



CHICAGO JOURNALS

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Source: *American Journal of Sociology*, Vol. 118, No. 5 (March 2013), pp. 1284–1329

Published by: [The University of Chicago Press](#)

Stable URL: <http://www.jstor.org/stable/10.1086/669499>

Accessed: 01/05/2013 21:07

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# Financialization and U.S. Income Inequality, 1970–2008<sup>1</sup>

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Focusing on U.S. nonfinance industries, we examine the connection between financialization and rising income inequality. We argue that the increasing reliance on earnings realized through financial channels decoupled the generation of surplus from production, strengthening owners' and elite workers' negotiating power relative to other workers. The result was an incremental exclusion of the general workforce from revenue-generating and compensation-setting processes. Using time-series cross-section data at the industry level, we find that increasing dependence on financial income, in the long run, is associated with reducing labor's share of income, increasing top executives' share of compensation, and increasing earnings dispersion among workers. Net of conventional explanations such as deunionization, globalization, technological change, and capital investment, the effects of financialization on all three dimensions of income inequality are substantial. Our counterfactual analysis suggests that financialization could account for more than half of the decline in labor's share of income, 9.6% of the growth in officers' share of compensation, and 10.2% of the growth in earnings dispersion between 1970 and 2008.

## INTRODUCTION

Between 1980 and 2007, the finance sector share of profits tripled from a stable postwar average of 15% to a peak in 2002 of 45% of all profits in the

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U.S. economy (Krippner 2011; Tomaskovic-Devey and Lin 2011). For non-finance-sector firms, the ratio of financial income to realized profits increased from 0.15 to 0.32, with a peak of 0.42 before the 2001 bust of the dot-com bubble. During the same period, on multiple dimensions, income inequality soared. The capital share of national income increased, as did the compensation of top corporate executives. For full-time workers, the Gini index of earnings inequality increased 26%. The level of income inequality in the United States is now equivalent to that of developing countries such as Iran, China, and Mexico.

The financialization of the U.S. economy and rising income inequality are two of the most profound economic developments of the last 50 years. However, with few exceptions (Crotty 2003; Palley 2008), there is limited discussion linking these two processes. This article examines the link between these two developments. We argue that, in addition to transferring income into the finance sector (Tomaskovic-Devey and Lin 2011), the financialization of the U.S. economy restructured social relations and income dynamics in the rest of the economy. We believe that firms' increasing reliance on financial, rather than production, income decoupled the generation of surplus from production and sales, strengthening owners' and elite workers' negotiating power against other workers. The result was an incremental exclusion of the general workforce from revenue-generating and compensation-setting processes.

We examine trends in industry-specific income dynamics as a function of the financialization of industry economic activities. Our estimates suggest that increasing reliance on financial income in the nonfinance sector, over the long run, is associated with reducing labor's share of income, increasing compensation for top officers, and increasing earnings dispersion among workers. The magnitudes of these effects are comparable to those of the prevalent explanations in the literature, including deunionization, technological change, and globalization.

This article advances the literature in four ways. First, we further develop the thesis that the financialization of the U.S. economy at its core is a system of redistribution that privileges a limited set of actors (Tomaskovic-Devey and Lin 2011). Second, we introduce financialization as a critical institutional mechanism encouraging the post-1970s surge in U.S. income inequality. This article also further explores the social consequences of the institutional shift over the past three decades from managerialism to shareholder value conceptions of the firm (Fligstein and Shin 2003, 2007; Davis 2009; Goldstein 2012). Finally, we expand the analysis of income inequality to illustrate that a multiactor framework of capitalists, top executives, and the general workforce (Sakamoto and Liu 2006) better captures recent income dynamics than simpler capitalist-worker or human capital inspired skilled-unskilled distinctions.

THE FINANCIALIZATION OF THE U.S. ECONOMY

Financialization can be broadly defined as two interdependent processes, both of which accelerated after the late 1970s. One is the rising dominance of the finance sector and its conception of control in the U.S. economy; the other is the increasing participation of nonfinance firms in the financial services and investment markets. It is well established that, in the past three decades, the United States has undergone a fundamental transformation from a manufacture-driven to a finance-orientated economy, during which increased income shares accrue through financial channels (Krippner 2005), and concurrently corporate governance is more and more responsive to and disciplined by financial rather than product markets (Fligstein 2001; Davis 2009).

There is a growing literature examining the economic and social implications of financialization. Most studies focus on the income transferred into the finance sector. Epstein and Jayadev (2005) find that the rentier share of national income, defined as profits of financial firms and total interest income over gross national product, went up significantly among the Organization for Economic Cooperation and Development (OECD) countries after 1980. Sum and colleagues (2008) show that the average weekly wage in the investment bank and securities industry of Manhattan is six times higher than the average wage of workers in Manhattan and 20 times higher than that of workers elsewhere in the United States. Importantly, Philippon and Reshef (2009) find that human capital does not account for the excessive wage growth in the finance sector. Kaplan and Rauh (2010) show that an increasing fraction of the top-end income earners in the United States are investment bankers and institutional investors, while Godechot (2012) observes similar development in France since the mid-1990s. Tomaskovic-Devey and Lin (2011) document the series of political-institutional shifts in the United States that led to these income transfers as both profits and compensation, concluding that financialization was not a neutral product of market mechanisms but rather the result of specific political decisions to deregulate existing finance activities and to refrain from regulating new financial products, in an era of expanding neoliberal governance ideologies and finance sector political influence.

In contrast to the attention received by the finance sector in both the public and the academic spheres, few explore the financialization of the nonfinance sector. This article focuses on the second process of financialization, that is, the increasing participation of nonfinance firms in financial markets. Figure 1 presents the ratio of financial income to realized profits for all nonfinance firms and for manufacturing firms from 1970 to 2007.<sup>2</sup>

<sup>2</sup> We calculate realized profits as the sum of accounting profits before tax and the capital consumption allowance.

## Financialization and U.S. Income Inequality

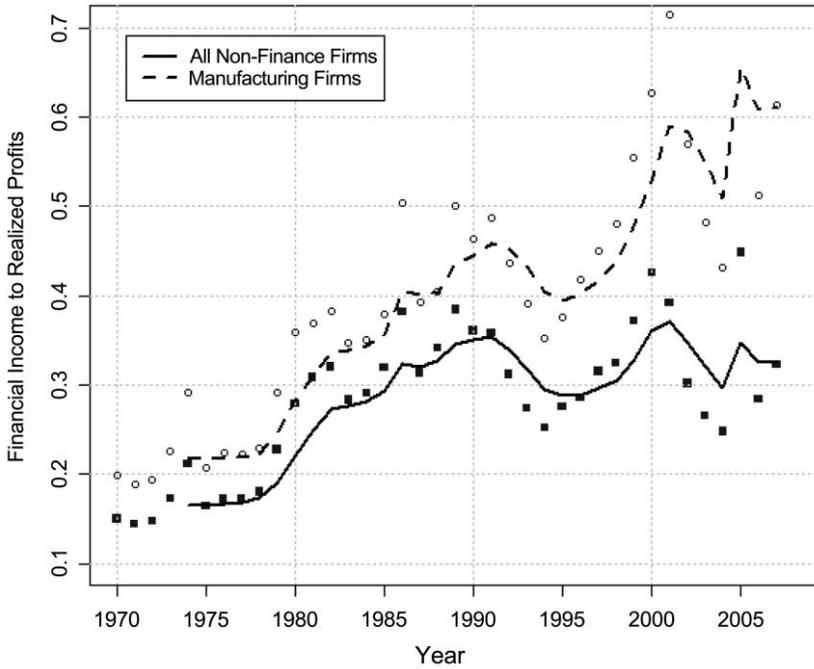


FIG. 1.—Financial income over realized profits, 1970–2007. Data are from the Internal Revenue Service Corporation Complete Report, 1970–2007. Financial income is calculated as the sum of interest, dividends, and net capital gains.

Financial income here consists of interest, dividends, and capital gains and excludes income from the sale of goods and services. It shows that since the late 1970s, financial income has become a significant stream of revenue for U.S. corporations. For all nonfinance firms, the ratio was relatively stable until the late 1970s. It then experienced a rapid growth, from below 0.20 in 1990s (due to the economic boom at that time), the reliance on financial income surged again to more than 0.4 during the dot-com bubble. A similar pattern is observed among the subsample of manufacturing firms, but the magnitude is even more striking: the dependence on financial income for these firms increased by a factor of three over the past 30 years, from 0.20 to 0.61. In other words, since about 2000, earnings generated through financial channels are larger than half of the total profits earned by manufacturing firms.<sup>3</sup>

<sup>3</sup> Although the dependence of financial income is higher among manufacturing firms, as shown in fig. 1, the national trend is not entirely driven by manufacturing firms. There is also a significant but less dramatic growth of financial income for nonmanufacturing firms.

While it is certain that financialization greatly benefits Wall Street, its implication on Main Street remains obscure. Stockhammer (2004) argues that financialization reshapes managerial priorities from the growth of market share to short-term profits. At the national level, he shows that financial income is negatively associated with new investment in fixed capital. At the firm level, Orhangazi (2008) reports that increasing financial income depresses production-related investment. Another set of literature considers broader economic impacts. Crotty (2003) argues that because it crowds out investment in production, a probable result of financialization is slower growth of employment, real wages, and consumption. Similarly, Palley (2008) suspects that financialization is responsible for the stagnation of wages and the growth of income inequality in the United States. Across developed countries, Zaleski and Whalen (2010) find a weak but growing correlation (0.184 in 1995 and 0.254 in 2004) between the International Monetary Fund financialization index and national income inequality. In the United States, Volscho and Kelly (2012) show that securities and real estate bubbles are temporally associated with the concentration of income at the very top. At the household level, Nau (2011) shows that financial income accounts for more than 50% of the overall income inequality among U.S. households in the 2000s. In all of these studies, the connection between financialization and distributional outcomes is speculated on rather than directly examined.

#### RISING INCOME INEQUALITY

Coinciding in time with financialization has been a remarkable growth of income inequality in the United States. Three major developments are examined in this article: reducing labor's share of national income, increasing officers' share of compensation, and increasing earnings dispersion among workers. We believe that examining all three developments provides a fairly comprehensive account of income dynamics. The decline of labor's share of income, the emergence of extraordinarily high executive compensation, and the polarization of the general workforce are all critical dimensions of growing income inequality. Here, we discuss the common explanations of these developments and their potential limitations. It should be emphasized that these explanations are not competing hypotheses in our analytical framework. Rather, we treat them as confounding historical factors that should be addressed in inquiries of inequality trajectories. Indeed, in many ways they are complementary aspects of a broader institutional shift, as the United States moved from the postwar capital-labor accord to a global and financialized economy (Rubin 1995; Moller and Rubin 2008).

The first major development is labor's declining share of national income. Studies on the capital-labor share have shown that, for developed

countries, there was a steady increase of labor's share beginning after World War II, followed by a decline since the 1980s (Kristal 2010, 2011). The decline is largest among European countries (Harrison 2002), but a significant downward trend is also observed in the United States: between the 1970s and 2008, labor's share in the private sector fell from 66% to 60% of national income (Kristal 2011).<sup>4</sup> In contrast to national trends, more volatility is observed at the industry level. Young (2010) finds that the national "constant" of labor's share in the United States is rather a result of long-run offsetting shift between labor's declining share in manufacturing and small gains in service industries. Kristal (2011) finds that the large decline of labor's share in the core industries (14 percentage points for manufacturing, 10 percentage points for transportation, and 5 for construction) is partially offset by a smaller rise in labor's share in finance and service industries, resulting in a net 6 percentage-point decline of labor's share of national income since the 1970s.

