

Organized Labor's Check on Rising Economic Inequality in the U.S. States

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Abstract

Recent demonstrations of growing economic inequality in the United States raise normative concerns about the political representation of all but the very wealthiest citizens. Building on existing cross-national work on the roles of unions in welfare states, I provide evidence that organized labor, as a political institution, limits unequal income distributions in the U.S. states. The states are useful to our understanding of labor's influence on inequality as states differ in their acceptance of labor unions, base levels of inequality, political preferences, industries, and levels of development, but are all nested within a single overarching national framework. Over the 39 year period examined, states where unions maintain more members remain more equal within the labor market and after redistribution via government transfer. These effects persist after accounting for state level policy, demography, and economic conditions. However, states where union membership has the largest influence on inequality have also seen growing attempts to reduce unionization rates. Overall, I find that unions are still able to limit the growth of economic inequality in spite of declining levels of union membership.

Income inequality has grown rapidly across advanced industrialized democracies. In the United States, inequality is higher today than in 1928 (Piketty and Saez 2013). Nearly 70% of Americans believe that the gap between the rich and the poor is growing¹, and the 2016 presidential campaign pointed to economic inequality and insecurity as major policy problems, albeit offering very different solutions. Scholars acknowledge the growth of inequality is troublesome to the functioning of American democracy, as tremendous gaps in income suggest there is an unequal political system that benefits those with means and leaves many under-represented (APSA 2004; McCarty, Poole and Rosenthal 2005; Skocpol 2013; Rigby and Wright 2013; Gilens and Page 2014). Indeed, some conclude that when the preferences of those with the highest incomes conflict with the opinion of the average American, the higher income opinion tends to win out in national policy (Gilens 2012), and that this trend continues at the state level (Rigby and Wright 2013). Though a bleak picture, if the opinions of all but the wealthiest do not matter to produce policy, why should low or middle-income Americans participate in politics at all?

While we know a considerable amount about the causes and consequences of economic inequality cross-nationally (Huber, Ragin and Stephens 1993; Pontusson 2005; Kenworthy 2004; Thelen 2014), and within the U.S. over time (Freeman and Katz 1994; Neckerman and Torche 2007; Western and Rosenfeld 2011; Hacker and Pierson 2011; Rosenfeld 2014), less is known about how these theories apply to the states. In this paper, I focus on organized labor, a group that is central to Power Resources Theory (Korpi 1983; Stephens 1979), as well as other theories of working-class involvement in welfare states. Power Resources Theory emphasizes that working class people are more influential, and there are lower levels of income inequality, where labor and left-leaning governments are present. To show how some states remain more equal than others, I leverage differences in union membership across states from 1976 through 2014. This work is a step in understanding unionization's influence in state politics, contributes to existing work on the causes of economic inequality by adding evidence at the subnational level, and demonstrates that unions continue to lessen levels of inequality in spite of years of declining membership. States where unions have had the largest effects on inequality over time should experience the consequences of deunionization more urgently than states without strong historic associations with organized labor.

Unions are focused on the downward redistribution of income. Stronger unions result in

¹[CBS/NYT Poll, June 3, 2015](#)

compression of income distributions, and lower levels of income inequality. Their influence on economic inequality is two-fold, each relating to a different type of income inequality: First, unions act in labor markets, setting wages, bargaining for benefits, and capping the upper end of the income distribution. In practice, places where unions are stronger see lower levels of CEO compensation (Card, Lemieux and Riddell 2004), higher incomes for members (Western and Rosenfeld 2011; Rosenfeld 2014), and lower levels of working poverty (Brady, Baker and Finnigan 2013). For both unionized workplaces, as well as nearby nonunion competition, the presence of unions reduces the number of households at the top and bottom of the distribution of income, leading to lower levels of inequality (Freeman and Medoff 1984). Kelly and Witko (2012) use union density as one component of instances when states, rather than the national government, can limit levels of economic inequality.

Second, unions are political actors advocating for redistributive policies, pushing for access to health and child care, and encouraging more income stability at the lower end of the income distribution, which often apply to workers who are not unionized (Zhu and Clark 2015; Ahlquist and Levi 2013; Reynolds and Brady 2012; Mosher 2007). Unions may be most successful in lobbying their positions to active left-leaning, usually social democratic, governments (Huber, Ragin and Stephens 1993; Stephens 1979). However, even without a left-leaning government, the goals of labor movements remain the same. Scholars find that places where unions are stronger have greater working class influence in public policy (Rosenfeld 2014; Kelly and Witko 2012), while others find mixed union effectiveness over time (Zhu and Clark 2015). The efforts of unions to influence liberal policy should have greater success where union membership is more dense.

In the U.S. states, the ebbing of organized labor is often asserted as part of the cause of rising inequality, but empirical demonstrations are more rare. Unions have been in decline since the mid 1970s, and have always been weaker in the U.S. than in other advanced industrialized democracies. Unionization rates in the United States, never as strong as those in Western Europe (Archer 2010; Kenworthy 2004), have declined by over ten percent since the 1970s, with around 11% of working Americans belonging to a union in 2014.² Despite this decline in membership, I argue that variation in union density persists at the state level, and that many states have unions that are strong enough to

²This figure underestimates union presence in the public sector, which up until very recently remained quite stable, and overestimates membership in the private sector which has declined dramatically (Dark 1999).

lessen economic inequality.

The wave of Right to Work legislation in the 2010s will result in lower levels of union membership moving forward. The process of passing Right to Work has been shown to limit levels of unionization by nearly 20% in Oklahoma (Eren and Ozbeklik 2016), a state that adopted Right to Work in 2001. In states with stronger histories of unionization, the passage of Right to Work or other collective bargaining limits in the public sector, should greatly diminish the membership and organizational capacity of labor. Where the early passage of Right to Work was primarily a signal of business support, recent Right to Work laws are being passed in states with significant unionized populations.

The U.S. states serve as a useful testing ground for whether organized labor can reduce pre- and post-transfer income inequality. While national policies have amplified the gaps between economic classes (Enns et al. 2014; Hacker and Pierson 2011; Kelly and Witko 2012; Kelly 2005), and states have only some influence on redistributive income (Barrilleaux and Davis 2003; Freund and Morris 2005), devolution of labor policy to the states has allowed considerable variation in union membership and strength, and therefore the capacity of organized labor to influence inequality (Soss and Hacker 2010). States vary in the history of union recruitment, dominant industries, workforce policies, existing levels of inequality, tendency toward redistribution, and the policy preferences of citizens (Lichtenstein 2012; Dark 1999; Francia and Orr 2014). The nesting of U.S. states within a common national frame eases some of the problems with cross-case comparison (Huber, Ragin and Stephens 1993). Focusing on changing unionization at the national level obscures the overall picture of membership and legislation surrounding unionization (Freeman and Medoff 1984; Western and Rosenfeld 2011). For example, in 1976, almost 40% of the workers in Michigan belonged to a labor union, whereas in Mississippi union members were never more than 15% of the working population. Where unions are stronger, they can have a greater impact on state level inequality. In states where unions were once strong, union decline should have larger consequences on levels of economic inequality, as unions were more central to maintaining whatever income distribution was present.

This paper makes three contributions to the understanding of the politics of economic inequality. First, I add more information about the subnational level to the existing literature documenting union effects on economic conditions (Thelen 2014; Kelly 2009; Huber and Stephens 2001; Huber, Ragin and Stephens 1993; Korpi 1983; Stephens 1979).

By capitalizing on comparison across states (Jewell 1982; Langer 1999; Kelly and Witko 2012), I look at how unions can influence inequality before and after government transfer. Using the years 1976 through 2014, I capture the rise of economic inequality, general decline in unionization rates, and the recent collective bargaining legislation of the early 2010s (Hacker and Pierson 2011). Power Resources Theory emphasizes that working class individuals fare better when labor plays a larger role in the market and when left-leaning parties, or labor itself, pushes for redistribution in government. Market and governmental mechanisms correspond to the dual roles of organized labor: to increase the income of members, and to create liberal policy. Unions balance increasingly limited resources between advocating for market intervention and policy movement, but they continue to act as a market controlling institution and politically oriented interest group (Kelly and Witko 2012; Jacoby 2006). By either measure of inequality, states with more union members are more equal. Consistent with what others have demonstrated, liberal public policy leads to lower levels of inequality (Caughey and Warshaw 2015; Leigh 2008; Hansen 2001). Unions, however, lower market and post-transfer income inequality independent of the policy liberalism of a state. States with larger unionized populations, as well as more liberal states, have more equal income distributions.

Second, declining unionization rates limit how unions can influence economic inequality over time. While Kelly and Witko (2012) and Xu, Garand and Zhu (2016) find that state governments can influence levels of inequality, I add that the decline of labor unions limits one extra-governmental pathway to reducing inequality in the market. This tension should be more pronounced in states with a history of strong labor movements.

Third, I add a caveat to the finding that Right to Work laws do not predict economic inequality (Kogan 2016). While Right to Work laws may not predict inequality, union membership continues to predict both market and post-transfer levels of inequality. By simulating what inequality would look like if unionization remained at its earliest levels, I find that states with the largest effects also are places where Right to Work laws passed in the early 2010s. The consequences of Right to Work legislation will not be felt until new contracts are negotiated. Overall, this work is relevant to scholars trying to understand the causes of state level inequality and where they might be alleviated.

