working paper

POWER, MARKETS, AND TOP INCOME SHARES

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ABSTRACT

The rise of the super-rich has attracted much political and academic attention in recent years. However, to date there have been few attempts to explain the cross-national variation in the recent rise of very top incomes. Drawing on the World Top Incomes Database, we study the income share of the top 1% in almost all current postindustrial democracies from 1975 to 2012. We find that extreme income concentration at the very top is a predominantly political phenomenon, not the outcome of economic changes. Top income shares are largely unrelated to economic growth, increased knowledge-intensive production, export competitiveness, market size, financialization, and wealth accumulation. Instead, they are driven by various political and policy changes that reflect a decline in the relative power and resources of labor, such as union density and centralization, secular-right governments, and cuts in top marginal income tax rates as well as in public spending on education.

RESUMEN

En los últimos años, el ascenso de los super-ricos atrajo mucha atención política y académica. Sin embargo, hasta el momento se hicieron pocos intentos de explicar la variación internacional en el crecimiento reciente de los ingresos más altos. Tomando información de la Base Mundial de Datos sobre los Ingresos más Altos (World Top Incomes Database) estudiamos la porción del ingreso del 1% superior en casi todas las democracias postindustriales actuales desde 1975 hasta 2012. Encontramos que la extrema concentración del ingreso en la cúspide es un fenómeno predominantemente político y no resulta de cambios económicos. La participación de los ingresos superiores no está relacionada en ninguna medida significativa con el crecimiento económico, un aumento en la producción que hace un uso intensivo del conocimiento, la competitividad de las exportaciones, el tamaño de los mercados, el desarrollo del sector financiero o la acumulación de riqueza. En cambio, está guiada por varios cambios en la política y en las políticas que reflejan una declinación en el poder relativo y en los recursos de los trabajadores, tales como la densidad sindical y la centralización, los gobiernos seculares de derechas y las reducciones tanto en las tasas marginales superiores de impuestos sobre los ingresos como en el gasto público en educación.

INTRODUCTION

The growth of inequality, particularly the growth of incomes at the very top, has attracted much political and academic attention in recent years. The "Occupy Wall Street" movement has politicized the steeply rising income shares of the top 1% of income earners in the United States. In his 2015 State of the Union Address, President Obama brought income inequality in the United States into focus and suggested counter measures such as increased taxation of the very rich. In academics, the debate was fueled by the monumental data collection efforts of Thomas Piketty and his colleagues, who assembled a huge comparative and historical database on the top income shares in almost all current postindustrial democracies as well as a number of other countries (Alvaredo et al. 2013; Atkinson 2005; Atkinson and Piketty 2007, 2010; Piketty 2001, 2003). This scholarly work culminated in the publication of Piketty's (2014) *Capital in the Twenty-First Century*, a 600-page academic tome which became a worldwide best seller and made its author into an academic celebrity.

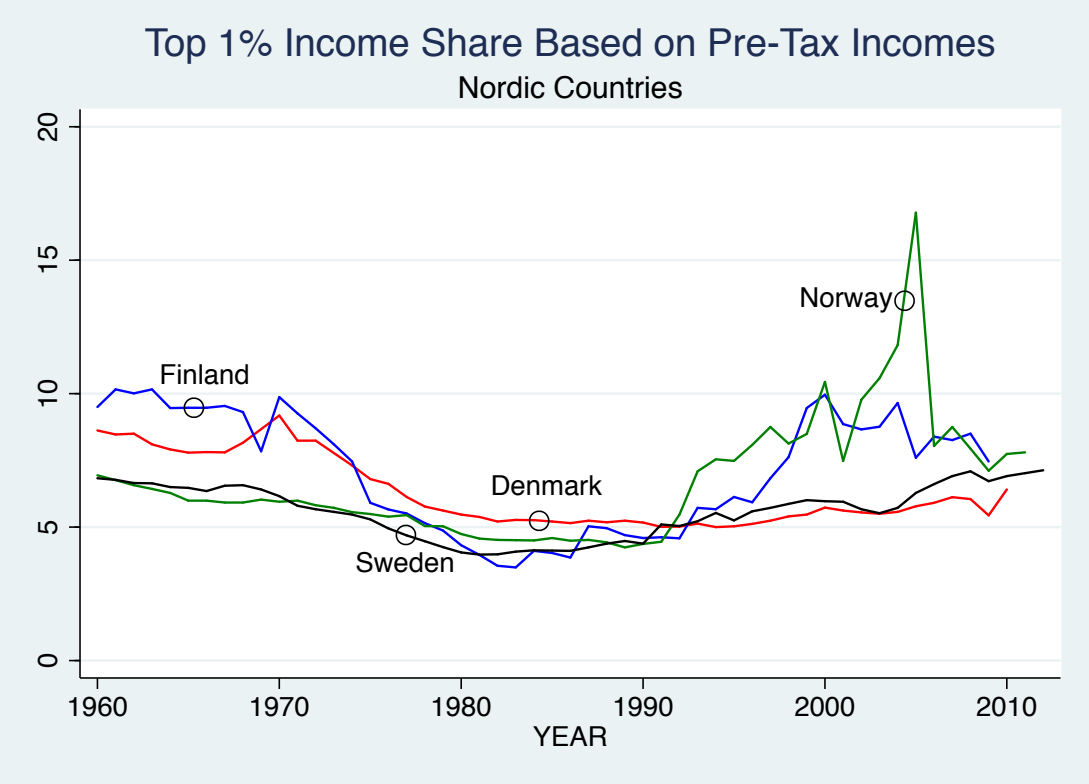
Given the academic and political attention to the growth of inequality at the top end and the availability of the World Top Incomes Database (hereafter WTID), it is surprising that there have been no attempts to date to explain the cross-national variation in the rise in top incomes in the past four decades. Atkinson, Piketty, and Saez (2011) note that the rise in top incomes is primarily an Anglo-American phenomenon, as one can readily see from Figure 1 which groups countries in geographical/historical clusters that roughly correspond to different types of political economies.[1] As Figure 1 indicates, there is some increase in a number of other countries, so a complete account would explain these modest increases as well as the sharp increase in the Anglo-American countries. To date, this has not been attempted. To our knowledge, there are only two pooled time series analyses of the determinants of the top income shares and neither of these focuses on the recent rise in top income shares (Scheve and Stasavage 2009; Roine, Vlachos, and Waldenström 2009). Volscho and Kelly (2012) do provide a time series analysis of

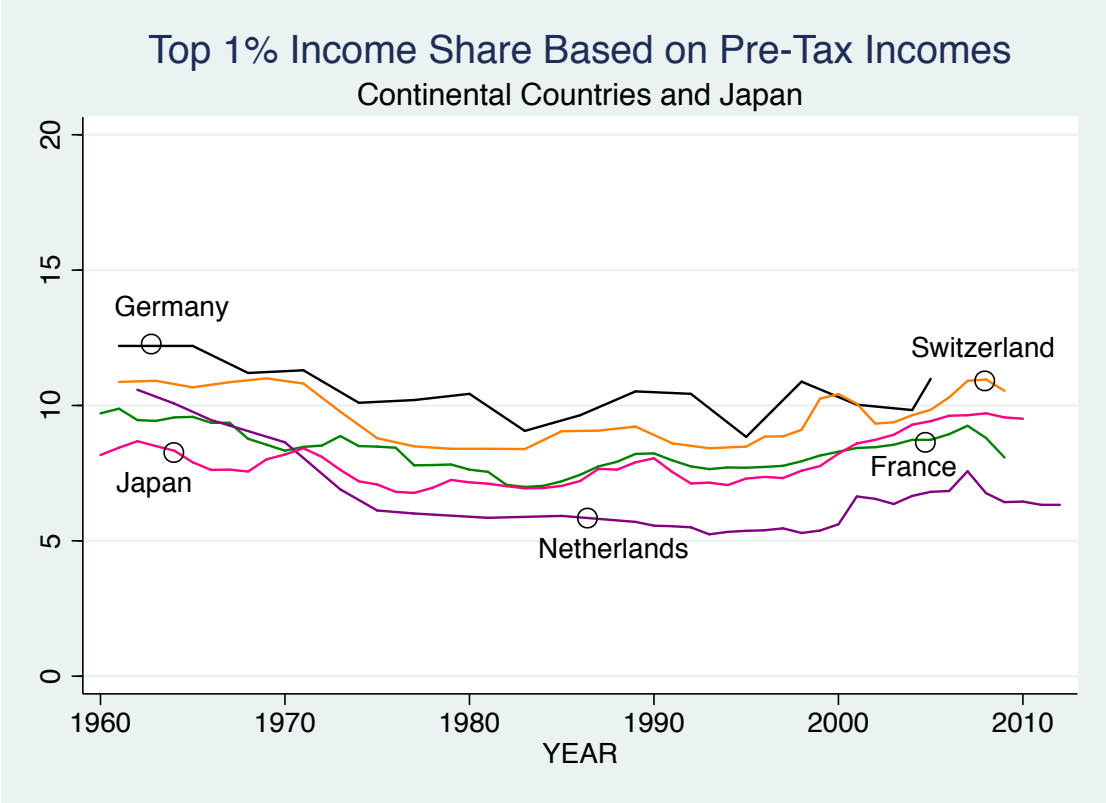
[1] We discuss the typology of political economies below. The groupings also correspond to welfare state regimes as originally developed by Esping-Anderson (1990) and amended by Ferrera (1996). Following Huber and Stephens (2001), one can attach political names to the original three regimes, Nordic–social democratic, Continental European–Christian democratic, and Anglo-American–liberal, but the Southern European regime defies easy labeling. The placement of Japan in the regime classification remains controversial among comparative welfare state scholars. We place it with the Continental countries, for lack of a better placement.

the rise in top income shares in the United States since 1949 which suggests some variables to be explored in a comparative analysis, but this analysis by its very nature cannot explain why top income shares rise very little in Denmark and not at all in France, for example (see Figure 1).

