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Workplace Compensation Practices and the Rise in Benefit Inequality

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Abstract

This article aims to explain why inequality in fringe benefits has grown faster than wage inequality over the past four decades. We depart from previous income inequality research by studying benefits in addition to wages, but also by focusing on workplaces as the main drivers of benefit determination. We advance the argument that benefits determination is more organizationally embedded than wages mainly because workplaces have greater ability and incentive to alter benefits. Consequently, workplace compensation practices, including type of employment relations, are more important for benefits than for wages. Longitudinal linked employer–job administrative data on wages and voluntary benefits costs from the Employer Costs for Employee Compensation (ECEC) allow us to test these arguments, as well as examine why benefit inequality has dramatically increased. Results from variance decomposition reveal that between- and within-establishment inequality is higher in benefits than in wages, indicating that workplaces affect benefits more than wages. Regression results show that, as expected, establishment-level pay-settings affect benefits more than wages, and the decline in labor unions along with the liberalization of employment practices partly account for why benefit inequality increased at more than twice the rate of wage inequality.

Keywords

fringe benefits, compensation inequality, organizations, unions, employment relations

A sharp rise in U.S. wage inequality from the late 1970s is well documented across a wide variety of datasets, and its causes have been empirically estimated in numerous studies (for a review, see Kristal and Cohen 2017; Neckerman and Torche 2007). Wages, however, are only one source of labor-market-based income inequality, particularly in the United States, the paradigm of private, employer-provided benefits. Non-wage benefits, especially when voluntary (non-legally required), account for a significant and expanding share of total (pecuniary) compensation in the United States. Voluntary pension plans, health insurance, and paid leave, primarily obtained via employment, accounted for 21 percent of total employer compensation costs in 2015 (Kristal, Cohen, and Navot 2018), a higher proportion than in other rich countries (Kristal 2017). The provision of various benefits via the workplace, rather than directly or indirectly by the state (i.e., mandatory employer-provided benefits), increases the commodification of citizens (Esping-Andersen 1990). In other words, in

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the United States, one has to sell one's labor power to a particular employer to obtain basic benefits, in particular health care (Hacker 2002).[1] This being the case, it is possible to conceptualize some voluntary fringe benefits in the United States as the "welfare component" of total compensation.

Not only do employer-provided benefits account for a significant and expanding share of total compensation, several recent studies demonstrate that wage inequality, the common measure of income inequality in the labor market, underestimates the level of total compensation (defined as wages plus costs of employer-provided benefits) inequality (Pierce 2001, 2010; Piketty, Saez, and Zucman 2018). Inequality in employer-provided benefits is greater than wage inequality, in particular for racial and ethnic minorities, and the gap between these two components of income inequality has widened over time (Kristal et al. 2018). Evidently, the welfare component of total compensation is higher and growing faster than wage inequality.

Here we study why benefit inequality in the United States has grown faster than wage inequality over the past four decades. We depart from past income inequality research by studying benefits in addition to wages, but also by focusing on workplaces as the drivers of benefits determination. Viewing benefit and wage inequality through a workplace and its pay-setting lens, we contend, can advance research on inequality by demonstrating a fresh understanding of the way organizations' generative mechanisms contribute to the production of income inequality. In this way, we pursue and further advance recent assessments by sociologists (Neckerman and Torche 2007; Sørensen 2007; Tomaskovic-Devey and Avent-Holt 2019; Wilmers 2018) and economists (Barth et al. 2016; Song et al. 2015) that analyses of growth in inequality should be embedded in an institutional and organizational context.

Specifically, we first ask whether inequality has been greater in benefits than in wages both between and within workplaces, which would indicate that organizations affect benefits more than wages. A major contribution of the "new structuralism" in stratification research, which flourished in the 1980s, was its emphasis on the role of organizations in the stratification process (Baron and Bielby 1980; Stolzenberg 1978). The availability of administrative data on employees and their employers over recent years has contributed to our understanding of how organizations affect wage inequality in the broader labor market (Tomaskovic-Devey et al. 2020). Yet we still lack a firm grasp of the ways organizations affect the distribution of benefits as compared with wages, and thus how organizations affect benefit inequality in the labor market. To help address this concern, we leverage insights from research on new organizational institutionalism (e.g., Dobbin and Sutton 1998), and social psychological theories of social comparisons (e.g., Nickerson and Zenger 2008), to explain why organizations should affect inequality in benefits more than in wages. Organizations should matter more for benefits than for wages because workplaces, we argue, for a variety of reasons, including tax regulations and downward wage (but not benefit) rigidity, have greater incentives and greater ability to alter benefits than wages.

