The Rise of the Super-Rich: Power Resources, Taxes, Financial Markets, and the Dynamics of the Top 1 Percent, 1949 to 2008

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Abstract

The income share of the super-rich in the United States has grown rapidly since the early 1980s after a period of postwar stability. What factors drove this change? In this study, we investigate the institutional, policy, and economic shifts that may explain rising income concentration. We use single-equation error correction models to estimate the long- and short-run effects of politics, policy, and economic factors on pretax top income shares between 1949 and 2008. We find that the rise of the super-rich is the result of rightward-shifts in Congress, the decline of labor unions, lower tax rates on high incomes, increased trade openness, and asset bubbles in stock and real estate markets.

Keywords

economy, inequalities, neo-liberalism, social class

The distribution of income in the United States has grown markedly unequal in the past 30 years (Atkinson, Piketty, and Saez 2011; Harrison and Bluestone 1988; McCall and Percheski 2010; Morris and Western 1999; Nielsen and Alderson 1997). Based on data from Piketty and Saez (2003), between 1913 and the end of World War II, the top 1 percent accrued between 11.3 and 23.9 percent of income (see Figure 1).[1] Aside from a spike in the late 1920s, the general trajectory is downward from 1913 to the mid-1970s. The income share held by the top 1 percent fell from a high of nearly 24 percent (in 1928) to its lowest point of 8.9 percent (1975 to 1976), a decline of 63 percent. This pattern dramatically reversed after 1980, with income concentration rising from just over 10 percent in 1981 to 23.5 percent by 2007, a 135 per-

cent increase. This is a dramatic change that puts income concentration on par with levels not seen since the late 1920s. Referring to conspicuous patterns in the data, authors of one of Citigroup's Plutonomy memos remarked that such data, "show that the rich in the U.S. continue to be in great shape" (Kapur, Macleod, and Singh 2006:3). Some
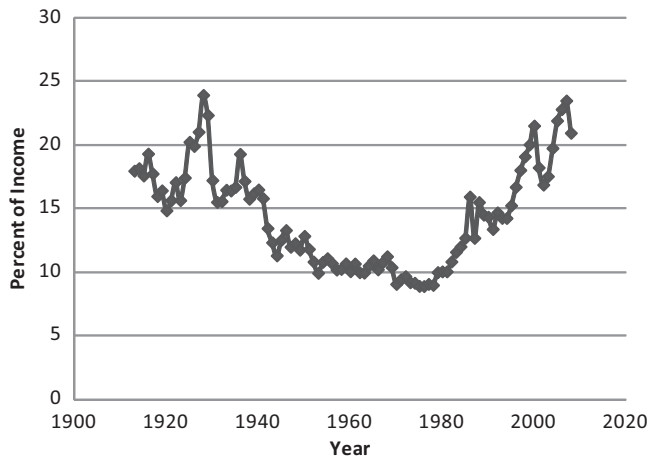
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Figure 1. The Top 1 Percent's Share of Income, 1913 to 2008

have characterized this rising inequality as the beginning of a new Gilded Age (Bartels 2008; Hacker and Pierson 2010).

What accounts for the rise of the super-rich? In this study, we attempt to answer this question by drawing on an accumulating body of research in sociology and political science emphasizing politics and public policy as important determinants of poverty and inequality (Bradley et al. 2003; Brady 2009; Brady and Leicht 2008; Hacker and Pierson 2010; Hibbs and Dennis 1988; Hicks 1999; Kelly and Witko 2012; Kenworthy 2004; Moller, Alderson, and Nielsen 2009; Moller et al. 2003). Such studies suggest that power resources of labor and capital can affect the distribution of income in a society (Korpi 1983; Kristal 2010; Stephens 1979). Furthermore, recent time-series research on the postwar United States demonstrates that overall income inequality and redistribution can be explained, in part, by changes in policy liberalism and left party power (Bartels 2008; Kelly 2005, 2009). But do politics and policy influence income shares of the super-rich in the United States?

This remains an open question because patterns of general inequality and the share of income held by the top do not track perfectly over time (Hacker and Pierson 2010). Existing analyses of public policy, partisan politics, and general levels of income inequality

do not necessarily translate into conclusions about income shares of the super-rich. But answering this question is also important for other reasons. First, concentration at the top of the income distribution is qualitatively different from inequality in the middle and lower portions. Normative objections to income concentration at the top are much easier to make than objections to general inequality levels because the latter are driven by changes just above and below the median. Second, much of the rise in general inequality in the United States appears to be driven by changes at the very top (Atkinson et al. 2011). The most important variation to analyze, then, may be variation in income shares of the super-rich.

EXPLAINING THE RISE OF THE SUPER-RICH: POWER RESOURCES AND PUBLIC POLICY

Our analysis of top income shares is rooted in a substantial body of work in the social sciences devoted to explaining economic inequality. We emphasize the connection between politics, policy, and income inequality (Bartels 2008; Hacker and Pierson 2010; Irvin 2008; Krugman 1997; Phillips 2002). Given this focus, the primary theoretical

foundation of our work is Power Resources Theory (henceforth PRT), one of the most influential social science theories linking class-based political power with income distribution. PRT was developed to explain differences in welfare states (Hicks 1999; Huber and Stephens 2001; Stephens 1979). The general insight is that welfare states are more sophisticated, egalitarian, and advanced in countries where left parties and labor unions are stronger. Left parties and union strength are important in PRT because these resources can alter the a priori asymmetrical bargaining power of labor and capital. PRT's main assumption is that working and middle classes have different distributional preferences than do owners of capital, with lower classes having more egalitarian distributional preferences than do those at the top.

The PRT model emphasizes two major spheres within which the working and middle classes can organize to achieve progressive redistribution: politics and the market. These groups can affect government policy through election outcomes by supporting left parties that pursue redistribution and by affiliating with labor unions to affect the market distribution of income.

Scholars have traditionally applied PRT to explain levels of welfare generosity in advanced capitalist democracies (Esping-Andersen 1990; Hicks 1999; Hicks and Swank 1992; Huber, Ragin, and Stephens 1993). In recent years, social scientists have used PRT to explain redistribution and economic inequality directly (Bradley et al. 2003; Brady 2009; Brady and Sosnaud 2010; Kelly 2005, 2009; Moller et al. 2003). That is, analyses have moved away from studying the size and generosity of welfare states and toward the actual distributional outcomes achieved by welfare states. Bradley and colleagues (2003) and Moller and colleagues (2003) found that unions reduce market-generated income inequality and poverty and that left parties increase redistribution (the direct effect of explicit taxes and transfers).