FIGURE 1

TOP 1% INCOME SHARE BY PRODUCTION REGIME AND COUNTRY




Top 1% Income Share Based on Pre-Tax Incomes
Continental Countries and Japan
0
5
10
15
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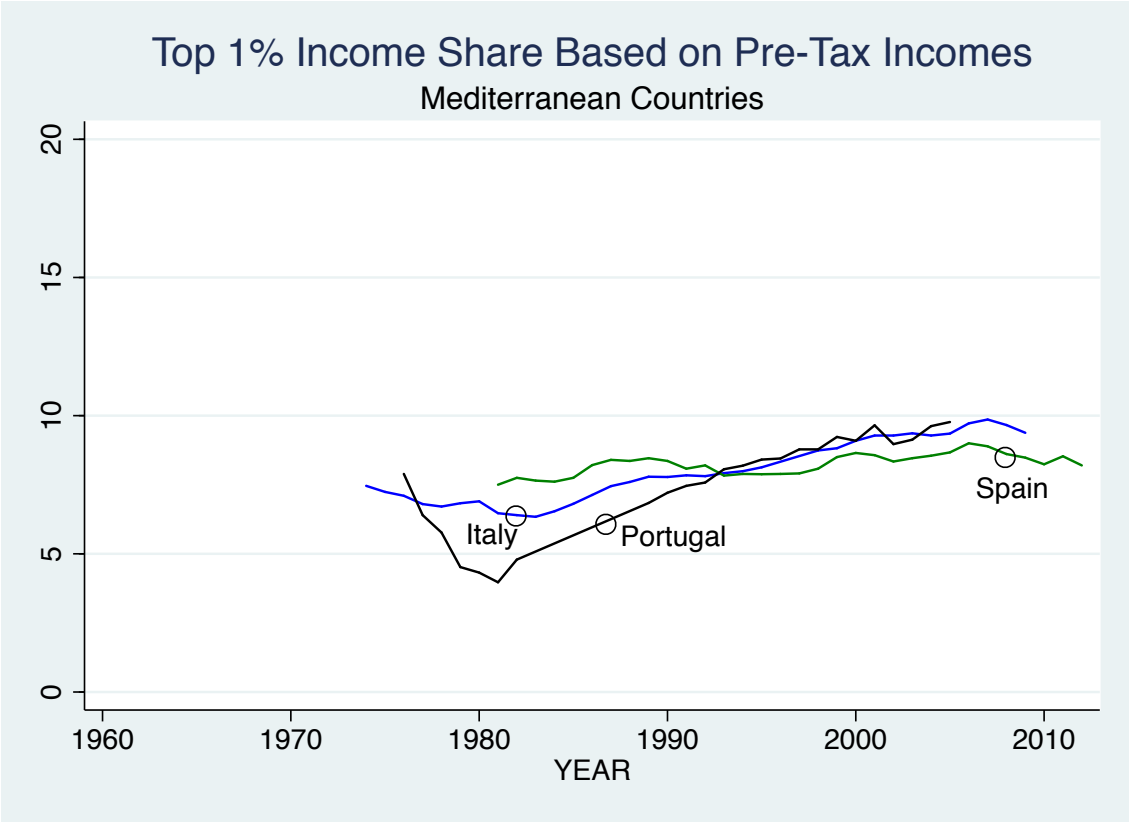
1960
1970
1980
1990
2000
2010
YEAR
Germany
Switzerland
France
Japan
Netherlands


Top 1% Income Share Based on Pre-Tax Incomes
Mediterranean Countries
0
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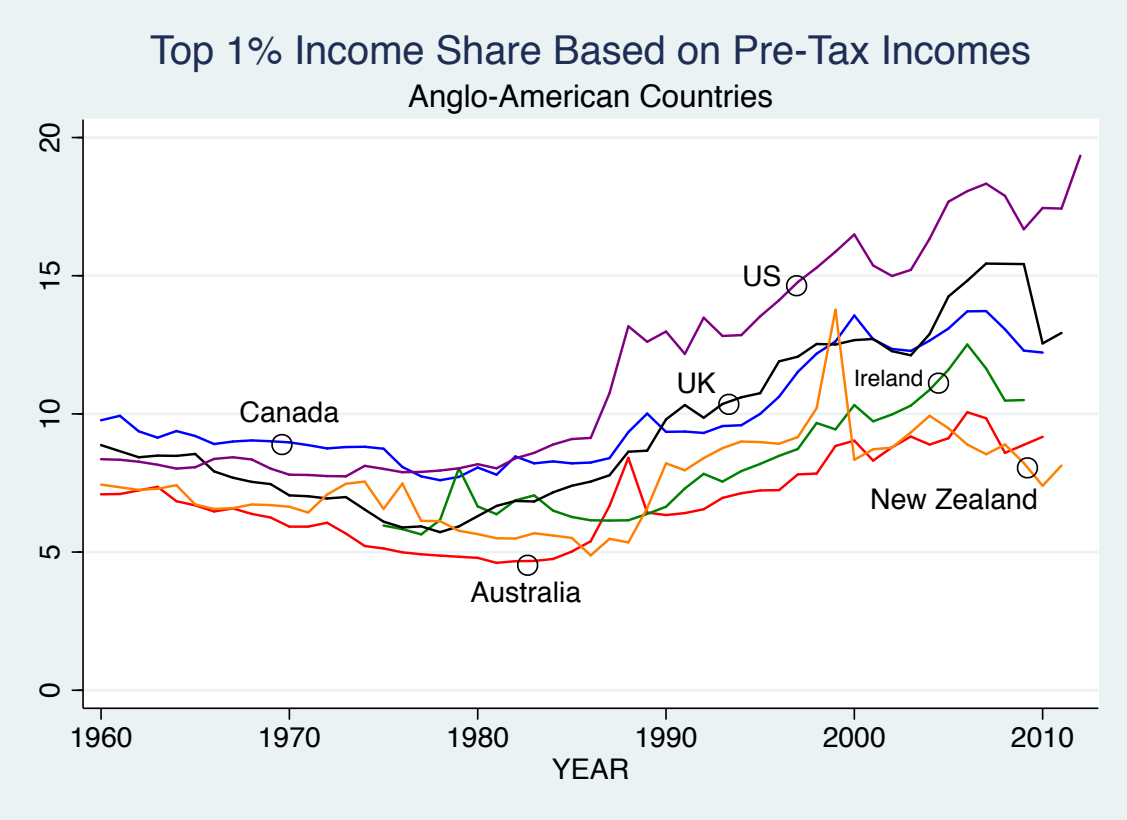
Spain
Italy
Portugal



We build on the literature on inequality in advanced industrial democracies, keeping in mind that the share of the top 1% is a special case that may not have determinants identical to those of Gini coefficients or wage ratios (e.g., Bradley et al. 2003; Huber and Stephens 2014; Pontusson, Rueda, and Way 2002; Wallerstein 1999). Nevertheless, political power distributions and institutions that have been shown to shape household income distribution and wage dispersion can be expected also to shape the top 1% share. Our insistence on politics, labor market institutions, and policies is an important corrective to a number of economic theories that explain and essentially justify the rise of the top 1% share with reference to the presumably rising productivity of top managers (e.g., see Kaplan and Rauh 2013). We find no evidence supporting these explanations.

We agree with Soskice (2014: 661) who argues that an account of the rise of the top income shares has to begin with an account of why the Anglo-American countries stand out in terms of the enormous rise there. Thus, we begin with an examination of the political economies of the Anglo-American in comparison with the Nordic and Continental countries. The former political economies are liberal market economies, in contrast to the coordinated market

economies in Continental and Northern Europe. They have undergone particularly steep declines in union density, have labor market institutions that do not extend contracts to nonunion members, and have neglected investment in public education.

We build on Power Resources Theory (PRT) (Korpi 1983; Stephens 1979) to develop our explanations. PRT tells us that wealth is both an economic and a political power resource, but that organization of those without wealth can be a counterweight in the power balance in society. The more unified such organizations are, the more easily they can overcome collective action problems and act strategically in the pursuit of their interests. In democracies, organization also works as a counterweight to wealth in influencing election outcomes, and election outcomes are crucial because partisan composition of government heavily shapes policies that set the parameters for the distribution of income and wealth. Accordingly, strong and centralized unions constitute a check on the rise of the 1% share. In contrast, center-right governments pass policies that support income concentration at the top, such as low marginal tax rates.

We show that union density and union and bargaining centralization, along with partisan composition of government and policies such as marginal tax rates are the crucial determinants of the top 1% share. They trump economic developments such as globalization and the transition to the knowledge economy. The distribution of income is an inherently political issue. Economic laws such as supply and demand determining the price, or in this case the supply and demand of talent shaping the top 1% share, ignore the fact that supply is politically determined and that price is also potentially subject to political constraints.

LITERATURE AND HYPOTHESES

Power, Politics, and Policies

Power Relations in Domestic Society and Polity

The literature identifies two sets of determinants of top income shares: politics and economics. Political science as the study of "who gets what, when, and how" (Lasswell 1936) has generated some solid findings on the impact of power distributions on the distribution and redistribution of income that should be applicable to top income shares. Key determinants of pretax and transfer income distributions are unions and labor market institutions, along with policies and therefore partisan incumbency (Bradley et al. 2003; Huber and Stephens 2014; Kenworthy and Pontusson 2005; Pontusson, Rueda, and Way 2002; Wallerstein 1999). Unions have a dual role; they are not only wage bargainers but also political actors.

The role of unions, labor market institutions, and policies varies systematically across what Hall and Soskice (2001) have called production regimes or varieties of capitalism. They distinguish between liberal market economies and coordinated market economies. The two types differ in the degree of organization of employers and in the degree of coordination among firms and between employers and labor on a variety of issues, including vocational training. Coordinated market economies are characterized by coordinated industrial-level bargaining or centralized bargaining and contract extension, by long-term close relationships between banks and firms and between firms and their suppliers and clients. In contrast, liberal market economies are characterized by fragmented employer organizations, decentralized bargaining, lack of contract extension, stock market financing of firms, and arms-length transactions between firms and banks, suppliers, and clients. The Nordic countries along with the Benelux countries and Germany, Austria, and Switzerland are coordinated market economies, whereas the United States, the United Kingdom, and Canada are liberal market economies, and Australia and New Zealand have converged on the liberal type since the 1980s. The rest of the countries in our figures have mixed characteristics.

To begin with the liberal market economies, analyses of the steep rise of the top 1% share in the United States highlight political determinants. Volscho and Kelly (2012) find that rightward shifts in Congress, declines in union power, and reductions in marginal income and capital gains taxes all helped fuel the recent rise of the super-rich in the United States. In a

similar vein, Kristal (2013) finds that the decline in union bargaining power is the crucial channel through which technological innovation in the United States drove up capital's share of income since the late 1970s.

According to Enns et al. (2014), the failure of US governments to take steps in addressing widening top inequality reflects a majoritarian "status quo bias" built into US political institutions such as the Senate, which causes policies to drift out of sync with income inequality realities in society. As the authors point out, the impact of such institutional veto points may be especially sharp when Democrats and Republicans are polarized in their policy disagreement and when top inequality is already substantial in society. Similarly, Hacker and Pierson (2010a) suggest that the rise of the super-rich in the United States reflects a "winner-take-all" effect of US political institutions, which failed to shore up "market-conditioning" policies that protect the labor share of market income. The authors highlight in particular policy drift in industrial relations, where the erosion of union power removed one of the key antidotes to managers' drive towards top corporate compensation. While Hacker and Pierson believe that the root of policy drift is political (mobilization by business interests), Kenworthy (2010) suggests that policies to avert top inequality are also thwarted by evolution of the US economy, such as changing corporate practices, rise in stock values, and a recent downward economic cycle.