A second development is the exponential increase in the income share of top earners since the 1980s. Past studies indicate that the recent growth of income inequality in the United States is, to a large extent, driven by the concentration of income at the top end of the distribution (Piketty and Saez 2006; Lemieux 2007; Atkinson, Piketty, and Saez 2009). Using individual tax returns data, Atkinson et al. (2009) show that the top decile income share increased from 31% of total income in the 1970s to 50% by 2007. The growth of the very top was even more rapid: the top 0.1% experienced a 370% growth in their share of national income, from 2.6% in the 1970s to more than 12.3% in 2007. One might suspect that this development reflects the increase in capital's share of total income. Yet a decomposition shows that compensation has become an increasingly important source of income for these top earners (Piketty and Saez 2006; Atkinson et al. 2009). That is, elite workers now constitute a significant fraction of the highest-income population. This finding is consistent with Bebchuk and Grinstein's analysis (2005) on executive compensation. Their estimate shows that, net of changes in size and performance, the average compensation for executives doubled from 1993 to 2003. DiPrete, Eirich, and Pittinsky (2010) show that this was accomplished in part by an institutional tying of executive pay to the pay of other "peer" executives, engineering an upward leapfrogging game in CEO compensation.

The third and probably the best-known income inequality development is the increasing earnings dispersion among workers. Western and Rosenfeld (2011) estimate a more than 40% increase in wage inequality between 1973 and 2007. The income divide widened along educational lines,

<sup>4</sup>The downward trend has persisted through the late financial crisis and reached an unprecedented low in 2011 (Jacobson and Occhino 2012).

particularly between high school and college-educated workers. While college graduates earned 30% more than other workers in the late 1970s, the premium doubled over the next few decades (Goldin and Katz 2007). The labor market also has become more polarized, with the growth of employment concentrated at both tails of the skill distribution (Autor, Katz, and Kearney 2006; Kalleberg 2011). Furthermore, studies indicate that the driving forces behind the growth of income inequality have changed in the past two decades. While an increase in wage differential was observed across the distribution before 1990, the growth of inequality since then was mostly driven by the increasing differential at the top end of the distribution (Lemieux 2007).

Several hypotheses have been proposed to explain the rise in income inequalities. The dominant explanation in labor economics is capital- and skill-biased technological change. Researchers argue that the spread of information technology since the 1980s disproportionately increased the output of physical capital (Blanchard 1997; Acemoglu 2003; Kristal 2011) and the demand for skilled workers (Acemoglu 2002; Kaplan and Rauh 2010). The decline of labor's share, increased earnings inequalities, and the college premium in this account mostly reflect technology-driven changes in marginal productivity. Although intuitive, this theory fails to explain several empirical patterns. First, it does not provide a satisfying answer as to why a comparable concentration of income is not observed in continental Europe or Japan (Piketty and Saez 2006), where similar technological changes also took place. Second, neither does it explain why there is a larger decline of labor's share in Europe than in the United States. Third, the skill-biased hypothesis is inconsistent with the growth in demand of labor at the bottom of the skill distribution. Most important, this family of theory does not explain why the growth of wage dispersion slowed down while the development of information technology took off in the late 1990s (Card and DiNardo 2002).

A second explanation is globalization. The proponents of this theory argue that the global flows of capital, goods, and labor reduce the bargaining power of workers in high-wage countries, particularly for workers with limited skills. Studies show that, among the developed countries, international trade, foreign direct investment, and migration flow are negatively associated with labor's share of national income (Harrison 2002; Kristal 2010, 2011) and positively associated with the level of income inequality (Alderson and Nielsen 2002; Lee, Nielsen, and Alderson 2007). However, not all workers in the developed countries suffer. Kaplan and Rauh (2010) argue that elite workers are likely to benefit from globalization due to the combination of production and distribution scale and information technology. Global competition for high-skilled labor might also increase their compensation (Florida 2005; Abella 2006).

Morris and Western (1999) reviewed the limitations of market explanations, suggesting that research should focus on institutional shifts such as the decline of unionization. Subsequently, more studies have examined labor market institutions. Researchers find that occupational structure (Weeden 2002; Mouw and Kalleberg 2010), terms of employment (DiPrete et al. 2006), family structure (McCall and Percheski 2010), performance-pay practice (Lemieux 2007; Hanley 2011), and employment concentration (Davis and Cobb 2010) might all contribute to the observed income dynamics. Among the institutional changes, the deunionization of the U.S. workforce has received the greatest and most long-lasting attention. Kristal (2010) finds there is a positive association between union density and labor's share of national income among developed countries. Piketty and Saez (2006) suspect that deunionization removed the barriers to excessive compensation for elite workers. Freeman (1994) estimates that 20% of the increase of earnings inequality among male workers in the 1980s could be attributed to the decline of union members. Most recently, Western and Rosenfeld (2011) estimate that deunionization accounts for one-fifth to one-third of the growth of U.S. wage inequality between 1973 and 2007.

While this political-institutional turn reveals the importance of social practices in shaping income dynamics, limited attention has been paid to financialization. If there is one unexamined institutional innovation that is critical to the rise in income inequality, we suspect that it is the financial innovations adopted by the U.S. corporations since the late 1970s.

#### THE LINK BETWEEN FINANCIALIZATION AND INCOME INEQUALITY

We conceive of income inequality as a result of social relations between sets of actors, in which interaction and its resulting institutions generate greater advantages for some actors than for others (Tilly 1998, 2000). Income distributions, whether between capital and labor or among workers in various structural positions, reflect the relative bargaining and claims-making power of actors in a given organizational and environmental context (Tomaskovic-Devey et al. 2009; Avent-Holt and Tomaskovic-Devey 2010). This power can be based on control of capital or positions, market demand for goods or skills, or simply the persuasiveness of actors in a specific institutional and cultural context. From this perspective, deunionization and globalization both reduced the claims-making power of labor, particularly blue collar workers. We suspect that the financialization of nonfinance firms also restructured the social relations between owners and workers, elite and general workers, and employees in general, thus reshaping the relative power of actors along these divides.

The financialization of the nonfinance sector has its roots in two prior developments in the U.S. economy. First is the long-term reconfiguration of the U.S. corporate world in the 1960s and the 1970s. Because of global manufacturing market saturation and antitrust legislation at that time, large firms in the United States attempted to maintain profitability by turning into multifunction cross industry conglomerates. A consequence was that finance gradually rose as the metagovernance structure for the largest firms in the United States (Fligstein 2001; Crotty 2003). While managers and workers of the subunit possessed firm- and industry-specific human capital and are thus committed to production and sales, the financial managers at the top began to conceive of subunits as tradable assets that should be evaluated, eliminated, or acquired according to their expected returns. We believe that the transition to the finance conception of the firm prepared the *episteme* and *techné* to engage in financial activities for nonfinance firms. This transition accelerated in the 1980s when shareholder value goals began to dominate corporate strategy, displacing long-term market share as the metric of CEO success with goals of short-term profitability and stock price gains (Dobbin and Zorn 2005; Krier 2005; Davis 2009; Goldstein 2012).

The second development was the 1970s crisis, during which a configuration of threats to the U.S. economy, including the first and second oil crises, rising global competition, and stagflation, mobilized business elites to reinvent the relationship between the private sector and the state (Miller and Tomaskovic-Devey 1983; Useem 1986; Harvey 2005; Hacker and Pierson 2010). The result of this business insurgency was a new neoliberal order in which market logics increasingly replace social contracts, and the liquidity of capital is prioritized over long-term employment stability.

A series of deregulations and new policies were designed to unleash capital flow into the financial markets (Tomaskovic-Devey and Lin 2011). Most notably, Reagan-appointed banking regulators started to give nonfinance firms permission to engage in financial activities but exempted them from the scope of regulatory agencies. Further financial deregulation proceeded through the 1990s, culminating in the 1999 Financial Services Modernization Act, which scrapped the only remaining prohibitions in the 1933 Glass-Steagall Act. What ensued in the last quarter of 20th century was an explosion of government, corporate, and household debt and an ever-expanding securities market.

The combination of a growing demand to maximize profits and minimize fixed capital investment and the increasing profit opportunities born of financial deregulation steered nonfinance firms to look into financial markets as an alternative channel to “grow fast in a slow-growth economy” (Welch and Byrne 2003, app. A). Instead of investing in physical capital to expand production, executives increasingly allocated their resources into

financial venues. The result was a growing number of nonfinance firms participating in financial services and investment.

The most well-known operations of this type might be the financial arms of automobile manufacturers. General Motors established its financial arm, General Motors Acceptance Corporation (GMAC), in 1919, and Ford established its financial service provider, Ford Motor Credit, in 1959. Before the 1980s, the main function of these financial institutions was to provide their automotive customers access to credit to increase car sales. These financial institutions were tolerated by regulation at the time because they made loans solely to their customers (Orhangazi 2008). Yet starting in the 1980s these auxiliary institutions broadened their portfolio. GMAC entered mortgage lending, a financial service unrelated to their automotive products, in 1985. In the same year, Ford purchased First Nationwide Financial Corporation to enter the savings and residential loan markets. In the 1990s, GMAC and Ford Motor Credit expanded their services to include insurance, banking, and commercial finance. In 2004, GM reported that 66% of its \$1.3 billion quarterly profits came from GMAC, while a day earlier, Ford reported a loss in its automotive operation but \$1.17 billion in net income, mostly from its financing operation (Hakim 2004).

The most aggressive and successful border crossing was pioneered by General Electric. Founded in 1943, GE Capital was designed to provide loans for the customers of home appliances. However, under the post-1980 leadership of Jack Welch, its scope rapidly expanded to small business loans, real estate, mortgage lending, credit cards, and insurance.<sup>5</sup> After running a close second for decades, it topped GMAC as the largest non-bank lender in 1992. In recent years, the financial unit consistently brought in more than half of the profits for GE (Kocieniewski 2011).

Sears, one of nation's largest retailers, entered the real estate brokerage and securities businesses in 1981. It issued the Discover Card in 1985, a one-stop financial services credit card that also offered savings accounts. Some of these financial services were later sold in the 1990s when profitability dipped. Yet this does not mean that the retailer returned to the "one-big-store" business model. After its merger with Kmart, Sears and Kmart stores became a retail business that generated cash flow to be diverted to financial investments. A year before the 2008 financial crisis, a third of Sear's pretax income was generated by high-risk financial trades (Cho 2007). AT&T started its financial arm in 1985, entered the small-business loan market in 1992, and soon became one of the largest nonbank lenders. In the early 2000s, Target earned about 15% of its profit from credit card operations (Henry 2005). Before its bankruptcy in 2001, En-

<sup>5</sup> In fact, GE is the first foreign company that entered the life insurance industry in Japan.

ron was more of a commodities and derivatives trading company than an energy company. It created the market for electricity trading and had trading floors that processed \$2.5–\$3 billion of commodities trading a day (Johnson 2001).

These cases represent a striking trend in non-finance-sector business activity. A Wall Street analyst estimates that almost 40% of the earnings of the companies in the Standard & Poor's 500 stock index in 2000 were from lending, trading, venture investments, and other financial activities, a third of which were earned by nonfinancial companies (Ip 2002). For top executives with financial backgrounds, investment in the financial market is functionally equivalent to investment in production and sales but with the advantages of higher capital liquidity, lower transaction costs, and more flexible labor costs.

We expect this reliance on financial income has profound distributional consequences. First, the reliance on financial income implies that resources are reallocated away from workers and production to the financial unit and financial markets, decreasing the potential growth and stability of the core business. In the case of Sears, because a significant proportion of the cash flow generated by retail outlets was channeled into financial operations, fewer resources were available for store improvement and advertisement. One example is that Sears spent only \$1.5–\$2 per square foot to update their stores, in contrast to the industry standard of \$6–\$8 (Lahart 2011). Second, unlike production and sales, financial income is nominally external and independent of the production workforce. Thus, this stream of revenue decouples surplus and production and, we suspect, enhances the negotiating power of owners and executives in the compensation-setting and surplus distribution process.

