

THE RISE OF THE SUPER-RICH: POWER RESOURCES, TAXES, FINANCIAL MARKETS, AND THE DYNAMICS OF THE TOP 1 PERCENT, 1949-2008*

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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 drive such changes? In this study, we investigate the institutional, policy, and economic shifts that may explain rising income concentration. We utilize single-equation error correction models to estimate the long and short-run effects of politics, policy, and economic factors on pre-tax 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.

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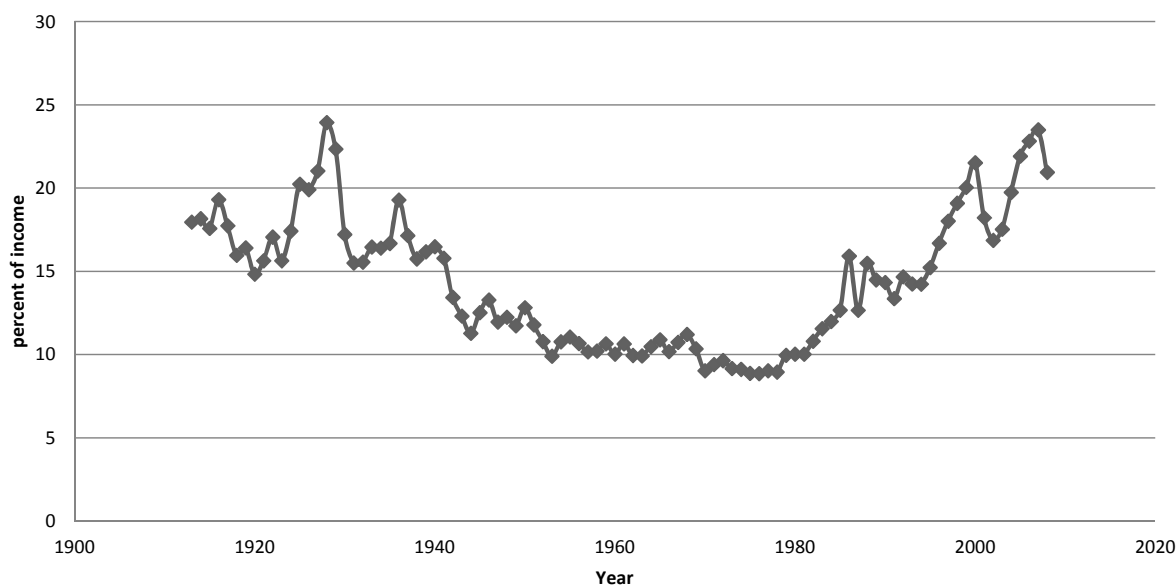
Introduction

The distribution of income in the United States has grown markedly unequal in the past thirty years (Harrison and Bluestone 1988; Nielsen and Arthur S Alderson 1997; Morris and Western 1999; McCall and Percheski 2010; Atkinson, Thomas, and Saez 2011). Based on data from Piketty and Saez (2003), between 1913 and the end of World War II, the top one percent accrued between 11.3 and 23.9 percent of income (See Figure 1).¹ With a spike around the Great Depression, the general trajectory is downward from 1913 to around 1970. The income share held by the top 1 percent fell from a high (1928) of nearly 24 percent to its lowest point of 8.9 percent (1975-76)—a decline of 63 percent. This pattern dramatically reversed after 1980, with income concentration rising from just over 10 percent in 1981 to more than 23.5 percent by 2007, a 135 percent increase. This is a dramatic change that puts income concentration on par with levels not seen since the late 1920s. Referring to the conspicuous patterns in the data the authors of one of Citigroup’s “Plutonomy” memos, remarked that such data, “show[s] that the rich in the U.S. continue to be in great shape” (Kapur, Macleod, and Singh 2006). Other observers have characterized this rising inequality as the beginning of a new “Gilded Age” (Bartels 2008; Hacker and Pierson 2010).

What is to account for this 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 that emphasizes politics and public policy as important determinants of poverty and inequality (Hibbs and Dennis 1988; Hicks 1999; Bradley et al. 2003; Moller et al. 2003; Kelly and Witko 2012; Kenworthy 2004; Brady and Leicht 2008; Brady 2009; Moller, Alderson, and Nielsen 2009; Hacker and Pierson 2010). Such studies suggest that the “power resources” (Stephens 1979; Walter. Korpi 1983) of labor and capital can affect the distribution of income in a society (see also Kristal 2010). Furthermore, recent

1. Updates to 2008 are from Emmanuel Saez’s website: <http://elsa.berkeley.edu/saez/TabFig2008.xls> (accessed 8/18/2011). All income data in this paper refer Piketty and Saez’s series inclusive of capital gains.