In contrast to these studies with a focus on the United States, Scheve and Stasavage (2009) in their study of thirteen countries over the period 1916–2000 argue that in the long run partisan politics and labor market institutions do not matter. Since we are interested in the variation in the recent rise in the top income shares, we focus on their findings for the post-1976 period. They do find that trade union density has a statistically significant negative effect on top income shares for the entire period. In their initial analysis of the data for 1976–2000 they present an analysis with four variables, three of which are insignificant (union density, left executive, and centralized wage bargaining), while one, decentralized wage bargaining, is statistically significant (2009: 236). They then report a robustness test with a cumulative measure of left government, measuring the proportion of years in the last twenty that countries had a left executive, which shows a statistically significant effect on the top 1% share, but they emphasize that "the substantive magnitude of this effect remains very small" (2009: 238). In further analyses they find that this weak partisanship effect holds primarily for the post-1975 period. They conclude that political factors and labor market institutions have had little influence on the

evolution of income inequality over the long run and suggest instead that income inequality has been driven by underlying economic forces such as the race between technology and education or economic crises. They do not test these hypothesized alternatives. We shall test these alternatives and show that for the steep recent increase in the top 1% share the decline of union density was indeed of crucial importance.

Finally, we test the partisan incumbency hypothesis. Starting again from the experience of the Anglo-American countries, the right-wing governments of Reagan and Thatcher stand out for their radical attacks on unions and their slashing of top marginal tax rates. Huber and Stephens (2001) showed that long-term incumbency of secular center and right parties has been historically constitutive of liberal welfare states, which have been built in the same countries that are classified as liberal market economies in the Hall and Soskice (2001) typology. Thus, we hypothesize that long-term incumbency of secular center and right parties has supported the rise of the top 1% income share.

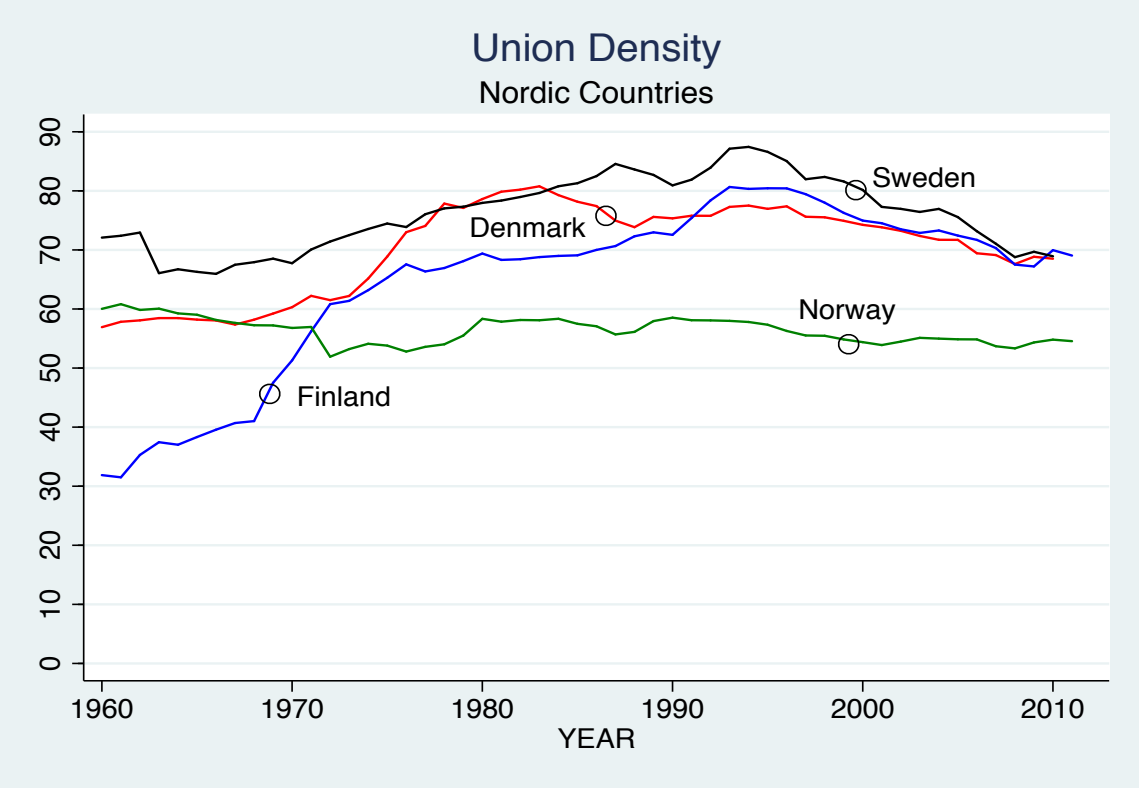
Conceptualizing Union Effects on Top Income Shares

With regard to union density, Figure 2 does show that all of the liberal political economies experienced a steep decline, though union density also declined in most other countries, albeit less steeply. However, linking declining union density to top 1% income shares is not straightforward. In their discussion of the effect of labor market institutions on top income shares, Scheve and Stasavage (2009) take the literature on the determinants of wage dispersion as a point of departure (e.g., see Wallerstein 1999; Pontusson, Rueda, and Way 2002). The dependent variable in this literature is generally the ratio of the income of a wage and salary earner at the 90th percentile to income of a wage earner at the 10th percentile, the 90–10 ratio. Either implicitly or explicitly, the wages of employees in this range are assumed to be determined by the wage bargaining process and therefore characteristics of unions and wage bargaining institutions. For the top 1%, it is not a plausible assumption that their compensation is determined through the collective bargaining process. In our dataset, in only two country-years does contract coverage exceed 95%, so the compensation for the top 1% is not directly subject to

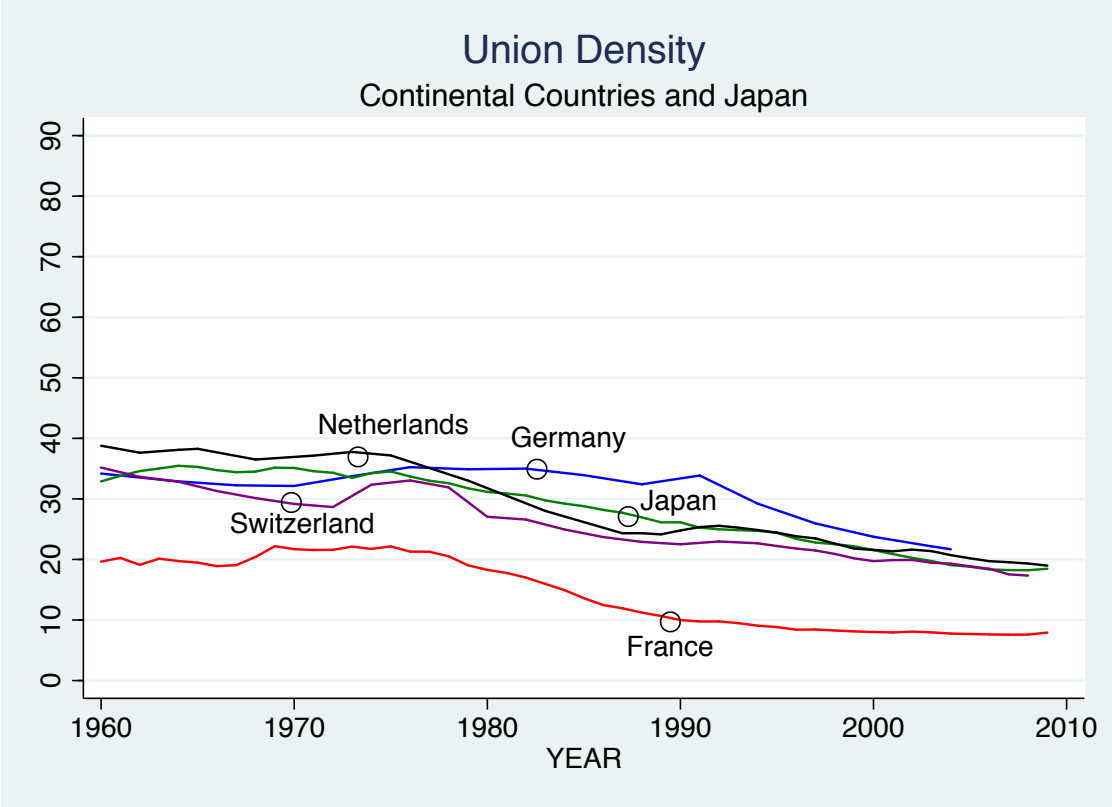
union wage bargaining.[2] For this reason, we highlight some more subtle mechanisms through which union strength may shape top income shares.