In its original development, PRT suggested a two-stage distributional process. The first stage is driven by markets and produces varying degrees of inequality. As discussed earlier, the central PRT factor influencing this stage of the distributional process is labor unions. As labor union membership increases, unions gain greater bargaining power, and the market distribution of income becomes more equal (Bradley et al. 2003; Freeman 1984; Gustafsson and Johansson 1999; Kelly 2009; Moller et al. 2003). The second stage of the distributional process relates to partisan politics. After the market has produced a particular level of economic inequality, the state becomes involved in the process through a variety of redistributive programs that operate through taxes and benefits. The expectation of PRT is that left party government strength increases redistribution, and recent studies suggest as much (Bradley et al. 2003; Brady and Leicht 2008; Kelly 2009).

We add to this literature in four ways. The first two contributions are theoretical. Our analysis focuses on the first stage of the distributional process (the market), which is where unions, rather than partisan politics, affect distributional outcomes according to existing presentations of PRT. We suggest that the effect of political power resources is not restricted exclusively to the realm of redistribution. Our more extensive view of political power resources suggests that political factors should not only influence redistribution through taxes and transfers but also alter economic outcomes produced in the market. Following Kelly (2009), we call this market conditioning. It is not controversial to suggest that government actions shape decisions made in markets. The recent meltdown of the financial sector, which had far-reaching consequences for a variety of market outcomes, was undoubtedly influenced by government regulation and policy drift, that is, government created no new regulations to cope with complex financial innovations (Hacker and Pierson 2010; Johnson and Kwak 2010). Firms' decisions in hiring and compensating their employees are influenced by many government activities—from payroll taxes, to government contracts, tax credits,

workplace safety rules, and environmental regulation. Public education changes workforce skills, which undoubtedly also affects wages. Clearly, government actions affect markets.

We ask whether market-conditioning activities affect income concentration. Examining the effect of political power resources on the distribution of income produced by the market is our first theoretical contribution. We argue that political dynamics affect distributional outcomes by changing the distribution of market income in predictable ways anticipated by PRT. Just as political power resources of the middle and lower classes reduce overall levels of inequality through redistribution under current conceptions of PRT, we hypothesize that these power resources reduce the amount of inequality through market conditioning. If lower-class political power resources are mobilized to reduce inequality, and government action has the potential to change the income distribution produced by the market, examining the connection between political power resources and market inequality is a straightforward extension of PRT.

In terms of specific mechanisms, left party occupancy may influence the distribution accruing to the super-rich via administrative office-holding (Brady and Leicht 2008). A greater share of Democrats in Congress can limit the rent-generating effects of property rights benefiting big business and limit other governance structures used to generate profits. Administrators appointed by Democrats may more stringently enforce labor laws such as the minimum wage, union election rules, overtime pay, and other forms of labor-related compensation. Additionally, the overall ideological influence of Democratic governments may operate via the ability to affect policy disputes and reflect a lower level of collusion between political leaders and big business (Brady and Leicht 2008).[2] Our expectation, then, is that Democrats' presence in national government (political power resources) and union strength (market power resources) reduce market inequality.

Our second contribution relates to examining the distributional impact of specific policies falling under the category of market conditioning. Policies are not power resources, but they do flow from constellations of political power that are central to PRT. Existing applications of PRT to the U.S. context pay limited attention to the idea that political power resources, in part, generate policy. Although scholars view policy as a result of power resources and a cause of inequality, research has not assessed specific policies. Kelly (2005) found that market-generated inequality decreases in response to a liberal shift in policy, but his focus is general trends in the ideological direction of aggregate policy rather than effects of specific market-conditioning policies. We make an initial effort to examine distributional consequences of specific policies by analyzing tax and interest rates.

Of course, numerous policies might affect the market distribution of income, and we are limiting ourselves to a very small subset for this initial effort. Moreover, it is somewhat surprising to suggest that tax rates would affect market inequality, because taxes more obviously generate explicit redistribution than market conditioning. In part, we start here because it is a tough test for the idea of market conditioning and because tax rates have the potential to affect both individual and firm behavior that subsequently affect the market distribution of income.

We specifically examine top marginal income tax rates and capital gains rates. In the postwar era, top tax rates have fluctuated dramatically, ranging from a high of 91 to a low of 28 percent. The Economic Tax Recovery Act of 1981 is one of the more significant turning points in U.S. taxation because it severely cut top marginal tax rates (Slemrod 1990). Importantly, the profits of most corporate businesses (roughly 90 percent of corporations) are taxed as individual rather than corporate income (Fisher 2009:30), underlining the importance of changes in income tax rates. Top rates on capital gains income have also fluctuated substantially in the postwar

era, from a high of 39 percent between 1976 and 1978, to a low of 15 percent currently.

Tax progressivity is typically understood in an explicit redistribution context, where a more progressive system reduces inequality in after-tax income, but recall that we are examining market-generated (pretax) inequality in this article. How would these tax rates influence market income concentration? One possibility is a straightforward behavioral response of individual earners: higher rates of taxation may generate disincentives to accrue more earned income and deter investment, thereby lowering capital income. Although a standard argument based in microeconomic reasoning, there is certainly debate on this point (Atkinson 2004; Auerbach and Hassett 1990; Roine, Vlachos, and Woldenstrom 2009). Changes in tax rates may also affect how income is reported, corporations' legal charters, and how compensation is timed (Slemrod 1992). Pretax income concentration may respond to tax rates due to incentives for high-income units to shift income to a time when it will be taxed at a lower effective rate or to disperse income across sources to minimize taxable income. This is especially important when it comes to capital gains income (Minarik 1981; Piketty and Saez 2003; Slemrod 1996), but it could also play a role in top marginal income tax rates. Higher income tax rates might generate demands by highly paid CEOs for deferred compensation or for compensation in the form of stock options. Both forms of compensation make it easier to shift income temporally to take income during periods of lower taxation; to the extent that this happens, inequality is likely to rise as top tax rates decline.[3] Although executive pay is ultimately determined by firms, top executives have the ability to negotiate individual compensation packages based on personal incentives. Finally, taxes collect revenue that fund government appropriations, and to the extent that higher tax rates spur spending on human capital formation (education and health) and other programs that help lower- and middle-class individuals compete economically, tax rates may reduce top shares by building the earning capacity of those lower in the income distribution.

In addition to tax rates, we examine interest rates' potential effects on top income shares. Interest rates are set by the Federal Reserve, but Republicans favor monetary policy that controls inflation while Democrats are concerned about keeping lower unemployment (Alesina and Rosenthal 1995). Our expectations regarding the effect of interest rates on top income shares are somewhat mixed. The most straightforward prediction is that higher interest rates will increase top incomes because the rich have large amounts of savings that earn interest (Galbraith 1998; Palley 1998). However, the effect may not be quite so simple. Because the rich engage in high-volume securities trading (that contributes heavily to capital gains income) and interest rate hikes depress bond prices (Canterbery 2002; Henwood 1997), an interest-rate increase may lower the top income share by depressing capital gains that accrue through bond trading. In any case, interest rates are closely watched by financial markets and therefore are a potentially salient policy that may affect the top 1 percent.