In addition, because we see effective claims over income to be governed at least in part by rhetorical strategies and status hierarchies in organizations, the rise of finance as an ascendant cultural value in U.S. society (Davis 2009) is likely to have increased the perceived status and worth of financial investments and, as a result, reduced the relative status of production. The shift in CEO compensation from a product market share benchmark to stock market performance evaluations certainly suggests that this might have been the case. That this happened while unions were declining and the state was retreating from employee protections of all kinds also meant that there were no countervailing cultural or political pressures to preserve the relative power of workers, particularly workers associated with the production of goods or services. Thus, we think it plausible that, as financialization advanced across specific firms and industries, the relative power of labor declined, enhancing the claims of capital, top executives, and perhaps some specialized workers over the income accumulated by firms.

We examine three hypotheses at the industrial level on the effects of financialization on income dynamics and discuss potential mechanisms behind the connection.

*HYPOTHESIS 1.—Increased dependence on income through financial channels is associated with a future decline in labor's share of income.*

We see the proximate mechanism here to be that workers' power to make claims on organizational revenue is undermined when managerial attention and investments are allocated away from the core business to either financial service units or financial markets. More distal mechanisms might include the cultural devaluation of production, the drop in capital investment in production, and the retreat from market share as the core growth strategy of the firm.

*HYPOTHESIS 2.—Increased dependence on income through financial channels is associated with a future increase in executives' share of compensation.*

An increase in financial earnings for a nonfinance firm is often interpreted as a success of management in promoting shareholder value. Thus, it is likely to raise the top executives' bargaining power. That top executives' incomes are increasingly tied to short-term financial performance and that the stock market now values companies via an examination of returns on capital investment is well known. Compensation schedules for top executives, however, are determined by the boards of directors instead of stock market analysts. Thus, we suspect that, as financialization progresses at the firm level, corporate boards will be converted to the logic of financialization from the earlier logic of maximizing market share in determining CEOs' and other top executives' compensation.

*HYPOTHESIS 3.—Increased dependence on income through financial channels is associated with a future increase in earnings dispersion among employees.*

Firm dependence on financial income is also likely to increase the claim-making power of managerial and finance-related workers relative to the production and sales workforce. A likely outcome is an increasingly uneven distribution in earnings among workers. The mechanisms here can be about both the declining status of production workers and production units as well as the increasing power of upper-level management and financial units.

## DATA, VARIABLES, AND METHOD

### Data

We compiled integrated time-series cross-section data at the industry level for 1970–2008. Most variables are drawn from the corporate tax return statistics published by the Internal Revenue Service (IRS) and the National

Income and Product Accounts published by the Bureau of Economic Analysis (BEA). Since both accounts are primarily estimated from tax reports and subject to auditing and adjustment, they are more reliable than conventional survey or business press data. In addition, we obtain measures of import penetration for extractive and manufacturing industries from the Structural Analysis data set published by the OECD (OECD-STAN) and estimates of industrial concentration by aggregating firm information from the Compustat database published by Standard & Poor's. Workforce earnings and characteristics are estimated by aggregating individuals in the Current Population Survey (CPS). Appendix A provides a discussion of all data sources.

The scope of our analysis is the nonfinance and nonagricultural private sector economy from 1970 to 2008. Due to the shift in industrial classification from the standard industrial classification (SIC) to the North American industry classification system (NAICS), our analysis is divided into two periods. In the first period, from 1970 to 1997, there are 35 SIC industries, and in the second period, from 1998 to 2008, there are 40 NAICS industries. We exclude holding companies in the second period because they are essentially financial firms, especially after the Financial Services Modernization Act. We retain residual industrial categories such as "other manufacturers" or "other services" to present the national trends but exclude them from the regression analysis. The unit of analysis is industry-year. The sample size is 945 industry-years for the first period and 400 for the second period. Appendix B provides a list of all industries included in the regression analysis.

Because earnings inequality measures are not available at the firm level, we test our hypotheses at the industry level. Given that the increase in income inequality in the past three decades occurred mostly within rather than between industries (Morgan and Tang 2007; Kim and Sakamoto 2008), industry is a sensible unit for an institutional analysis of income inequality. Organizational studies have repeatedly demonstrated that there is similarity among organizations within the same industry, reflecting both market and institutional mechanisms. We treat industry as a technical and normative field that influences firm behavior. There is substantial evidence indicating the strong presence of industry field effects in terms of a firm's human resource practices around gender and race (Skaggs 2008; Hirsh 2009; McTague, Stainback, and Tomaskovic-Devey 2009; Kelly et al. 2010). Thus, an industrial investigation is likely to provide informative estimates of firm-level processes.

Our analysis cannot distinguish direct within-organization from indirect between-organization within-industry effects of financialization. Rather, it will capture both direct firm and indirect industry field effects of financialization on income distributions. If the financialization of revenue increases the bargaining power and thus the earnings of a set of actors in one organization, then a likely outcome, especially when the organization is domi-

nant in its organizational field, is that parallel actors in other organizations would demand comparable increases in compensation.

### Variables

The central explanatory variable in our analysis is industry-level financialization. We follow Krippner's (2005) measure and calculate it as the ratio of financial receipts—which include interest, dividends, and capital gains—to business receipts, the revenue generated from the selling of goods and services.<sup>6</sup> Figure 2 presents the trajectories of financialization for nonfinance industries. Each trajectory here is estimated with an industry-specific regression of the financialization ratio on year and has two components. One is the constant or the initial level of financialization (*Y*-axis); the other is the slope or the average yearly growth (*X*-axis).

Figure 2 shows that there is a significant industrial variance with regard to the trajectory of financialization, a pattern that was not identified in earlier macroeconomic accounts of financialization (e.g., Crotty 2003; Krippner 2011). Industries that had the greatest financialization growth between 1970 and 1997 were tobacco, motor vehicle, oil and gas extraction, and communications, followed by electrical and electronic, stone, clay, and glass, and chemical products. In this period, almost all industries showed a growth in their dependence on financial income. In the second period, firms in some industries such as electrical equipment and products demonstrated rapid growth in their reliance on financial income, while other industries such as printing and publishing, broadcasting and telecommunication, waste management, and petroleum and coal products showed gradual decline.

Comparing figure 2*a* with figure 2*b* shows that there was a collective movement toward financialization in the first period. With few exceptions (lumber and wood, paper and allied products, and construction), most industries show positive growth in their reliance on financial income. This probably reflects the fact that most financial deregulation took place between the late 1970s and the late 1990s (Krippner 2011). The second period, in contrast, shows divergence, particularly among industries that were more

<sup>6</sup> Taxable interest, a component of total receipts, included interest on U.S. government obligations, loans, notes, mortgages, arbitrage bonds, nonexempt private activity bonds, corporate bonds, bank deposits, and tax refunds. The statistics also included dividends from savings and loans and mutual savings banks, federal funds sold, finance charges, and sinking funds. Dividends included those received from domestic or foreign corporations. Capital gains refers to net capital gains and is calculated as the sum of “net short-term capital gain reduced by net long-term capital loss” and “net long-term capital gain reduced by net short-term capital loss.” Business receipts are defined as gross operating receipts reduced by the cost of returned goods and allowances. Investment, incidental income, and gains from the sale of assets are not included in this measure.

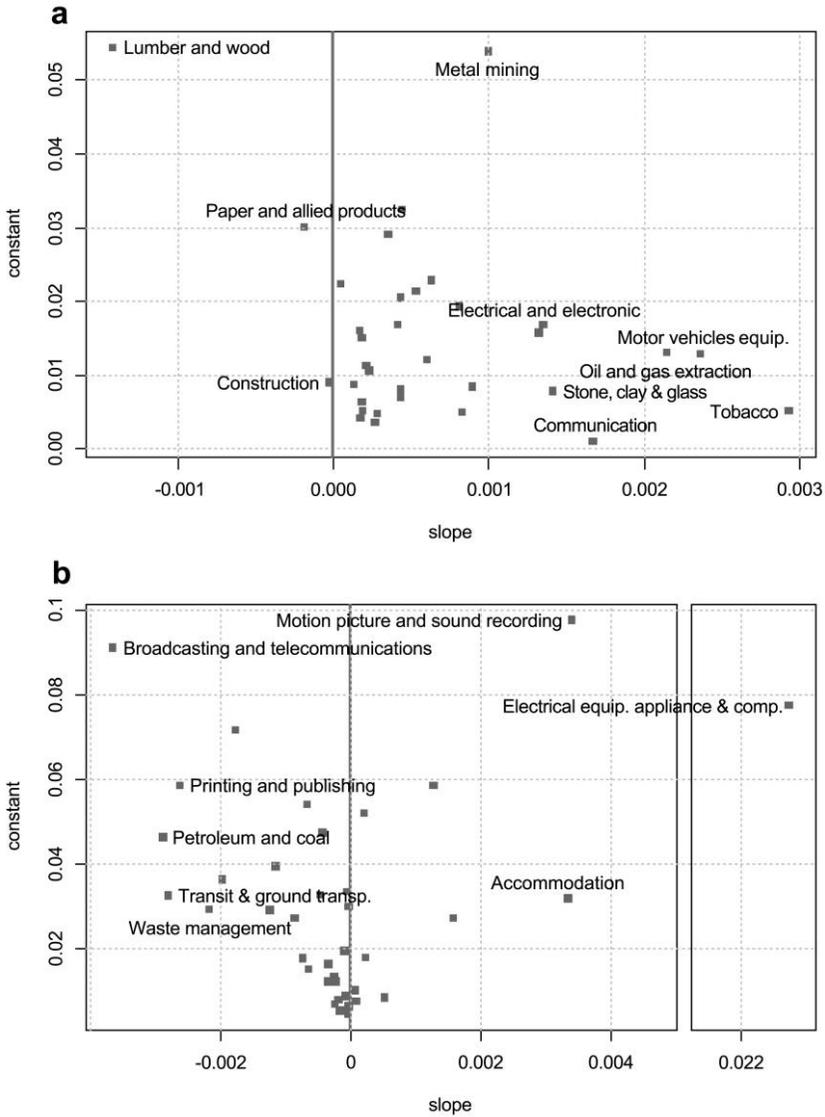


FIG. 2.—Industrial trajectories of financialization, 1970–2008. *a*, standard industrial classification, 1970–97; *b*, North American industry classification system, 1998–2008.

financialized in the beginning of the period. They were likely to either move further along this path or show large decline in the next decade. Those of low dependence in the beginning of the period, however, showed little change. Thus, we would expect that the impact of financialization on income in-

equality would be more profound between 1970 and 1997 than in the later period.

We examine three income inequality measures. First, we focus on labor's share of income. The conventional measure of labor's share is to divide total compensation by value added (Kristal 2010). However, since our primary concern is the social relation between workers and owners, the conventional measure is inappropriate. Value added includes taxes on production and imports, the earnings of the government, but excludes government subsidies that directly increase firm earnings. We use the sum of compensation and gross operating surplus, instead of value added, as the denominator in our measure of labor's share. Figure 3*a* presents the trend of labor's share of income from 1970 to 2008. Due to business cycles, there is significant fluctuation of labor's share of income.<sup>7</sup> Yet the secular trend is clear: labor's share in the nonfinance, nonagricultural economy dropped from about 0.7 at the beginning of the period to about 0.65 at the end of the time series.

The second dependent variable of interest is officers' share of compensation. Officers are the highest-level executives in corporations, including positions such as chief executive officer, chief operating officer, and chief financial officer. According to ExecuComp, a business executive compensation database published by Standard & Poor's, the average number of unique executives in publicly traded firms was 6.7 in 1994 and 5.9 in 2004 (Kaplan and Rauh 2010). We obtain estimates of total officers' compensation at the industry level from the corporate tax return statistics published by the IRS. The item includes salaries, wages, stock bonuses, bonds, and other forms of compensation but not qualified deferred compensation, such as contributions to a 401(k) plan. This suggests that to some extent we underestimate the real growth of officers' compensation in our analysis.