Figure 1: The Top 1 Percent's Share of Income, 1913-2008



time-series research on the postwar United States has demonstrated 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 the 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 in the United States (Hacker and Pierson 2010). Existing analyses of public policy, partisan politics, and *general* levels of income inequality do not of necessity translate into conclusions about the income shares of the super-rich. But answering this question is important for several 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 levels of inequality that might be driven by changes just above and below the median. Arguments abound that both parties are currently beholden to the super-rich and are unwilling to take action to fundamentally alter the distribution of income (Hacker and Pierson 2010). Second, much of the rise in general inequality in the United States appears to have been driven by changes

at the very top (Atkinson, Thomas, and Saez 2011). The most important variation to analyze, then, may be variation in the income shares of the super-rich.

In this paper, we examine how class-based power resources, macro political dynamics, top tax rates, and financial markets have shaped income concentration. In the sections that follow, we first discuss recent developments in the study of politics, policy, financial markets, and distributional outcomes and develop a theoretical framework for analyzing the income shares of the super-rich. We then discuss an analytical strategy to assess the theoretical model. Next we present our analysis and discuss our results. Finally, we present our most important conclusions and discuss some of the broader implications of our work.

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 particularly emphasize the connection between politics, policy, and income inequality (Phillips 2002; Bartels 2008; Irvin 2008; Hacker and Pierson 2010; Krugman 1997). 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 (Walter Korpi 1978; Stephens 1979; Hicks 1999; Huber and Stephens 2001). 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 the working and middle-classes have different distributional preferences from owners of capital, with lower classes having more egalitarian distributional preferences than 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 impact government policy through election outcomes by supporting left parties that pursue redistribution and by affiliating with labor unions to shape the market distribution of income.

The research literature on PRT has traditionally been applied to explain the level of welfare generosity in advanced capitalist democracies (Esping-Andersen 1990; Hicks and Swank 1992; Huber, Ragin, and Stephens 1993; Hicks 1999). In recent years, social scientists have used PRT to explain redistribution and economic inequality directly (Bradley et al. 2003; Moller et al. 2003; Brady 2009; Kelly 2004, 2005, 2009; Brady and Sosnaud 2010). 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 et al. (2003) and Moller et al. (Moller et al. 2003) find that unions reduce market-generated income inequality and poverty while 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 this first stage produces varying degrees of inequality. As discussed above, the central PRT factor influencing this stage of the distributional process is labor unions. As labor union membership increases, they gain greater bargaining power, and the market distribution of income becomes more equal (Bradley et al. 2003; Freeman 1984; Gustafsson and Johansson 1999; Moller et al. 2003; Kelly 2009). 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 tax and benefit programs. The expectation of PRT is that left party strength in government increases redistribution—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 political factors should not only influence the 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 action shapes 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/or policy “drift”—no new regulation to cope with complex financial innovations (Hacker and Pierson 2010; Johnson and Kwak 2010). The decisions that firms make in hiring and compensating their employees are influenced by myriad government activities—from payroll taxes, to government contracts, tax credits, workplace safety rules, and environmental regulation. Public education changes the skills of the workforce, which undoubtedly affects wages. Clearly, government action affects markets.

We ask whether these 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 that are anticipated by PRT. Just as the 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 distribution of income produced by the market as discussed above, 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 shape the distribution accruing to the super-rich via *administrative office-holding* (Brady and Leicht 2008, 81). A greater share of Democrats in Congress can limit the rent-generating impacts of property rights benefiting big business as well as 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 shape policy disputes and reflect a lower level of collusion between political leaders and big business (82).² Our expectation, then, is that the presence of Democrats 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 the constellations of political power that are central to PRT. Existing applications of PRT to the American context pay limited attention to the idea that political power resources in part generate policy. To the extent that policy is viewed as a result of power resources and a cause of inequality, specific policies have not been assessed. Kelly (2005) found that market-generated inequality decreases in response to a liberal shift in policy, but the focus is general trends in the ideological direction of aggregate policy rather than the effects of specific market-conditioning policies. We make an initial effort to examine the distributional consequences of specific policies by analyzing tax and interest rates. Of course there are numerous policies that 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, since taxes more obviously generate explicit redistribution than market conditioning. In part, we elected to start here because it is a tough test for the

2. As applied to the U.S. of the last thirty 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 (c.f. Hacker and Pierson 2010).

idea of market conditioning. Even so, it is clear that tax rates have the potential to shape both individual and firm behavior in ways that 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 percent to a low of 28 percent. The Economic Tax Recovery Act of 1981 is seen as 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 all non-”C” type corporate businesses (roughly 90 percent of corporations) are taxed as *individual* rather than corporate income (Fisher 2009) 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.