The following sections describe Power Resources Theory, the dual roles of organized labor, and how each role limits a type of economic inequality. This relationship is con-

ditioned by the historic development of the labor movement in a given state and the openness to liberal public policy. The subsequent sections present empirical tests of unionization's relationship to both pre- and post-transfer levels of economic inequality, suggest that union decline will influence labor's ability to limit inequality in the future, and demonstrate that the states where unionization matters most are also states that recently passed Right to Work legislation. Finally, I extend these results to look at the larger implications of declining unionization as one extra-governmental pathway toward greater income equality.

Labor and Power Resources Theory

Power Resources Theory emphasizes that different economic classes have different policy preferences (Korpi 1983; Stephens 1979). Where working-class preferences are represented, usually through a dense labor movement or through left of center political parties, there are also higher levels of pay in the market, and higher levels of governmental redistribution, resulting in lower levels of income inequality. Places where unions are dense often see both lower levels of market and redistributive inequality (Pierson 1996). Unions have two interrelated goals: first to influence labor markets directly, and second to work within government to create more favorable public policy. Each goal corresponds to a type of inequality: Working within labor markets to condense wage distributions can be thought of as influencing market inequality, and creating more redistributive public policy means that there will be lower levels of inequality post-governmental transfer. Delaney (1991) captures the interrelationship between market and political roles, stating

Political involvement occurs because collective bargaining success is critically dependent on the success of union political efforts. Because the legal environment governing bargaining has a strong impact on organizing activity, the conduct of negotiations, and bargaining outcomes, unions engage in electoral and legislative activity. In this sense, political action is a complement to bargaining; its objective is to maintain a legal environment that permits bargaining between employers and unions. But legislation and judicial decisions have limited union activities- for example, to bargain over nonmandatory issues, to picket, or to have access to employees who are the target of organizing-and, as a result, union political action has also sought to achieve outcomes that would not be possible through bargaining. In this sense, political activity is a substitute for bargaining. (340)

In practice, states with more union members should see lower inequality by either measure. Though a fairly intuitive expectation, it is necessary that states with more union members

should have lower levels of market and post-transfer levels of inequality, and that this relationship should continue throughout the period.

Hypothesis 1. *Over time, states with higher levels of unionization should have lower levels of market and post-transfer inequality.*

Overall, unions function to increase income for those with few resources (Brady, Baker and Finnigan 2013), reduce managerial pay (Card, Lemieux and Riddell 2004), and can encourage the government to pass more redistributive policies (Hansen 2001). Lower levels of union membership should make reducing inequality more difficult (Witko and Newmark 2005; Kelly and Witko 2012). Where unions have more members they are less constrained with resources and can spend more money campaigning, bargain more effectively, and be more involved in the workplace (Leighley and Nagler 2007; Milkman and Voss 2004). Declining membership means that unions cannot reduce either market or post-transfer inequality in the ways they once did. Other work finds that as laws are passed to limit collective bargaining, unions struggle to organize new membership (Ellwood and Fine 1987). It is expected that as unions lose members, they are less able to organize and that effect should persist.

The Historical Development of Unions in the States

According to Power Resources Theory, welfare states should have lower levels of economic inequality when both labor and left leaning parties are present. Looking at sixteen countries including the United States, Wallerstein (1999) emphasizes that the share of the unionized population, and the degree to which workers are covered through collective bargaining influence levels of wage inequality. Within the American case, the strength of labor unions varies along state lines due to levels of industrialization, dominant industries, historical development, legislation, and the composition and preferences of the workforce. In the Northeast, the early formation of the textile industry also saw the rapid growth of organized labor (Dray 2011). The Midwest functioned similarly to the Northeast, with growing unions cropping up to balance management forces in the steel, railroad, and coal industries (Goldfield 1989; Freeman 1980). Even today when union members are much more likely to be in the public sector, as teachers, state and municipal employees, police officers, or fire fighters, and more likely have higher incomes than at any point previously (Anzia and Moe 2015; Flavin and Hartney 2015; Hartney and Flavin 2011; Moe 2011;

MacLean 2008; Putnam 2004; Dark 1999), the Midwest and the Northeast continue to see the largest rates of unionization, showing that these states maintain a relative strength of organized labor. Lower levels of inequality, however, might not result in a universal growth in incomes. For example, union involvement advocating for public sector pensions might result in state and local governments over-committing to labor constituencies as the expense of the long-term stability of the budget (Anzia and Moe 2015). This process would result in lower levels of inequality at first, and higher levels later as states readjusted.

The success of labor organizations in states of the Midwest and Northeast contrasts with the lack of a strong labor movement in the South and Southwest. In the South low levels of unionization rates stem from a lack of early industrialization, as well as a way to preserve racial hierarchy in the workplace (Minchin 2005). The desire to keep African Americans from achieving equal standing within firms, even among union leadership, often limited the ability of labor to gain membership or political power (Teixeira and Rogers 2001; Frymer 2008; Lichtenstein 2012). The passage of Taft-Hartley in 1947, for example, limited the ability to organize private sector unions, but contained language and industrial specifications meant to apply directly to southern states. The components of this legislation hindered the abilities of African American workers to unionize, but also limited the capabilities of unions overall. Katznelson (2013) states that limiting unionization in agricultural sectors was a concession to Southern Democrats, interested in populism and in preserving white racial order. Though unions were not as politically powerful in the South as they were in other places, efforts to unionize southern workers were sometimes successful (MacLean 2008), leading to cross-state and cross-sector variation.

In the Sunbelt of the Southwest, regulatory policy developed alongside conservative pro-market rhetoric, leading to the early adoption of Right to Work legislation in these states (Shermer 2009). Right to Work campaigns entered into sectors beyond agriculture and mining, and expanding into retail, tourism, and gambling (85). Both southern and southwestern states lack unions strong enough to influence economic distributions through market or policy intervention. Over time, declining union membership rates in these states are unlikely to influence either type of inequality, as these places had fewer union members to lose.

While labor was more influential in some states, union acceptance was by no means

universal. Animosity from both businesses and state governments toward organized labor was not confined to southern or southwestern states, nor was it purely a product of the post-1970s globalization and economic development (Lichtenstein 2012). Instead, relationships that were often tense between labor, business, and state governments were affected by the size of labor's constituency in certain states, which itself was a product of historical development. Simply, state level variation in union membership conveys limits that organized labor has in some states and does not have in others. The picture of decline also glosses over that many state's public sector unions have maintained membership until very recently (Dark 1999). Though this research focuses on unionization rates from 1976 forward, state history regarding the ability to unionize constrains the potential power of organized labor. In some states, unions are more closely enmeshed in the business environment and political arena.

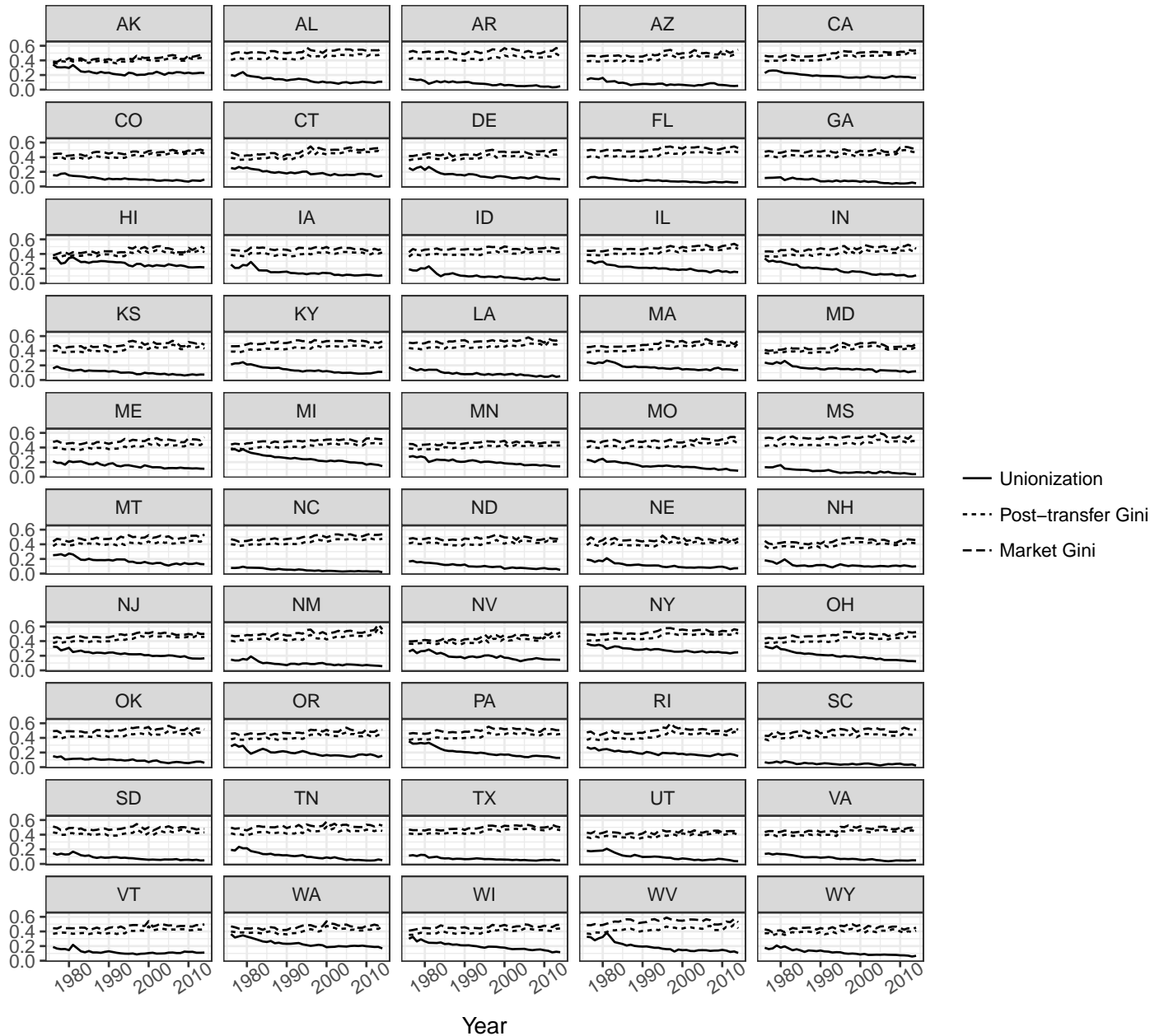
The solid line in Figure 1 shows variation in unionization rates for each state over time. Union membership rates are compiled from the March supplement of the Current Population Survey (CPS) by the U.S. Census Bureau (Hirsch and Macpherson 2003). Questions regarding unionization are asked to all workforce aged respondents, and unionization rates for each state are the proportion of non-agricultural workforce aged adults that are members of a union³. All states have unionization rates that are higher at the beginning of the period than at the end of it, but the decline in unionization varies by states. States where unions never had many members, for example in North Carolina, are presented as almost a flat line, with around 5% unionization in 1976, and 2% in 2014. North Carolina is different than a state like Michigan or Ohio, where unionization rates begin relatively high, with over 30% of working adults belonging to unions, and trend gradually downward over time. In other states, Massachusetts for example, union rates begin high and are fairly flat until the late 1980s and then settle at a new lower level. Overall, states all show union decline, but that decline is not consistent across states.⁴