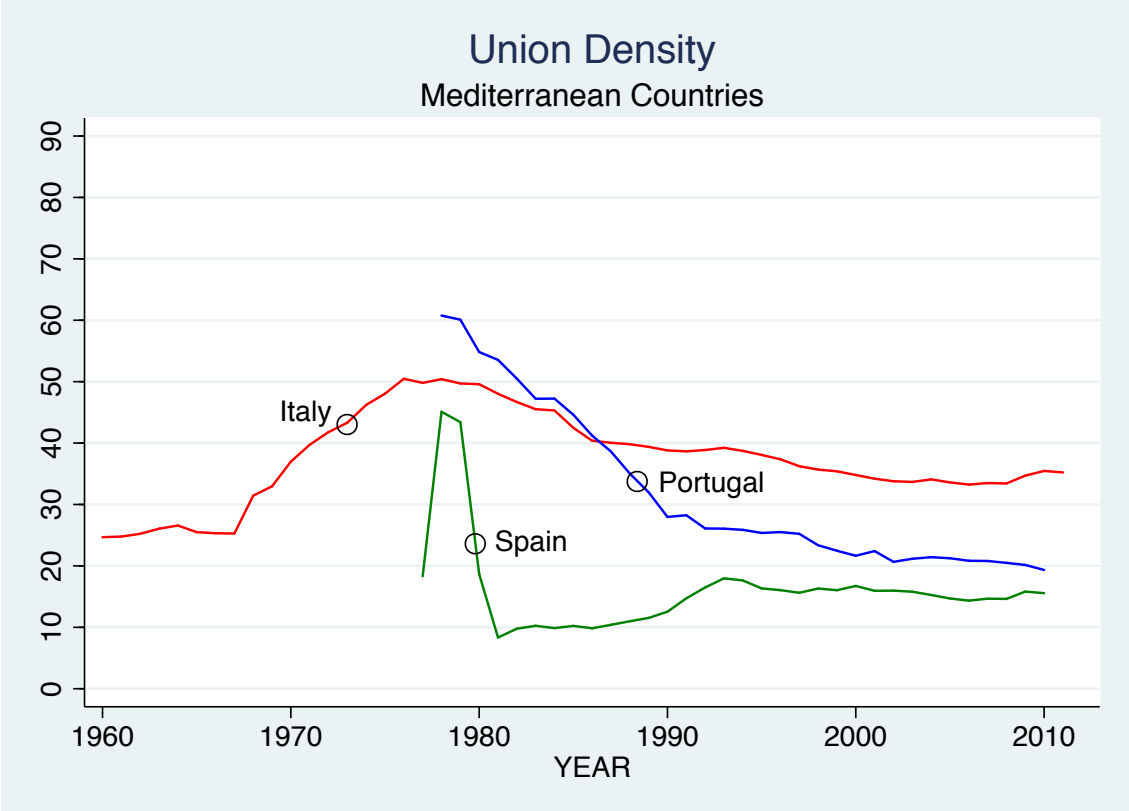
FIGURE 2

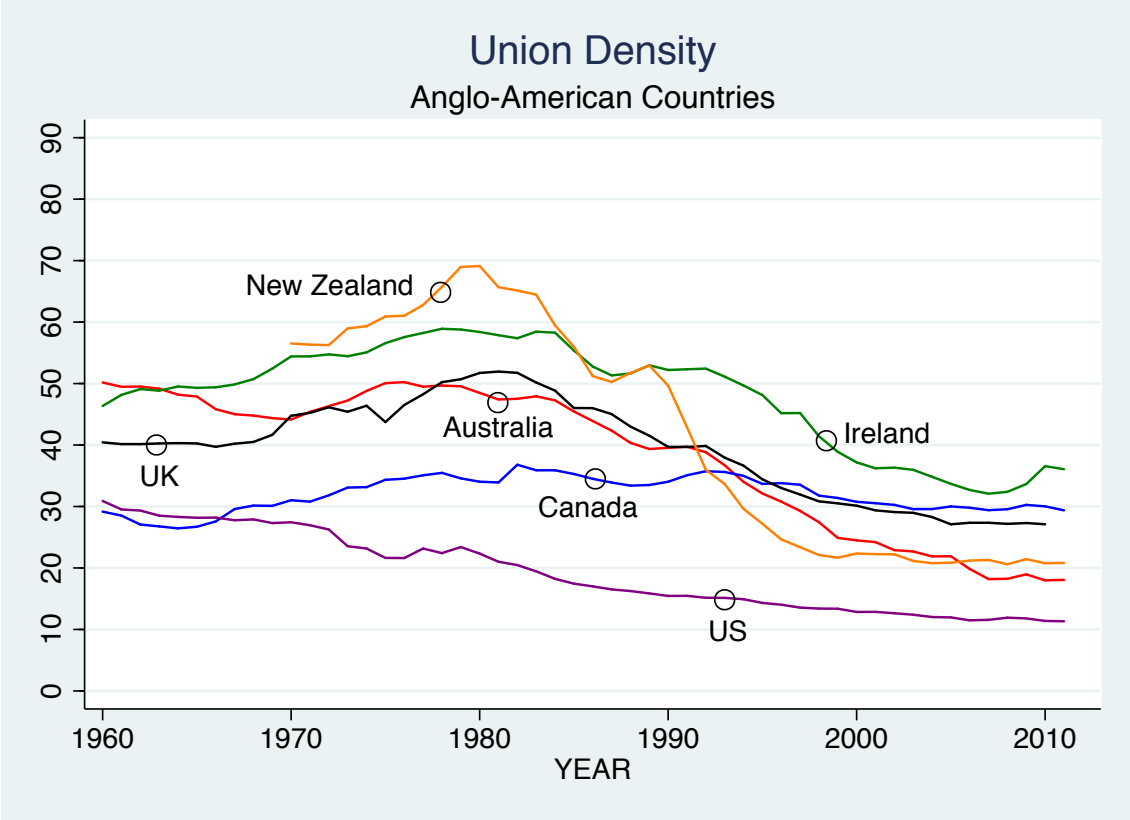
UNION DENSITY BY PRODUCTION REGIME AND COUNTRY



[2] The Visser (2013: 23) codebook defines the coverage variable as "Employees covered by collective (wage) bargaining agreements as a proportion of all wage and salary earners in employment with the right to bargaining, expressed as a percentage, adjusted for the possibility that some sectors or occupations are excluded from the right to bargain (removing such groups from the employment count before dividing the number of covered employees over the total number of dependent workers in employment)." That is, the divisor is not all employees but only a subset of them, so it is likely that actual coverage is lower than the figures indicate.


Union Density
Continental Countries and Japan
0
10
20
30
40
50
60
70
80
90
Netherlands
Germany
Japan
Switzerland
France
1960
1970
1980
1990
2000
2010
YEAR


Union Density
Mediterranean Countries
0
10
20
30
40
50
60
70
80
90
Italy
Portugal
Spain
1960
1970
1980
1990
2000
2010
YEAR



Implicit Regulation: Analyzing 1,049 corporations and 1,688 CEOs from 1974 to 1986 in Forbes' Executive Compensation Surveys, Jensen and Murphy (1990) find that each $1,000 of variation in shareholder wealth is associated with only $2.5 variation in CEO stock options compensation ($3.5 in total compensation including stocks, bonuses, and cash pay). Instead of being pegged strictly to performance, CEO pay leaves considerable room for rent bargaining between managers and their shareholders. Because CEO pay is by law public information, managerial labor contracts are not "private" (to managers and their shareholders) but instead open to public scrutiny and pressure. As a result, third parties such as labor unions or journalists play an important role in constraining executive pay, which the authors refer to as "implicit regulation." For example, although CEO pay is not directly subject to union *wage bargaining*, it is affected by union *presence*, because when unions actively publicize information on "what the boss makes" (Jensen and Murphy 1990: 254), they influence worker demand for their own pay as well as worker morale.

Several other scholars echo Jensen and Murphy's "implicit regulation" thesis. For example, citing Joskow et al.'s (1993, 1996) finding that CEO pay is lower in more regulated

industries, DiNardo, Hallock, and Pischke (2000) suggest that union presence is "akin to regulation" (4), safeguarding the welfare of those company "stakeholders" outside the circle of shareholders and executives. When executive pay is perceived to be excessive, unions may voice their equity and fairness concerns not only directly through industrial disputes but also indirectly through local stewards, public awareness campaigns, and shareholder activism by union-controlled pension funds to constrain executive pay via expensing, future repricing, or performance-based vesting conditions (Gomez and Tzioumis 2013; Katz, Batt, and Keefe 2003). For example, Ertimur, Ferri, and Muslu's (2011) study of 1,198 compensation-related shareholder proposals between 1997 and 2007 finds that 48.2% of these proposals stem from union pension funds. In a similar vein, DeAngelo and DeAngelo's (1991) study of labor-corporate negotiation in the US steel industry finds that, in industrial disputes, unions often make CEO pay a visible issue, which forces the management to take its own pay cut before negotiating pay concession from workers. Because inequity aversion lies at the heart of "implicit regulation" by unions, one distinct implication is that union presence may be associated with pay compression not only across labor and management but also *for management*, *across firms*. Consistent with this implication, Gomez and Tzioumis's (2013) study of more than one million CEO compensation packages (1992–2001) from Standard and Poor's Executive Compensation database finds that the cash pay Gini coefficient for CEOs is .317 for union firms and .381 for nonunion firms (and respectively .311 and .337 regarding non-CEO executive pay).

Resource Constraint: While the "implicit regulation" mechanism allows unions to *increase* a company's political and publicity *cost* of giving high management pay, unions can also *reduce* the company's *financial resources* for high executive compensation. Because neither executive nor worker pay is pegged strictly to marginal product, the surplus is divided between worker and management. As unions enable workers to raise pay, working conditions, and other benefits, more surplus is redistributed to workers at the expense of management (Addison and Hirsch 1989; Chiles and Stewart 1993). Consistent with this notion of management-labor contest for firm surplus, Clark (1984) finds that profits are lower in unionized firms, and Abowd (1989) finds that union wealth increases dollar-to-dollar with the decline of shareholder wealth. Similarly, Fallick and Hassett (1999) find that the impact of union certification in such surplus contest is equivalent to a doubling of the firm's profit tax (Banning and Chiles 2007). Besides contestable surplus, unions may also constrain resources for top executive pay through their

influence on stock prices, and hence the valuation of stock options compensation for executives. This channel of influence is important because stock valuation depends on financial market performance, and financial markets tend to react negatively to union presence. For example, Abowd (1989) finds that share price movements in the United States react negatively to union activity, and Ruback and Zimmerman (1984) find that the decline in firm equity after union victories in National Labor Relations Board elections is three times as large as the case of union defeats (Gomez and Tzioumis 2013). Although an increased union presence may reduce firm market valuation, it does not necessarily reduce firm productivity. As Gomez and Tzioumis point out, because steep stock options compensation distorts management incentives (towards short-term valuation at the expense of long-term investment and production), union constraint on stock valuation may mitigate such allocative inefficiency.

Unlike the "implicit regulation" thesis, the "resource constraint" interpretation understands lower executive pay as an indirect consequence of union presence rather than a direct union objective. To this extent, unions may actually be willing to compensate for lower *level* of executive pay with lower *risk* (variation) in executive compensation. Consistent with this implication from the "resource constraint" mechanism, both Banning and Chiles (2007) and Jensen and Murphy (1990) find empirically that executive compensation variability is lower when union presence is stronger.

Organizational Constraint: Finally, union presence may also constrain top executive pay by affecting the firm's organizational strategy, which in turn affects the firm's demand for CEO services. Unlike that of production workers, the main responsibility of management is supervision. The greater the need for supervision, the more complex the firm's hierarchy, and the higher pay for top executives (Garicano 2000). However, when union activism allows workers to increase their own pay, conditions, and autonomy on the job, monitoring by management becomes less necessary for enforcing high workforce performance (DiNardo, Hallock, and Pischke 2000; Acemoglu and Newman 2002). Extensive laboratory evidence (Bartling, Fehr, and Schmidt 2012; Fehr, Herz, and Wilkening 2013) shows that higher worker autonomy and pay are complementary in raising workforce motivation and performance, a finding also echoed by the knowledge-intensive employment literature (Arundel et al. 2007; Lundvall and Lorenz 2011). In turn, as Garicano and Rossi-Hansberg (2006) prove formally, higher worker performance leads

to a flatter firm hierarchy, where managers comprise a smaller fraction of the workforce, and pay at the top is less steep.