While tax progressivity is typically studied in the context of explicit redistribution, where a more progressive system reduces inequality in after-tax income, recall that we are examining market-generated (pre-tax) inequality in this paper. 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 act as an investment deterrent thereby lowering capital income. This is a standard argument based in microeconomic reasoning, but there is certainly debate on this point (Atkinson 2005; Auerbach and Hassett 1990; Roine, Vlachos, and Woldenstrom 2009). Changes in tax rates can also impact how income is reported, the legal charters of corporations, and how compensation is timed (Slemrod 1992). Pre-tax income concentration may respond to tax rates due to the incentives of high-income units to shift income to a time in which 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; Slemrod 1996; Piketty and Saez 2003), 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 of these forms of compensation make

it easier to shift income temporally in an effort to take income during periods of lower taxation, and to the extent that this happens, inequality is likely to rise as top tax rates decline.³ While executive pay is ultimately determined by firms, top executives have a great deal of ability to negotiate individual compensation packages based on their 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 can reduce top shares by building the earning capacity of those lower in the income distribution.

In addition to tax rates, we examine the potential effects of *interest rates* on top income shares. While interest rates are set by the Federal Reserve, Republicans favor monetary policy that controls inflation while Democrats are concerned keeping unemployment lower (Alesina and Rosenthal 1995). Our expectations for 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. Since the rich engage in high-volume bond-trading (which contributes to capital gains) and interest rate hikes depress bond prices (Henwood 1997; Canterbury 2002), an interest-rate increase may lower the top income share by depressing capital gains that accrue through bond sales on the secondary market. In any case, interest rates are closely watched by financial markets and therefore are a potentially salient policy that may impact the top 1 percent.

Our remaining contributions are primarily empirical, but we will see as the analysis unfolds that these empirical contributions also have implications for theory testing. The first empirical contribution is the use of *time-series data from the United States*. The majority of studies applying PRT to the study of distributional outcomes utilize cross-

3. In our discussion of financial markets, we note that changes in taxation coincided with the shareholder value movement which 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.

national data, focusing especially on evidence from 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 U.S. in a time-series framework.

The second empirical wrinkle is an analysis of *top income shares*. We analyze the top 1 percent’s pre-tax pre-transfer income share. The focus on the super-rich in our analysis is a departure from existing power resources studies, which examine redistribution or the amount of social spending (Huber, Ragin, and Stephens 1993; Kelly 2004). Research that explicitly examines political influences on income inequality has generally analyzed broad distributional outcomes measured by statistics like the Gini coefficient (Bradley et al. 2003; Kelly 2005; Kenworthy and Pontusson 2005). Even these studies are typically based on data that inadequately capture top incomes. For example, Census income data utilizes “top-codes” for high incomes, combining the very rich into the same under-estimated income category and ignoring variation at the very top of the income distribution. We use the updated Piketty and Saez (2003) top 1 percent share based on income tax returns that better capture high incomes.⁵

In sum, PRT predicts that top income shares should decrease in response to increases in lower-class power resources. Thus, we predict that top income shares will exhibit a negative adjustment in response to Democratic presidential administrations, Democratic strength in Congress, and union membership. As well, we expect specific policies such as top tax rates to put downward pressure on top income shares. While politics and policy are of central theoretical interest in this paper, there are several other factors that also deserve attention as determinants of the income gap. We discuss these factors in the next section.

4. For exceptions based on datasets extending into the late 1970s and early 1980s see Devine (1983), Hibbs and Dennis (1988), Raffalovich (1993), Raffalovich et al. (1992), and Wallace et al. (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 2006; Raffalovich, Monnat, and Tsao 2009).