We calculate officers' share of compensation by dividing officers' compensation by the total compensation of all workers in a given industry. In other words, we measure their share by asking what proportion of labor income is captured by the six or seven top executives. Figure 3*b* presents the trend in officers' share of compensation. It shows a steady increase in officers' capture of labor income from about 6% of total labor income in 1970 to about 9% in 1990. The share returned to more than 8.5% in 1996 and slowly declined to about 7.5% in 2008.<sup>8</sup> Overall, figure 3*b* shows that

<sup>7</sup> The amount of compensation over time is more stable than the amount of surplus. Thus, labor's share tends to be lower during economic booms and higher during the busts. This is also why there was a hike of labor's share after the dot-com bubble burst in 2000.

<sup>8</sup> Due entirely to an unexplained drop in officers' compensation in the "other service" industry, the officers' share at the aggregate level drops to about 7% between 1986 and 1995. Since there is no industry reclassification during this period, we suspect this

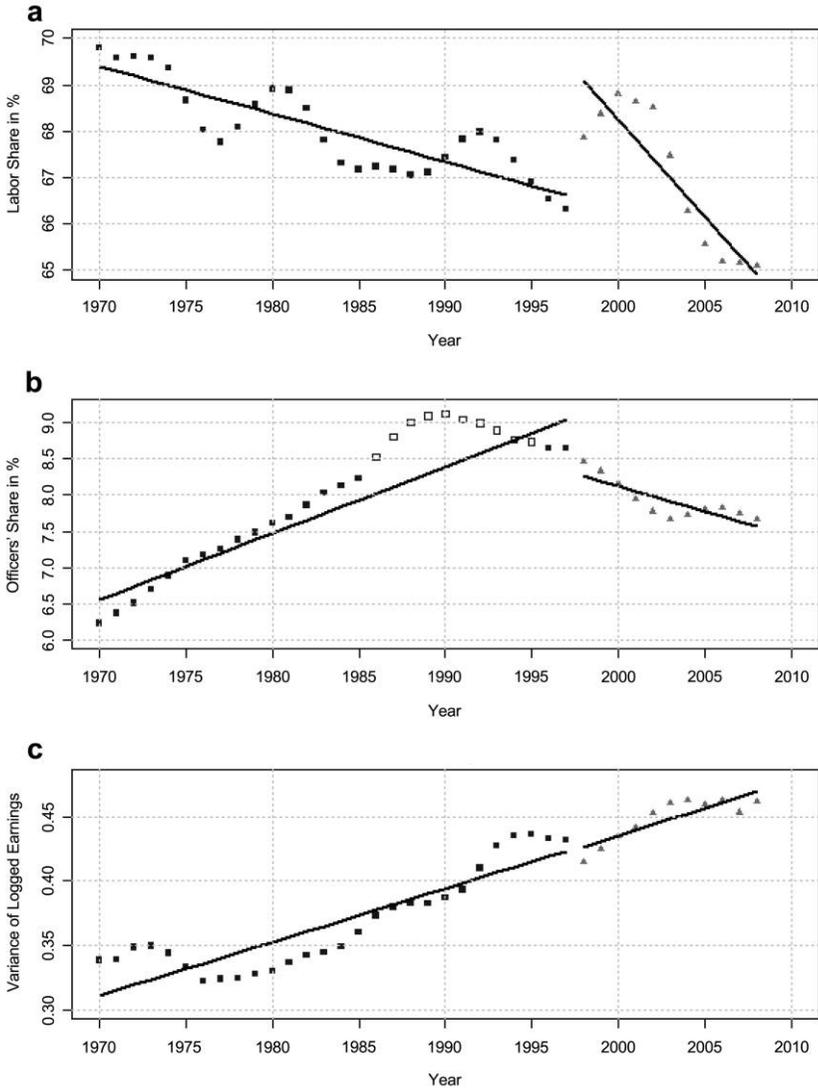


FIG. 3.—Income dynamics, nonfinance, and nonagricultural economy, 1970–2008. *a*, Labor’s share of income; *b*, officers’ share of compensation; *c*, earnings dispersion.

there is, in relative terms, a 20% growth of officers' share of labor income in the past four decades. Furthermore, since officers' compensation is a fraction of total compensation, this result indicates that the decline of income share for nonofficer workers is greater than previously observed.<sup>9</sup>

Finally, we examine industry-wide earnings dispersion. We restrict the scope of this measure to the core workforce, defined as full-time and full-year workers ages 25–55. This restriction avoids the interferences of part-time, school attendance, and retirement trends. We then adjust the earnings for top coding and inflation into 2001 U.S. dollars and exclude workers with annual earnings equal to or lower than \$100.<sup>10</sup> We measure earnings inequality as the variance of log annual earnings. Figure 3c presents the overall earnings dispersion trend. Consistent with previous studies, it shows that, from 1970 to 2008, the level of compensation-related income inequality increased from 0.34 to 0.47, or by about 40%. A variance decomposition shows that before the early 2000s, there was virtually no growth of between-industry variance in the nonfinance sector of the U.S. economy. Thus, most of the growth in variance occurred within rather than between industries.

Table 1 presents the variables, technical definitions, and sources used in our analyses. A series of variables representing the most prevalent explanations of increased income inequality are incorporated as controls.<sup>11</sup> Union density is measured by the percentage of the workforce reporting to be union members in both the CPS May (1970–82) and Merged Outgoing Rotation Group files (1983–2008). Because the question on union membership was not asked in 1970, 1971, and 1982, we impute industry-specific predictions using the data points from 1973 to 1981. We expect that union density would have a positive effect on labor's share of income (Kristal 2010) and a negative effect on earnings dispersion (Western and Rosenfeld 2011). In the previous literature, declining union density tends to be the

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reflects some measurement error or short-term accounting change at the IRS. To smooth the trend, we impute the officers' share of compensation for the "other service" industry between 1986 and 1995 with spline estimates. This does not affect our analysis because the "other service" industry is excluded from the sample.

<sup>9</sup> Although the absolute ratios are small, any increase reflects a significant income transfer into a small set of executives. For example, a 1% rise in 1970 represents US\$(1970)15 billion and US\$(2011)86 billion. By 2008, a 1% increase in executive compensation transferred US\$(2011)233 billion to corporate executives.

<sup>10</sup> Following Philippon and Reshef's treatment (2009), we multiply the top-coded earnings until 1995 by a factor of 1.75.

<sup>11</sup> We do not include measures of occupation in our models. We conceptualize occupations as endogenous to firm and industry. They are the backbones of the internal divisions of labor within firms. There is not a sufficient sample size within the CPS to produce stable occupation estimates within industry within year. We do assume that most of the income inequality growth we observe in fig. 3b is produced by internal income distributions tied to occupational distinctions between jobs.

TABLE 1  
VARIABLES, SOURCES, AND TECHNICAL DEFINITIONS

Variable	Technical Definition	Source
Independent:		
Financialization . . . . .	Financial receipts / business receipts	IRS corporate tax return statistics
Dependent:		
Labor's share . . . . .	Compensation / (compensation + gross operating surplus)	BEA National Income and Product Accounts
Officers' share . . . . .	Officers' compensation / total compensation	IRS corporate tax return statistics; BEA National Income and Product Accounts
Earnings dispersion <sup>a</sup> . . . . .	Variance of log earnings	CPS Integrated Public Use Microdata Series
Control:		
Union density <sup>b</sup> . . . . .	Union members / workers	CPS May files, 1970–82, and Merged Outgoing Rotation Group files, 1983–2008
Computer investment . . . . .	Computer hardware and software investment / nonresidential fixed assets investment	BEA National Income and Product Accounts
Import penetration <sup>c</sup> . . . . .	Imports / (production – exports + imports)	OECD Structural Analysis
College . . . . .	College graduates / workers	CPS Integrated Public Use Microdata Series
Non-Hispanic white men . . . . .	Non-Hispanic white men / workers	CPS Integrated Public Use Microdata Series
Industrial concentration . . . . .	Three largest firms / total revenue	Compustat
Employment size . . . . .	Full-time-equivalent employees / total full-time-equivalent employees	BEA National Income and Product Accounts
Capital consumption . . . . .	Capital consumption allowance / total capital consumption allowance of nonagricultural, nonfinancial private economy	BEA National Income and Product Accounts

NOTE.—Since smaller industries have few observations in the CPS, we smoothed the control variables from CPS with a locally weighted moving average.  
<sup>a</sup> Inflation and top-coding adjusted.  
<sup>b</sup> 1970, 1971, and 1983 are imputed.  
<sup>c</sup> Extractive and manufacturing industries only.

single most important institutional predictor of increased income inequality.<sup>12</sup>

To account for capital- and skill-biased technology change, we control for computer investment. It is measured as the investment in computer hardware and software over total nonresidential fixed assets investment. To account for the effects of globalization, we control for import penetration in extractive and manufacturing industries. It is calculated as total imports over total domestic sales. We expect that both variables are negatively associated with labor's share (Harrison 2002; Kristal 2010, 2011) but positively associated with earnings inequality (Acemoglu 2002, 2003; Alderson and Nielsen 2002).

To account for changes in the skill level of the workforce, we control for education level of the workforce in the regression analysis. It is measured by the fraction of the workforce that has a college education. A higher value indicates that a larger proportion of the workforce is skilled workers. The education level is expected to have a positive effect on labor's share of income. To account for the effects of the changing demographic composition of the U.S. workforce, we control for the proportion of the workforce that was non-Hispanic white men. Although prior studies of income inequality have not included this variable, workplace level studies have repeatedly shown that race and gender status influence claims-making power (Tilly 1998; Tomaskovic-Devey et al. 2009), and we expect that a decrease in non-Hispanic white men would result in a long-term decline of labor's share.

In addition, we control for industrial concentration to account for long-term within-industry compositional shifts. This is measured by the revenue of the three largest firms over total industry revenue. We also control for the relative size of the workforce and capital intensity for between-industry shifts in the composition of the economy. The former is measured as the number of full-time-equivalent employees in the industry over total full-time-equivalent employees of the nonagricultural and nonfinancial economy. The latter is measured by industry capital consumption over national capital consumption. We expect that an increase in relative capital intensity in the long run would lead to a decrease in labor's share of income. We do not have a prediction for the association of capital investment with officers' compensation and earnings dispersion.

## Method

We examine the connection between financialization and income inequality with single-equation error correction models (ECMs; see Beck 1991; De Boef

<sup>12</sup> We appreciate one of the reviewers pointing out that, in the economic literature, the fall of real minimum wage is the dominant explanation for rising inequality in the 1980s.

and Keele 2008).<sup>13</sup> A recent application of ECMs in sociology is Kristal's analysis of labor's income share (2010), in which she suggests that working-class organizational power has both instantaneous and long-term effects on labor's share of national income. We take a more conservative approach and focus on the long-run effects in our analysis. This is because interpreting the contemporaneous coefficient as an instantaneous effect is only appropriate when the causal direction is firmly established. Financialization and income distributions in the same year tend to be endogenous since resources are simultaneously allocated to financial investments, labor, capital, or management. The interpretation of the long-run effect, by contrast, does not require an implausible causal assumption and is consistent with our theoretical argument that financialization reshapes the long-term social relations between the actors.

To absorb the interferences of time-constant industrial trends and year-specific economy-wide shocks, we include fixed-effect terms (i.e., random intercepts) for both industry and year in the models. This procedure also ensures that the estimates are derived from within-industry variance in the rate of change instead of unobserved between-industry differences. Furthermore, we report panel-corrected standard errors (Beck and Katz 1995) in our analysis, which correct for serial- and year-clustered heteroscedasticity.<sup>14</sup>

The single-equation ECMs in our analysis are specified as<sup>15</sup>

$$\Delta Y_{i,t} = \alpha_0 + \alpha_{1,i} + \alpha_{2,t} - \beta_1 Y_{i,t-1} + \beta_2 X_{i,t-1} + \varepsilon_{i,t},$$

where  $\Delta Y_t$  denotes the first difference  $Y_t - Y_{t-1}$ ,  $\alpha_0$  denotes the grand mean,  $\alpha_{1,i}$  denotes industry-specific deviation in change,  $\alpha_{2,t}$  denotes year-

<sup>13</sup> It should be noted that the ECMs, autoregressive distributed lag models, and partial adjustment models are equivalent in their autoregressive nature (De Boef and Keele 2008). We use ECMs because the long-run effect and its standard error can be estimated more directly than in the other two specifications.