Second, we examine how workplaces translate their ability to affect benefits more than wages into actual availability and terms of benefits for their employees. Our argument specifies the pay-setting institutions used by workplaces to manipulate benefits more than wages. These include type of employment relations, especially how far they are from "nonstandard" employment relations (Kalleberg 2011). From past research, we know that workers employed in standard employment relations are significantly more likely than comparable workers to enjoy major benefits (Bidwell et al. 2013), and that unions foster this effect (Freeman and Medoff 1984; Rosenfeld 2014). Still, to date, no empirical analysis systematically tests the effect of workplace-level pay-setting on workplace wage and benefit levels and inequality.

Finally, we analyze changes over time by asking if the faster rise in benefit inequality

than in wage inequality is related to changes in pay-setting institutions that allow workplaces to manipulate benefits more than wages. In other words, can the decline of unions and the externalization of employment relations, which are important for (Western and Rosenfeld 2011) or maybe even the main drivers of (Kristal and Cohen 2017) wage inequality in the United States, partly explain why inequality in fringe benefits has grown faster than wage inequality over the past four decades?

To analyze the role of workplace pay-setting institutions in benefit and wage inequality, we use administrative data from the Bureau of Labor Statistics (BLS) Employer Costs for Employee Compensation (ECEC), which is known for its exceptional information on benefits' costs (Pierce 2001, 2010). Here we use for the first time its unique feature of linked employer–job longitudinal data to measure inequality between (i.e., the differentials in average incomes between establishments) and within (i.e., income dispersion within establishments) workplaces from 1982 to 2015, as well as the relation between establishment-level pay-setting and inequality between and within establishments.

Following a discussion of the regulatory and institutional processes that explain why benefits are more organizationally embedded than wages, we explain how workplaces can use pay-setting institutions to manipulate benefits more than wages. We then show that in neglecting benefits, studies of rising income inequality have underestimated the rise in total compensation inequality as benefit inequality grew more than twice as fast as wage inequality. Consistent with our first argument, we present findings that inequality between and within establishments is more extreme in benefits than in wages. Supporting our second argument, we find that labor unions and standard employment relations increased mean establishment benefits more than wages while decreasing the inequality in benefits more than in wages. Finally, we also find support for our third argument: the decline in labor unions and the liberalization of employment practices yielded a greater increase in benefit inequality than in wage inequality across the entire economy.

WAS ORGANIZATIONAL INCOME POLARIZATION GREATER IN BENEFITS THAN IN WAGES? THE EMBEDDEDNESS OF BENEFITS IN ORGANIZATIONAL PRACTICES

Employers' Incentives: Legislation and Taxes

Organizations have a larger role in determining benefits than wages. This is partly because federal and state regulations influence organizational practices on benefits by affecting interest groups within organizations (e.g., unions, managers, employers) that favor benefits over wages (Dobbin 1992; Dobbin and Sutton 1998; Kelly 2003; Kelly and Dobbin 1999). Corporate fringe-benefit programs flourished in the 1930s because public policy such as the Wagner Act and the Social Security Act created incentives that caused unions, business leaders, and the insurance industry to promote health and pension coverage in organizations (Dobbin 1992). Business leaders believed that by offering benefits they had won worker allegiance, unions believed they had won new members, and the insurance industry realized a business opportunity.

Several policies and regulations have enhanced the incentives that lead organizations to tinker more with benefits than with wages. As early as the 1920s, the Internal Revenue Service (IRS) exempted retirement earnings from taxation (Turner 1999). In 1942, following wage controls imposed by the government, employers were using benefits to overcome the wage freeze, and in 1943 employers' contributions to employees' health insurance plans became tax-exempt. By 1954, the IRS had extended the tax exemption of employer contributions to cover contributions to individual health plans and to other plans

formed by employee groups such as unions. This encouraged the growth of group health insurance, which is cheaper than individual coverage because it carries lower administrative costs (Thomasson 2003). The tax subsidy for employers' contributions to health insurance plans means employer contributions to "qualified" benefit plans are not taxed as current income to employees, giving employers an incentive to switch compensation from wages to benefits.