Our remaining contributions are primarily empirical, but we will see as the analysis unfolds that they also have implications for theory testing. The first empirical contribution is the use of U.S. time-series data. Most studies applying PRT to the study of distributional outcomes utilize cross-national data, focusing especially on Europe. Only a few studies have used U.S. time-series data to study income inequality.[4] Kelly's (2005, 2009) study of market-generated income inequality and post-tax/transfer redistribution stands as one of the sole applications of PRT to the United States.

The second empirical contribution is an analysis of the top 1 percent's pretax pretransfer income share. Our focus on the super-rich departs from existing power resources studies that examine redistribution or the amount of social spending (Huber et al. 1993; Kelly 2004). Research that explicitly examines political influences on income inequality gen-

erally analyzes broad distributional outcomes measured by statistics like the Gini coefficient (Bradley et al. 2003; Kelly 2005; Kenworthy and Pontusson 2006). Even these studies are typically based on data that inadequately capture top incomes because they rely on Census income data that top-code high incomes, thereby ignoring variation at the very top of the distribution. Therefore, we use the updated Piketty and Saez (2003) top 1 percent share based on income tax returns that better capture high incomes.[5]

In summary, PRT predicts that top income shares should decrease in response to increases in lower-class power resources. We thus predict that top income shares will exhibit a negative adjustment in response to Democratic presidential administrations, Democratic strength in Congress, and union membership. We also expect specific policies, such as top tax rates, to put downward pressure on top income shares. Other factors also deserve attention as determinants of the income gap, and we discuss these factors in the next section.

FINANCIAL MARKETS AND MACROECONOMIC EXPLANATIONS OF INEQUALITY

Our main focus is the effect of politics and policy on the concentration of income. Clearly, however, numerous other explanations should be considered. Probably the most important is the financialization of the economy and the performance of financial markets (Epstein and Jayadev 2005; Foster and Magdoff 2009; Henwood 1997; Krippner 2011). This is likely important for explaining the rise of the super-rich because of the shift of income and profits toward the financial sector (Dumenil and Levy 2004; Tomaskovic-Devey and Lin 2011) and the fact that ownership of stocks and other securities are highly concentrated among top wealth holders (Kennickell 2009).[6] Looking at various rankings of top income earners, much of the new money since the early 1980s has

been accrued from the financial sector (Foster and Holleman 2010; Henwood 1997; Kaplan and Rauh 2010), supplanting the once dominant oil and gas sector. The rapid rise in finance, insurance, and real estate profits suggests successful rent-extraction from the non-financial sector (Bakir and Campbell 2010; Tomaskovic-Devey and Lin 2011).

The stock market's performance in the latter half of the 1990s likely contributed to top income concentration because of the rapid increase in stock prices and dividend payouts (Baker 2009; Shiller 2005). Buying stock at a low price and selling it at a higher price enhances capital gains income. In the 1980s, rapid increases in stock prices coincided with changes in managerial incentive structures. The shareholder value movement shifted executive compensation from a system in which managers were paid salaries (to make decisions in the best long-term interest of their firms) to a system in which most executive compensation is tied to short-term fluctuations in stock prices (DiPrete, Eirich, and Pittinsky 2010; Dumenil and Levy 2004; Fligstein 1990). Thus, short-term fluctuations in stock prices likely have a greater impact on managerial decisions than long-term economic health. As noted earlier, top tax rates on individual incomes and capital gains have been cut. These changes in public policy coincided with, and likely increased incentives for, a shift toward compensation via stock options (Fligstein 1990).[7]

After the precipitous drop in stock prices in 2000, the next bubble occurred in real estate. As a result, the financial sector saw a vast increase in the mortgage market and securitization of home mortgages into mortgage backed securities that could be bundled and traded as derivatives (Johnson and Kwak 2010; Tomaskovic-Devey and Lin 2011). Given the concentration of stock and bond ownership among the wealthiest income units, prices of stocks and homes should disproportionately benefit the richest 1 percent. Aside from the stunning shifts in financial markets, other macroeconomic shifts such as trade openness, economic growth, and busi-

ness cycles may also have consequences for top income shares.

A recurrent question is whether and how trade is associated with an increase in top incomes. Roine and colleagues (2009) discuss the Heckscher-Ohlin theory of trade, suggesting that trade openness of capital-rich countries should be associated with higher top incomes, but they find some evidence that increasing trade openness reduces top income shares in OECD countries. Alderson and Nielsen's (2002) study of 16 OECD countries found that imports from less developed countries and investment outflows explained the longitudinal rise in income inequality. Trade openness may weaken workers' bargaining power and wages because of increasing labor competition (Tonelson 2000; Wood 1994). In the United States, trade openness may benefit the rich because of the abundance of capital and the propensity to export capital-intensive goods and import labor-intensive goods, thereby weakening labor's bargaining power over wages. We thus predict that top income shares should respond positively to increased trade openness.

Economic growth and business cycles have been linked to inequality. The Kuznets curve and the Great U-Turn are influential theories of growth and inequality. Taken together, the fundamental argument is that at moderate levels of development, growth increases equality, while at low and very high levels of development, growth induces inequality (Harrison and Bluestone 1988; Nielsen 1994, 1997; Nielsen and Alderson 1995, 1997; Roine et al. 2009). In addition to economic growth, analysts have argued that higher unemployment rates may increase inequality (Blank and Blinder 1986; Blinder and Esaki 1978; Jantti 1994). We expect that increases in unemployment, which represent a cyclical downturn in the economy, are associated with greater income concentration because top earners are less likely to be affected by unemployment.

DATA AND METHODS

We measured all variables on an annual basis from 1949 to 2008. The dependent variable, as

noted earlier, comes from Piketty and Saez (2003), updated to 2008. The measure is the share of pretax income (including capital gains) accruing to the top 1 percent of tax units. Tax units refer to either a married couple living together with dependents or a single adult with dependents (Piketty and Saez 2003). The income definition is individually pretax, but it is net of employer-paid payroll and corporate income taxes. Income sources include wages and salaries, small business and farm income, partnership and fiduciary income, interest, rents, dividends, royalties, capital gains, and other miscellaneous sources.

Political power resources. We include two measures related to political power resources—presidential and congressional partisan power. The presidential measure is a dummy variable taking on values of 1 in years with Democratic presidents and 0 when Republicans hold the presidency. The measure of Democratic congressional power is the percentage of seats held by Democrats. In addition, we include a control for divided government to account for the idea that partisan effects should be estimated while holding unified versus divided government constant. We coded this variable 0 when the House, Senate, and president were all of the same party and 1 otherwise. Although this is not a traditional power resources variable, it is an important control variable given the goal of obtaining accurate coefficient estimates of the two primary political power resources variables. Information used to create these variables is available in various years of the U.S. Census Bureau's *Statistical Abstract of the United States*.