<sup>14</sup> White robust standard errors and industry-clustered robust standard errors yield substantively identical results.

<sup>15</sup> We restrict the contemporaneous coefficient to zero in our analysis for the following reasons. First, as mentioned, interpreting contemporaneous coefficients requires the assumption of contemporaneous exogeneity. We expect the explanatory variables to be contemporaneously endogenous to the outcome variables, so the inclusion of contemporaneous terms leads to the problem of overcontrol. Second, our theoretical model does not suggest any industry-wide instantaneous effect of the independent variables on the dependent variables. Third, with the sample size we have, including the contemporaneous term would either limit the number of the control variables in the model or induce a collinearity problem. Finally, when we include the contemporaneous terms, most contemporaneous coefficients are statistically nonsignificant. We also find no substantive difference in the long-run relationship between financialization and three income inequality measures in the alternative specification.

specific deviation,  $\beta_1$  denotes the adjustment or error correction rate of  $Y$ , and  $\beta_2$  denotes the direct effect of  $X_{t-1}$  on  $\Delta Y_t$ . The model shows that, conditional on other covariates, a unit increase in  $Y_{t-1}$  leads to a  $\beta_1$  unit decrease in  $\Delta Y_t$  and therefore a  $1 - \beta_1$  unit increase in  $Y_t$ . Therefore, the long-run, cumulative effect of a unit increase in  $X$  on  $Y$  is not only  $\beta_2$  but the sum of an infinite geometric series:

$$\sum_{k=0}^{\infty} \beta_2 (1 - \beta_1)^k,$$

where  $k$  represents the number of discrete time units following the direct effect. This geometric series converges into  $\beta_1^{-1}\beta_2$ . To directly estimate the long-run effect of  $X$  and its standard error, we estimate the Bewley (1979) model with the predicted  $\Delta Y$  (see app. C for the reparameterization of the models):

$$Y_{i,t} = \beta_1^{-1}\alpha_0 + \beta_1^{-1}\alpha_{1,i} + \beta_1^{-1}\alpha_{2,t} - \beta_1^{-1}(1 - \beta_1)\Delta Y_{i,t} + \beta_1^{-1}\beta_2 X_{i,t-1} + \varepsilon_{i,t}.$$

Three sets of models are estimated in our analysis. We examine the long-run effects of financialization on labor's share of income, officers' compensation, and earnings dispersion (see app. D for additional estimates on 90:50, 75:25, and 50:10 ratios). We expect that the reliance on financial income will have a negative effect on labor's share and positive effects on officers' compensation and earnings dispersion. For each set of models, three equations are estimated. We examine the hypotheses on nonfinance industries from 1971 to 1997 ( $I = 35, T = 28$ ) and from 1999 to 2008 ( $I = 40, T = 10$ ). To account for the impact of import penetration, we also estimate a separate model for extractive and manufacturing industries between 1971 and 1997 ( $I = 23, T = 28$ ). We do not estimate this model between 1999 and 2008 because we have only a few industries with information on this variable ( $I = 17$ ) and few observations per industry ( $T = 10$ ). To detect the influence of specific industries and examine the robustness of our findings, jackknife analysis is conducted by excluding one industry at a time for all equations.

## RESULTS

Tables 2–4 present the long-run effects and the error correction rates of the models predicting labor's share of income, officers' compensation, and earnings dispersion, respectively. It should be noted that the error correction rates in all models are fairly small, indicating that the dependent variables are persistent over time and the causal impact of the independent variables tends to spread slowly across the three dimensions of income dynamics.

Labor's Share

We start by examining the relationship between financialization and labor's share of income. Table 2 shows that the model estimates support our hypothesis, that is, increased dependence on earnings through financial channels tends to decrease labor's share of total income in the long run. The directions of the effect are consistent across the three models. A 1% increase in the reliance on financial income is associated with between a 0.9% and a 3.7% decrease of labor's share in the long run. The jackknife analysis shows that the effects of financialization in both periods are robust. In the first period, the effects range from  $-4.81$  (panel-corrected standard error = 0.131) to  $-1.978$  (0.074). In the second period, the effects range from  $-1.248$  (0.118) to  $-0.713$  (0.065).

Between 1971 and 1997, average union density of the nonfinance private sector dropped from 25.35% to below 10%. Conditional on other factors, industries with stronger decline in union density subsequently tend to have greater decline in labor's share of income. This result is consistent with previous findings that union density is positively associated with labor's share of income (Kristal 2010). Yet the average effect of unionization turns negative between 1999 and 2008. This result is consistent with the finding that the effect of union membership on labor's share is declining in the postaccord period (Wallace, Leicht, and Raffalovich 1999).

TABLE 2  
THE LONG-RUN EFFECTS AND THE ERROR CORRECTION RATE:  
PREDICTING LABOR'S SHARE OF INCOME

VARIABLE	ALL NONFINANCE INDUSTRIES				EXTRACTIVE AND MANUFACTURING	
	1971-97		1999-2008		1971-97	
	Coefficient	PCSE	Coefficient	PCSE	Coefficient	PCSE
Financialization . . . . .	-3.492***	.101	-.882***	.070	-3.659***	.127
Union density . . . . .	.731***	.016	-.906***	.066	.849***	.023
Computer investment . . . . .	-.233***	.014	-.727***	.084	-.027	.028
College . . . . .	.874***	.030	-.367***	.081	.743***	.038
Non-Hispanic white men . . . . .	.032	.019	.880***	.084	.332***	.024
Industrial concentration . . . . .	-.115***	.008	.052**	.017	-.313***	.018
Employment size . . . . .	4.394***	.095	8.697***	.627	5.792***	.350
Capital consumption . . . . .	-.953***	.152	.850***	.143	.403	.300
Import penetration . . . . .					-.320***	.018
Error correction rate . . . . .	-.066**	.025	-.207*	.085	-.073*	.029
<i>N</i> . . . . .		945		400		621
<i>R</i> <sup>2</sup> . . . . .		.190		.414		.200

NOTE.—PCSE = panel-corrected SE.

\*  $P < .05$ .

\*\*  $P < .01$ .

\*\*\*  $P < .001$ .

Table 2 also shows a significant impact of investment in computer technology. In both periods, the estimates show that an increase in investment in computer technology leads to a future decrease in labor's share of income. However, when import penetration is controlled, the effect does not hold for extractive and manufacturing industries between 1971 and 1997, which were presumably most affected by the introduction of computer technology.

As for the effect of education, the estimates show that, between 1971 and 1997, an increase in the proportion of workers who have a college education tends to result in an increase in labor's share. The average estimate turns negative in the second period. Nevertheless, the jackknife analysis shows that this change of direction is entirely driven by the computer and electronic product manufacturing industry, an industry with a high- and increasingly high-skilled workforce but a decreasing share of labor's income between 1999 and 2008. Once the industry is excluded from the analysis, the average coefficient is a positive 0.49 with a panel-corrected standard error of 0.069.

The effect of the race/gender employment composition is significant, and the direction is consistent with our expectation. A decrease in the proportion of workers who are non-Hispanic white men leads to a long-run decrease in labor's share of income, net of the changes in the skill level of the workforce. The effect seems to be particularly strong among extractive and manufacturing industries and when import penetration is controlled. A 1 percentage-point decrease in the proportion of workers who are white men leads to about a 0.332 percentage-point decrease in labor's share of income.

The effect of import penetration on labor's share of income supports the globalization thesis. Between 1971 and 1997, a 1% increase in import penetration, in the long run, leads to a 0.32% decrease in labor's share of income among extractive and manufacturing industries.

### Officers' Compensation

Table 3 presents the estimates of models predicting officers' share of compensation. Confirming our core hypothesis, an increase in the degree of financialization is associated with a long-run increase in officers' share of compensation. The jackknife analysis shows that the effect is robust in the first period, ranging from 0.582 (0.018), when excluding the amusement and recreation services industry, to 0.264 (0.010), when excluding tobacco manufactures. In the second period, the effect is not as conclusive, ranging from 0.143 (0.011), when the motion picture and sound recording industry is excluded from the analysis, to  $-0.192$  (0.017), when the electrical equipment, appliance, and component manufacturing industry is removed.

TABLE 3  
THE LONG-RUN EFFECTS AND THE ERROR CORRECTION RATE:  
PREDICTING OFFICERS' COMPENSATION

VARIABLE	ALL NONFINANCE INDUSTRIES				EXTRACTIVE AND MANUFACTURING	
	1971-97		1999-2008		1971-97	
	Coefficient	PCSE	Coefficient	PCSE	Coefficient	PCSE
Financialization . . . . .	.411***	.015	.093***	.010	.360***	.016
Union density . . . . .	-.031***	.002	-.166***	.011	.009***	.002
Computer investment . . . . .	.065***	.002	.313***	.021	-.031***	.002
College . . . . .	.027***	.003	-.064***	.005	.092***	.003
Non-Hispanic white men . . . . .	.187***	.005	-.0313***	.002	.190***	.006
Industrial concentration . . . . .	.026***	.001	.074***	.005	.046***	.002
Employment size . . . . .	-1.579***	.029	-2.412***	.084	-.835***	.035
Capital consumption . . . . .	-.230***	.012	.001	.017	.250***	.015
Import penetration . . . . .					.028***	.002
Error correction rate . . . . .	-.050*	.020	-.086	.054	-.060*	.026
<i>N</i> . . . . .	945		400		621	
<i>R</i> <sup>2</sup> . . . . .	.232		.538		.285	

NOTE.—PCSE = panel-corrected SE.

\* *P* < .05.

\*\* *P* < .01.

\*\*\* *P* < .001.

The effect of union density on officers' relative compensation is negative and significant in both periods, indicating that a decrease in union density in the long run led to an increase in officers' share of compensation.<sup>16</sup> Although the average effect in the third set of analysis is positive, the jackknife analysis shows the estimate turns into a significant  $-0.015$  ( $0.002$ ), when excluding the coal mining industry. These results are consistent with Piketty and Saez's (2006) intuition that a labor union might hinder the increase of officers' share of income, and the decline in union density led to a concentration of income at the top of the distribution.

The effect of computer investment on officers' share of compensation is mixed. Although the average effect is positive and significant in the first period, the jackknife analysis shows that the result is driven by the business service industry alone. Once it is excluded, the average coefficient is  $-0.044$

<sup>16</sup> It should be noted that, since we model the compensation for the officers relative to total compensation, a negative coefficient does not always imply an absolute decrease in officers' compensation. In fact, because union density is positively associated with labor's share of income, it is actually positively associated with officers' absolute compensation. This finding is consistent with a previous finding that union density is positively associated with managerial pay (Rosenfeld 2006). One explanation of such a relationship might be that a labor union lifts the wage and salary at the bottom of the hierarchy and consequently increases the compensation at the very top (Hedström 1991).

## Financialization and U.S. Income Inequality

with a standard error of 0.002. A similar result is found among extractive and manufacturing industries when import penetration is controlled. In contrast, the effect is positive and robust in the second period, ranging from 0.414 (0.027) to 0.194 (0.014), which is consistent with the skill-biased technological change thesis.

With regard to within- and between-industry compositional effects, the result shows that high industrial concentration in the long run is associated with a higher officers' share of compensation. The relation is robust in all three sets of analysis. The effect of relative employment size, as expected, is negatively associated with officers' compensation.