The states began the period with differing levels of unionization, but some states also adopted legislation making it easier for unions to maintain membership. Again, where

³Individuals who are covered by a union contract, but have opted out of joining a union, are not included in this figure.

⁴I present the state with the minimum proportion of non-agricultural working age adults that are union members, the state with the maximum proportion, and the average unionization rate across states in Table 6 in the Appendix. Where the average state had about one fifth of workers unionized in 1976, only about one tenth were in 2014. The range of values across states has also condensed over time, in 1976 the gap between the least and most unionized state was 32%, which declined to 22% in 2014.

Figure 1: Inequality and Unionization Rates in the States, 1976-2014



unions are able to maintain their membership, it is expected that unions will have a greater ability to reduce both market and post-transfer economic inequality. The federal government has largely delegated decisions regarding unionization to the states (Lichtenstein 2012; Soss and Hacker 2010), including unionization of state employees. One way to curb unionization rates is to pass legislation like Right to Work laws that limits the ability of unions to require dues. States like Michigan, Indiana, and Wisconsin passed Right to Work legislation in the 2010s.⁵ As Right to Work laws diffuse to other places (Walker

⁵In Wisconsin, Right to Work followed other collective bargaining limitations implemented in the public sector via a state budget bill. Right to Work will change unionization when contracts finish and must be renegotiated with employers. In Wisconsin, laws mandate that state contracts be negotiated each year, meaning the effect should be seen earlier. In Michigan, prior to the passage of Right to Work, many unionized workplaces

1969), they may influence levels of unionization as well as increase economic inequality. Recent laws curbing bargaining in public sector unions have taken place alongside Right to Work to decrease the political power of labor unions. Taken together, union decline lowers the capacity of labor unions to engage in the market and in politics.

As such, Hypothesis 2 posits:

Hypothesis 2. *The ability of unions to limit income inequality is conditioned on the strength of organized labor.*

Unionization's Relationship to Public Policy

Economic inequality is not a simple function of union density, but is produced through the interrelationship of many state level factors. Government action can influence the growth of inequality directly through explicit redistribution or control of the labor market, or indirectly by enabling labor unions to grow or take a more active role by privileging some sectors of the economy over others. Some states simply have larger levels of inequality due to industrial presence, demographics, or economic output. Democratically led governments are more likely to produce policies that reduce inequality (Husted and Kenny 1997; Soss and Hacker 2010; Leigh 2008; Brady, Baker and Finnigan 2013; Hansen 2001), but this tendency could work in concert with union efforts. How favorable the Democratic Party is toward efforts to limit inequality through redistribution also varies by state (Kelly and Witko 2012; Gelman et al. 2008; Hansen 2001), with Democrats in Connecticut often pushing for policies that are distinct from Democrats in Alabama. The role of policy in reducing inequality cannot be understated. Perhaps liberal places are more likely to have less inequality and greater unionization. As such, in order to better study how labor unions can limit economic inequality, I must first propose that unionization has an independent effect on it, even after controlling for how liberal state policy is.

Hypothesis 3. *Unionization should decrease inequality even after controlling for the liberalism of state policy.*

To test whether labor unions can reduce economic inequality independent of state policy, I use estimates of state policy liberalism generated by Caughey and Warshaw

renegotiated longer contracts that would not need to be renegotiated for up to ten years (Taylor 2015).

(2015). This data improves on existing measures of the ideology of state policy because it is measured at more than one point in time, is dynamic rather than static, and covers more than one policy area (Wright, Erikson and McIver 1987; Lowery, Gray and Hager 1989; Ringquist and Garand 1999; Jacoby and Schneider 2009; Lax and Phillips 2009). This measure combines 148 unique policies, arriving at a latent score of how liberal state policy is. These scores are comparable over time and across states. By using the liberalism of state policy, I am able to determine whether unions have an additional effect to lessen economic inequality.

Unions, social welfare policy, and economic inequality are interconnected but theoretically distinct. Hacker (2004) demonstrates that large overtime changes in liberal social policies often come by subtle institutional variation, shifting the costs and provisions of the programs. Economic inequality, then, could emerge as government alters the provision of some social welfare services or allows policy drift. One way to separate the ideology of state level policy from the effect of labor is to look at inequality after governmental transfers have been taken out of income.⁶ I look separately at market and post-transfer inequality. Unions should impact both types of inequality, but policy liberalism should primarily influence market level inequality in the form of redistribution. Post-transfer inequality controls directly for many large scale liberal redistributive programs: Social Security, welfare, education support, unemployment, workers' compensation, veterans' benefits, survivors' benefits, disability, and SSI. Looking at both measures of inequality provides an additional way to differentiate between the effect of unionization and the effect of having liberal policy on levels of economic inequality.

Data and Measurement

To test these hypotheses, I combine data on state level income inequality, unionization rates, policy liberalism, as well as variables related to the state level economy and demographic composition. All fifty states are measured in each year from 1976 through 2014, or 39 year cross sections. In what follows, I will discuss data sources and coding decisions, as well as current data limitations.

Measuring Income Inequality The main dependent variable of interest is state level income inequality. There are many ways to measure inequality, each coming with benefits

⁶All income included here is post-transfer, but pre-taxation.

and drawbacks (Silber 2012). For this research, I use the Gini index of household income for each state year. One of the major benefits of the Gini index is that it is standardized and generally accepted summary measure of income inequality (Allison 1978; Atkinson 1970) which does not need to be converted into constant dollars and can be compared easily over time. The measure is the difference from a uniform distribution of perfect income equality, is continuous, and runs from 0 to 1, where 0 represents perfect equality of incomes and 1 representing one individual holding all the income and the rest none. In practice, this scale has a limited range, only moving between .34 and .57 across the thirty nine years.⁷ In any year the gap between the most equal state and the least equal state is about .1.

Using the March, or economic, supplement of the Current Population Survey (CPS), I constructed market and post-transfer Gini indices for all years 2007 forward, building off of work by Kelly and Witko (2012) from 1976 through 2006. The market level Gini includes all income from private sources: earnings, private retirement income, private pensions, interest, dividends, rents, royalties, estates, trusts, alimony⁸, child support, and outside assistance. Post-transfer Gini is one's market level earnings plus all income gained through Social Security, welfare, education support, unemployment, workers' compensation, veterans' benefits, survivors' benefits, disability, and SSI. Where market income shows how unequal the state population is theoretically, post-transfer income shows the inequality level that individuals live with in each state. To assess inequality after redistribution, all models that predict post-transfer inequality include a control measure of market inequality.

The CPS is designed to scale to be representative of state-level populations, a great improvement over many traditional large-scale surveys. Similarly, because much of this work relies on measures of income to construct levels of economic inequality, each of these sources provides the most accurate self-reports of household income. That said, some individuals may not report their income, thereby decreasing the accuracy of any measure of income inequality though non-response remains less of a problem in the CPS than other survey sources (Holbrook and Krosnick 2010) due to the perceived status of the Census as an official government document (Clausen 1968).

⁷For tables of the minimum, maximum, and average market and post-transfer Gini index, see Table 8 and 7 in the Appendix.