Financial Markets and Macroeconomic Explanations of Inequality

Our main focus in this paper is on the effect of politics and policy on the concentration of income. Clearly, however, there are numerous other explanations that should be considered. Probably the most important is the financialization of the economy and the performance of financial markets (Henwood 1997; Epstein and Jayadev 2005; Foster and Magdoff 2009; 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 (Demenil and Levy 2004; Tomaskovic-Devey and Lin 2011) and the fact that the 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 (Henwood 1997; Foster and Holleman 2010; Kaplan and Rauh 2010) supplanting the once dominant oil and gas sector. The rapid rise in finance, insurance, and real estate profits is suggestive of successful rent-extraction from the non-financial sector (Bakir and Campbell 2010; Tomaskovic-Devey and Lin 2011).

The performance of the stock market in the latter half of the 1990s likely contributed to top income concentration because of the rapid increase in stock prices and increasing dividend payouts (Shiller 2005; Baker 2009). Buying stock at a low price and selling it at a higher price enhances capital gains income. Coinciding with rapid increases in stock prices were changes in managerial incentive structures in the 1980s. 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 the majority of executive compensation is tied to short-term fluctuations in stock prices (Fligstein 1990; Demenil and Levy 2004; DiPrete, Eirich, and Pittinsky 2010).

6. However, Raffalovich et al. (Raffalovich, Monnat, and Tsao 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.

Thus, short-term fluctuations in stock prices likely had a greater impact on managerial decisions than long-term company health. As noted above there have been cuts in the top tax rates on individual incomes and capital gains. 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 the 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, the prices of both stocks and homes should disproportionately benefit the richest one percent. Aside from the stunning shifts in financial markets, other macroeconomic shifts such as trade openness, economic growth, and business cycles may also have consequences for top income shares.

A recurrent question is whether trade is associated with an increase in top incomes. Roine et al. (2009, 977) discuss the Heckscher-Ohlin theory of trade which suggests 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 the bargaining power and wages of workers because of increasing labor competition (Wood 1994; Tonelson 2000). Trade

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 the incentives of executives 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 a market conditioning. We do not include every market conditioning policy in our models as it would likely be impossible. This is why it is important to assess more general political dynamics such as partisan power. The 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.

openness may benefit the rich in the U.S. 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. Thus, we 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 as well as very high levels of development growth induces inequality (Harrison and Bluestone 1988; Nielsen 1994; Nielsen and Arthur S. Alderson 1995; Nielsen and Arthur S Alderson 1997, 1997; Roine, Vlachos, and Woldenstrom 2009). In addition to economic growth, analysts have argued that higher unemployment rates may increase inequality (Blinder and Esaki 1978; Blank and Blinder 1986; Jäntti 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 affected by unemployment.

Data and Methods

All variables are measured on an annual basis from 1949-2008. The dependent variable, as noted above, comes from Piketty and Saez (2003), updated to 2008. The measure we use is the share of pre-tax 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 (4). While the income definition is individually pre-tax, it is net of employer-paid payroll and corporate income taxes. The 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 vari-

able 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. This variable is coded 0 when the House, Senate, and president are all of the same party and 1 otherwise. While 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 resource variables. Information used to create these variables is available in various issues of the U.S. Census Bureau's *Statistical Abstract*.

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 occurs in the early through mid 1980s with a steady but less rapid decline into the 2000s. By 2008, private sector union membership is 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. Third, we consider the short term interest rate.¹⁰ 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 (*Economic Report of the President February 2011* 2011, Table

8. Series available from www.unionstats.com, accessed: 3/26/2011.

9. Available online at: <http://www.taxpolicycenter.org/taxfacts/displayafact.cfm?Docid=213>, accessed 3/26/2011. 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. While 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 3/26/2011.

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 (*Economic Report of the President February 2011* 2011, Tables B-95 and B-96). We deflate the index to 2008 prices using the CPI-U series and rescale 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, Vlachos, and Woldenstrom 2009; Bureau of Economic Analysis 2012, Table 1.1.5). The next economic variable is the unemployment rate.¹² We also include the log of real GDP (in 2005 chained dollars) as a measure of general economic conditions (Bureau of Economic Analysis 2012, Table 1.1.6).

Estimation Strategy

In any time series analysis it is essential to identify whether each series is stationary or non-stationary (also known as integrated or unit root). This step is needed because of the well-known problem in which a regression of one non-stationary series on another non-stationary 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, with the results reported in supplemental materials.¹³ The

11. Available online at: <http://www.econ.yale.edu/shiller/data.htm>, accessed 3/26/2011.

12. From the Federal Reserve Economic Database.<http://research.stlouisfed.org/fred2/series/UNRATE?cid=12>, accessed 3/23/2011.