Although the "organizational" interpretation is similar to the "implicit regulation" and "resource" interpretations in predicting lower executive *pay*, it is distinct in its implication that union density will also reduce the fraction of managers *employed*. Furthermore, with fewer posts in higher corporate tiers, there will be less room for firms to change the number of managers, placing more weight on management pay as the main margin of adjustment to reduced demand for supervision services. In other words, the pay impact of union density should be sharper for higher-level executives. Consistent with these implications, DiNardo, Hallock, and Pischke's (2000) study of corporate employment in sixteen OECD countries between 1970 and 1993 finds that a 10% increase in union density reduces the fraction of managers hired by up to 0.9%, management pay by up to 0.7%, and CEO pay by more than 2.5%.

Above, we outlined three mechanisms by which unions may affect top incomes, each backed by empirical evidence from the literature. While each mechanism has some distinct aspect, they are mutually complementary in reinforcing two arguments central to how we hypothesize the impact of unions on top inequality. First, because executive pay is not directly subject to collective bargaining, union constraint on top inequality may be more effectively understood through union *presence* (i.e., union density) than bargaining institution characteristics. Second, because executive pay leaves considerable room for rent seeking (see evidence in Jensen and Murphy 1990), top income share will not be strongly driven by genuine economic or knowledge growth, and to this extent, union density's impact on top income share can be understood as an "implicit tax" on rents.

Union and bargaining centralization can be seen as a feature of bargaining institutions but can also be conceptualized as a dimension of labor movement strength (Garrett 1998). The logic behind this conceptualization is that centralization eliminates collective action problems. Centralized unions are able to act in a unified fashion both in wage bargaining and in politics. With regard to the effect on top income shares, we argue that the same mechanisms by which union density affects top income shares are also operative in the case of union centralization. A good example of "implicit regulation" by central organizations of unions is the annual report of LO, the Swedish Trade Union Confederation, on the incomes of the "power elite" of Sweden (LO 2014), with a special focus on the incomes of the CEOs of the fifty largest Swedish firms.

The report is widely covered in the press (e.g., see http://www.dn.se/ekonomi/sa-manga-arbetarloner-gar-det-pa-en-direktorslon/).

The exercise of power is mediated by institutions. Political systems with many veto points, such as presidentialism, strong bicameralism, judicial review, and popular referenda, make majoritarian exercise of power difficult and facilitate policy blockage by special interests (Immergut 1992; Huber, Ragin, and Stephens 1993). Thus, veto points work against policy change and lead to policy drift (Hacker and Pierson 2010a).

Policy

Marginal tax rates are a key instrument for governments to shape income distribution. They not only influence redistribution but also shape pretax income distribution. They figure prominently not only in Volscho and Kelly (2012) but also in Roine, Vlachos, and Waldenström (2009) and Atkinson, Piketty, and Saez's (2011) overview of findings. Roine, Vlachos, and Waldenström (2009) also look at developments over the entire twentieth century in sixteen countries, focusing on economic and policy variables. They find that the top marginal tax rate reduces the share of the top 1%, along with that of the next 9%.

We adopt the hypothesis that higher marginal tax rates reduce the pretax income share of the top 1%. As to the mechanisms through which marginal tax rates have this effect, the literature identifies three options. First, the increased tax rates may stimulate more tax avoidance and evasion, so the tax returns show lower incomes. Second, higher tax rates may do the opposite of what lower tax rates are assumed to do, that is, the opposite of improving work incentives of top managers and thus stimulating entrepreneurial innovation and raising marginal productivity (Feldstein 1995). This is the standard supply-side argument. Third, they may reduce the incentive for top income earners to bargain aggressively (Alvaredo et al. 2013).

The first of these mechanisms can be observed, for instance, in certain spikes in declared income before announced increases in tax rates. Its extent over the longer run will depend on the quality of the tax code in the form of the absence of opportunities for tax avoidance (Piketty, Saez, and Stantcheva 2014). If the standard supply-side argument was correct, then we would see higher growth in countries with lower top marginal tax rates. In their study of three elasticities, Piketty, Saez, and Stantcheva (2014) do not find such a result. However, their evidence is

consistent with the third interpretation, the incentive for aggressive bargaining on the part of top income earners.

Roine, Vlachos, and Waldenström (2009) test the hypothesis that the size of government affects the top income share. Their hypothesis is that it will have a negative effect on top income shares. They find the simple correlation between the two variables is negative and significant, but in the multiple regressions it is wrongly signed and insignificant. Atkinson, Piketty, and Saez (2011) also consider politics and political economy, and they highlight wars, regime forms, and partisanship as potential determinants of top incomes but note the lack of conclusive findings regarding the latter two variables.

Skill-biased technological change is a common explanation for the postwar increase in top inequality. Goldin and Katz (2008), for example, argue that inequality has increased in the United States since 1980 because technological change has increased the demand for high levels of education and the supply has not kept up in this period, in contrast to the first three-quarters of the twentieth century, when educational expansion exceeded or at least kept up with technological change. They suggest that this might be a factor in rising inequality in other countries. Card and Lemieux's (2001) finding, that in Canada, the United Kingdom, and the United States the slowdown in the expansion of education after 1970 raised the education wage premium, supports this view, suggesting that failure to expand higher education in pace with technological change may well explain the increase in top income shares in the Anglo-American countries that one observes in Figure 1. In a pooled time series analysis on market (pretax and pre-transfer) income inequality of seventeen postindustrial democracies, Huber and Stephens (2014) test this hypothesis and find that one reason for the increasing inequality in the Anglo-American countries was the large decline in spending on education in all of these countries, except Australia where the decline was small. They find that education spending does have a negative effect on inequality measured by the market income Gini, which argues that it should be included in the present analysis, despite the skepticism of Atkinson, Piketty, and Saez (2011) (see below).

Economic Determinants

Among economic determinants, the literature identifies the distribution of assets (wealth and skills), economic growth, share of the financial sector, and expansion of scale due to

globalization and the information and communications technology (ICT) revolution. Kaplan and Rauh (2013) and Mankiw (2013) argue that the recent increase in the income share of the top 1% in the United States has been largely a product of the normal operation of competitive markets resulting in compensation in line with the marginal productivity of holders of marketable assets, capital, or skill. They are particularly eager to defend the high incomes of top managers and entrepreneurs, arguing that globalization and technological change, especially the ICT revolution, enable "highly talented individuals…to manage or perform on a larger scale, applying their talent to greater pools of resources and reaching larger numbers of people…[and thus receiving] higher compensation" (Kaplan and Rauh 2013: 35). Interestingly, both Kaplan and Rauh (2013) and Mankiw (2013) approvingly cite Goldin and Katz (2008) on the effects of skill-biased technological change, contrasting it to the "political" sources of rising inequality cited by leftist critics (Mankiw 2013: 23). In fact, skill-biased technological change is only half of the argument of Goldin and Katz; the other half is very political, the failure of the US government to invest in education sufficiently to keep the human capital stock increasing at a pace that matches technological change. If the arguments of Kaplan and Rauh and Mankiw are correct, one should expect top income shares to be related to measures of globalization; technological success, especially in ICT; economic growth; and export competitiveness.

An examination of the Nordic model suggests a diametrically opposed set of hypotheses. These economies are highly globalized; they have been highly trade open for a long time and they run trade surpluses. They have also been highly successful in technological innovation in ICT. Yet, they have seen only moderate increases in the top 1% shares, and their levels of the top 1% shares are among the lowest. Accordingly, we adopt nondirectional hypotheses for our globalization and technological change variables. The Nordic model does support the hypothesis about the race between technological change and educational investment. In contrast to the Anglo-American countries, the Nordic countries intensified their public investment effort in education over the past half century, which contributed to dampening increases in inequality (Huber and Stephens 2014).

At its core, Piketty's (2014) explanation for the resurgence in top inequality in the twenty-first century is capital: when economic growth slows down, wealth (through savings and hence capital accumulation) increases relative to output, pushing up the income of the very wealthy. His measure of wealth concentration is the ratio of total wealth to national income

(β=K/Y). Although extremely elegant, this explanation leaves some unanswered questions in both empirics and theory. Empirically, Bonnet et al. (2014) and Soskice (2014) highlight that Piketty's measure of wealth does not parse out the inflationary effect of housing prices, and may therefore overstate inequality. Theoretically, as Soskice points out, the capital-based explanation rests on the strong assumption that all household savings are mechanically converted into business capital accumulation, which ignores how businesses may be shaped by the economic and political context they operate in. This suggests that, in addition to testing Piketty's total wealth ratio, one should also test the wealth ratio with housing wealth subtracted from the numerator. We shall do so.

Atkinson, Piketty, and Saez (2011) identify the expansion of scale associated with globalization and advances in information technology as potentially important determinants of top shares. In contrast, they argue that skill-biased technological change has little to do with the rise of the top 1% share because great changes have taken place within the top 10%, most of whom have completed tertiary education. Roine, Vlachos, and Waldenström (2009) find that periods of high economic growth and a higher share of the banking and stock market sectors in the economy are associated with an increase in the income share of the top 1%. We analyze these relationships.

MEASUREMENT

With regard to partisan incumbency, following Huber and Stephens (2001) our measure is the cumulative share of parliamentary seats of secular center and right parties as a proportion of the seats of all governing parties (see Table 1). We measure constitutional structure veto points with an additive index of presidentialism, bicameralism, federalism, and referenda. Union density is measured as net union membership as a percentage of wage salary earners. The union and bargaining centralization index was developed by Iversen (1999: 48–57) and updated by Visser (2013). It combines a measure of the level of bargaining (firm/plant; industry/sector; national) with the concentration of union membership at each level. It is essentially a weighted Herfindahl index.

Top marginal tax rates are the actual marginal tax rates on the highest income group. Data from Roine, Vlachos, and Waldenström (2009) were supplemented with data from the OECD Tax Database (Section B1: Personal Income Tax) (OECDa) and the 2014 Economic

Freedom Dataset (Gwartney, Lawson, and Hall 2014). Piketty, Saez, and Stantcheva (2014) use statutory tax rates. The correlation between the statutory and effective tax rates is .62, since statutory tax rates "have been binding to quite varying degrees" (Roine, Vlachos, and Waldenström 2009: 979). Conceptually, actual tax rates are more appropriate, but we get very similar results with statutory rates.

In measuring the size of government, we depart from Roine, Vlachos, and Waldenström (2009). In the postwar period, the main variations in the size of government are due to the size of the welfare state. We measure the transfer side of the welfare state with social security transfers as a percent of Gross Domestic Product (GDP). We measure the service side of the welfare state with government service employment as a percent of the working-age population.