Market power resources. As an indicator of market power resources, we include a measure of union density (the percentage of private sector workers in labor unions) that comes from Hirsch and Macpherson (2009).[8] As is well-known, union membership peaked in the 1950s and declined from a high of 35 percent to just over 20 percent by the late 1970s. The steepest decline occurred in the early through mid-1980s with a steady but less rapid decline

into the 2000s. By 2008, private sector union membership was 7.6 percent.

Public policy. We include three measures of policy. The first is the top marginal tax rate. These data come from the Urban Institute and the Brookings Institution's Tax Policy Center.[9] The second policy measure is the top capital gains tax rate.[10] Third, we consider the short-term interest rate. The federal funds rate is available back to 1955, but our analysis begins in 1949. Therefore, we use the nominal 3-month T-bill rate (the interest rate on treasury bills that mature in three months), which goes back to the beginning of our series (U.S. Executive Office of the President 2011, Table B-73). For overlapping years, this series mirrors other interest rates such as the federal funds and prime rate.

Financial markets and economic conditions. Finally, we include several measures related to financial markets and economic conditions. Our measure of stock market valuation is Standard & Poor's 500 composite stock market index (U.S. Executive Office of the President 2011, Tables B-95 and B-96). We deflated the index to 2008 prices using the CPI-U series and rescaled it so that one unit in our measure represents a 10-point change in the real S&P 500. Our measure of the housing market is Shiller's (2005) real historical home price index.[11] As with the S&P 500, we rescaled the Shiller index so that one unit in our measure represents a 10-point change in the index.

We use variables standard in the literature to measure other economic factors. Trade openness is defined as imports and exports as a percentage of GDP (Roine et al. 2009; U.S. Bureau of Economic Analysis 2011: Table 1.1.5). The next economic variable is the unemployment rate.[12] We also include the log of real GDP (in 2005 inflation-corrected dollars) as a measure of general economic conditions (U.S. Bureau of Economic Analysis 2011:Table 1.1.6).

ESTIMATION STRATEGY

In time-series analysis it is essential to identify whether each series is stationary or nonstationary (also known as integrated or unit root). This step is needed because of the well-known problem in which a regression of one nonstationary series on another nonstationary series can produce the spurious inference that the two are related (Granger and Newbold 1974). We conducted a series of tests to determine whether each of our variables contain a unit root, and results are reported in an online supplement (http://asr.sagepub.com/supplemental).[13] These findings indicate that most variables in our analysis, including the dependent variable, contain a unit root. This is not surprising; the presence of a unit root suggests a series with permanent memory such that any disturbance to the series persists permanently into the future and most of the variables in our analysis are expected to behave in this way. Shocks to inequality, unemployment, or tax policy do not naturally diminish over time.[14] In contrast, a few variables—including Democratic president, Democratic share in Congress, and divided government—were either stationary or produced mixed results that could not lead to a firm identification of the series as either stationary or unit root.

In early work dealing with unit-root processes, the solution was to transform any nonstationary variables into stationary data by calculating the first difference and analyzing change in the variable of interest rather than its level (Granger and Newbold 1974). This transformation converts a unit-root variable in levels to a stationary variable in differences. Once unit-root variables are transformed into stationary, differenced variables, regression analysis can proceed without concern about spurious regression due to nonstationary data. In our analysis, this strategy would simply entail differencing each variable suspected of containing a unit root and then using the differenced version of the variable in the analysis,

along with other variables that have been identified as stationary in their raw form.

This strategy removes concerns about spurious regression but restricts the type of relationship that can be uncovered to those in which the effect of an explanatory variable is constrained to a single point in time. Engle and Granger (1987) point out a different type of relationship that can exist between two variables, in which one variable sets a target level to which the other adjusts over time. Ignoring the potential for such an equilibrium relationship in the context of our analysis would be problematic because it is unlikely that effects of most, if not all, of our explanatory variables are constrained to a single point in time. More likely, tax policy and power resources variables maintain a long-run equilibrium relationship with inequality. We thus need to utilize a method that captures this long-run relationship, and an analysis in differences fails in this respect.

The type of relationship we expect to observe in models of top income shares is known as an error correction relationship— deviations from the long-run relationship (errors) are eliminated over time through an adjustment process (error correction). Engle and Granger (1987) originally (and later Bannerjee and colleagues [1993] and Enders [2011]) discuss error correction models (ECMs) in the context of cointegration—that is, two unit-root variables that maintain a long-run error correction relationship. Recent discussions of error correction make it clear, however, that cointegration is a special case of error correction and cointegration is not required. When evidence of error correction is found in an analysis of integrated variables, this demonstrates a cointegrating relationship. But Bannerjee and colleagues (1993) also point out that error correction can occur in stationary data, and De Boef and Keele (2008:199) clarify this point, concluding that "the ECM is useful for stationary and integrated data alike, [and] analysts need not enter debates about unit roots and cointegration to discuss long-run equilibria and rates of equilibration."[15] One recent study of labor–capital

income share capitalizes on this flexibility by estimating ECMs with a mix of stationary and nonstationary data (Kristal 2010).

As this discussion shows, ECMs have three characteristics that make them particularly appropriate in the context of this analysis. First, and most importantly, ECMs model long-run equilibrium relationships that likely exist between the variables, although the model also captures more immediate effects. Second, because several variables contain a unit root, ECMs prevent the spurious regression problem that can arise when analyzing nonstationary data (Engle and Granger 1987). In essence, ECMs test whether cointegration exists between two unit-root variables. Third, ECMs accommodate stationary and integrated variables, which is useful because our analysis has a mix of both data types. In summary, the ECM is a very general model that is easy to implement and estimate, does not impose assumptions about cointegration, and can be applied to both stationary and nonstationary data (Banerjee et al. 1993; De Boef and Granato 1999; De Boef and Keele 2008).[16]

In this study we estimate single-equation ECMs, which are among the most flexible models of the error correction process.[17] A bivariate version can be represented as follows:

$$\Delta Y_t = \alpha_0 + \alpha_1 Y_{t-1} + \beta_1 \Delta X_{t-i} + \beta_2 X_{t-1} + \varepsilon_t$$

This specification allows for a test of both short- and long-run effects. The immediate short-term effect of X is captured by β_1. The error correction rate is captured by α_1 and indicates the rate at which discrepancies between Y and X are recalibrated to their equilibrium state. Importantly, if the error correction rate is not significant, it indicates that a long-run relationship does not exist (for integrated variables this is a cointegration test). An increase in X can have an immediate impact on Y and a long-run impact that is distributed over time (dictated by the error correction rate) such that Y readjusts to the long-run equilibrium between X and Y. The total long-run impact, known as the long-run multiplier effect, is calculated by β_2/α_1.

RESULTS

Table 1 presents five specifications of the top 1 percent income share. Each specification considers short- and long-run effects. The first two models focus on two sets of explanatory variables separately. Because the primary purpose of these models is to serve as a baseline for comparison with later models, we briefly discuss the results before moving on to more fully specified models.