13. There are numerous tests available to help determine whether a time series is stationary. We utilized Dickey-Fuller (1979) and KPSS (Kwiatkowski et al. 1992) tests. Dickey-Fuller tests the null hypothesis of

results indicated that most of the variables in our analysis, including the dependent variable, contain a unit root. This is unsurprising since 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 or unemployment or tax policy do not naturally diminish over time.¹⁴ A few of the 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 the analysis of unit root processes, the prescription in a situation such as ours was to transform any non-stationary 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 the 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 of the variables suspected of containing a unit root and then using these differenced versions of the variables in the analysis, along with the 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) pointed 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

a unit root while KPSS tests the null of stationarity. Consistent results of stationarity or non-stationarity 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 criteria for non-stationarity because they have an upper bound (tax rates, for example, cannot really exceed 100 percent). But in practice, the permanent memory characteristic is the one most relevant for the analysis of unit-root processes.

equilibrium relationship in the context of our analysis would be problematic because it is unlikely that the 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. Thus, we need to utilize a method that can capture 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 Banerjee et al. 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 have made 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 Banerjee et al. (1993) pointed out that error correction can occur in stationary data as well, and De Boef and Keele (2008) have clarified 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” (199).¹⁵ One recent study of labor-capital income share has capitalized on this flexibility by estimating ECMs with a mix of stationary and non-stationary data (Kristal 2010).

As the discussion above demonstrates, ECMs have three characteristics that make them particularly appropriate in the context of this analysis. First, and most importantly,

15. While the recent work of De Boef and Keele (2008) shows that single equation ECMs can be applied to both stationary and integrated data, they do not directly address the possibility of fractional integration. Though 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 and Clarke 2000; Lebo and Young 2009). We estimated all the models below using an alternative fractionally-differenced ECM and found that the results were substantively similar. These results are reported in supplemental materials available on the *ASR*’s website.

ECMs appropriately model long-run equilibrium relationships that are likely to exist between the variables in our analysis, though the model also captures more immediate effects as well. Second, since several of our variables contain a unit root, ECMs prevent the spurious regression problem that can arise when analyzing non-stationary data (Engle and Granger 1987). In essence, ECMs test whether cointegration exists between two unit-root variables. Third, ECMs can accommodate stationary as well as integrated variables, which is useful since we have a mix of both types of data in our analysis. In sum, 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 non-stationary 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. A bivariate version can be represented as:

$$\Delta Y_t = \alpha_1 Y_{t-1} + \beta_1 \Delta X_t + \beta_2 X_{t-1} + \epsilon_t$$

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 re-calibrated 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 .

16. Sociologists have often applied a variant of ECMs known as partial adjustment differential equation models (Tuma and Hannan 1984; for applications see Nielsen and Rosenfeld 1981; Raffalovich, Leicht, and Wallace 1992; Wallace, Leicht, and Raffalovich 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).

Results

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

In Model 1 we present a power resources model of income concentration, including partisanship of the president and congress and union strength. Divided government is included 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 party of the president 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.

In Model 2 we focus solely on the 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 (though we will see that the short term effect does not hold up in later models). When