⁸This calculation includes alimony for years 1976-2006, but is no longer asked by the CPS.

Figure 1 depicts what inequality looks like in each state over the thirty nine year period. Market level Gini indices are depicted as the larger dashed line, and Post-transfer Gini is depicted as a smaller dashed line. In all states throughout the period, Post-transfer Gini trends with Market Gini, and shows that states are slightly more equal. Over time, all states grow more unequal by either measure. Here, as well as in looking at unionization rates, states follow three major trends. First, some states grow more unequal over time in a consistent linear fashion. Michigan, for example, has inequality moving faintly upward across the period. Second, states can stay stable and unequal throughout the period. Mississippi varies only slightly from year to year, but over time has a flat level of inequality across the period. Third, states like Connecticut have one level of inequality for a part of the period, and then grow more unequal and stabilize at that new value. Inequality is increasing in all states by either measure, but states maintain their differences from one another.

Explanatory Variables of Interest

To demonstrate whether unionization rates can still impact economic inequality, I have two main explanatory variables of interest: *unionization rates* and *state policy liberalism*. Unionization rates in a state are measured using the March supplement of the CPS, originally generated by Hirsch and Macpherson (2003) and updated annually. Liberalism of state policy is measured using a latent score produced by Caughey and Warshaw (2015) and is comparable over time. The scale runs from negative three to positive three, with negative scores being more conservative. For ease of comparison, I divide this score by six to get a measure that exists from -0.5 to 0.5.

Policy liberalism is a composite of many existing state policies. The incorporation of multiple policy areas into one measure allows for more general conclusions about the relationship between unionization, public policy, and inequality over time. Caughey and Warshaw (2015) code ten policy areas, one of which is labor policy. The authors give Right to Work laws as an example of the type of legislation included as a measure of labor policy. The liberalism of state policy *is* related to the unionization rate in a state. States that are more liberal also tend to have larger unionized populations ($r=.6$).⁹ Though these variables are related, the correlation could be higher. The degree of collinearity

⁹I estimated identical models using alternate measures of state liberalism from Erikson, Wright and McIver (2007) and Berry et al. (2010). These measures of liberalism are less highly correlated with levels of unionization. However, because each alternate measure is about the liberalism of either state officials or citizens, it is less preferred than the liberalism that citizens live under in a state.

between unionization and policy liberalism is not ideal, but without additional data the interrelationship will remain. The presence of collinearity will not impact the estimation of regression coefficients, and should only impact the degree of certainty present within results. Excluding one of the variables of interest would result in additional bias in the models (Arceneaux and Huber 2007). As such, because unionization rates and the ideology of state policy are conceptually distinct both variables remain in future models.

One reason why unionization and state policy liberalism may be less correlated is because of some labor legislation being relatively limited in the period examination. Because I am looking at 1976 forward, the inclusion of Right to Work legislation in scaling is less problematic. As of 2016, 25 states have Right to Work laws, and of these 18 took place prior to 1976 (National Right to Work Committee 2016). Of the remaining seven states adopting Right to Work Laws, Indiana, Michigan, Wisconsin, and West Virginia¹⁰ all put these laws into effect after 2012. In fact, Wisconsin and West Virginia both fall outside of the period examined, enacting laws in 2015 and 2016 respectively. One major law that would be consequential to the organization of labor unions are largely stable in the time period examined.

My analysis engages with closely interrelated topics: inequality, unionization, public policy, and state economy. As such, endogeneity within the analysis is a concern. By controlling for the setup of the economy, baseline demographics, working within years, and keeping each variable as conceptually distinct as possible, I try to avoid some of the interrelationship. However, inequality, and unionization's role in alleviating it, involves engaging with a complicated causal chain.

Included Control Variables I include several economic and demographic controls. For an estimate of the size of the economy of a state I use the gross state product, as well as the percentage of the state economy that is based in manufacturing, both of which are expected to increase inequality as they grow larger. As economic output is larger, individuals at the top end of the income distribution will likely make more. States with higher levels of manufacturing would also be more unequal, as management of these companies will likely have much higher salaries than those still employed in manufacturing. Both variables are generated from the U.S. Bureau of Economic Analysis (BEA). For a demographic control, I include the proportion of the state population that is non-white.

¹⁰This law was then vetoed by the WV governor in 2016, overridden by the state legislature, and is currently in the courts.

Inequality should increase in places where the non-white population is larger, as this group has been paid less in the workplace. The proportion of non-white population in a state are generated using the Current Population Survey by the author.

Estimation and Results

To estimate the effect of unionization on economic inequality, I use a linear model that includes year fixed effects.¹¹ In Table 1 are the results of four models predicting state level economic inequality after governmental transfers in the years 1976 through 2014. These models build on each other, and taken together they lend support to the first and third hypotheses: unionization should reduce both types of economic inequality over time, and unionization should have an independent effect on economic inequality in a state. Unionization should have a larger effect on inequality in models predicting post-transfer levels of inequality, as this shows the effectiveness within the market itself. Liberal policy, consistent with other studies, should lead to greater levels of income equality, but this effect should be more apparent before accounting for many of the large scale social welfare policies.

In the first model of Table 1, I estimate the effect of unionization on inequality without year fixed effects while including a control for the level of market inequality. I add year fixed effects in model two.¹² In model three, I add in control variables: gross state product, proportion of the economy in manufacturing, and the non-white population. All variables remain signed consistently with existing literature: states with larger economies, more heavily based on manufacturing, and less white are more economically unequal. The final model adds policy liberalism. Because post-transfer levels of inequality are calculated by including many major liberal policy developments, the effect of public policy is much smaller than that of unionization, though it is still negative. Importantly, even after controlling for the degree of state policy liberalism, unionization remains an important predictor of lower levels of inequality.

¹¹Alternate models using earlier unionization rates as a proxy for union history are included in Appendix Table 12. Previous unionization correlates very strongly with current levels of unionization (.8). A distributed lag model that explicitly accounts for previous levels of inequality in a state is included in Table 13. An Error Correction Model (ECM), demonstrating short and long-term impact of each variable, is presented in the Appendix Table 14 and produces theoretically consistent results. Though an Augmented Dickey-Fuller test for unit roots suggests that a 12 year lag would be appropriate, this model lags all variables by one year. Lagging variables by one year is still significant ($p < .01$), performs only marginally worse, and is theoretically preferred.

¹²A Hausman test indicates that a fixed effects model, rather than a random effects model, is appropriate for this data.

Across models the effect of unionization negative and of similar size, meaning inequality is reduced where unionization is higher. To put these effects into context, for the period 1976-2014, post-transfer levels of inequality grew from a low of .342 to a high of .511, for a .17 change. As such, the Model 1's .048 movement in post-transfer inequality from increasing unionization is a movement of over a quarter of the range of the variable. In any year, the change in inequality from having no one unionized to everyone unionized would be equivalent to moving from the most unequal state (in 2014 that was Louisiana at .460), to an average state, like Maine with a post-transfer rate of inequality of .404. Even after introducing variables for policy and existing state economic and demographic conditions, the effect size of unionization is .033, or the equivalent of moving close to 20% of the entire range of inequality across the 39 years.

Table 1: Linear Regression Predicting Post-Transfer Inequality, 1976-2014

	<i>Dependent variable:</i>			
	Post-transfer Gini			
	(1)	(2)	(3)	(4)
Union Density	-0.048*** (0.005)	0.002 (0.004)	-0.012*** (0.003)	-0.033*** (0.004)
Policy Liberalism				0.010*** (0.002)
Gross State Product			-0.028*** (0.003)	-0.025*** (0.003)
Manufacturing			0.014*** (0.001)	0.012*** (0.001)
Non-White Population			0.026*** (0.002)	0.027*** (0.002)
Market Inequality	0.771*** (0.010)	0.668*** (0.008)	0.641*** (0.007)	0.647*** (0.007)
Constant	0.055*** (0.005)	0.083*** (0.004)	0.101*** (0.003)	0.102*** (0.003)
Year Fixed Effects	No	Yes	Yes	Yes
Observations	1,950	1,950	1,950	1,950
R ²	0.800	0.905	0.937	0.939
Adjusted R ²	0.800	0.903	0.936	0.937

Note:

*p<0.1; **p<0.05; ***p<0.01

When looking at unionization's effect on post-transfer economic inequality, public policy should have a limited effect. Once disability, welfare, social security, and other government benefits are added in to the calculation of income, there are fewer policies

left to alter income at the bottom end of the distribution. By controlling for levels of existing market inequality, these results also demonstrate the inequality that is present in redistribution. States do have liberal policies that are not included in the post-transfer measure of income inequality.