In response to tax changes regulating benefits (but not wages) in fine detail, such as the Employee Retirement Income Security Act (ERISA) of 1974, employers had to rewrite many fringe benefit plans to comply with the new regulations. One consequence was that fringe benefits regulation prompted many large and public-sector organizations to create personnel and benefits departments to manage compliance (Dobbin and Sutton 1998). By contrast, many small companies chose to abandon their pension plans rather than bear the costs of compliance. This is because large and public-sector organizations have more resources and are more concerned than small organizations with legitimating their personnel practices and compensation policies by conforming to accepted principles of human resource management (Cohen and Pfeffer 1986; Davis and Kalleberg 2006; Kalleberg and Van Buren 1996).

Regulation has made organizational processes significantly more important for the allocation and distribution of benefits than of wages. In addition, tax laws facilitate higher flexibility, allowing managerial discretion in benefits determination within workplaces, for two main reasons. First, despite rules in the Federal Tax Code aimed at eliminating benefit discrimination, such nondiscrimination rules enable discriminating against certain types of workers (Kalleberg, Reynolds, and Marsden 2003). Even firms with homogeneous and high-skilled jobs, such as Google, reduce benefit costs through "two-tier" employment relations (Wong 2018). It is illegal for employers to discriminate between high- and low-wage workers in benefit levels, but legal ways exist to reduce benefit costs for low-wage workers while raising them for middle- and high-wage workers. Offering different health benefit options with different levels of employee contributions is one common method. Conditioning pension contributions on matching is another. Consequently, about 30 percent of non-highly-compensated workers (tax law defined this group as workers earning less than $120,000 in 2018) fail to participate in a typical 401(k) pension plan, despite the availability of an employer match (Mitchell, Utkus, and Yang 2005). Second, benefits determination for CEOs is also more flexible than wages because public firms are not required to disclose the monetary value of pension plans in their executive pay disclosures. Firms thus use retirement benefits (mainly through nonqualified "supplemental" executive retirement plans) to provide top executives with substantial amounts of compensation that are invisible to shareholders (Bebchuk and Jackson 2005).

Employers' Constraints: Downward Wage Rigidity and Social Comparisons

Economists term failure of pay rates to fall "wage stickiness," "downward wage rigidity," or simply "wage rigidity." Many studies show that across different countries and data sources, cuts in workers' nominal wages are relatively rare and wages do not fall fast enough to prevent an increase in unemployment during business downturns (Bewley 1999; Goette, Sunde, and Bauer 2007). To be sure, companies reduce the real wage bill by a variety of methods, from freezing wages at their nominal levels to replacing high-wage workers with low-wage workers or instituting a second-tier wage structure for new employees (Greenhouse 2008). However, reducing real wages for current employees is relatively rare, in particular for low-wage workers, for the obvious reason that firms cannot cut wages below the legal minimum wage. Not so with benefits, which are much more flexible than wages. Results from studies analyzing

workplace-level data for the United States from 1981 to 1999 (Lebow, Saks, and Wilson 2003) and for 12 European countries in 2007 to 2008 (Babecký et al. 2012) show that total compensation costs display less downward rigidity than do wage costs alone. This suggests firms are able to circumvent downward wage rigidity in part by varying benefits.

The empirical observations on downward wage rigidity have puzzled economists for years, as it is hard to explain why firms do not cut wages until the excess supply is eliminated, as would happen in ideal markets depicted by neoclassical economic theory. Unable to explain wage rigidity using conventional theories, economists turn to sociological and social psychological explanations. Keynes (1936) suggested that workers are so concerned about the relation of their wages to those of workers at other firms, that no company dares cut pay. Thus for Keynes, wage rigidity reflects social and institutional forces that prevent the labor market from clearing.[2] More recent research shows that workers engage in comparisons within the workplace even more than they do with firms elsewhere (Akerlof and Yellen 1988; Nickerson and Zenger 2008). One important outcome of the process of "social comparison" is its likelihood to reduce wage inequality within workplaces (Cobb and Stevens 2017; Kalleberg and Van Buren 1994), as firms compress wages by narrowing income dispersion across levels and jobs at least in part to minimize their social comparison costs.