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

Explanatory Variables	Δ Top 1% Share				
	(1) OLS	(2) OLS	(3) OLS	(4) Prais	(5) Prais
Top 1% Share _{t-1}	-0.36*** (0.09)	-0.36*** (0.08)	-0.51*** (0.09)	-0.73*** (0.19)	-0.65*** (0.10)
Δ Democratic President _{t-1}	0.14 (0.56)				
Democratic President _{t-1}	-0.20 (0.36)				
Δ % Congressional Democrat _{t-1}	0.05 (0.04)				
% Congressional Democrat _{t-1}	-0.12*** (0.04)		-0.07** (0.03)	-0.03 (0.02)	-0.05*** (0.02)
Δ Divided Government _{t-1}	-0.11 (0.50)				
Divided Government _{t-1}	-0.93** (0.42)		-0.44 (0.30)	-0.04 (0.22)	-0.37** (0.17)
Δ % Union Membership _t	0.29 (0.28)				
Union Membership _{t-1}	-0.11*** (0.03)		-0.11** (0.05)	-0.26** (0.13)	-0.28*** (0.07)
Δ Top Marginal Tax Rate _t		-0.04 (0.04)			
Top Marginal Tax Rate _{t-1}		-0.06*** (0.01)	-0.02 (0.02)	-0.03** (0.01)	-0.03*** (0.01)
Δ Cap Gains Tax Rate _t		-0.14*** (0.05)	-0.09* (0.05)	-0.02 (0.04)	-0.03 (0.03)
Cap Gains Tax Rate _{t-1}		-0.11*** (0.03)	-0.10*** (0.03)	-0.10*** (0.03)	-0.06*** (0.02)
Δ 3-Month Treasury Bill Rate _t		0.15 (0.10)			
3-Month Treasury Bill Rate _{t-1}		-0.15** (0.07)	-0.18*** (0.07)	-0.01 (0.05)	0.01 (0.04)
Δ Trade Openness _t				0.27** (0.12)	0.20** (0.10)
Trade Openness _{t-1}				0.12 (0.09)	
Δ Unemployment Rate _t				0.18 (0.23)	
Unemployment Rate _{t-1}				-0.22 (0.15)	
Δ Log Real GDP _t				16.64 (10.03)	
Log Real GDP _{t-1}				-5.00** (1.93)	-5.04*** (1.44)
Δ Real S&P 500 Composite Index _t				0.06*** (0.01)	0.06*** (0.01)
Real S&P 500 Composite Index _{t-1}				0.03** (0.01)	0.03*** (0.01)
Δ Shiller Home Price Index _t				0.10 (0.16)	
Shiller Home Price Index _{t-1}				0.31*** (0.10)	0.28*** (0.07)
Constant	15.0*** (3.8)	12.0*** (2.6)	18.3*** (3.2)	57.8*** (20.9)	59.0*** (14.3)
Adj. R ²	0.20	0.27	0.35	0.76	0.76
Rho				-0.52	-0.53
Breusch-Godfrey Test, p-value	0.24	0.24	0.31		
BIC	209.14	197.66	193.16	168.19	155.78
N	60	60	60	60	60

Notes: 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.

Significance levels: * p < .10; ** p < .05; *** p < .01 (two-tailed tests)

capital gains rates are high, capital gains income is more likely to be strategically deferred or avoided altogether. 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 is also a result that does not hold up 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 the results from this model are particularly noteworthy. First, we draw attention to the fact that the primary results from the two portions of the model estimated separately in Models 1 and 2 still find support. Secondly, however, we want to point out 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 shapes 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. Several of the effects are remarkably stable between this model and the two preliminary models. The effect 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 0.35 and the Bayesian Information Criterion drops to about 193.

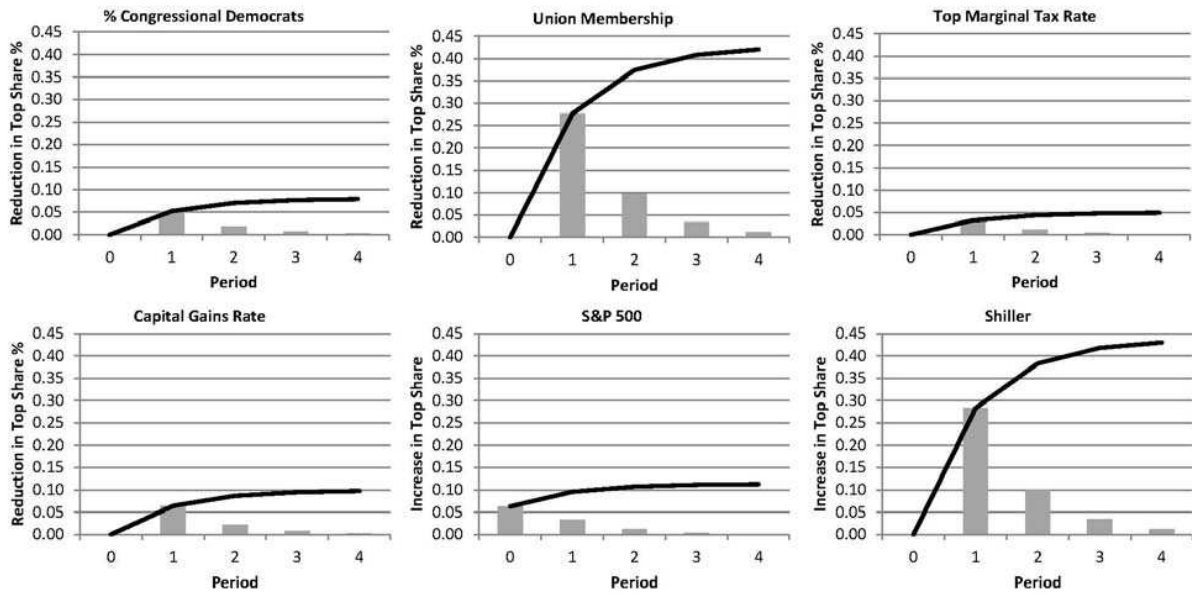
Models 4 and 5 represent more complete models that account not only for politics and policy, but also a variety of economic factors. Model 4 includes the full complement of economic factors, and Model 5 focuses just on the statistically significant variables from the previous models. We focus our discussion 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 the results reported in Table 1 indicates that the size of the effect of some of the political and policy variables is lower in Model 5 than in earlier models. We pointed out above 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. There is the possibility that this political variable has additional indirect effects via other variables included as explanatory variables. Our model captures only the direct effects of political and policy variables exclusive 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 that are 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 0.36 and 0.51. The rate increases substantially in the models that include economic effects, and is 0.65 in the final model. This means that disequilibria generated by a shift in an explanatory variable is 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

