical change hypothesis. Still, the most interesting effects were the institutional ones. The strongest effect in 1982 for lower wage inequality was high union density. Its effect was statistically significant in 1992, and throughout the 2000s its effects were negative. At the same time, the effect of right-to-work laws were negative in 1982, which might suggest that they were suppressing wages at the bottom of the distribution. And yet, it became strongly positive for being in a state with lower wage inequality, which might have had something to do with the overall impact of right-to-work laws being that they compressed the overall wage structures in those states. The gap may not have been as wide because the top was not pulling away from the bottom to that degree in those states without institutions to prop up wages.

The strongest effects appear to be those states where the 20th percentile of the wage distribution was higher than the 20th percentile of the national wage distribution and where states had passed

higher minimum wages between 2007 and 2011. The higher than 20th percentile variable was important because wage inequality tended to be lower when those at the bottom were earning more, and when their wages were rising at a higher rate relative to the top. Prior to 2007, there were not many states that had their own minimum wages, let alone higher minimum wages than the federal minimum wage. However, in 2007, many states began passing their own and those that already had them raised them above the federal level. What really stands out were the very strong effects of being in a state with higher minimum wages. These effects were not quite as strong as the higher than 20th percentile, although it would have followed that one would have been more likely to be earning at or above the 20th percentile in a state with a higher minimum wage. Or it may have been that states with higher minimum wages were, through wage contour effects (Levin-Waldman 2011), able to push up the wages of those earning in wage ranges above the minimum wage, in which case the 20th percentile would have been pushed higher. Moreover, much of the recent literature on the minimum wage effects on average wages suggest that increases in the minimum wage do lead to higher average wages (Belman and Wolfson 2014). Barring the 20th percentile, the higher state minimum wage, at least from 2007 through 2011, had the strongest effect. That its effect shrunk afterwards — it was even negative in 2012 — may speak more to states not having kept up afterwards. In other words, these findings appear to show that stronger institutions decrease wage inequality in states where they exist, and/or may have been strengthened. It will be recalled that Autor et. al (2008) claimed this to only be the case in the lower tail of the distribution. The data in this study, however, may be suggestive of broader effects. But even if what Autor et. al. observed was primarily in the lower tail of the distribution, it does not negate the fact that institutions still make a difference, or at a minimum their strengthening needs to be a response to globalization.

III. Policy Implication

As much as institutions can be said to make a difference, it isn't the case that the skills-biased towards technical change is necessarily wrong. Rather, it alone cannot account for the growth in wage inequality over the years. Moreover, it is not clear that the trends in the data that would support the skills-biased towards technical change hypothesis as the source of growing wage inequality were not hastened by policy decisions that resulted in the deterioration of institutions. Letting the marketplace run its natural course is still a putative policy, even if it is one of doing nothing. What the results of this analysis suggest is that had institutions been in place, there would have been lower levels of wage inequality. That is, they would have mitigated the effects of globalization. Which is to say, in the face of global market forces that hasten Joseph Schumpeter's (1975) creative destruction, it is all the more important that institutions be in place to prop up the wages of the middle class. If these institutions have been neglected, then it follows that credence has been added to the public policy hypothesis, as in measures were taken to assure that so-called "natural market forces" would be allowed to go unchecked, which only exacerbated the tendency towards greater wage inequality. Policies favoring business over labor certainly have that effect. If minimum wages are not maintained with inflation, then the middle class falls behind. If policies are adopted that make union organizing more difficult, the effect is for businesses to receive more favorable treatment, albeit perhaps by default. When this happens

the balance of power is tilted towards business and away from labor. This certainly has an impact on wage inequality.

It is not easy to identify which hypothesis carries more weight. The data does not undermine the skills-biased towards technical change hypothesis, rather it suggests that there is more to the story of growing wage inequality than natural market forces. On the contrary, institutions matter, and where there have been institutions wage inequality has been less. Therefore, to the extent that the decline of these institutions may have been partially a function of policy choices, as some of the literature suggests, it would appear that this hypothesis has some currency too. Perhaps what the data makes clear is that given the forces of globalization that have resulted in a two-tiered economy, the decline of important labor market institutions may have only made things worse. That is, wage inequality would have been less, even in the face of increasing globalization, had unions still maintained a presence and the federal minimum wage kept pace with inflation. The strong effects for state minimum wages that were higher than the federal minimum wage between 2007 and 2011, along with the strong effects for states where the 20th percentile was higher than the national 20th percentile, suggest that a simple remedy for reducing wage inequality is to focus on ways to raise workers' wages. In this case, the answer is simpler than the more complicated proposals that policymakers often seek.

A more encompassing approach would require some significant changes to the political system. Josh Bivens and Lawrence Mishel (2013) argue that if the rise in the top one percent of the income distribution has occurred largely from shifting rents, then multiple possibilities exist for redistribution of those rents without slowing overall economic growth or distorting economic efficiency. Reducing incentives for the top one percent to shift rents can be easily achieved by significantly raising marginal tax rates on high incomes. Although this might reduce the ratio between the top and the bottom in terms of disposable income, it does not guarantee that the added revenue from these new marginal tax rates will necessarily find its way to assist those at the bottom of the distribution. Gilens (2012), for instance, would require rethinking how we fund campaigns in the United States. Campaign reforms that reduce the importance of money in elections or shift sources of money toward less affluent donors may help equalize responsiveness of public officials both directly or indirectly. Furthermore, Gilens suggests taking advantage of policies that are supported by both the affluent and the poor. This is a means by which public policy can be brought into line with the preferences of all Americans. Sometimes referred to as "targeting within universalism (p.251)," it rests on the assumption that universal policies like Social Security and Medicare have broader appeal. In other words, policies that don't seek to redistribute downward, but benefit the middle class are bound to appeal to a broad spectrum of voters. A re-calibration of the U.S political system is needed in response to declining participation rates of less well-off individuals in the political process as a result of policies that have favored those with more resources. Only then, will we have the spirit we hope to expect from democratic governance.

The idea of "targeting within universalism" is precisely why a minimum wage sold on the basis of its benefits to the middle class might be a more effective way of reducing wage inequality

(Levin-Waldman 2011, 2012). To the extent that maintenance of the middle class drives the economy because of a greater propensity to consume than those at the very top, this in the end becomes a matter of economic efficiency. And yet, the irony is that proponents of the skill-biased towards technical change hypothesis hold that it is precisely those market forces resulting in greater wage inequality that are, at the end of the day, the epitome of efficiency. It isn't so much that the public policy hypothesis supplants the skills-biased towards technical change hypothesis, as it calls into question the core assumptions at the heart of the conventional wisdom of what are the sources of rising wage inequality. It becomes clear that so-called natural processes have been exacerbated by the decline of institutions. In other words, institutions, especially in the labor market, do matter. Therefore, the most effective way to reduce inequality is to, in fact, strengthen those institutions, especially in the face of increased globalization. Arguably this may not arrest the top from pulling away from the rest, as has been the case, but even if it serves to reduce inequality in the lower tail of the distribution it might still be seen as a step in the right direction.

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