Model 1 presents a power resources model of income concentration, including partisanship of the president and Congress and union strength. We include divided government as a control. Our results are mostly supportive of traditional power resources hypotheses. Democratic strength in Congress and union strength decrease the share of income held by the top 1 percent. The president's party has no statistically significant effect on top income shares. This result is inconsistent with some recent analyses of income inequality generally (Bartels 2008; Kelly 2009). However, it echoes Kenworthy's (2010) assessment that Democratic presidents have little to no effect on distributional outcomes at the very top of the income distribution. In terms of top incomes, it appears that neither party's presidents have achieved differential outcomes. But there is evidence that political and market power resources are associated with income concentration.

Model 2 focuses solely on effects of specific policies. In this model, we see evidence that policy matters. Specifically, the top marginal tax rate has the expected effect on income concentration in the long run, decreasing inequality even when income shares are measured prior to taxes and transfers. This effect is likely present not only because higher marginal tax rates deter income accumulation at the top of the income distribution, but also because higher tax rates provide funding for programs such as education and health care that broaden economic opportunities among middle- and lower-income households. The capital gains tax rate also influences top income shares in both the short and long term

(although we will see that the short-term effect does not hold in later models). When capital gains rates are high, the super-rich are more likely to strategically defer or altogether avoid capital gains income. Finally, higher treasury bill rates decrease inequality. This may at first seem counterintuitive, but as rates increase, the price of outstanding notes decreases (Canterbery 2002). This means that a rise in rates would lead to lower returns for these investments in secondary markets. However, this result does not hold in some later models and should be viewed with caution.

Model 3 can be described as a politics and policy model, including the significant effects from the first two models. A few aspects of results from this model are particularly noteworthy. First, primary results from the two portions of the model estimated separately in Models 1 and 2 still find support. Second, however, we see some important differences between the results here and the two previous models. Note in particular that the size of the effect of congressional partisanship declines. This suggests that a portion of the effect of this variable is absorbed by the specific policy measures, which is consistent with the idea that congressional partisanship affects distributional outcomes via specific policy mechanisms. We do not include a comprehensive set of market-conditioning policies, so a direct effect of congressional partisanship remains. In addition, several effects are remarkably stable between this model and the two preliminary models. The effects of union membership, the capital gains rate, and bond rates remain about as large in Model 3 as in previous models. We also see that in terms of overall model fit, the combined politics and policy model is an improvement over the earlier models. The adjusted R^2 rises substantially to .35 and the Bayesian Information Criterion drops to about 193.

Models 4 and 5 represent more complete models that account not only for politics and policy, but also for a variety of economic factors. Model 4 includes the full complement of economic factors, and Model 5 focuses on the statistically significant variables from the pre-

Table 1. Models of Top 1 Percent Income Share, 1949 to 2008

Explanatory Variables	Δ Top 1% Share				
	(1) OLS	(2) OLS	(3) OLS	(4) Prais	(5) Prais
Top 1% Share$_{t-1}$	−.363*** (.094)	−.362*** (.083)	−.506*** (.09)	−.731*** (.187)	−.648*** (.10)
Δ Democratic President$_{t-1}$	.138 (.563)				
Democratic President$_{t-1}$	−.201 (.364)				
Δ % Congressional Democrat$_{t-1}$	.050 (.043)				
% Congressional Democrat$_{t-1}$	−.125** (.039)		−.072* (.029)	−.032 (.021)	−.052** (.016)
Δ Divided Government$_{t-1}$	−.111 (.496)				
Divided Government$_{t-1}$	−.932* (.416)		−.441 (.301)	−.039 (.223)	−.368* (.170)
Δ % Union Membership$_t$	.285 (.284)				
Union Membership$_{t-1}$	−.113*** (.028)		−.108* (.048)	−.261* (.130)	−.277*** (.066)
Δ Top Marginal Tax Rate$_t$		−.041 (.037)			
Top Marginal Tax Rate$_{t-1}$		−.057*** (.013)	−.025 (.020)	−.031* (.014)	−.032** (.011)
Δ Cap. Gains Tax Rate$_t$		−.142* (.054)	−.091 (.053)	−.020 (.036)	−.027 (.032)
Cap. Gains Tax Rate$_{t-1}$		−.115*** (.033)	−.098** (.032)	−.097*** (.025)	−.064*** (.016)
Δ 3-Month Treasury Bill Rate$_t$		.154 (.105)			
3-Month Treasury Bill Rate$_{t-1}$		−.153* (.067)	−.182** (.065)	−.013 (.049)	.006 (.039)
Δ Trade Openness$_t$				.270* (.119)	.201* (.098)
Trade Openness$_{t-1}$				.117 (.092)	
Δ Unemployment Rate$_t$				.183 (.225)	
Unemployment Rate$_{t-1}$				−.218 (.153)	
Δ Log Real GDP$_t$				16.639 (10.031)	
Log Real GDP$_{t-1}$				−5.002* (1.932)	−5.038*** (1.436)
Δ Real S&P 500 Composite Index$_t$				.057*** (.008)	.063*** (.007)
Real S&P 500 Composite Index$_{t-1}$				.026* (.011)	.033*** (.008)
Δ Shiller Home Price Index$_t$				.104 (.155)	

(continued)

Table 1. *(continued)*

	Δ Top 1% Share				
	(1)	(2)	(3)	(4)	(5)
Explanatory Variables	OLS	OLS	OLS	Prais	Prais
Shiller Home Price Index$_{t-1}$				.311**	.283***
				(.105)	(.071)
Constant	15.046***	12.034***	18.270***	57.834**	58.994***
	(3.830)	(2.563)	(3.195)	(20.910)	(14.272)
Adj. R^2	.197	.269	.354	.761	.759
Rho				−.519	−.532
Breusch-Godfrey Test, *p*-value	.238	.242	.308		
BIC	209.142	197.656	193.155	168.194	155.777
N	60	60	60	60	60

Note: Regression coefficients with standard errors in parentheses. The null hypothesis of the Breusch-Godfrey test is no serial correlation. Prais is the Prais-Winsten (GLS) estimator.
*p < .05; **p < .01; ***p < .001 (two-tailed tests).

vious models. We focus our discussion of substantive effects on Model 5, which is clearly preferred to the other models reported in the table based on the measures of model fit reported at the bottom of the table (Bayesian Information Criterion and Adjusted R^2). With all the variables included, our model explains 76 percent of variance in top income shares. In the final model, congressional partisanship, divided government, union membership, top marginal tax rates, and the capital gains rate all have the expected effects on income concentration. With regard to the estimated effects of the economic factors, we see that trade openness, stock market valuation, and home prices increase top income shares. Economic growth decreases top income shares.