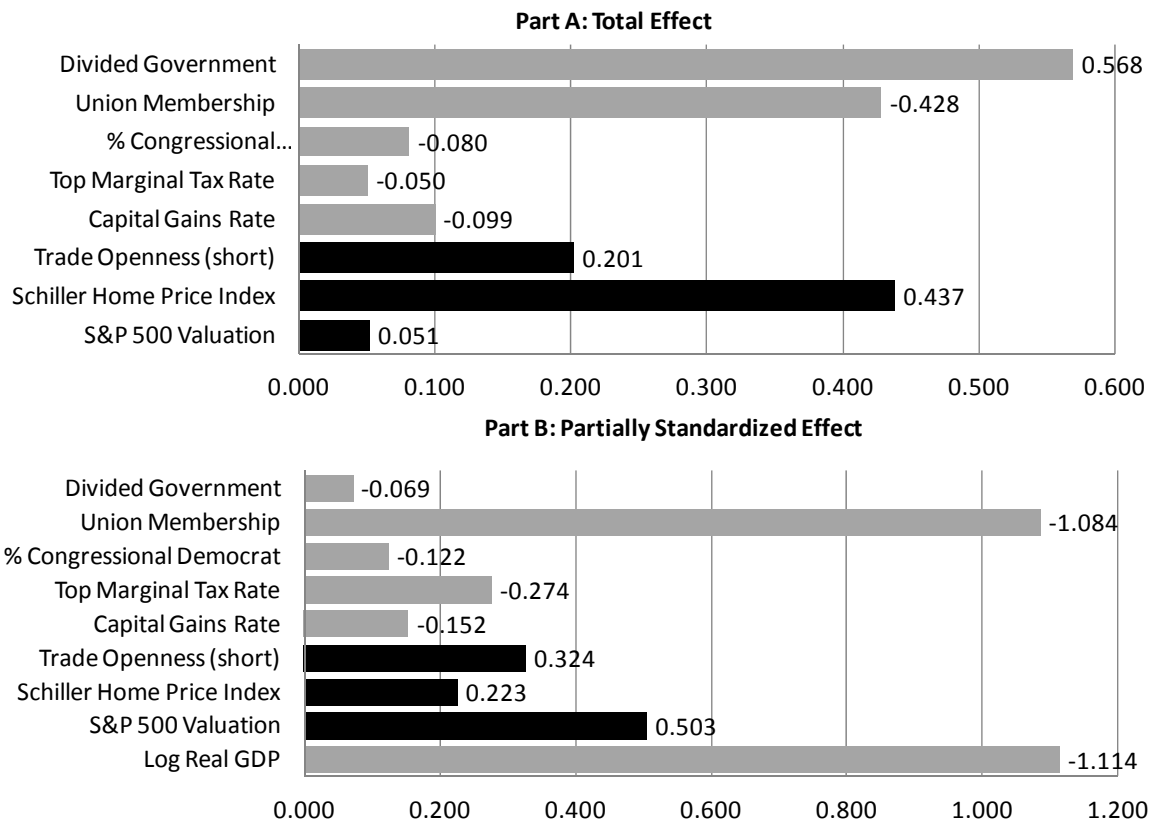
Figure 2: Lag Distribution Effects



years, with 99 percent of the total effect in place within 4 years of the initial shock. This suggests that the adjustment rate is faster for the economic variables than the political and policy variables, which fits well with intuition. More important is the overall size of the impact. The long-run multiplier effect is calculated 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. While the results suggest that the adjustment process may be slower for political and policy variables than the estimate in the final model, ECMs constrain the error correction rate to be the same across all variables 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 the effects of a one-unit change in six of our central explanatory variables are distributed over time, based on the results from Model 5 above. 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). In this figure we can see that the effect of each of these variables grows over time, rather than being restricted to a single period. The annual effect on the top 1 percent in response to a Democratic

Figure 3: Total Effects on Top Income Shares



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 years 1 and 2 after the tax rate increase and the 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). The black bars indicate positive effects and the gray bars indicate negative effects. Just a one percentage point increase in union membership is associated with more than a 0.40 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 0.08. The unstandardized effect 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 over \$7.8 trillion, an increase of only one percent in Democratic seat share (just over 5 seats), would decrease the income of the top 1 percent by nearly \$6.6 billion. That equates to about \$6600 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 the 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 the relative earnings of workers. It is important to note, however, that while it is possible that union strength directly decreases 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. While 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 have substantial effects which are larger than the impact of politics and public policy. The message here is that economic factors are powerful predictors of pre-tax, pre-transfer top income shares. However, politics and policy fit quite nicely alongside economic indicators as predictors of income concentration. And this effect of politics is not occurring through traditional redistributive mechanisms, because our measure of inequality is prior to taxes and transfers. Rather, what we are observing here is a substantial market conditioning effect of government on the incomes of the super-rich.

Discussion and Conclusion

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. Major shifts in these measures happened over the period of 1980 to 2008 after relative stability in Democratic dominance of Congress, union membership, tax rates, and the 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. It is a common refrain that inequality has risen substantially but that it is merely the result of natural market forces that are in large part out of our control. By this logic, policy is an unimportant player in rising inequality, and neither is partisan politics. 