Table 2: Linear Regression Predicting Market Inequality, 1976-2014

	<i>Dependent variable:</i>			
	Market Gini			
	(1)	(2)	(3)	(4)
Union Density	-0.186*** (0.011)	-0.088*** (0.011)	-0.099*** (0.011)	-0.031** (0.015)
Policy Liberalism				-0.033*** (0.005)
Gross State Product			0.089*** (0.009)	0.079*** (0.009)
Manufacturing			0.024*** (0.003)	0.029*** (0.003)
Non-White Population			0.031*** (0.005)	0.027*** (0.005)
Constant	0.511*** (0.002)	0.476*** (0.005)	0.453*** (0.005)	0.441*** (0.006)
Year Fixed Effects	No	Yes	Yes	Yes
Observations	1,950	1,950	1,950	1,950
R ²	0.133	0.320	0.392	0.404
Adjusted R ²	0.133	0.306	0.378	0.390

Note:

*p<0.1; **p<0.05; ***p<0.01

Policy liberalism has a more pronounced effect in models predicting market, or pre-government transfer, levels of economic inequality. Using the same four models in Table 1, I instead predict market levels of inequality. In Table 2, higher unionization rates decrease market inequality. All control variables perform in similar ways to those in Table 1: states with larger economies, more manufacturing, and a smaller white population are less equal. The estimate of the effect of unionization varies across models, though it is always significant and negative. Looking to the final model in Table 2, the effect of unionization on market inequality is smaller than it is on post-transfer inequality, if only slightly. Policy liberalism, however, has a fairly large and negative effect on levels of market inequality. States that have larger unionization rates, as well as those that are more liberal, tend to be more equal.

Overall, from Tables 1 and 2 we conclude that unions can lessen two types of inequality. Unions affect market inequality by altering the wages of members, and they decrease post-transfer inequality by increasing redistribution. Consistent with their two goals, unions are both economic and political organizations that result in more equal states.

To demonstrate the robustness of my findings, I include an alternate measure of inequality that focuses attention on the tails of the income distribution rather than the center. Data from Sommeiller, Price and Wazeter (2016) provides the income share of the top and bottom percentages of income earners in each state. Growing economic inequality does not stem from equal movement at the top and bottom end of the income distribution. Instead, growing incomes of the richest Americans have rapidly increased levels of economic inequality, while income rates for the poor remain fairly consistent over time.¹³ From the models presented in Table 3, unionization levels influence the income share at the top of the distribution in a state, but does not predict the income share at the bottom.¹⁴ This pattern provides nuance to our understanding of what unions can do in states. The very rich in heavily unionized states will control less of the income, but the very poor will still be poor. By limiting what share of income the top control, unions are able to influence inequality where it has grown the most over the period.¹⁵

As support for Hypothesis 2, I find that the effect of unionization on economic inequality is conditioned by the strength of labor in a state. Labor strength is operationalized as union density squared. I present the results of this model in Table 4. Taken together the main and quadratic term on unionization indicate that as union density is higher, levels of inequality diminish. Figure 2 plots expected levels of market inequality across levels of unionization. Where unions are stronger, unions have a greater ability to influence economic inequality, but where unions have low membership levels that relationship is weaker. Over time, as unions are less dense, this conditional effect may prove to be problematic for how well unions can reduce levels of inequality.

¹³Hacker and Pierson (2011) call this the “winner-take-all economy.”

¹⁴In these models, I use the top 5% and bottom 5% of the income distribution respectively, though results remain consistent when estimating the top and bottom 10% or 1%.

¹⁵In Appendix Table 11, I predict unionization rates using state level policy, characteristics, and the share of income held by the top and bottom 5% of income earners. Places where unions are stronger tend to be liberal, wealthier, and more diverse. More importantly, states where the poor control more money tend to have higher unionization rates. Places where the rich control more of the income share have far fewer union members, at nearly double the effect size. These findings complement other research on organized labor that it is able to raise wages and cap pay.

Table 3: Linear Models Predicting Income Share of Top and Bottom Earners, 1976-2014

	<i>Dependent variable:</i>	
	Top 5%	Bottom 5%
	(1)	(2)
Union Density	-5.012*** (1.303)	-3.276 (1.913)
Policy Liberalism	2.290*** (0.457)	1.661** (0.672)
Gross State Product	0.670 (0.762)	-3.572*** (1.119)
Manufacturing	5.702*** (0.289)	7.773*** (0.425)
Non-White Population	0.707 (0.452)	-0.284 (0.664)
Constant	21.120*** (0.476)	22.528*** (0.699)
Year Fixed Effects	Yes	Yes
Observations	1,850	1,850
R ²	0.681	0.644
Adjusted R ²	0.674	0.636

Note:

p<0.05; *p<0.01

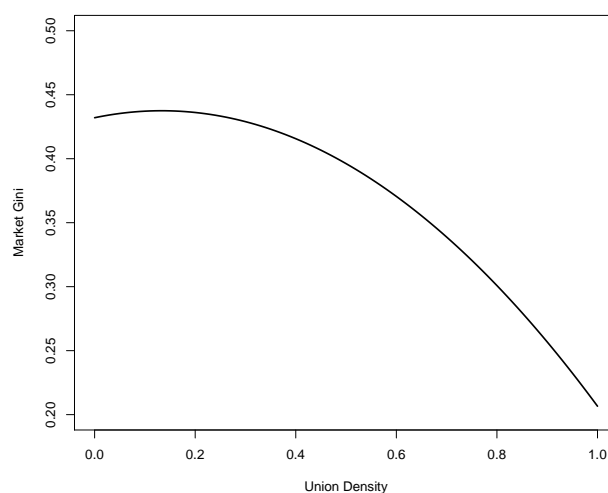
Data on top and bottom income shares is unavailable for the year 1983. For additional information see Sommeiller, Price and Wazeter (2016).

Table 4: Effect of Unionization on Market Inequality

<i>Dependent variable:</i>	
Market Gini	
Union Density	0.082 (0.047)
Union Density ²	-0.307** (0.120)
Policy Liberalism	-0.038*** (0.006)
Gross State Product	0.082*** (0.009)
Manufacturing	0.028*** (0.003)
Non-White Population	0.031*** (0.006)
Constant	0.432*** (0.007)
Year Fixed Effects	Yes
Observations	1,950
R ²	0.406
Adjusted R ²	0.392

Note: **p<0.05; ***p<0.01

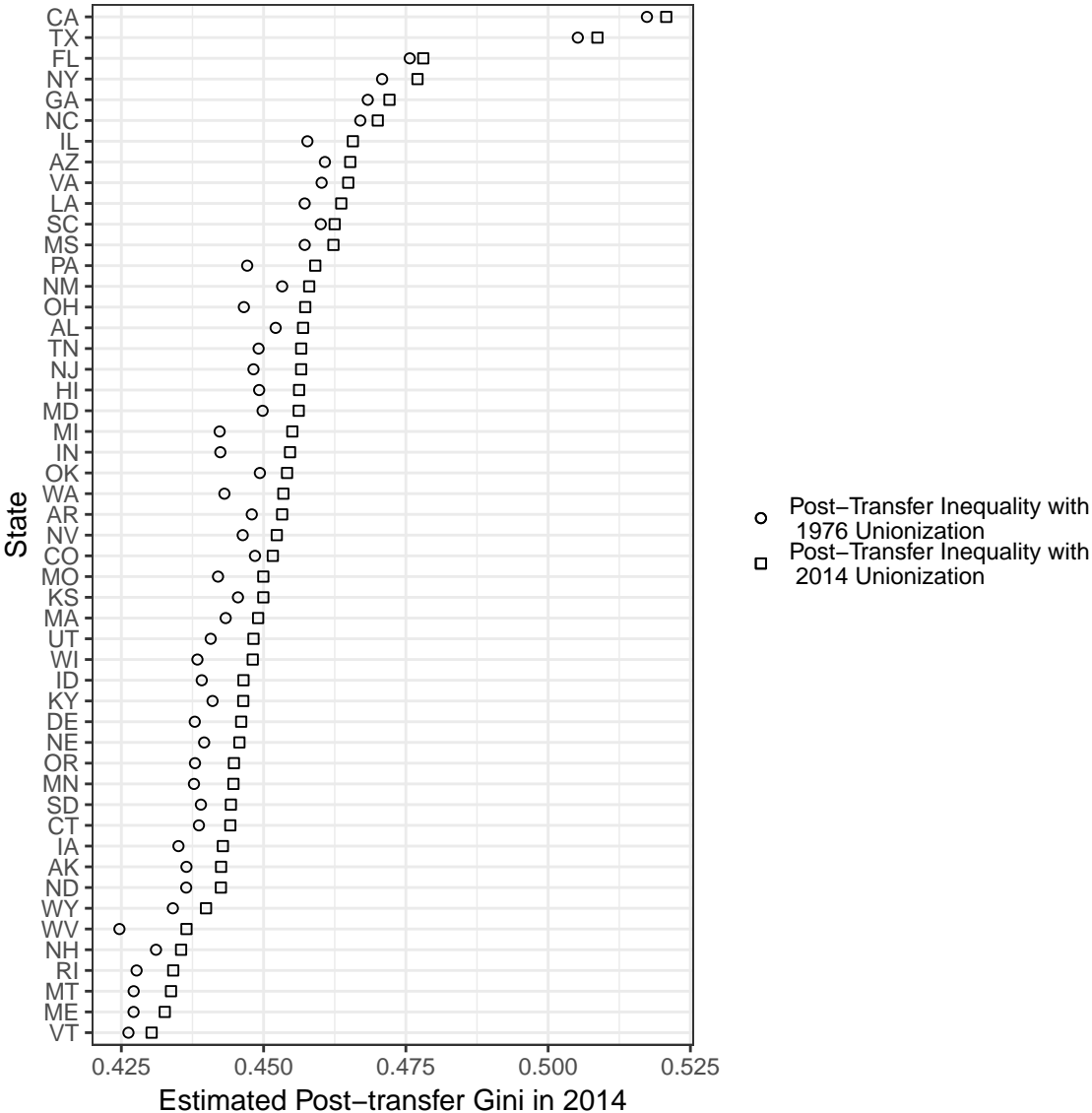
Figure 2: Effect of Unionization on Market Gini, 1976-2014



To look at the consequences of declining unionization Figure 3 shows estimates of what levels of economic inequality the states *could* have if unionization remained at its earlier levels and all other variables were allowed to change. While unionization is related to other variables in the model, it provides a preliminary estimation of unionization's effect

in each state. The impact of declining unionization should be larger in some states than others, and averaging across the states misses important variation. Figure 3 uses the full model estimated in Table 1, and gathers the expected values of inequality in 2014. I also perform the same estimation and gather the expected level of inequality in each state if unionization was kept at its 1976 level, and all other variables remained at their 2014 value. The average predicted rate of inequality in 2014 is .454, the same as the actual rate of inequality for that year. Predicted inequality using the 1976 rate of unionization has a lower average, .447.