Are co-workers, especially low-wage workers, able to compare their benefits? Benefits are likely harder to compare than wages, as studies show that many workers cannot perform simple calculations concerning their pension (Lusardi and Mitchell 2014) and health insurance (Bartholoma et al. 2016). This is partly due to lack of information; but even more importantly, many workers do not understand basic financial concepts such as the difference between nominal and real values and risk diversification, and therefore they cannot make optimal pension and health insurance choices (Lusardi 2015).[3] Workers who are less financially knowledgeable are less likely to be able to compare their benefits programs with their co-workers'.

Do workers care about benefits as much as they care about wages? Probably not, in particular when they are not unionized (Budd 2007); and men probably care about benefits less than women (Kristal 2017). Some benefits, such as insurance or paid vacation, are payments in kind; others, such as employer contributions to an employee's pension, are in the form of deferred compensation—compensation earned now but payable in the form of money later on. Both types of benefits are less accessible than wages; they are also less comparable, as not many workers actually understand their benefits package and how it can best be utilized. Also, benefits are more abstract than wages, as workers cannot spend them on consumption of goods, and are thus currently less essential for workers. All of these factors make it harder for workers to compare benefits and wages, and for low-wage workers, who live from paycheck to paycheck, they may also make benefits less important than wages.

Our study is not designed to empirically test these various incentives and constraints leading organizations to alter benefits more than wages. Nevertheless, the organizational embeddedness of benefits suggests that, in general, benefit inequality should be greater than wage inequality. This assessment aligns with conceptualizations of a range of benefits employers voluntarily provide as a form of non-market economic rent (Kristal 2017) or as a flexible form of wages (Malcomson 1997), two ideas that are hard to tell apart in concrete terms. Whether benefits are rents or a flexible form of compensation, they are more closely attached to organizational characteristics than are wages; thus, this should result in greater between-workplace inequality in benefits than in wages.

Moreover, the fact that it is easier for organizations to manipulate benefits than wages should result in higher within-workplace inequality in the former. This should be particularly true in recent years,

when neoliberal-age managers mostly pursued their firms' short-term interests, namely maximization of profits and shareholder value (Fligstein 2002; Mizruchi 2013) and labor costs became a primary target of cost-cutting strategies (Lin 2016; Weil 2014). Because management's interest in lowering labor costs for rank-and-file workers and rewarding privileged workers is constrained by wage rigidity within workplaces, employers may find it easier, and more socially acceptable, to alter the benefits component of the compensation package than to modify wages. We therefore expect that both between- and within-workplace benefits inequality has increased more than wage inequality.

HOW DO WORKPLACES AFFECT BENEFITS MORE THAN WAGES? WORKPLACE COMPENSATION PRACTICES AND ORGANIZATIONAL INCOME POLARIZATION IN BENEFITS AND WAGES

In the previous section we argued that the level and distribution of benefits are more organization-dependent than wages. But how can workplaces translate their ability to affect benefits more than wages into the actual availability and terms of benefits for their employees? In this section we argue that workplace-level pay-settings enable workplaces to exert a greater real effect on benefits than on wages.

Union Wage and Benefits Effects

Researchers agree that even though the organizational goals and sources of power of labor unions are varied, they better their members' wages and benefits. An extensive empirical literature estimating the effects of labor unions on wages in the United States and other developed countries finds that unions increase members' wages, compared to the wages of comparable nonunion workers. The percentage by which union wages exceed nonunion wages is called the "union wage premium." In the United States this ranges from 15 to 20 percent (Farber et al. 2018). This premium has an equalizing effect on overall income distribution because it raises the mean wage of a group of low- to median-paid workers more than the wages of high-paid workers (Freeman 1980; Rosenfeld 2014).