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 paper, we set aside the redistributive effects of the state to focus just on how political and economic variables affect the distribution of income produced by the market. The results in this paper imply that the pre-tax pre-transfer distribution of income is shaped by electoral outcomes and policy decisions. While it is true that Democrats are more favorable than Republicans toward social programs that redistribute income, 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 where our political parties produce divergent distributional outcomes. Political decisions in part “make the market” (Hacker and Pierson 2010).

Our results also shed some light on which aspects of politics matter for distributional outcomes. Both Bartels (2008) and Kelly (2009) emphasize the role of the presidency in determining the level of income inequality in the United States. Others such as Hacker and Pierson (2010) place more emphasis on Congressional party control in promoting top income shares. Kenworthy (2010) has 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. As union membership decreases, workers' wage bargaining power diminishes and this can increase the market value of firms 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 pre-tax 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 very significant role in the rise of the top 1 percent. We found that stock and home prices had substantial effects on the top 1 percent. Since 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 failure to regulate innovations in the financial sector reflects “policy drift” which facilitated the proliferation of financial asset bubbles (Hacker and Pierson 2010). While scholars have long-noted the rising dominance of the financial sector (Foster and Magdoff 2009; Krippner 2011; Tomaskovic-Devey and Lin 2011), our study demonstrates its connection to the concentration income.

While our analysis covers the period of 1949-2008, the economic crisis that began in 2007-2008 likely had significant consequences for the top 1 percent. The steep drop in both stock prices and the accelerated deflation of the housing bubble are likely to have 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 (Blinder 2009; Baker 2009). By 2010, the real S&P 500 registers 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. There were no major changes in top tax rates save for a small reduction in the top capital gains rate (phased in during 2010) that was initiated by the 2003 Bush tax cuts. 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 is suggested by our model to increase the top 1 percent's share.

While this paper has answered many questions, 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 myriad policies that might condition market outcomes and test for the relative effects of these various policies on distributional outcomes. We have also set aside the question of what has produced the political outcomes that have contributed to the rise in inequality. Such questions have been the focus of recent work by Hacker and Pierson (2010) and Kelly and Enns (2010), with the argument being 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. While the causal underpinnings of electoral politics and public policy are beyond the scope of this paper, these are important questions that deserve attention as the literature on American inequality continues to develop.

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