Figure 3: Predicted Increase in Economic Equality if States Kept their 1976 Unionization Rate



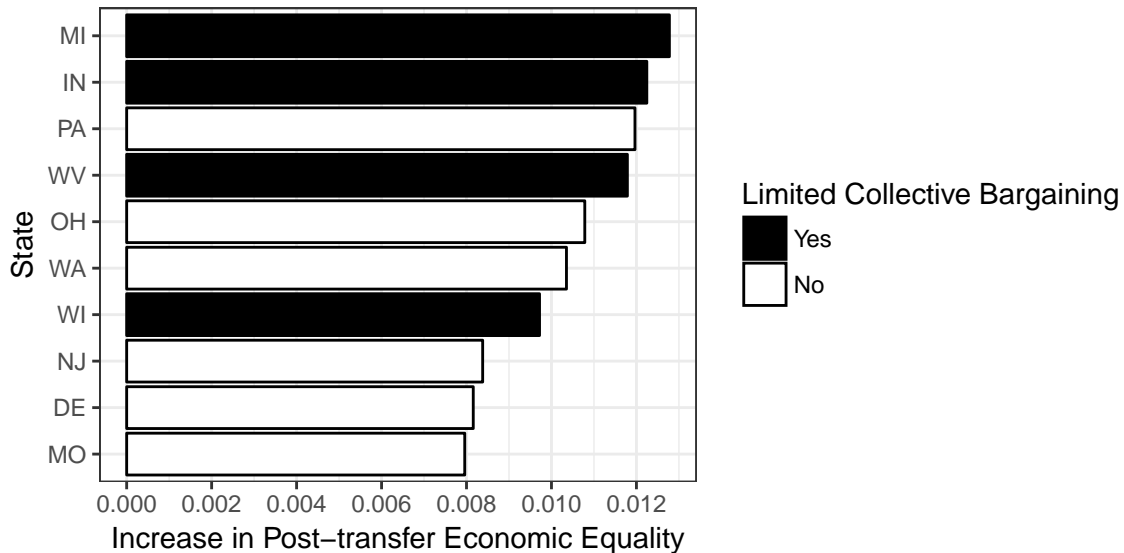
Note: Estimates are produced using 10,000 simulations and a model that includes unionization, policy liberalism, gross state product, percent gross state product generated in manufacturing, nonwhite population, and year effects. Expected values were simulated for 2014 and separately for an alternate 2014 with 1976 levels of unionization.

From Figure 3, estimated rates of 2014 post-transfer inequality are marked as squares,

and estimates with 1976 values are circles.¹⁶ All states are more equal if unionization remains at its 1976 rate. However, the degree to which unionization affects inequality varies by state. In Florida, for example, keeping unionization at an earlier rate does not impact levels of inequality very much, with just over a 1% difference. This effect size is unsurprising, as Florida had one of the earliest Right to Work laws and has never had strong unions. Right to Work legislation there prevented unions from forming, rather than curbing already existing large-scale unions. However, the effect of unions on inequality in Florida can be compared with the effect of maintaining unionization in Michigan. If Michigan had kept its 1976 unionization rate, its level of economic inequality would decrease by over 10%. As such, places where unions were once stronger should experience greater consequences to levels of inequality once those unions lose members.

Figure 4 contains the ten largest differences in estimated levels inequality if unionization had remained at its 1976 level. This difference is the absolute value change in income inequality, and can be thought of as the additional bump to economic equality that we might expect had unionization not declined in a state. For a state like Michigan, at the top of the figure, we would expect an increase in equality of around .012, about 14% of the total movement in the period .

Figure 4: Predicted Increase in Economic Equality if States Kept their 1976 Unionization Rate



Note: This figure presents the ten largest differences between post-transfer estimations in Figure 3. Information on Right to Work is provided by the National Right to Work Committee.

States that would grow most equal had unionization maintained its density also tend

¹⁶For an estimation of what market inequality would look like if unions maintained membership, see Table 5 in the Appendix

to be states that either proposed or enacted Right to Work laws in the early 2010s. These laws passed in Michigan, Indiana, West Virginia, and Wisconsin (National Right to Work Committee 2016). In West Virginia, the legislature's passage of Right to Work was vetoed by the governor in 2016, overridden by the legislature, and is currently in the courts. Of the top ten states that would be more economically equal if unionization rates had continued, four passed laws that would limit the abilities of labor unions to recruit members. However, only looking at passage misses that Right to Work legislation was also proposed in Ohio and Missouri. Ohio passed a Right to Work law that was later rejected by voters. Missouri proposed Right to Work in multiple legislative sessions, eventually passing it in 2017. Of the top 10 states that would see their levels equality increased if unionization had remained at earlier levels, six states suggested implementing Right to Work laws.

Conclusion and Implications

Power Resources Theory stresses that there will be lower levels of economic inequality, and that working class people will fare better where there are more dense labor unions and left-leaning political groups. This research confirms that at the subnational level, the U.S. states conform to these expectations. Unions lead to lower levels of economic inequality, both before and after government transfer. Liberal public policy also leads to less inequality. However, throughout the period, states with higher unionization rates, and not simply more liberal places, are more equal. This result remains using alternate measures of income inequality, assessing the effect of unionization on income share going to the highest income earners. Because unions are able to lessen income share at the top, they can constrain inequality where it is growing most rapidly.

However, unions cannot continue to lessen inequality to the same degree they once did. As union membership declines across states, and economic inequality grows, unions are left with a larger task and fewer resources to perform it. The question is still open as to how long union membership can limit the distance between the rich and poor. As contracts end in once heavily unionized places, can unions continue to influence levels of economic inequality? What other non-governmental group would be able to serve to reduce inequality? State governments that are already constrained economically are being tasked to intervene in inequality's growth (Moldogaziev, Monogan and Witko 2017),

something they may be unable or unwilling continue doing because of both ideology and practicality.

Future work should address the state level response to union decline more directly. Interestingly, efforts to reduce unionization did not apply to all sectors of the economy equally. Some occupations, police officers for example, have not experienced rapid union decline in the way that other public sector employees have. The continued unionization of police officers, already controversial among many in the labor movement for being at odds with more left-leaning labor constituencies, demonstrates a preference toward some sectors of the economy, and are coupled with increased economic gain. This contrast, between sectors where unions continue to have a presence and those where that influence has diminished, deserves further emphasis.

By simulating alternate versions of the states where unionization did not decline, I am able to suggest which states would be more equal today. I also provide a figure of approximately how much more equal those states would be. Though this paper marks a preliminary step, the states that would benefit most had unionization remained also tend to be states that launched very public efforts to reduce levels of unionization. Passing Right to Work in these states was a political calculation often influenced by outside pro-business interests (Hertel-Fernandez 2014). Though Kogan (2016) finds that Right to Work laws have little effect on levels of inequality, perhaps the Right to Work laws of the 2010s mark more than an ideological statement. Instead, this process seems to be a direct effort to reduce unionization in states that have incorporated labor into their economy the most, and where labor is best able to keep levels of inequality low.

As of right now, the future of organized labor in the states remains uncertain. Since the 2016 election, Right to Work legislation has passed in both Kentucky and Missouri. New legislation, coupled with existing Right to Work laws, will make it more difficult for unions to recruit new members through traditional means. The labor movement has had to adjust to this new reality, facing larger levels of income inequality with fewer resources and increasing structural barriers to organizing. To counter this tendency, alt-labor movements like the Fight for 15 or grassroots movements organizing for increased pay and benefits have cropped up to try to supplement traditional union presence (Galvin 2016). These groups, however, often work through public policies like increasing the minimum wage, and are most powerful in big cities like Chicago, Los Angeles, and New York, all in states

with strong labor movements that have maintained relatively high membership over time.

Essentially, traditional labor organizations remain one of the only groups capable of limiting economic inequality in both the labor market and through governmental redistribution. Loss of labor membership, and labor strength, means that other organizations will need to step in to fill a void. Organizations that attempt to influence both the pre- and post-transfer are most successful in states where unions have maintained some degree of strength, and often operate through governmental rather than market mechanisms. Whether traditional labor organizations will make a resurgence, or new labor organizations will step in to fill their void, remains uncertain. Inequality, on the other hand, continues to rise.