### Earnings Inequality

Table 4 presents the estimates for models predicting industry-wide earnings dispersion. It shows a long-run positive relationship between the dependence on financial income and earnings dispersion between 1971 and 1997. The jackknife test shows that this positive relationship is robust, and the estimates range from 1.215 (0.104) to 0.333 (0.103). The relationship remains robust among the extractive and manufacturing industries when import penetration is controlled, which similarly ranges from 1.413 (0.12) to 0.573 (0.113). In the second period, the average effect of financializa-

TABLE 4  
THE LONG-RUN EFFECTS AND THE ERROR CORRECTION RATE:  
PREDICTING VARIANCE OF LOG EARNINGS

VARIABLE	ALL NONFINANCE INDUSTRIES				EXTRACTIVE AND MANUFACTURING	
	1971–97		1999–2008		1971–97	
	Coefficient	PCSE	Coefficient	PCSE	Coefficient	PCSE
Financialization . . . . .	1.017***	.101	.010	.074	1.197***	.114
Union density . . . . .	-.036*	.017	-.900***	.126	.032	.024
Computer investment . . . . .	.155***	.013	-.692***	.145	.090***	.024
College . . . . .	.049*	.022	-.028	.061	.179***	.026
Non-Hispanic white men . . . . .	.161***	.036	.0804*	.040	.211***	.047
Industrial concentration . . . . .	-.127***	.010	-.121**	.040	-.085***	.016
Employment size . . . . .	-.655***	.080	-1.219***	.229	.549	.301
Capital consumption . . . . .	-2.787***	.117	-1.982***	.285	-3.332***	.206
Import penetration . . . . .					.115***	.023
Error correction rate . . . . .	-.088**	.034	-.182**	.067	-.116*	.051
<i>N</i> . . . . .	945		400		621	
<i>R</i> <sup>2</sup> . . . . .	.174		.547		.152	

NOTE.—PCSE = panel-corrected SE.

\* *P* < .05.

\*\* *P* < .01.

\*\*\* *P* < .001.

tion turns nonsignificant. The jackknife analysis shows that the estimates range from 0.575 (0.084), when excluding the motion picture and sound recording industry, to  $-1.202$  (0.202), when excluding the electrical equipment, appliance, and component manufacturing industry (again, both are outliers with regard to the level of financialization). When excluding these two industries simultaneously, the average effect is 1.7 with a standard error of 0.294. Thus, for most industries even in the later period, financialization remains associated with increased earnings inequality.

The direction of union density is consistent with previous findings that labor unions tend to reduce income dispersion (Western and Rosenfeld 2011). Yet among extractive and manufacturing industries, the dynamic effect of union density appears to be trivial when import penetration is controlled. Computer investment, consistent with expectations, has a positive and robust effect on earnings dispersion between 1971 and 1997. The effect turns negative in the second period, but it is entirely driven by the pipeline transportation industry. Once it is excluded, the average coefficient is 0.342 with a standard error of 0.131. This result is in agreement with the skill-biased hypothesis that there is increasing employee skill differentiation with the introduction of computer technology.

As for gender and racial composition, the estimate shows that percentage of white males is positively associated with earnings dispersion in the first period. Yet the jackknife analysis indicates this result is entirely driven by the tobacco industry. Once it is removed, the coefficient turns to  $-0.572$  with a standard error of 0.029. A similarly negative effect is also observed in the second period. Both indicate that the retreat of non-Hispanic white men in an industry is often followed by an increase in earnings dispersion.

For extractive and manufacturing industries in the first period, the impact of import penetration is positive and robust. This result is consistent with a previous finding that the global flow of goods tends to increase income inequality (Alderson and Nielsen 2002).

Table 4 also shows that industries with a higher concentration tend to have lower earnings dispersion in the later period. The effect is robust between 1970 and 1997 but inconclusive between 1999 and 2008. Although perhaps counterintuitive, this finding resonates with a recent cross-national finding that employment concentration is negatively associated with the level of income inequality (Davis and Cobb 2010). Furthermore, table 4 shows that industries with shrinking relative employment tend to develop higher earnings dispersion. In other words, industries that are declining are more likely to experience subsequent surges in the level of income inequality. However, the effect becomes trivial among extractive and manufacturing industries once import penetration is controlled.

## Counterfactual Analyses

Finally, we examine the impact of financialization on income dynamics with a series of counterfactual estimates derived from these models (see app. E for technical details). That is, we contrast the observed inequality trend to what it might have been if the reliance on financial income is fixed at the 1970 level through the time series, on the basis of the model estimates with industries weighted to represent their relative size on the dependent variable. The difference between the observed trend and the counterfactual trend can therefore be interpreted as the net impact of financialization that was realized in the observed time period. Figure 4 presents the counterfactual estimates for financialization on income inequality. The left column presents the observed and the counterfactual trends, and the right column represents the differences between two trends across time.

We first examine the impact of financialization on labor's share of income, which is presented in the first row of figure 4. It shows that the counterfactual trend closely follows the observed trend before 1980 and starts to diverge in the early 1980s. The gap quickly widens in the next two decades to a 3 percentage-point difference in 2000. Then the gap first declines to about 2 percentage points in the mid-2000s but rapidly returns to about a 2.5 percentage-point difference. If we contrast the observed labor's share of income with the counterfactual, the difference indicates that financialization accounts for about 73% of the decline in labor's share between 1970 and 1997 and 58% of the total decline between 1970 and 2008.

The second row of figure 4 presents the impact of financialization on officers' share of compensation. It shows that, in contrast to labor's share of income, financialization has a relatively modest effect on officers' compensation. Yet it is clear that the counterfactual estimates are constantly lower than the observed trend, and most yearly differences are significant at 0.05 level. The gap first grows to 0.17 percentage points in the 1970s and returns to about 0.07 percentage points in the first half of the 1980s. The gap then widens again in the early 1990s and exceeds 0.2 percentage points, respectively, in 1994 and the early 2000s, which is followed by a convergence of the two trends to between 0.15 and 0.1 percentage points. Overall, the counterfactual analysis suggests about 6.3% of the increase in officers' compensation between 1970 and 1997 and 9.6% of the increase between 1970 and 2008 is associated with the increasing reliance on financial income by non-finance firms.

The last row of figure 4 presents the counterfactual estimates for financialization on earnings dispersion. It shows that the counterfactual overlaps with the observed trend not only in the 1970s but also in the early 1980s, during which earnings dispersion starts to soar. The two trends start to diverge in the late 1980s, when the observed trend grows faster than the coun-

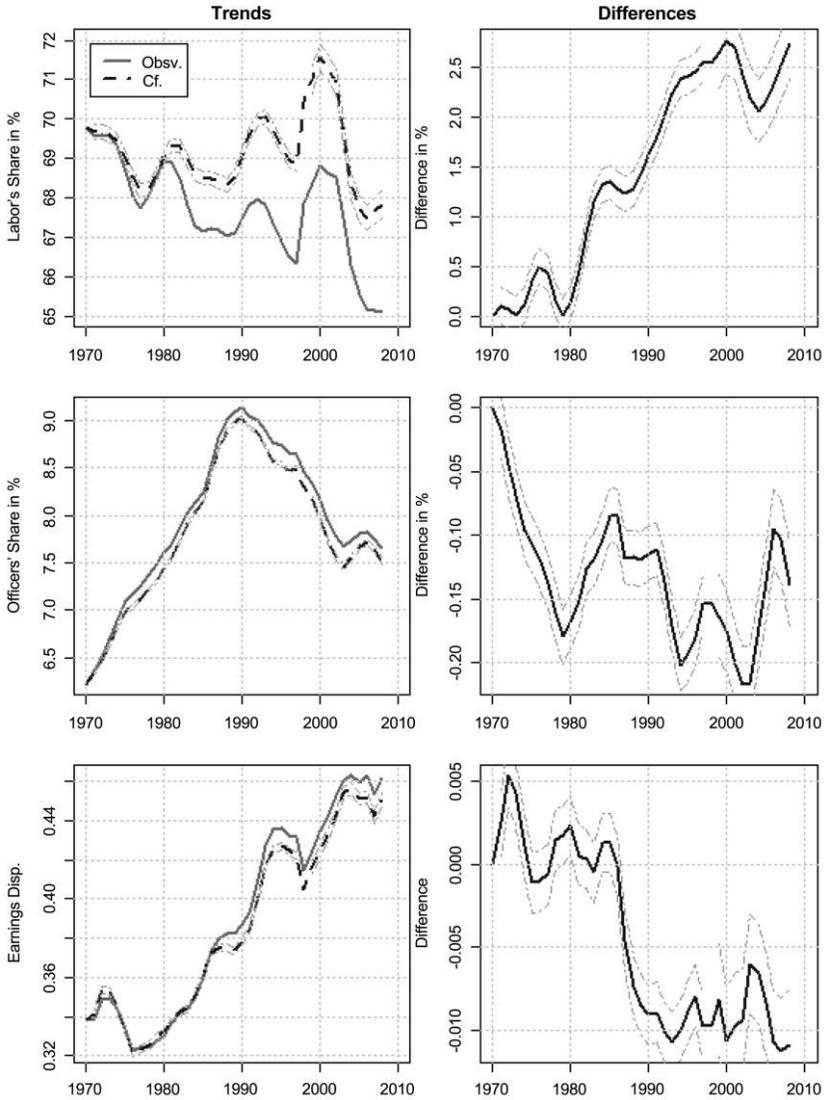


FIG. 4.—Counterfactual estimates for financialization on income inequality

terfactual. The gap then quickly widens in the 1990s and further expands in the later part of the 2000s to a more than 0.02 difference in variance of log earnings. At the end of the time series, the counterfactual analysis suggests that financialization is associated with 9.1% of the growth in earnings dis-

persion between 1970 and 1997 and about 10.2% of the growth between 1970 and 2008. In comparison, Western and Rosenfeld's (2011) estimate from an individual-level model is that the decline in unionization was responsible for 20% (women) and 34% (men) of the growth in earnings inequality between 1973 and 2007. The counterfactual estimate from our models is that unionization was associated with 14.8% of the growth in earnings dispersion, net of other industry-level controls. Thus, the impact of financialization on earnings dispersion is almost as large as that of declining unionization.

## CONCLUSION

Using an integrated industry panel data set, this article examines the connection between the financialization of the U.S. economy and rising income inequality in the nonfinance sector from 1970 to 2008. We show that the reliance on earnings through financial channels has grown significantly since the 1980s in the nonfinance sector, particularly in manufacturing industries. We also show that there are nontrivial temporal and industrial variances with regard to the trajectory of financialization, which have been largely overlooked in the literature. While there was a collective movement of financialization among industries between 1970 and 1997, the trajectories diverged between 1998 and 2008, with the electrical equipment and products industry showing the strongest continued growth.

We argue that financialization of the U.S. economy at its core is a system of redistribution that privileges a limited set of actors. In addition to the growing income transfer into the finance sector (Tomaskovic-Devey and Lin 2011), we think that the increasing reliance on income through financial channels restructured the social relations and the income dynamics in the nonfinance sector. Substituting production and sales investment with financial investment decoupled the generation of surplus from production, strengthening owners' and elite workers' negotiating power against other workers. The result was a structural and cultural exclusion of the general workforce from revenue-generating and compensation-setting processes.

The empirical analysis provides evidence for our thesis. The reliance on financial income, in the long run, is associated with reducing labor's share of income, increasing top executives' share of compensation, and increasing earnings dispersion among workers at the industry level. Furthermore, the analysis shows that the sizes of the effects are substantial, net of conventional explanations such as deunionization, globalization, technological change, and capital investment. The counterfactual analysis indicates that financialization accounts for about half of the decline in labor's share of income, 9.6% of the growth in officers' share of compensation, and 10.2% of the growth in earnings dispersion between 1970 and 2008. In addition,

the period, sector, and industry jackknife estimates for the relationship between financialization and all three outcomes suggest a more general and stable process than many conventional explanations of rising inequality in the literature.