A careful examination of results in Table 1 indicates that the effect sizes of some of the political and policy variables are lower in Model 5 than in earlier models. We pointed out that some of the decline in the effect of congressional partisanship between Model 1 and Model 3 is likely due to indirect effects that this variable has via specific policies. It is possible that this political variable has additional indirect effects via other explanatory variables. Our model captures only the direct effects of political and policy variables exclu-

sive of any indirect effects that they have via economic variables, for example, via stock market valuation (Davis 2009; Krippner 2011). In this way, our final model and the substantive effects reported below provide a conservative estimate of the effect of politics and policy on distributional outcomes. But even in the presence of controls for a host of policy and economic effects, partisan politics matters.

It is also worth noting that nearly all of the effects we identify come via the error correction component of the model, indicating the presence of a long-run equilibrium relationship. For variables with long-term effects distributed over time, we must take account of the error correction rate to explain both the size and the temporal dynamics of the effect. When we compare the error correction rate to the early models containing just political and policy variables, we see a fairly slow error correction rate of between .36 and .51. The rate increases substantially in models that include economic effects and is .65 in the final model. This means that disequilibria generated by a shift in an explanatory variable are corrected at the rate of 65 percent per year. An error correction rate of 65 percent corresponds to an effect that is distributed over a few years, with 99 percent of the total
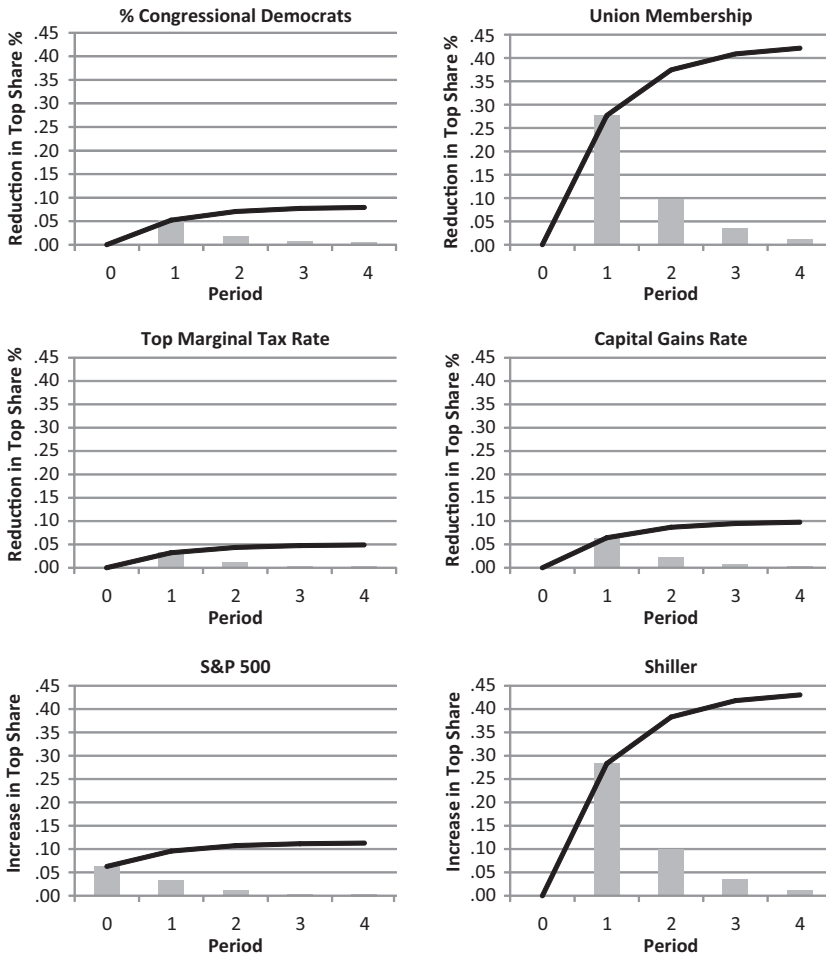
Figure 2. Lag Distributions of a One-Unit Increase in Key Explanatory Variables

effect in place within four years of the initial shock. This suggests the adjustment rate is faster for economic variables than for political and policy variables, which fits well with intuition. More important is the overall size of the impact. We calculated the long-run multiplier effect by dividing the coefficient for the lagged level of each independent variable by the error correction rate. Faster error correction rates yield smaller long-run multiplier effects. Although results suggest that the adjustment process may be slower for political and policy variables than for the estimate in the final model, ECMs constrain the error correction rate to be the same across all vari-

ables and we focus only on the last model when calculating substantive effects. This ensures a conservative estimate of the long-run effect of the political and policy variables.

Figure 2 illustrates how effects of a one-unit change in six of our central explanatory variables are distributed over time, based on results from Model 5 in Table 1. This figure presents the lag distribution of the effect at a particular point in time (bars), along with the cumulative effect of each variable at each time point (line). We see that the effect of each variable grows over time, rather than being restricted to a single period. The annual effect on the top 1 percent in response to a
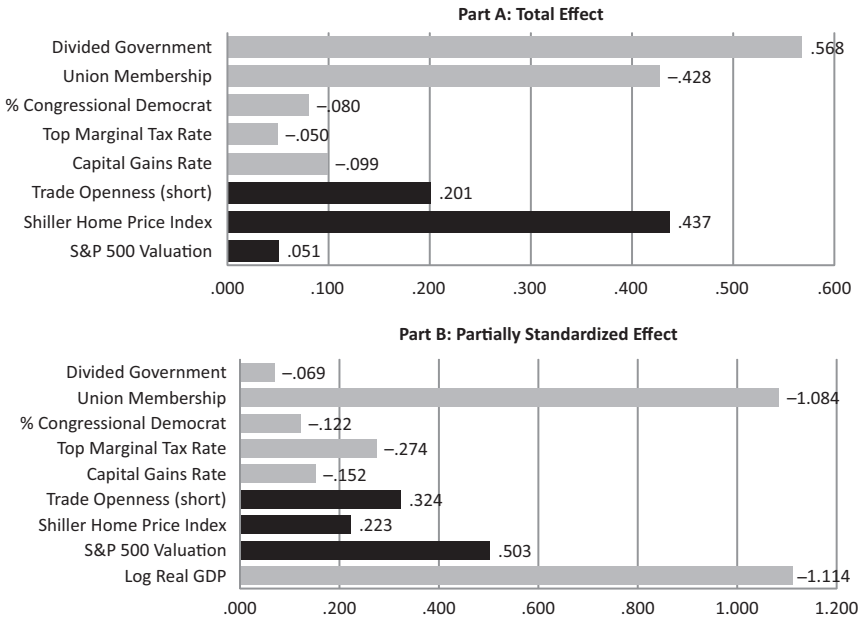
Figure 3. Total Effects on Top Income Shares

Democratic congressional shift fades after three years, whereas the initial union density effect is stronger and remains notable even after a few years. Looking at the top marginal tax rate, the top 1 percent adjusts in the first two years after the tax rate increase and effects for the capital gains rate are similar. A unit increase in the real S&P and Shiller indices has a substantial long-run effect on the top 1 percent. The stock market shock is felt immediately whereas the effect of home prices begins the year after the shock.