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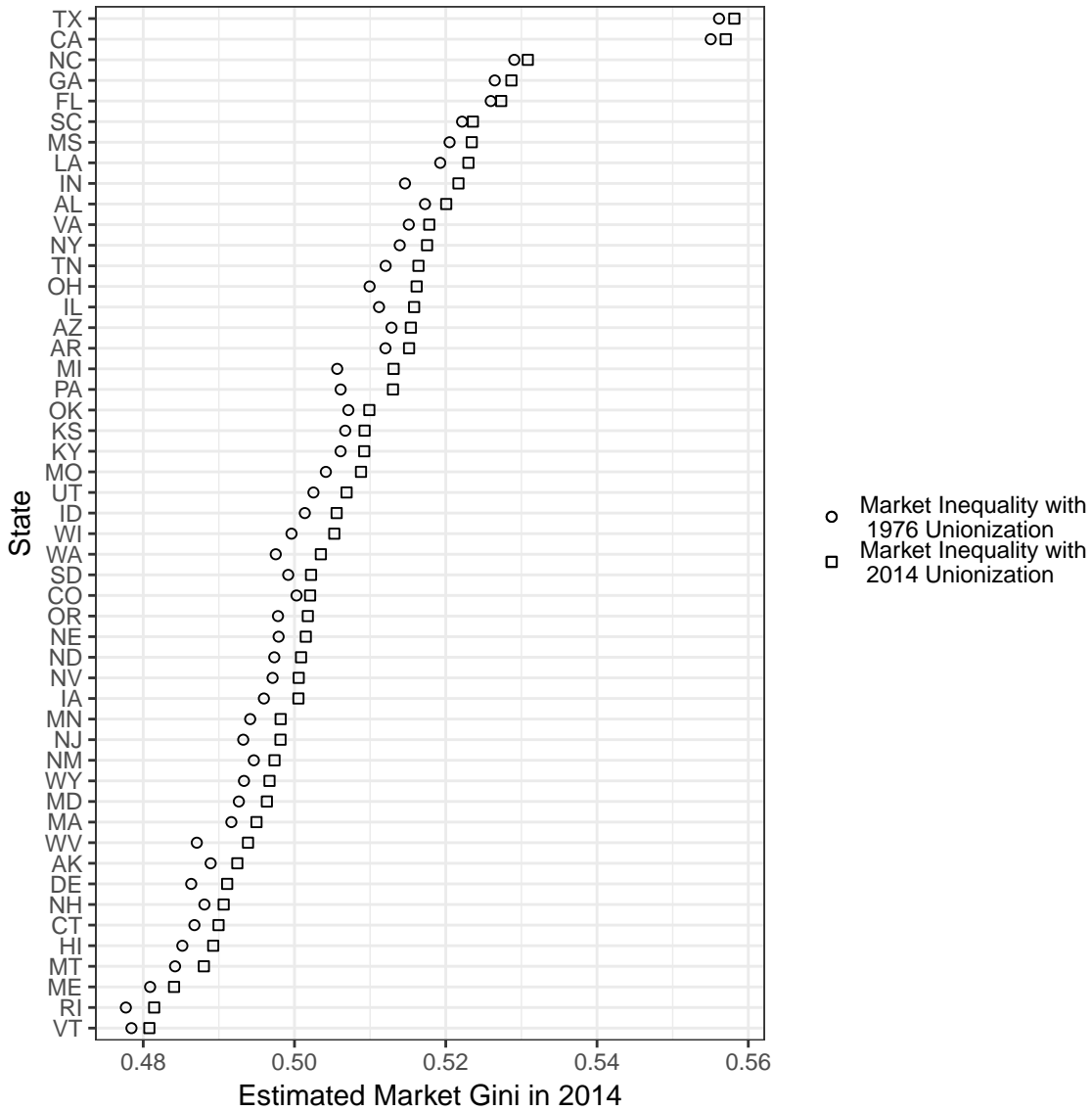
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Appendix

Table 5: Correlation Matrix

	Post-transfer Gini	Market	Union	Policy	GSP	Manuf.
Market Gini	0.889					
Unionization	-0.415	-0.365				
Policy Liberalism	-0.084	-0.177	0.629			
Gross State Product	0.485	0.320	-0.033	0.237		
Manufacturing	-0.313	-0.080	0.192	-0.113	-0.176	
Nonwhite	0.434	0.256	-0.138	0.003	0.440	-0.339

Figure 5: Predicted Increase in Economic Equality if States Kept their 1976 Unionization Rate



Note: Estimates are produced using 10,000 simulations and a model that includes unionization, policy liberalism, gross state product, percent gross state product generated in manufacturing, nonwhite population, and year effects. Expected values were simulated for 2014 and separately for an alternate 2014 with 1976 levels of unionization.

Table 6: Summary Statistics Unionization

Year	Min Union	Max Union	Mean Union
1976	0.067	0.387	0.223
1977	0.057	0.377	0.216
1978	0.062	0.351	0.210
1979	0.076	0.376	0.218
1980	0.060	0.349	0.212
1981	0.080	0.383	0.211
1982	0.070	0.321	0.197
1983	0.060	0.328	0.183
1984	0.042	0.323	0.172
1985	0.046	0.303	0.167
1986	0.057	0.300	0.161
1987	0.051	0.296	0.158
1988	0.052	0.303	0.156
1989	0.040	0.301	0.152
1990	0.046	0.294	0.149
1991	0.053	0.294	0.150
1992	0.049	0.286	0.147
1993	0.043	0.290	0.144
1994	0.039	0.290	0.142
1995	0.033	0.279	0.138
1996	0.038	0.270	0.135
1997	0.037	0.265	0.130
1998	0.043	0.264	0.129
1999	0.033	0.255	0.130
2000	0.037	0.257	0.125
2001	0.037	0.269	0.123
2002	0.035	0.258	0.122
2003	0.031	0.247	0.117
2004	0.028	0.253	0.114
2005	0.023	0.262	0.114
2006	0.033	0.248	0.113
2007	0.030	0.253	0.113
2008	0.035	0.249	0.115
2009	0.031	0.252	0.115
2010	0.032	0.243	0.111
2011	0.029	0.241	0.110
2012	0.029	0.232	0.105
2013	0.030	0.243	0.104
2014	0.019	0.246	0.102

Table 7: Summary Statistics Market Inequality

Year	Min Inequality	Max Inequality	Mean Inequality
1976	0.379	0.528	0.456
1977	0.379	0.535	0.459
1978	0.386	0.527	0.454
1979	0.403	0.512	0.449
1980	0.397	0.524	0.455
1981	0.388	0.545	0.464
1982	0.406	0.533	0.468
1983	0.398	0.552	0.469
1984	0.400	0.533	0.463
1985	0.386	0.551	0.464
1986	0.405	0.566	0.465
1987	0.399	0.563	0.468
1988	0.409	0.538	0.467
1989	0.401	0.540	0.464
1990	0.407	0.544	0.464
1991	0.401	0.546	0.472
1992	0.394	0.559	0.474
1993	0.403	0.568	0.480
1994	0.417	0.545	0.481
1995	0.424	0.576	0.507
1996	0.415	0.590	0.507
1997	0.448	0.599	0.512
1998	0.446	0.565	0.505
1999	0.426	0.551	0.494
2000	0.437	0.579	0.508
2001	0.432	0.555	0.498
2002	0.430	0.564	0.502
2003	0.437	0.562	0.503
2004	0.436	0.578	0.506
2005	0.426	0.594	0.509
2006	0.442	0.583	0.507
2007	0.424	0.555	0.490
2008	0.419	0.546	0.482
2009	0.419	0.546	0.482
2010	0.432	0.558	0.502
2011	0.425	0.565	0.499
2012	0.444	0.552	0.506
2013	0.434	0.628	0.509
2014	0.430	0.566	0.508

Table 8: Summary Statistics Post-transfer Inequality

Year	Min Inequality	Max Inequality	Mean Inequality
1976	0.342	0.436	0.388
1977	0.344	0.433	0.391
1978	0.345	0.440	0.389
1979	0.361	0.422	0.388
1980	0.360	0.428	0.390
1981	0.352	0.451	0.397
1982	0.365	0.445	0.400
1983	0.359	0.450	0.401
1984	0.366	0.438	0.399
1985	0.349	0.437	0.400
1986	0.355	0.461	0.401
1987	0.349	0.439	0.400
1988	0.354	0.447	0.398
1989	0.344	0.459	0.397
1990	0.352	0.463	0.396
1991	0.361	0.445	0.399
1992	0.359	0.447	0.399
1993	0.353	0.443	0.403
1994	0.369	0.457	0.405
1995	0.389	0.492	0.434
1996	0.381	0.504	0.435
1997	0.397	0.508	0.443
1998	0.393	0.496	0.440
1999	0.381	0.485	0.430
2000	0.406	0.509	0.443
2001	0.381	0.496	0.441
2002	0.393	0.489	0.442
2003	0.395	0.487	0.443
2004	0.389	0.504	0.445
2005	0.393	0.507	0.449
2006	0.393	0.511	0.449
2007	0.393	0.502	0.446
2008	0.389	0.493	0.439
2009	0.389	0.493	0.439
2010	0.394	0.494	0.448
2011	0.382	0.514	0.446
2012	0.402	0.501	0.453
2013	0.392	0.573	0.456
2014	0.396	0.511	0.454