Our analysis confirms previous findings that deunionization is associated with long-run decline in labor's share of income (Kristal 2010), increasing income concentration at the top (Piketty and Saez 2006), and growing income dispersion among workers (Western and Rosenfeld 2011). The effects of computer investment on income dynamics, however, are mixed. While there is evidence suggesting a connection between computer investment and earnings dispersion, its effects on officers' compensation and labor's share of income are mixed. For extractive and manufacturing industries, we find that the global inflow of goods indeed led to a long-run decline in labor's share of income and an increase in earnings dispersion.

In addition, our analysis identifies two new mechanisms that require further investigation. We find that, net of skill level and union density, the proportion of workers who are non-Hispanic white men is positively associated with labor's share of income and negatively associated with earnings dispersion. We also find that industrial concentration is negatively associated with labor's share of income but positively associated with officers' compensation. We see both results as consistent with the thesis that income dynamics are shaped by the relative bargaining and claims-making power of actors in their organizational contexts.

Furthermore, our analysis indicates that the generic income distribution processes might operate differently due to historical and industrial contexts. While union density is generally believed to have a positive effect on labor's share of income, our analysis shows that the relation turned negative in the later period, a likely outcome of the normative shifts in U.S. society (Wallace et al. 1999). Another example is the effect of education. Although the skill level of the workforce mostly has a positive relation with labor's share of income, it is not the case in the computer and electronic product manufacturing industry, in which we observe an increasingly high proportion of workers with a college degree but a decline in labor's share of income. On reflection, the industrial heterogeneity is perhaps not surprising. Industries varied a great deal in their initial levels and trajectories of financialization, unionization, exposure to global competition, and relative investment in computer technology. These historical and industrial heterogeneities challenge the monolithic depiction in the existing literature and invite further examination on the industry-specific income dynamics.

Overall, our analysis contributes to the emerging institutional accounts of rising income inequality in the United States (DiPrete et al. 2010;

Tomaskovic-Devey and Lin 2011; Western and Rosenfeld 2011). Most fundamentally, we introduce financialization as a consequential source of growing income inequality. Empirically, we advance the literature with a set of models that simultaneously examine multiple sources of inequality on multiple dimensions. This approach also gives us greater confidence that the link between financialization and income dynamics is unlikely to be spurious.

An alternative interpretation of the effect of financialization on inequality is that the productivity of managers and capital has risen as a result of financial investment strategies. If this was the case, then increases in capital's and officers' share of income simply reflect increases in their marginal productivity in the era of financialization. We find this interpretation unsatisfying on multiple levels. First, since productivity is not observed but inferred circularly in terms of income distributions, any marginal productivity interpretation is tautological in essence. Second, this interpretation depicts productivity as an individual attribute rather than an organizational outcome that is embedded in a particular social configuration of production. Previous studies and anecdotal evidence have demonstrated that the financial activities operated by nonfinance firms are often heavily backed by the cash flow and the assets generated by production (Orhangazi 2008).<sup>17</sup> Thus, the increase in "marginal productivity" of the top executives and financial workers often comes with the price of diminishing investments in the "marginal productivity" and job security of other workers. Third, the marginal productivity thesis tends to conceive of compensation as a product of inevitable market or technological forces but dismisses its very political and social nature. In this case, it is clear that income dynamics are strongly associated with the financialization of the U.S. economy, which was a result of identifiable ideological, political, and institutional developments since the late 1970s (Davis 2009; Krippner 2011; Tomaskovic-Devey and Lin 2011).

Our theoretical misgivings notwithstanding, we explored some empirical results that should hold if financialization strategies were in fact good business practices. First, we estimate a series of industry-level Cobb-

<sup>17</sup> One well-known case in the business sphere is that of Gary Wendt. Before Wendt was hired by Consec to rescue the company's troubled situation, he worked as the head of GE Capital and was considered not only a skillful and visionary leader but also "the smartest businessman in the country" (Mlodinow 2008, p. x). The appointment of Wendt was then highly applauded by financiers and investors. One quote in the *New York Times* stated that "we know God can't come down here and do this, but the next best thing to God is Gary Wendt" (Morgenson 2002). An immediate result of such approval was that Consec's stock tripled within a year. However, two years later, Consec went bankrupt, and its stock value crashed.

Douglas production functions to explore the changes in output elasticities for labor, nonfinancial assets, and financial assets between 1970 and 2008 (see fig. F1). We find no growth in the productivity of financial assets, and financial assets consistently underperformed nonfinancial assets in the production function.<sup>18</sup> We also developed a firm-level analysis that indicates that financialization does not translate into higher profit. Firms that reported interest income or financial investment or owned a financial subsidiary did not earn significantly more pretax income than other firms. In fact, industry-wide dependence on financial income is associated with a future decline in profits for nonfinance firms in the period of analysis (see app. F).

We believe the marginal productivity thesis is therefore best identified as a *special case* of the general claims-making process in shaping and reproducing compensation practices rather than a general theory of wage determination. That is, we consider it to be one of the discourses widely adopted by actors to make claims about their contribution and worthiness to the organization and to negotiate against other sets of actors. The growing dependence on earnings through financial channels accentuates the social divides between capital and labor and between management and general workers, thus legitimating claims made by capital and top executives in the compensation-setting process. Certainly the rapid decline in unionization meant that in most industries there was no organized countervailing actor to press labor's claim for an increased share or alternative production strategies.

We restrict the scope of analysis to labor's share of income, officers' share of labor income, and earnings dispersion among workers. Yet these were by no means the sole social consequences of financialization. One potential outcome of financialization at the organizational level is the reduction of employment. Coinciding with the growth of GE Capital in the 1980s was a 50% reduction of GE employment, both by selling off production units and by slashing employment in the remaining units. Jack Welch thus earned the nickname "Neutron Jack"—like a tactical atomic bomb turning people into dust but leaving buildings still standing (*New York Times* 2001). If financialization also leads to a long-run reduction of employment, we are likely to underestimate its effect on labor's share of income and officers' compensation since relative employment size is included in the models. Another potential outcome is diminishing job opportunities for core business workers. After a series of cost-cutting measures to channel resources from the retail to the financial operation, Sears, once the nation's third largest retailer, can no longer compete with other retailers such as Walmart, Best Buy, and Kohl's (Greenberg 2008). This

<sup>18</sup> Financial assets include securities, loans, mortgages, and investment in government obligations.

also suggests that we might understate the effect of financialization by controlling for relative capital consumption. A third possibility is the decrease of investment in innovation. Researchers (Lazonick 2010, 2011) claim that, because financial operation extracts resources of the firm into financial markets, it undermines the capacity of the firm to invest in innovation. We believe these hypotheses are plausible and worth further empirical examination.

Our empirical approach prohibits us from exploring regional variance in financialization and income inequality trajectories. We suspect that the effects of financialization and other explanatory variables are not constant across different regions. We expect the effect of financialization to be less salient in the right-to-work and southern states where workers traditionally had lower collective bargaining power to begin with. Hanley (2010) has shown that it is the undermining of worker power in other regions that generated increased income inequality that came to resemble the higher inequality that was always present in the South. However, as figure 2 demonstrates, financialization strategies were widespread across industries, and so it seems likely that they would be widespread regionally as well.

Up to this point we have treated financialization, theoretically and empirically, as an independent causal force, potentially changing the balance of power between various actors in production. In this way we describe financialization as a complement to union density, globalization, and market premiums for skilled work or capital investment as potential explanations of increasing income inequality. A stronger claim might be that financialization also *contributed* to the drop in union density, increases in global production strategies, up-skilling of production processes, and declines in capital investment. Such a claim would be consistent with Davis's (2009) argument that financialization is a new cultural value infusing all aspects of the economy. Harvey (2010) has argued that financialization was central to the neoliberal political project, which he ties to all of these outcomes as well. If this were the case, all of the primary mechanisms currently identified as driving the rise in income inequality might be in part a product of the more fundamental financialization of the economy. In such an expanded account, because financialization weakens workers' bargaining power and encourages managers to avoid investments in production, it leads to declining unionization as production is subcontracted globally. Financialization might also lead to a net up-skilling of a firm's labor force as educated managerial and professional workers are required to manage the investment function of firms, even as fewer production workers are employed. We do not test these possibilities in this article but invite further investigation to disentangle the relations among financialization and the more common explanatory variables in inequality trend models such as deunionization, globalization, and technological change.

APPENDIX A

Data Sources

*IRS Corporate Tax Return Statistics*

We obtained the measures of financial receipts, business receipts, officers' compensation, and total deductions from table 6 of the Return of Active Corporations in the Corporation Complete Report published by the IRS (<http://www.irs.gov/uac/SOI-Tax-Stats-Corporation-Complete-Report>). The estimates were derived from a stratified representative sample of all returns of active corporations organized for profit that are required to file one of the 1120 forms that are part of the Statistics of Income program. The statistics before 1994 were not in machine-readable format at the time of data collection and only in the hard copies of the IRS annual Publication 16 or corporation income tax returns or as image files on the website. We thus scanned and converted the documents between 1970 and 1993 into machine-readable format with an optical character recognition program. The data between 1994 and 2008 are available at the IRS tax statistics website in machine-readable format. See the introduction (sec. 1), "Description of the Sample and Limitations of the Data" (sec. 3), and "Explanation of Terms" (sec. 5) in the Corporation Complete Report for more information.

*BEA National Income and Product Accounts*

We obtained the measures of total compensation, gross operating surplus, full-time-equivalent employees, and capital consumption allowance from the National Income and Product Accounts published by the BEA (<http://www.bea.gov/national/>). Total compensation was obtained from table 6.2, Compensation of Employees by Industry. Gross operating surplus was obtained from the Gross Domestic Product by Industry Data as a component of value added. The estimate of full-time-equivalent employees was obtained from table 6.5, Full-Time Equivalent Employees by Industry. Computer investment was obtained from Detailed Data for Fixed Assets and Consumer Durable Goods (<http://www.bea.gov/national/FA2004/Details/>). Capital consumption allowance was obtained from table 6.22, Corporate Capital Consumption Allowance. All measures are available at the BEA website.

*OECD Structural Analysis*

We obtained the measure of import penetration from the STAN indicators published by the OECD (<http://stats.oecd.org/Index.aspx?QueryId=22211>). The STAN indicators can be found under the theme "Industry and Services" and within Structural Analysis (STAN) databases.

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### *Compustat*

We calculated the measure of industrial concentration from the Compustat North America database published by Standard & Poor's, which is commonly used in the analysis of business financial activities. The database is proprietary and therefore not accessible to the public. However, most research universities and institutions subscribe to the database.

### *Current Population Survey*

We obtained the measure of union density using the CPS May Extracts, 1970–82, and Merged Outgoing Rotation Group files, 1983–2008. Both data sets are hosted by the National Bureau of Economic Research (NBER) and available at their website (<http://www.nber.org/>). We obtained other work-force measures from the Integrated Public Use Microdata Series-CPS.