To give a sense of the relative impact of each variable, we also report the effect of a standard deviation shift in each of the explanatory variables (Figure 3, Part A). Black bars indicate positive effects and gray bars indicate negative effects. Just a one percentage point increase in union membership is associated with more than a .40 point decline in the income share of the super-rich. The impact of a one percentage point increase in the share of seats held by Democrats in Congress decreases the top income share by about .08. The unstandardized effects of a percentage point increase in capital gains and income taxes are

similar in magnitude to the effect of partisanship in Congress. These numbers at first seem quite small, but given that national income in 2008 (estimated by Piketty and Saez) was more than $7.8 trillion, an increase of only 1 percent in Democratic seat share (just over five seats), would decrease the income of the top 1 percent by nearly $6.6 billion. That equates to about $6,600 per tax unit in the top 1 percent. These are not trivial effects and suggest that campaign contributions are a useful investment for the super-rich.

When we look at relative effects of the variables in our model (Figure 3, Part B), we see that union strength stands out as an explanation for top income shares. Our evidence is consistent with the argument that unions are able to extract concessions from management that increase workers' relative earnings. It is important to note, however, that although union strength might directly decrease CEO and top management compensation, top income shares are influenced by what happens lower in the income distribution as well. If unions affect the economy such that income growth flows toward the middle class, then top income shares

would decline even without directly reducing executive compensation. Although there are important political and policy effects on top income shares, other factors matter even more.

A standard deviation change in economic factors such as economic growth and stock market valuation has substantial effects that are larger than the impact of politics and public policy. The message here is that economic factors are powerful predictors of pretax, pretransfer top income shares. However, politics and policy fit quite nicely alongside economic indicators as predictors of income concentration. Moreover, this effect of politics is not occurring through traditional redistributive mechanisms, because our measure of inequality is prior to taxes and transfers. Rather, we are observing a substantial market-conditioning effect of government on the incomes of the super-rich.

DISCUSSION AND CONCLUSIONS

We found evidence that congressional shifts to the Republican Party, diminishing union membership, lower top tax rates, and financial asset bubbles played a strong role in the rise of the super-rich. From 1980 to 2008, these measures saw major shifts, after relative stability in Democratic dominance of Congress, union membership, tax rates, and prices of stocks and real estate during the postwar era of the late 1940s to the late 1970s.

These results have several important implications. First, inequality is in part an outcome of political contestation. A common refrain holds that inequality has risen substantially but is merely the result of natural market forces that are in large part out of our control. By this logic, policy and partisan politics are unimportant players in rising inequality. But the evidence does not support this idea. Both specific policies and the partisan balance of Congress are associated with distributional outcomes. Conservative shifts in policy and Republican strength in Congress are associated with higher levels of inequality. Political outcomes have implications for distributional outcomes.

Importantly, the link between politics and inequality is not merely due to redistribution. In this article, we set aside the state's redistributional effects to focus on how political and economic variables affect the distribution of income produced by the market. Our results imply that the pretax pretransfer distribution of income is shaped by electoral outcomes and policy decisions. Democrats are more favorable than Republicans toward social programs that redistribute income, but the parties also differ over what the economic rules of the game should be. Based on our analysis, Democrats appear to favor an economic system that produces more egalitarian outcomes even before any redistribution occurs. In essence, the market is not completely beyond the influence of politics and policy, and it is not just in the realm of explicit redistribution that political parties produce divergent distributional outcomes. Political decisions in part "make the market" (Hacker and Pierson 2010:44).

Our results also shed some light on which aspects of politics matter for distributional outcomes. Both Bartels (2008) and Kelly (2009) emphasize the president's role in determining the level of income inequality in the United States. Other researchers such as Hacker and Pierson (2010) place more emphasis on congressional party control in promoting top income shares. Kenworthy (2010) recently suggested that the impact of presidential partisanship on distributional outcomes has waned since the 1980s. Essentially, he argues that Democratic and Republican presidents differed dramatically in the distributional outcomes they achieved prior to 1980 but have produced fairly similar outcomes since. Our results suggest a stronger role for Congress than the president in the rise of the top 1 percent. This points to the central role that Congress has in the legislative process. The president has limited ability to make the sort of legislative changes necessary to affect top shares without the support of Congress, making Congress the central actor here. The politics of the labor market is also important. As union membership has decreased, a greater

share of income has shifted toward the top 1 percent. With a decrease in union membership, workers' wage bargaining power diminishes and this can increase firms' market value and their profitability (Hirsch 1991). A higher market value often translates into higher stock prices and executive compensation, thereby shifting income toward the top.

We also find evidence that the top 1 percent's share of income responds to changing income and capital gains tax rates. Note that we analyzed pretax income, so our result implies a market-conditioning effect of taxes through a behavioral response in addition to the explicit redistribution that happens by definition via taxes. One interpretation is that members of the top 1 percent may choose leisure over labor if their tax rate increases, and the concentration of income among the top 1 percent will fall as they work or invest less (Slemrod 1990, 1996). A more mechanical interpretation is that lower tax rates reduce incentives for high income units to shift income or engage in tax avoidance (Feenberg and Poterba 1993), thereby increasing their pretax income. That tax rates influence the pretax income shares of the top 1 percent strongly suggests that government influences market outcomes in ways that have predictable effects on distributional outcomes.

Financialization of the economy has also played a significant role in the rise of the top 1 percent. We found that stock and home prices had substantial effects on the super-rich. Because the rich receive substantial income from dividend payouts and capital gains from stock trading, it is not surprising that high stock prices appear to have helped concentrate income. Similarly, the wave of mortgage backed securities rooted in mortgages derived from rising home prices appears to have contributed to income concentration. And even these factors, which we treat as market conditions, may have been partially induced by public policy. The government's failure to regulate innovations in the financial sector reflects policy drift that facilitated the proliferation of financial asset bubbles (Hacker and Pierson 2010). Scholars have

long noted the rising dominance of the financial sector (Foster and Magdoff 2009; Krippner 2011; Tomaskovic-Devey and Lin 2011), and our study demonstrates its connection to the concentration of income.