Stock market capitalization is measured as market value of publicly listed stocks as a percentage of GDP. Data from Roine, Vlachos, and Waldenström (2009) were supplemented with data for recent time points from Beck, Demirgüç-Kunt, and Levine (2009) and Čihák et al. (2012). Roine, Vlachos, and Waldenström (2009) interpolate the data for 1961–69 and 1971–74. One might object to this since stock market values fluctuate from year to year. We deal with this problem in the next section.

For financial sector size we took value added from the line "financial intermediation" from the national accounts from the EU KLEMS database. For country years not in EU KLEMS, we took data from the OECD STAN database (OECDb). We divided value added by financial intermediation by GDP taken from the OECD, both in national currency units.

Our globalization variables are outward direct foreign investment as a percentage of GDP, trade openness measured as imports plus exports as a percentage of GDP, and capital controls. Outward direct foreign investment comes from International Financial Statistics (IMF); trade openness comes from the Penn World Tables 8.0 (Feenstra et al. 2013); and capital controls come from Karcher and Steinberg (2013).

Trade surplus is calculated as exports minus imports, as a percentage of GDP, from the Penn World Tables. Economic growth is calculated as annual growth in GDP per capita in constant currency, from the Penn World Tables. Knowledge-intensive service (KIS) employment is calculated as the percentage of the working-age population employed in knowledge-intensive services, from EU KLEMS. The Brady, Huber, and Stephens (2014) database contains two measures for KIS employment; we are using the more restrictive measure here.

Education spending is total public spending on education as a percentage of GDP, taken from World Development Indicators (World Bank). Private wealth is total private wealth divided by GDP, and non-housing private wealth is total private wealth minus housing wealth divided by GDP, both from Piketty and Zucman (2014). There are data for only nine countries: Australia, Canada, France, Germany, Italy, Japan, Spain, the United Kingdom, and the United States. All variables except for stock market capitalization, top marginal tax rates, and private wealth are available in the Brady, Huber, and Stephens (2014) database.

TABLE 1

VARIABLE DEFINITIONS AND SOURCES

	Definition	Original data source	hypothesized relation to top income shares
Dependent variable			
Top 1% income shares	Income of the top 1% as a % of total income	WTID	
Independent variables			
Secular center and right government	Seats of secular right and center parties as a proportion of the seats of all governing parties, cumulative from 1945 to date of observation	Brady et al. (2014)	+
Veto points	Index of presidentialism, bicameralism, federalism, and referenda	Brady et al. (2014)	+
Union density	Union membership as a % of employed wage and salary earners	Visser (2011)	–
Centralizations of unions and bargaining	Index of bargaining and union centralization	Iversen (1999), Visser (2013)	–
Top marginal tax rates	Top marginal income tax rates	Roine et al. (2009)	–
Civilian government employment	Civilian government employment as a % of the working-age population	Brady et al. (2014)	–
Social security transfers	Social security transfers as a % of GDP	OECD	–
Education spending	Education spending as a % GDP	World Development Indicators	–
Stock market capitalization	Market value of publicly listed stocks as a % of GDP	Roine et al. (2009), Beck et al.(2009)	+
GDP per capita	GDP per capita in thousands of 2005 US dollars, PPP	Penn World Tables	–/+
Financial sector size	Value added by the financial intermediation sector as a % of GDP	EU KLEMS, OECD	+
Outward FDI	Outward foreign direct investment as a % of GDP	IMF	–/+
Capital market openness	Capital market openness	Karcher and Steinberg (2013)	–/+
Trade openness	Exports plus imports as a % of GDP	Penn World Tables	–/+
Trade surplus	Trade surplus (deficit) as a % of GDP	Penn World Tables	–/+
Economic growth	Annual growth in GDP per capita in constant currency	Penn World Tables	–/+
Knowledge-intensive services	Employment in knowledge-intensive services as a % of the working-age population	EU KLEMS	–/+
Private wealth	Total private wealth divided by GDP	Piketty and Zucman (2014)	+
Non-housing private wealth	Total private wealth minus housing wealth divided by GDP	Piketty and Zucman (2014)	+

All variables except stock market capitalization, top marginal tax rates, and private wealth are available in Brady et al. (2014).

STATISTICAL ESTIMATION

Hicks (1994: 172) notes that "errors for regression equations estimated from pooled data using OLS [ordinary least squares regression] procedures tend to be (1) temporally autoregressive, (2) cross-sectionally heteroskedastic, and (3) cross-sectionally correlated as well as (4) conceal unit and period effects and (5) reflect some causal heterogeneity across space, time, or both." We follow Beck and Katz's (1995) recommended procedure, using panel-corrected standard errors, corrections for first-order auto-regressiveness, and imposition of a common rho for all cross-sections. Since there is some trend in our data, we do not include a lagged dependent variable as recommended by Beck and Katz (1996) because in this situation the lagged dependent variable inappropriately suppresses the power of other independent variables, as Achen (2000) has shown. Beck and Katz (2004: 16–17) have shown that correcting for first-order auto-regressiveness actually does include a lagged dependent variable on the right-hand side of the equation (known as Prais-Winsten estimations). Thus, it does deal with the problem of serial correlation but without, as our results show, suppressing the power of other independent variables.

Beck and Katz (1996) and others have argued for the inclusion of country dummies in order to deal with omitted variable bias. Plümper, Troeger, and Manow (2005: 330–34) have countered that inclusion of country dummies does much more than eliminate omitted variable bias. It also (1) eliminates any variation in the dependent variable that is due to time invariant factors such as difference in constitutional structures, (2) greatly reduces the coefficients of factors that vary mainly between countries (e.g., union and bargaining centralization), (3) eliminates any differences in the dependent variable due to differences at t1 in the time series, and (4) "completely absorb(s) differences in the level of the independent variables across the units" (331). Elaborating on this last point, they argue that if one hypothesizes that the level of the independent variable has an effect on the level of the dependent variables (e.g., union density and top income shares), "a fixed effects specification is not the model at hand. If a theory predicts level effects, one should not include unit dummies. In these cases, allowing for a mild bias resulting from omitted variables is less harmful than running a fixed effects specification" (334). We do hypothesize (#3) effects in the levels of our independent variables (primarily union density) prior to t1 on the level of the dependent variable at t1, and (#4) effects of levels of the

independent variables on levels of the dependent variable. Nevertheless, fixed effects estimation is useful in demonstrating change over time within the countries, and we shall include a table in the Appendix with fixed effects results.

Prais-Winsten estimations are our preferred estimation technique, but we also present random effects estimations as a robustness check. A number of our variables, particularly financial sector size, KIS employment, and the private wealth variables have many missing observations. If all variables are entered in one equation, we are left with only 202 observations. Therefore, we proceed by constructing a baseline model and then entering clusters of related variables or single variables testing particular theoretical arguments. The baseline model contains variables with relatively complete data that emerged as significant and strong in preliminary analyses.

As noted above, the stock market data series contains interpolated values for the periods 1961–69 and 1971–74. We ran the baseline model with and without the interpolated observations, and the results remained substantially the same. Therefore, we have retained the interpolated data in order not to lose observations with data for the other independent variables.

RESULTS

The results of our analyses are displayed in Tables 2 and 3; Table 2 shows the results of the Prais-Winsten estimations and Table 3 the results of the random effects estimations. The baseline model (Model 1) contains our main political and policy variables (government partisan composition, veto points, union density, centralization of unions and bargaining, and top marginal tax rates), along with two control variables (stock market capitalization and GDP per capita). In Model 2 we enter two welfare state variables that capture the service side and the transfer side of the welfare state (civilian government employment and social security transfers), in Model 3 investment in public education, in Model 4 value added by the financial sector, in Model 5 the complex of globalization and growth variables (outward direct foreign investment, capital market openness, trade openness, trade surplus, and economic growth), in Model 6 an indicator of the knowledge economy (employment in knowledge-intensive services), and in Models 7 and 8 Piketty's master variables (private wealth and non-housing private wealth).

Our most consistently significant variables are union density and stock market capitalization. Union density is significant in all models except for the random effects estimations of the two models with private wealth and private non-housing wealth. Union density is not only highly significant but also substantively important. To assess the substantive importance of our independent variables, we calculated the effect of a two standard deviation of change on the dependent variable. We calculated this effect on the basis of the average of the coefficients in the models with 500 or more observations. In the case of union centralization, we dropped the coefficient for Model 2 because it deviates so strongly from the other coefficients. We used the coefficients from the Prais-Winsten models for the calculations for all variables except for government composition; for center-right government we used the coefficients from the random effects estimations.

As Figure 3 shows, a two standard deviation change in union density reduces the share of the top 1% by 1.6 percentage points. Stock market capitalization is significant in every single model with both estimation techniques. However, its impact is substantively smaller, with a two standard deviation change increasing the share of the top 1% by some 0.7 percentage points.

Figures 1 and 2 help in the interpretation of these results. Union density varies both over time and among countries. It declines markedly over time in the liberal countries except for Canada and ends up below 30% (11% in the United States), whereas it rises in the Nordic countries from 1970 to the early 1990s and declines somewhat thereafter, to stabilize at a comparatively very high level of around 70%. These changes parallel the steep rise of the top 1% income shares in the liberal countries and the fall until the early 1990s and moderate rise thereafter of the top 1% shares in the Nordic countries. The share of the top 1% in the Nordic countries remains below 8%, compared to a range of 8% to 18% in the liberal countries. In the Continental countries we also see a decline in union density from between 30% and 40% to around 20% (except for France that declined from 20% to below 10%), but union and bargaining centralization remained higher in these coordinated market economies than in the liberal market economies.