## APPENDIX B

TABLE B1  
INDUSTRIES

Standard Industrial Classification, 1970–97		North American Industry Classification System, 1998–2008	
Metal mining	Machinery, except electrical	Mining	Wholesale
Coal mining	Electrical and electronic equipment	Utilities	Retail
Oil and gas extraction	Motor vehicles and equipment	Construction	Air, rail, and water transportation
Nonmetallic minerals, except fuels	Transportation equipment, except motor vehicle	Food, beverage, and tobacco	Truck transportation
Construction	Instruments and related products	Textile mill products	Transit and ground passenger transportation
Food and kindred products	Transportation	Apparel, leather, and other textile products	Pipeline transportation
Tobacco manufactures	Communication	Lumber and wood products	Other transportation and support activities
Textile mill products	Electric, gas, and sanitary services	Paper and allied products	Warehousing and storage
Apparel and other textile products	Wholesale	Printing and publishing	Motion picture and sound recording
Lumber and wood products	Retail	Petroleum and coal products	Broadcasting and telecommunications
Furniture and fixtures	Hotels and other lodging places	Chemicals and allied products	Information services and data processing services

TABLE B1 (Continued)

Standard Industrial Classification, 1970–97		North American Industry Classification System, 1998–2008	
Paper and allied products	Personal services	Rubber and miscellaneous plastics products	Professional, scientific, and technical services
Printing and publishing	Business services	Nonmetallic mineral products	Administrative and support services
Chemicals and allied products	Auto repair, miscellaneous repair services	Primary metal industries	Waste management and remediation services
Petroleum and coal products	Amusement and recreation services	Fabricated metal products	Educational services
Rubber and plastics products		Machinery, except electrical	Health care and social assistance
Leather and leather products		Computer and electronic products	Other arts, entertainment, and recreation
Stone, clay, and glass products		Electrical equipment, appliance, and components	Amusement, gambling, and recreation
Primary metal industries		Transportation equipment	Accommodation
Fabricated metal products		Furniture and related products	Food services and drinking places

APPENDIX C

Reparameterization from Error Correction to the Bewley Model

We transform the equation from the ECM to the Bewley model to directly estimate the long-run effect and its standard error. It should be noted that, since we restrict the contemporaneous coefficient to zero, the transformation here is slightly different from that of the conventional Bewley model.

We start with

$$\Delta Y_{i,t} = \alpha_0 + \alpha_{1,i} + \alpha_{2,t} - \beta_1 Y_{i,t-1} + \beta_2 X_{i,t-1} + \varepsilon_{i,t}.$$

The goal of the reparameterization is to directly estimate  $\beta_1^{-1}\beta_2$  and its standard error. To do so, we first add  $Y_{i,t-1}$  on both sides of the equation:

$$Y_{i,t} = \alpha_0 + \alpha_{1,i} + \alpha_{2,t} + (1 - \beta_1)Y_{i,t-1} + \beta_2 X_{i,t-1} + \varepsilon_{i,t}.$$

We then subtract  $(1 - \beta_1)Y_{i,t}$  from both sides:

$$\beta_1 Y_{i,t} = \alpha_0 + \alpha_{1,i} + \alpha_{2,t} - (1 - \beta_1)\Delta Y_{i,t} + \beta_2 X_{i,t-1} + \varepsilon_{i,t}.$$

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Finally, we divide both sides with  $\beta_1$ :

$$Y_{i,t} = \beta_1^{-1}\alpha_0 + \beta_1^{-1}\alpha_{1,i} + \beta_1^{-1}\alpha_{2,t} - \beta_1^{-1}(1 - \beta_1)\Delta Y_{i,t} + \beta_1^{-1}\beta_2 X_{i,t-1} + \varepsilon_{i,t}.$$

Predicted  $\Delta Y$  obtained in the error correction mode is used as a regressor to obtain a consistent estimate of  $\beta_1^{-1}\beta_2$ .

### APPENDIX D

TABLE D1  
THE LONG-RUN EFFECTS: PREDICTING DIFFERENT INEQUALITY MEASURES

VARIABLE	90:50 RATIO		75:25 RATIO		50:10 RATIO	
	Coefficient	PCSE	Coefficient	PCSE	Coefficient	PCSE
1971–97:						
Financialization . . . . .	.181***	.011	.202***	.00991	-.431***	.031
Union density . . . . .	-.009***	.002	-.013***	.00216	-.017***	.003
Computer investment . . . . .	.017***	.002	.012***	.00153	-.009***	.002
College . . . . .	-.011***	.002	-.010***	.00282	.125***	.005
Non-Hispanic white men . . . . .	.014**	.004	-.007*	.00363	.089***	.008
Industrial concentration . . . . .	.013***	.002	-.031***	.00108	-.028***	.002
Employment size . . . . .	-.048***	.014	-.161***	.0172	.122***	.022
Capital consumption . . . . .	.067***	.012	-.051***	.0109	-.129	.015
<i>N</i> . . . . .	945		945		945	
<i>R</i> <sup>2</sup> . . . . .	.161		.130		.129	
1999–2008:						
Financialization . . . . .	.012	.006	.086***	.014	-.009	.007
Union density . . . . .	.037***	.008	.009	.009	-.038**	.012
Computer investment . . . . .	.203***	.019	.229***	.025	.093***	.007
College . . . . .	.083***	.008	.096***	.010	.007	.006
Non-Hispanic white men . . . . .	-.053***	.007	-.007*	.003	.045***	.004
Industrial concentration . . . . .	.012***	.004	.016***	.004	-.028	.005
Employment size . . . . .	.139***	.041	.375***	.045	.257***	.055
Capital consumption . . . . .	-.123***	.021	.345***	.037	.040**	.015
<i>N</i> . . . . .	400		400		400	
<i>R</i> <sup>2</sup> . . . . .	.438		.341		.546	

NOTE.—PSCE = panel-corrected SE.

\*  $P < .05$ .

\*\*  $P < .01$ .

\*\*\*  $P < .001$ .

### APPENDIX E

#### Counterfactual Estimates

We obtain the counterfactual trends by estimating the full model with the observed data, creating a counterfactual data set that holds financialization constant at the 1970 level, and then generating predicted values for the non-dependent variable. We document some technical details here.

First, because  $Y$  is path dependent in the data-generating process, we calculate predicted  $\Delta Y$  sequentially. That is, we use  $\hat{Y}_{i,t}$  to generate  $\Delta \hat{Y}_{i,t+1}$ , then use  $\hat{Y}_{i,t+1}$  to generate  $\Delta \hat{Y}_{i,t+2}$ . Second, we calculate the observed non-finance sector trends with variable industry-year weights. For labor's share, we use the sum of compensation and gross operating surplus; for officers' share of compensation, we use total labor compensation; and for earnings dispersion, we use employment size. We add back other service to the aggregate trends and the counterfactual estimation so that they are consistent with the observed trends presented in figure 3. Before 1998 the other service residual category grows in size. The NAICS adds service industries and reduces the influence of this industry category on observed trends. Adding other service back into the counterfactual estimates is not substantively consequential for the estimated size or trend. For earnings dispersion, we add back the between-industry variance to present the total variance to make it comparable with observed earnings dispersion trends in figure 3c.

Third, we use the difference between the observed value and the counterfactual estimate at the end of the first time series to smooth the 1970–97 and 1998–2008 trends. That is, instead of starting the counterfactual trend for the second period from the observed value of  $Y$  in 1998, we start the counterfactual trend from the observed value in 1998 plus the difference between the observed value and the counterfactual estimate in 1997. Finally, it should be noted that our counterfactual analysis assumes an independent relation among explanatory variables. We do not consider the potential effect of holding financialization at its 1970 level on the dynamics of other explanatory variables. As discussed in the conclusion, this assumption is contestable. Financialization is likely to be closely associated with other variables such as employment size or capital consumption. Thus, the counterfactual estimate might understate the impact of financialization.

## APPENDIX F

TABLE F1  
THE LONG-RUN EFFECTS: PREDICTING PRETAX INCOME

	ERROR CORRECTION	
	Coefficient	SE
ln(assets) . . . . .	-185.6**	59.84
ln(revenue) . . . . .	275.6***	72.85
ln(employment) . . . . .	16.70	37.84
Foreign income/revenue . . . . .	6,955.8***	1,218.2
Report interest income . . . . .	62.29	34.99
Report financial investment. . . . .	40.87	32.09
Own financial subsidiary. . . . .	-48.68	135.7
Debt-equity ratio . . . . .	523.7***	126.2
ln(no. of 3-digit industries) . . . . .	12.93	22.15
Industry union density . . . . .	-149.7	788.4
Industry financialization . . . . .	-7,454.0***	1,655.3
Industry return on assets. . . . .	3,035.4***	767.0
Industry computer investment. . . . .	1,505.2	902.8
Industry revenue concentration . . . . .	443.7	389.1
Adjusted $R^2$ . . . . .	.1724	
Observations/firms (firm-years) . . . . .	15,583	

NOTE.—Data are from Standard & Poor's Compustat. Sample is public nonfinance firms ever listed in Fortune 500 between 1980 and 2005. The estimation strategy is similar to the industry-level analysis in the article. Firm and year fixed effects are included in the model. All values are inflation adjusted. SEs are adjusted for clustering at the industry level.

\*  $P < .05$ .

\*\*  $P < .01$ .

\*\*\*  $P < .001$ .

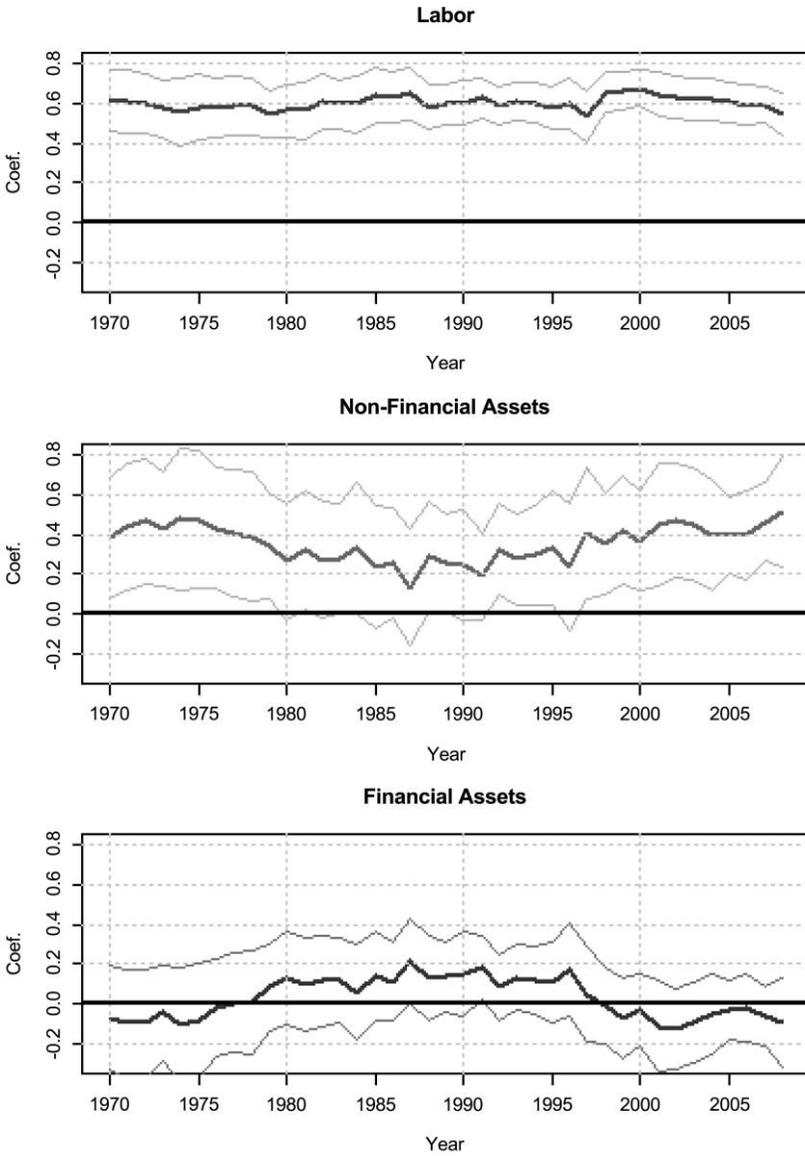


FIG. F1.—Estimated industry-level output elasticities of nonfinancial assets, financial assets, and labor, 1970–2008. We specify the industry-level Cobb-Douglas production function as  $V = AL^\alpha K^\beta F^\gamma$ , where  $V$  denotes industry-wide total value added;  $A$  denotes total factor productivity;  $L$  denotes labor input;  $K$  denotes nonfinancial assets input;  $F$  denotes financial assets input; and  $\alpha$ ,  $\beta$ , and  $\gamma$  denote, respectively, the output elasticities of labor, nonfinancial assets, and financial assets. Samples are identical to those in the rest of this article.

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