Our analysis covers 1949 to 2008, but the economic crisis that began in 2007 to 2008 likely had significant consequences for the top 1 percent. The steep drop in stock prices and the accelerated deflation of the housing bubble likely lowered the capital gains, interest, executive compensation, and dividend income of the top 1 percent. In the last year of our analysis (2008), the top 1 percent's share fell by approximately 2.6 percentage points (an 11 percent relative decline from 2007). Likewise, the Shiller home price index fell 11 percent and the S&P fell 21 percent between 2007 and 2008. But this downturn is likely to have been transitory, in part because the $700 billion Troubled Asset Relief Program (TARP) bailout and Federal Reserve loans included purchases of toxic assets (e.g., mortgage backed securities). This program injected liquidity into the financial sector but without conditions attached on how financial firms could distribute the funds for executive compensation (Baker 2010; Blinder 2009). By 2010, the real S&P 500 registered a rebound of 18 percent over 2009 and another 8 percent in 2011 over 2010. Trade openness (imports and exports as a percent of GDP) decreased in 2008 but increased to over 30 percent in 2011, which likely helped the top 1 percent recover. Save for a small reduction in the top capital gains rate (phased in during 2010) initiated by the 2003 Bush tax cuts, there were no major changes in top tax rates. Private sector union membership stayed the same or decreased during the economic crisis, and the 2010 midterm elections favored the Republican party in the House, which our model suggests will increase the top 1 percent's share.

This article has answered many questions, but there is of course much left to do. We have laid out an argument linking politics and policy to distributional outcomes, but the details of exactly how these variables are connected have not been fully tested. There are clear and

fairly strong relationships between political variables on one hand and distributional outcomes on the other, but we have only scratched the surface regarding the specific policies that link politics to market inequality. Future research should focus more clearly on identifying the many policies that might influence market outcomes and test for the relative effects of these various policies on distributional outcomes. We have also set aside the question of what produced the political outcomes that contributed to the rise in inequality. Such questions are the focus of recent work by Hacker and Pierson (2010) and Kelly and Enns (2010), who argue that economic inequality is in some ways self-reinforcing. For Hacker and Pierson (2010), economic inequality generates political inequality that prevents redistributive policy change from occurring. For Kelly and Enns (2010), the heart of the story is that the public becomes more conservative as inequality rises, supporting the very policies that produce inequality. Although the causal underpinnings of electoral politics and public policy are beyond the scope of this article, these are important questions that deserve attention as the literature on U.S. inequality continues to develop.

Authors' Note

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Notes

1. Updates to 2008 are from Emmanuel Saez's website: http://elsa.berkeley.edu/~saez/TabFig2008.xls (accessed August 18, 2011). All income data in this article refer to Piketty and Saez's series inclusive of capital gains.

2. As applied to the United States during the past 30 years, the only caveat is that Democrats (beginning in the early 1980s) have become more cooperative with big business—especially with the increasing importance of corporate money in politics (cf. Hacker and Pierson 2010).

3. In our discussion of financial markets, we note that changes in taxation coincided with the shareholder value movement that encouraged CEOs to focus on short-term stock price increases (Fligstein and Shin 2007), which is also related to increasing reliance on stock options as compensation.

4. For exceptions based on datasets extending into the late 1970s and early 1980s, see Devine (1983), Hibbs and Dennis (1988), Raffalovich (1993), Raffalovich, Leicht, and Wallace (1992), and Wallace, Leicht, and Raffalovich (1999).

5. As in other recent studies, we observe an increase in top shares during the mid-1990s that is not fully explained by changes in measurement techniques (Piketty and Saez 2003; Raffalovich, Monnat, and Tsao 2009).

6. However, Raffalovich and colleagues (2009) argue that wealth is a relatively unimportant source of income for the rich, which would mitigate any effects of financial factors on top income shares.

7. Changes in accounting rules made it more profitable for firms to use stock options as compensation at the same time that changes in tax policy increased executives' incentives to bargain for a shift toward compensation in this form (Hacker and Pierson 2010). Both of these shifts were policy related and driven by the same underlying political dynamics. This suggests that even the role of stock market valuation in the rise of income concentration is not divorced from policy (Davis 2009; Krippner 2011), and this is an ideal example of market conditioning. We do not include every market-conditioning policy in our models because it would likely be impossible. This is why it is important to assess more general political dynamics such as partisan power. Effects of partisan power on market income concentration capture the broad market-conditioning effects of politics that are not captured in our limited set of policy variables.

8. Series available from http://www.unionstats.com, accessed March 26, 2011.

9. Available online at http://www.taxpolicycenter.org/taxfacts/displayafact.cfm?Docid=213, accessed March 26, 2011. This measure does not capture the effective tax rates paid by the richest Americans. Ideally, we would be able to measure top effective tax rates, but such data are not available over a sufficient time span. Although top effective tax rates would be a preferred indicator of tax policy, our use of marginal tax rates provides a conservative test of the impact of tax policy on income concentration.

10. Available online at http://www.ctj.org/pdf/regcg. pdf, accessed March 26, 2011.
11. Available online at http://www.econ.yale. edu/~shiller/data.htm, accessed March 26, 2011.
12. From the Federal Reserve Economic Database, accessed March 23, 2011 (http://research.stlouisfed. org/fred2/series/UNRATE?cid=12).
13. Numerous tests are available to help determine whether a time series is stationary. We used Dickey-Fuller (1979) and KPSS (Kwiatkowski et al. 1992) tests. Dickey-Fuller tests the null hypothesis of a unit root and KPSS tests the null of stationarity. Consistent results of stationarity or nonstationarity from both tests is strong evidence in favor of a clear identification of the series.
14. Unit-root processes also require infinite variance. Several of our variables cannot technically meet this criterion for nonstationarity because they have an upper bound (e.g., tax rates cannot really exceed 100 percent). But in practice, the permanent memory characteristic is the one most relevant for the analysis of unit-root processes.
15. De Boef and Keele's (2007) recent work shows that single-equation ECMs can be applied to both stationary and integrated data, but they do not directly address the possibility of fractional integration. Although their work implies that single-equation ECMs can be applied in a situation of fractional integration, other scholars argue that applying ECMs to fractionally integrated data could lead to biased estimates due to over-differencing the series (Box-Steffensmeier and Tomlinson 2000; Clarke and Lebo 2003; Lebo and Moore 2003; Lebo, Walker, and Clarke 2000; Lebo and Young 2009). We estimated all models in this analysis using an alternative fractionally-differenced ECM and found that results were substantively similar. These results are reported in supplemental materials available on Kelly's Dataverse (http://dvn.iq.harvard.edu/dvn/dv/nkellydata).
16. Sociologists have often applied a variant of ECMs known as partial adjustment differential equation models (Tuma and Hannan 1984; for applications, see Raffalovich et al. 1992; Wallace et al. 1999). The single-equation ECM is an Autoregressive Distributed Lag Model (ADL), but the ECM representation is easier to interpret and preferred in empirical work (De Boef and Keele 2008).
17. The Vector Error Correction Model (VECM) is a version of the ECM that allows all of the variables in the model to be endogenous, much like a VAR model. We considered the VECM but found that the conditions necessary to calculate substantive effects from such models could not be met. Given this, we opted to estimate and report results from standard ECMs. Although VECMs have a variety of useful characteristics, large VECM models are more easily estimated in longer time series than we could analyze in this article.

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