TABLE 2

DETERMINANTS OF TOP 1% INCOME SHARES (PRAIS-WINSTEN REGRESSIONS)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8	
Secular center and right government	.012		–.002		.012		.025		.013		.011		–.013		–.019	
Veto points	.180		.108		.207	*	.241	*	.389	**	.593	***	.436	**	.541	***
Union density	–.041	***	–.036	**	–.039	***	–.048	***	–.032	***	–.036	***	–.036	*	–.040	*
Centralizations of unions and bargaining	–2.700	*	–4.994	**	–2.245		–1.204		–2.640	*	–1.54		–1.991		–2.179	
Top marginal tax rates	–2.042	**	–2.131	**	–1.738	*	–1.868	*	–2.804	***	–2.08	***	–3.445	***	–3.098	***
Stock market capitalization	.008	***	.006	**	.008	***	.007	***	.005	*	.009	***	.011	***	.010	***
GDP per capita	.027		.033		.025		.042		.068		.074	**	.102	***	.074	**
Civilian government employment			–.011													
Social security transfers			.014													
Education spending					–.084	**										
Financial sector size							.012									
Outward FDI									.020							
Capital market openness									.055							
Trade openness									–.001							
Trade surplus									–.043							
Economic growth									.020							
Knowledge-intensive services											–.015					
Private wealth													–.279	^		
Non-housing private wealth															.222	
Constant	10.396	***	11.333	***	10.339	***	9.164	***	9.077	***	8.382	***	10.414	***	9.513	***
Common ϱ	.91		.92		.92		.92		.88		.93		.91		.92	
R^2	.58	***	.61	***	.57	***	.54	***	.56	***	.72	***	.78	***	.77	***
Observations	613		569		597		452		500		399		330		312	

* significant at .05; **significant at .01, ***significant at .001, ^ significant opposite hypothesized direction

TABLE 3

DETERMINANTS OF TOP 1% INCOME SHARES (RANDOM EFFECTS)

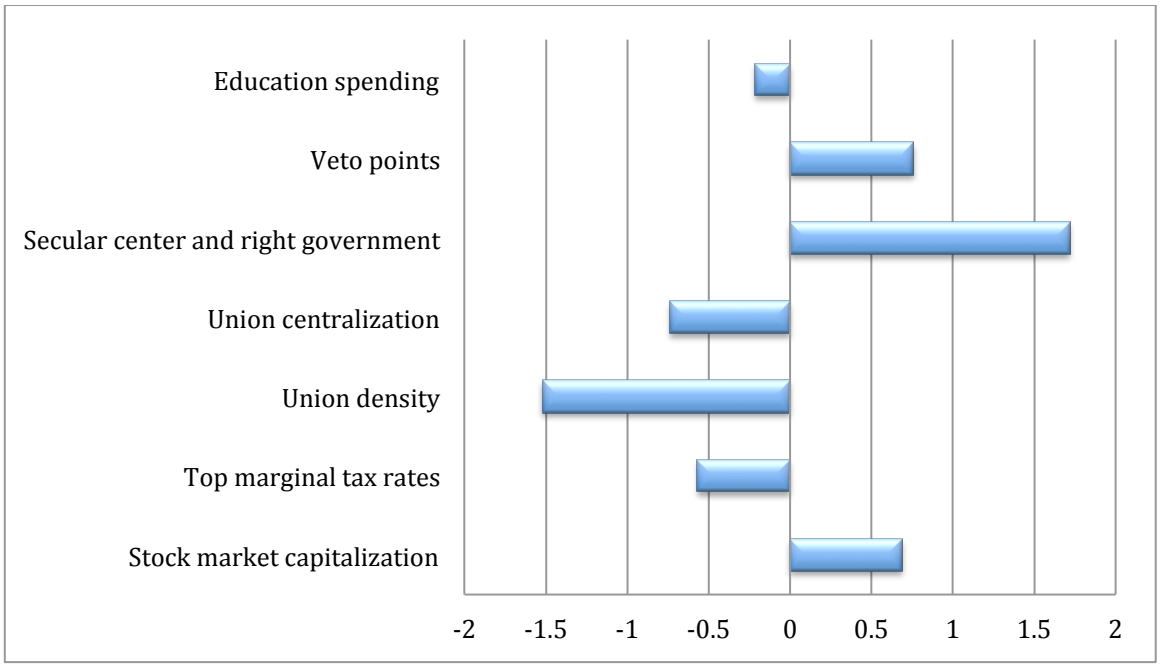
	Model 1		Model 2		Model 3		Model 3		Model 5		Model 6		Model 7		Model 8	
Secular center and right government	.056	***	.065	***	.041	***	.078	***	.059	***	.091	***	–.029	^	–.018	^
Veto points	.217		–.003		.112		–.223		–.163		.043		.077		.308	***
Union density	–.065	***	–.029	**	–.061	***	–.064	***	–.046	***	–.063	***	–.003		.012	
Centralizations of unions and bargaining	-3.268	***	–3.841	***	–3.370	***	–2.452	**	–1.769	*	–3.158	***	–5.127	***	–5.790	***
Top marginal tax rates	.636		1.373	*	.837		.836		.036		–.015		–.868		1.087	
Stock market capitalization	.012	***	.012	***	.010	***	.010	***	.011	***	.012	***	.019	***	.018	***
GDP per capita	.031	*	.073	***	.059	***	.065	***	.129	***	.057	*	.256	***	.209	***
Civilian government employment			–.228	***												
Social security transfers			.035													
Education spending					–.427	***										
Financial sector size							.106									
Outward FDI									–.046							
Capital market openness									–.081							
Trade openness									–.013	*						
Trade surplus									–.016							
Economic growth									.049							
Knowledge-intensive services											–.086	*				
Private wealth													–.672	^		
Non-housing private wealth															–.190	
Constant	8.473	***	8.207	***	10.437	***	6.839	***	6.325	***	9.305	***	6.951	***	3.909	***
$R^{2\ within}$	.52		.55		.55		.67		.69		.65		.65		.63	
$R^{2\ between}$	.52		.38		.52		.48		.45		.48		.60		.40	
R^2	.54	***	.49	***	.54	***	.59	***	.60	***	.53	***	.69	***	.63	***
Observations	613		569		597		452		500		399		330		312	

* significant at .05; **significant at .01, ***significant at .001, ^ significant opposite hypothesized direction

Accordingly, the top 1% shares in the Continental countries remained relatively stable and at an intermediate range, between about 8% and 12%. Actually, the Continental countries started out in the 1960s with on average higher levels of income concentration than the liberal countries, with top 1% income shares of from close to 10% to close to 13%, compared to the liberal countries where top income shares were all below 10%. This is less surprising than it might seem if we keep in mind that union density levels in the United States and Canada were about 30%, in the Continental countries between 30% and 40%, but in the remaining liberal market economies 40% to 50%. The Mediterranean countries experienced a moderate rise in the top 1% income share, from low levels to still moderate levels of 8% to 10%. Portugal and Italy saw a clear decline in union density, though in Italy union density remained around 35%; in Spain union density remained more stable at a lower level, between 15% and 18%.

FIGURE 3

ESTIMATED EFFECT OF A TWO STANDARD DEVIATION CHANGE IN THE INDEPENDENT VARIABLES ON INCOME SHARE OF THE TOP 1% OF INCOME EARNERS



Stock market capitalization certainly explains the ups and downs in the top income shares, particularly in the liberal market economies. We clearly see the top income shares follow the upswing in the 1990s, the decline in the early 2000s, then the new bubble in the run-up to the

2008 crisis and the decline thereafter. In most of the Continental and Nordic countries with their coordinated market economies, what we see is a trend towards greater reliance on stock markets to finance corporate investment rather than long-term close relations with major banks. This in turn drove up the value of the stock market and supported a trend toward rising top income shares. Nevertheless, the total value of the stock market remains between 50% and 100% of GDP in the Nordic and Continental countries (with the exception of Switzerland where it rose to over 200%) whereas it is at or above 100% in the liberal countries (except for New Zealand at about 50%). In the Mediterranean countries stock market capitalization also showed a moderate increase to levels somewhat below those of the Continental countries. The trend towards rising top 1% income shares would be much more pronounced if we had data that include capital gains.

Partisan government composition and top marginal tax rates show an interesting pattern. Top marginal tax rates are consistently highly significant in the Prais-Winsten estimations but secular center and right government is not. In the random effects estimations, the situation is reversed—secular center and right government is highly significant in all models except those with private wealth, whereas top marginal tax rates completely lose significance. We see the exact same pattern in the fixed effects estimations (Appendix Table A1). Given that center-right governments are particularly inclined to lower top marginal tax rates, it is not surprising that this variable absorbs the effect of the other in the random fixed effects estimation. Indeed, in these models secular center and right government emerges as substantively very important. A two standard deviation in secular center and right government raises the top 1% income share by 1.7 percentage points, the strongest substantive effect of all of our significant variables (Figure 3). Top marginal tax rates are substantively less important (Figure 3).

Veto points are significant in six of our Prais-Winsten models and one random effects model. Essentially, what veto points do is to make policy change difficult. Thus, the statistically positive and significant effect of veto points in the models with the economic and wealth variables means that veto points made it difficult for governments to change policy so as to catch up with changing economic conditions to stem the extent to which top income earners managed to channel the benefits of these economic changes to their own benefit. A concrete example of the "policy drift" mechanism highlighted here is the favorable tax treatment of hedge fund managers in the United States, whose high commissions are taxed at a low capital gains rate rather than a high marginal personal income rate. This favorable tax treatment, as Hacker and

Pierson (2010b: 170–1) point out, was put in place before the rise of hedge funds, but financial interests have successfully leveraged veto institutions to prevent the rules from being updated. One particular institutional obstacle to policy reform highlighted by the authors is the Senate's requirement of sixty votes to cut off debate on legislative proposals, which led to more than 1,000 motions to end filibuster during 1969–2009 (in contrast to only 56 motions filed in the fifty years before 1969). Our finding is also consistent with Enns et al.'s (2014) quantitative evidence that the Senate, by creating a "status quo bias," is an important source of rising top inequality. Substantively, veto points are roughly comparable in importance to stock market capitalization; a two standard deviation increase in veto points raises the share of the top 1% by some .7 percentage points.

The final one of our power distribution variables is union and bargaining centralization. This index indicates the capacity of unions to act in a coordinated manner; thus, at any level of union density, higher centralization enhances the political clout of unions. Centralization is significant and statistically negative in every random effects and fixed effects model and in three of the Prais-Winsten models. Thus, centralized unions and bargaining institutions serve as a break on the increase of top income shares. The substantive importance of union and bargaining centralization is comparable to that of veto points and stock market capitalization (Figure 3).

Public spending on education is statistically negative and significant in all three estimation procedures. Figure 3 shows that the substantive effect of education spending is the smallest of the variables in the graph. It is very robust as it is highly significant and much larger—more than four times larger—in the random effects and fixed effects regressions. As noted, Huber and Stephens (2014) find that education spending is related to the Gini index for market income. Since education spending declines after 1970 in the liberal countries, they interpret this find as support for hypothesis that the Goldin and Katz (2008) "race between education and technology" can be extended to other liberal countries in addition to the United States. Atkinson, Piketty, and Saez (2011: 58) rightly observed that most heads of household not only in the top 1% but also in the top 10% now have college education and thus the "skill-bias explanation has little to say directly about why the top percentile has increased relative to the top decile."