Table 9: Alternate Liberalism Specifications, Linear Regression Predicting Post-transfer Inequality, 1976-2014

	<i>Dependent variable:</i>		
	Post-transfer Gini		
	(1)	(2)	(3)
Union Density	-0.094*** (0.009)	-0.094*** (0.008)	-0.053*** (0.009)
Citizen Liberalism (Berry et. al)	-0.012*** (0.004)		
Legislative Liberalism (Berry et. al)		-0.015*** (0.002)	
Citizen Liberalism (Erikson, Wright, McIver)			-0.008* (0.005)
Gross State Product	0.029*** (0.006)	0.028*** (0.006)	0.020*** (0.006)
Manufacturing	0.030*** (0.002)	0.030*** (0.002)	0.026*** (0.002)
Non-White Population	0.045*** (0.004)	0.042*** (0.004)	0.057*** (0.004)
Constant	0.402*** (0.005)	0.401*** (0.004)	0.388*** (0.004)
Year Fixed Effects	Yes	Yes	Yes
Observations	1,900	1,950	1,912
R ²	0.632	0.641	0.634
Adjusted R ²	0.623	0.633	0.626

Note:

*p<0.1; **p<0.05; ***p<0.01

This model uses three alternate versions of state liberalism. Citizen liberalism and legislative come from ?, and are constructed from roll call voting. Erikson, Wright and McIver (2007) measure citizen ideology from CBS/NYT opinion polls. CBS/NYT originally did not poll Alaska and Hawaii, and this data is missing for the first 20 years. The Berry et. al measure of citizen ideology does not include the year 2014.

Table 10: Alternate Liberalism Specifications, Linear Regression Predicting Market Inequality, 1976-2014

	<i>Dependent variable:</i>		
	Market Gini		
	(1)	(2)	(3)
Union Density	-0.126*** (0.013)	-0.129*** (0.011)	-0.049*** (0.013)
Citizen Liberalism (Berry et. al)	-0.018*** (0.006)		
Legislative Liberalism (Berry et. al)		-0.026*** (0.003)	
Citizen Liberalism (Erikson, Wright, McIver)			-0.027*** (0.006)
Gross State Product	0.088*** (0.009)	0.087*** (0.009)	0.067*** (0.009)
Manufacturing	0.026*** (0.003)	0.026*** (0.003)	0.020*** (0.003)
Non-White Population	0.030*** (0.005)	0.025*** (0.005)	0.045*** (0.006)
Constant	0.470*** (0.007)	0.469*** (0.006)	0.444*** (0.006)
Year Fixed Effects	Yes	Yes	Yes
Observations	1,900	1,950	1,912
R ²	0.394	0.412	0.375
Adjusted R ²	0.381	0.398	0.361

Note:

*p<0.1; **p<0.05; ***p<0.01

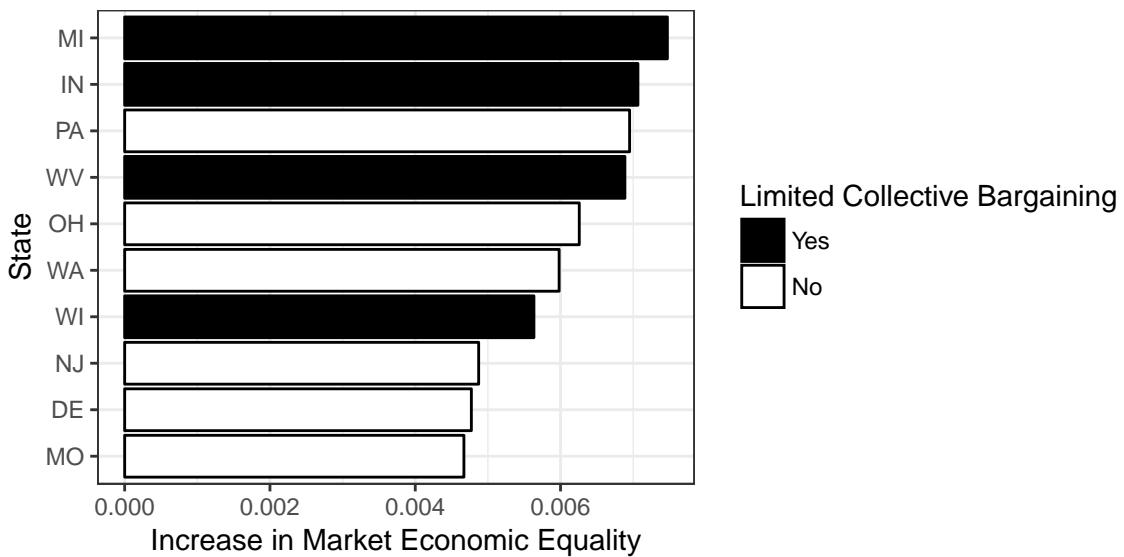
This model uses three alternate versions of state liberalism. Citizen liberalism and legislative come from ?, and are constructed from roll call voting. Erikson, Wright and McIver (2007) measure citizen ideology from CBS/NYT opinion polls. CBS/NYT originally did not poll Alaska and Hawaii, and this data is missing for the first 20 years. The Berry et. al measure of citizen ideology does not include the year 2014.

Table 11: Linear Model Predicting Unionization Including Top and Bottom Income Shares

	<i>Dependent variable:</i>
	Union Density
Policy Liberalism	0.256*** (0.006)
Gross State Product	0.054*** (0.014)
Manufacturing	0.004 (0.006)
Non-White Population	0.018** (0.008)
Income Share Earned by the Bottom 5%	0.003*** (0.001)
Income Share Earned by the Top 5%	-0.006*** (0.001)
Constant	0.258*** (0.012)
Year Fixed Effects	Yes
Observations	1,850
R ²	0.663
Adjusted R ²	0.656

Note: *p<0.1; **p<0.05; ***p<0.01
 This model includes the years 1976-2013. Data on income shares earned in the states are taken from Sommeiller, Price and Wazeter (2016), and are unavailable for the year 1983 and 2014.

Figure 6: Predicted Increase in Economic Equality if States Kept their 1976 Unionization Rate



Note: This figure presents the ten largest differences between market inequality estimations in Figure 3. Information on Right to Work is provided by the National Right to Work Committee.

Table 12: Alternate Unionization Specifications, Linear Regression Predicting Inequality

	<i>Dependent variable:</i>			
	Post-transfer Gini		Market Gini	
	(1)	(2)	(3)	(4)
Union Density	-0.042*	-0.036*	-0.044	-0.016
	(0.022)	(0.019)	(0.032)	(0.021)
Unionization in 1976	-0.009		0.010	
	(0.016)		(0.022)	
Policy Liberalism	-0.011***	0.044***	-0.033***	0.049***
	(0.004)	(0.008)	(0.005)	(0.009)
Gross State Product	0.026***	-0.067***	0.078***	-0.040***
	(0.006)	(0.010)	(0.009)	(0.012)
Manufacturing	0.030***	0.014***	0.029***	0.006*
	(0.002)	(0.003)	(0.003)	(0.003)
Non-White Population	0.044***	0.051***	0.027***	0.051***
	(0.004)	(0.011)	(0.005)	(0.012)
Constant	0.387***	0.370***	0.442***	0.396***
	(0.004)	(0.007)	(0.006)	(0.008)
Year Fixed Effects	Yes	Yes	Yes	Yes
State Fixed Effects	No	Yes	No	Yes
Observations	1,950	1,950	1,950	1,950
R ²	0.635	0.829	0.404	0.816
Adjusted R ²	0.626	0.820	0.390	0.807

Note:

*p<0.1; **p<0.05; ***p<0.01

This model includes all years 1976-2014. Unionization rates in 1976 correlate highly with future union density (.80).

Table 13: Distributed Lag Model Predicting Economic Inequality

	<i>Dependent variable:</i>
	Post-transfer Gini
Δ Post-transfer Gini	0.513*** (0.028)
Union Density	-0.077*** (0.014)
Policy Liberalism	-0.015*** (0.004)
Gross State Product	0.030*** (0.002)
Manufacturing	0.029*** (0.006)
Non-White Population	0.044*** (0.004)
Year X Union Density	0.002*** (0.001)
Constant	0.393*** (0.004)
Year Fixed Effects	Yes
Observations	1,900
R ²	0.686
Adjusted R ²	0.679
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01

Table 14: Error Correction Model Predicting Economic Inequality, 1976-2014

	<i>Dependent variable:</i>
	Post-transfer Gini
Δ Post-transfer Gini	0.529*** (0.033)
Union Density	-0.186*** (0.011)
Δ Union Density	0.083** (0.040)
Policy Liberalism	0.013*** (0.004)
Δ Policy Liberalism	-0.048 (0.033)
Gross State Product	0.049*** (0.003)
Δ Gross State Product	-0.025 (0.051)
Manufacturing	-0.040*** (0.007)
Δ Manufacturing	-0.121*** (0.042)
Non-White Population	0.043*** (0.004)
Δ Non-White Population	-0.107** (0.044)
Constant	0.438*** (0.002)
Observations	1,900
R ²	0.506
Adjusted R ²	0.504

Note: *p<0.1; **p<0.05; ***p<0.01