This ignores variation in skill—and credentials—among those that have tertiary education. It is well known that there is huge variation in the quality of tertiary education in the

United States. Like the United States, the other liberal countries, along with Japan, are characterized by high levels of private tertiary education spending, which plausibly is related to variations in the quality of tertiary education. Indeed, the correlation of top income shares with private tertiary education spending as a percentage of total tertiary education spending is moderately high (r=.51), as is the correlation between private tertiary education spending and secular center and right government (r=.59). Moreover, the returns to skill as measured by the OECD Survey of Adult Skills (OECDc) are lowest in the Nordic countries and highest in the Anglo-American countries (Hanushek et al. 2013: 38). The correlation coefficient for returns to skills in the Hanushek et al. (2013) study and the top 1% share is .69. Thus, it is a plausible interpretation that center and right government leads to less public education spending, more private tertiary education spending, more stratification among those who have tertiary education, thus to higher returns to skill and finally to higher top income shares.

Contrary to our expectations and to much comment in the media, the size of the financial sector has no significant effect on top income shares in any of our estimation procedures. Thus, the financialization of the economy, at least the way we have measured it, is not the engine driving the growth of the top 1% income shares. The same is true for our globalization and growth variables. None of them are significant in Prais-Winsten and only trade openness is significant and negative in the random effects estimation. These findings flatly contradict the economistic explanation of the rise of top income shares. That rise is not an effect of highly talented managers having a greater reach to display their talents, to make their economies accumulate trade surpluses and to make their economies grow.

Nor is the transition to the knowledge economy yielding particular rewards for the top income earners. Employment in knowledge-intensive services is not significant in the Prais-Winsten estimation and significant but negative in the random effects estimation. Thus, to the extent that we do see a statistically significant effect, greater employment in knowledge-intensive services restrains the share of the top 1%. This can be interpreted as a supply effect: The greater the supply of employees capable of working in knowledge-intensive services, the lower the income concentration at that top. And this supply, of course, is a result of public investment in education and thus of policy and partisan preferences and incumbency.

CONCLUSION

Huber and Stephens (2014) find that changes in the economy, in particular the labor market, play a fundamental role in the rising *overall* inequality, as measured by Gini coefficients, in advanced industrialized countries, even though such inequality-driving economic forces may be countered by politics and policies. Rising *top* inequality, as measured by the income share of the top 1%, appears to be a different phenomenon. Analyzing top income share in eighteen OECD countries since the late 1970s, we find that the recent rising fortunes of the super-rich seem to be largely unrelated to the growth in economic prosperity. They do not rise with the growth in knowledge, economic output, market size, financialization, or even wealth accumulation (with housing assets either included or excluded from consideration). The only exception is the stock market, which provides one interface through which the income of the top 1%, in Anglo-Saxon countries in particular, becomes exposed to macroeconomic cycles.

Our results are completely consistent with the results of Piketty, Saez, and Stantcheva's (2014) analysis of the impact of top marginal tax rates on top income shares and CEO pay. They find that lower top marginal tax rates are associated with higher top income shares and, as noted previously, are not associated with higher growth rates. The latter result is consistent with their "compensation bargaining" scenario in which CEO high income is a result of aggressive bargaining and not pay for rising marginal productivity. In their view, it also indicates that the rise in top income shares comes at the expense of households further down in the distribution of income. The growth finding is consistent with our finding that top income shares are not related to growth. Where we are able to go beyond Piketty, Saez, and Stantcheva is that we are able to specify why top income shares rise steeply in some countries, modestly in others, and not at all in yet others.

Instead of an *economic* outcome, we find that extreme income at the very top seems to be a predominantly *political* phenomenon, made and unmade by governments, parties, and public policies. In contrast to the various economic factors commonly proposed by economists, we find that the rise of the top 1% is driven instead by various conditions that reflect a decline in the relative power and resources of labor in the political economic system, such as union density, union and bargaining centralization, secular-right government partisanship, and some crucial policies that secular-right governments favor, such as reductions of high top marginal income tax rates and of public spending on education. Prominent among these changing power relations is

the decline in union density, partly because of deindustrialization and partly because of direct political attacks on unions such as those by Reagan and Thatcher and the Nationals in New Zealand. Reagan and Thatcher were also leaders in slashing top marginal tax rates and thus encouraging more aggressive wage demands from top earners. Finally, most governments in liberal countries also underfunded public education and thus opened the way for higher returns to skills and greater stratification among people with tertiary education. Conversely, where labor's power and resources remain strong, income concentration at the top 1% is much more muted. The difference that can potentially be made by these various political conditions is not insubstantial: based on WTID data, over the past ten years the top 1% in the United States receives on average 17.64% of the nation's income, while the top 1% in Denmark receives only 5.95%.

Our finding on the strong impact of union density and, to a lesser extent, union and bargaining centralization, in restraining the income of the very top in society provides one interesting perspective through which the role of labor in affluent capitalist democracies can be reevaluated. Given the centrality of wage bargaining to union activities, the comparative political economy literature has long acknowledged the effect of unions on wage inequality through the prism of pay solidarity *across workers*, which delivers not only wage restraint for higher paid workers but also protection for lower paid workers. What we have found through this article is that the influence of unions on pay inequality in fact extends all the way through the firm hierarchy, to the very top of executive compensation, which is well above the range (as captured in the p90/p50 or p90/p10 ratio) over which income inequality data are conventionally collected and studied in the literature. Moreover, the impact of union strength is not only broader (in numbers of people affected) than conventionally understood but also dramatically larger in the amount of income share at stake, because the magnitude of income share is far greater at the top 1% than at the upper ceiling conventionally used in inequality studies, p90. Although WTID does not provide a direct measure for the income share of p90, it does provide data on the income share of the top 10–5%. Assuming that the top 10–9% earns as much as the next four percentiles above it, we can divide the share of the top 10–5% by five to arrive at an "upper bound" on the income share of p90. Based on this calculation, across the countries covered in our analysis one standard deviation in the income share of the top 1% is *more than sixteen times* that for the income share of p90 (the upper ceiling on the traditional range of analysis in comparative

political economy), which gives us an indication of the order of magnitude by which labor's real power in the political economy may be reevaluated. (Of course, in reality p90 will earn less than p91, p92, and onwards, so the real contrast with the top 1% can only be even starker.)

Our finding that a strong labor movement can shave income off the very top of society also highlights the contested nature of the relationship between labor and employers in affluent capitalist democracies. While classic PRT (Stephens 1979; Korpi 1983) postulates a contested relationship between labor and employers as a reflection of class struggle, the later Varieties of Capitalism literature (Hall and Soskice 2001) has sought to emphasize cooperation instead: where unions (and left parties) are strong, they cooperate with employers more. Nevertheless, management-labor cooperation on the *input* side (such as skill training) does not necessarily imply the lack of continuing fundamental conflict on the *output* side (such as dividing the firm's surplus). Because firm and worker input are complementary (machinery, financial capital, and labor), cooperation on the input margin is rationalizable. On the output margin, however, the two sides draw from the same pot of revenue for compensation, so competition is a more natural outcome. Therefore, a strong labor movement may not only *cooperate* more often with management in *production*; it may also, as our finding implies, *win* more often in the contest for the *share of the nation's income*, which reinforces the central message of classic PRT.

We end by highlighting two promising areas for future research: the self-reinforcing nature of top inequality, and the role of globalization. PRT suggests an interpretation of the self-reinforcing effect of the concentration of income and wealth. This theory argues that income and wealth are power resources that can be mobilized in the political process to influence outcomes.[3] In this view, the top income earners use their political resources to influence which parties get into government and which policies are pursued. Thus, lower levels of public education spending and high levels of private tertiary education spending and in turn high stratification in tertiary education and higher skill premiums are the outcomes of concentration of political resources at the top. As Hall (2003) has noted, it is difficult if not impossible to untangle this causal complexity with regression analysis. One would have to turn to comparative case studies to

[3] PRT is compatible with the cause process moving in both directions, from power resources to policy outcomes, which shape distributive outcomes, with the distributive outcomes then shaping power resources. Indeed, this type of feedback effect was central to some of the earliest statements of the theory (Stephens 1979), which argued that strong unions resulted in left government and left governments passed labor legislations enabling union organizing.

uncover the actual causal processes at work, which is beyond the scope of this article. Hacker and Pierson (2010a) make the case for the power concentrations among the wealthy in the United States, and certainly the Thatcher-Major governments fit the argument for the United Kingdom.

We have shown that many important economic conditions have no *direct* relationship with the income share of the super-rich, which is instead a creation of politics and policy. However, we certainly do not rule out the possibility that these very political conditions may also create opportunities for economic forces to play an *indirect* role in top inequality. One good example of this possibility is globalization. The important role of union power and top marginal tax on the top 1% revealed in this article draws our attention to the literature on the impact of globalization on union density and taxation policy (Western 1998; Swank 1998; Brady, Beckfield, and Zhao 2007; Hays 2003; Scruggs and Lange 2002). To the extent that globalization erodes union power (for example through deindustrialization) and increases the pressure towards lowering top marginal taxes, globalization may have created a favorable "context" for the above-noted self-reinforcing cycle of income, wealth, and power concentration in politics.

APPENDIX A1

TABLE A1

DETERMINANTS OF TOP 1% INCOME SHARES (FIXED EFFECTS)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8	
Secular center and right government	.068	***	.084	***	.048	***	.097	***	.134	***	.122	***	.110	***	.123	***
Union density	–.079	***	–.033	**	–.076	***	–.070	***	–.056	***	–.073	***	–.012		–.047	*
Centralizations of unions and bargaining	–3.72	***	-4.316	***	–3.701	***	-2.660	**	-2.103	**	–3.410	***	-4.941	***	-4.241	***
Top marginal tax rates	.760		1.455	^	1.079		.941		.982		.234		.920		2.442	^
Stock market capitalization	.012	***	.012	***	.010	***	.011	***	.014	***	.013	***	.025	***	.018	***
GDP per capita	.008		.052	*	.043	*	.042	*	.067	***	.051		.061		.009	
Civilian government employment			–.244	***												
Social security transfers			.018													
Education spending					–.441	***										
Financial sector size							.109									
Outward FDI									–.026							
Capital market openness									–.091							
Trade openness									–.038	***						
Trade surplus									.033							
Economic growth									.048							
Knowledge-intensive services											–.139	***				
Private wealth													-0.553	^		
Non-housing private wealth															–.034	
Constant	9.383	***	8.722	***	11.263	***	6.642	***	6.69	***	10.068	***	6.06	***	5.331	***
$R^{2\ within}$	.52		.55		.56		.67		.71		.65		.72		.72	
$R^{2\ between}$	.48		.36		.49		.52		.40		.45		.12		.03	
R^2	.51	***	.47	***	.51	***	.58	***	.49	***	.48	***	.44	***	.33	***
Observations	615		570		598		452		500		399		330		312	

* significant at .05; **significant at .01, ***significant at .001, ^ significant opposite hypothesized direction. Veto points were omitted from this analysis because they vary very little through time.

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