A second consensus among researchers is that unions have a sizable positive effect on the provision of benefits programs and on the dollars spent on benefits. This represents a collective union voice (Freeman and Medoff 1984) reorienting the total compensation package to more benefits. This also presumably reflects the preferences of the average worker, who desires healthcare insurance, a pension, and vacations as a function of being older and having longer seniority. Unionized workers' greater likelihood of obtaining better benefits than nonunionized workers may also be due to the fact that labor unions increase employee awareness of benefits programs, providing representation when necessary (Budd 2007). A third plausible explanation for the effect of unions on benefits is that benefits are less rigid than wages (which rarely decrease), in particular at the lower tail of the wage distribution (Lebow et al. 2003), and therefore are more subject to workers' relative bargaining power within organizations. Nonunion firms may thus find it easier to cut benefits than wages.

One theme emerging from studies based on individual-level survey data (CPS, PSID) and longitudinal data (Quality of Employment Survey, NLSY) is that unionized workers are significantly more likely than comparable nonunion workers to enjoy major benefits such as valuable health insurance and pension plans (Buchmueller, DiNardo, and Valletta 2002; Budd 2007; Freeman and Medoff 1984; Rosenfeld 2014). The union effect is particularly strong for vacation pay and life insurance, and it is negative for bonuses and sick leave (Freeman and Medoff 1984). Longitudinal data, which make it possible to examine benefits before and after unionization, confirm the existence of a positive union effect. Unionized workers are more likely than nonunionized

workers to obtain benefits, and when the latter do receive these benefits they are less generous than those for unionized workers (Buchmueller et al. 2002; Pierce 1999). In the 1980s, for example, the decline in pension coverage rates for men was mainly caused by decreases in unionism and in employment at large manufacturing firms (Bloom and Freeman 1992; Even and McPherson 1994).

Data on establishments obtained from employer surveys provide further estimates of the cost of benefits programs for firms, suggesting the union benefits premium exceeds the union wage premium. Freeman and Medoff (1984) analyzed 1970s data from the establishment-level Expenditures for Employee Compensation (EEC) survey and found that in establishments with the same measured features, and paying the same wages, the estimated union premium was 20 percent for wages and 30 percent for benefits. In the 1990s, the union premium for wages in the private sector was 20.3 percent, compared with 27.5 percent for total compensation (Pierce 1999), and these figures remained about the same in the 2000s (Budd 2007). Thus, the union impact on total compensation was about 35 percent greater than the impact on wages alone. Unionized establishments are also more likely than nonunionized establishments to provide benefits. Utilizing establishment-level data from the Medical Expenditures Panel Survey Insurance Component for the years 1999 to 2012, Lin, Bondurant, and Messamore (2018) found that in establishments with the same measured characteristics, paying the same wages and paying the same price for health insurance per worker, establishments with higher levels of unionized workers were more likely to provide health plans.

Based on the empirical consensus that unions' effect on benefits exceeds their effect on earnings, we expect unions to increase mean workplace benefits more than mean workplace wages; as a result, unions should decrease within-workplace inequality in benefits more than in wages. Also, over time, the decline in the proportion of workers who were union members and who were covered by a collective agreement should have increased benefit inequality even more than wage inequality.

Union decline has caused three specific dynamics in the labor market that should affect benefit equality more than wage equality. First, union decline has resulted in fewer workers benefiting from the well-documented positive effect of unions on their members' compensation. Second, unions' bargaining power has deteriorated, translating into a diminished effect of unions on unionized and nonunionized workers' compensation. Third, unions' decline has weakened their ability to set norms or labor standards that raise comparable nonunion workers' compensation. Evidence for the last two dynamics is available only for earnings, but it is reasonable to assume they affect benefits as well. An example of the second dynamic is that union decline has enabled employers to implement a two-tier compensation system (Dencker and Fang 2016) whereby workers hired after a certain date are permanently saddled with lower wages and benefits than their older peers.

Employment Relations Wage and Benefits Effects

Over recent decades, new norms and behaviors regarding benefits have been institutionalized due to the diffusion of flexible staffing arrangements such as subcontracting and temporary and part-time work—a cluster of practices often called contingent or nonstandard work arrangements. These practices have become typical of a large and growing proportion of the labor force (Hollister 2011; Kalleberg 2011). In contrast to internal labor markets used by organizations to recruit and retain full-time employees in the postwar employment system, which promoted stability, employers now often use staffing arrangements that increase organizational flexibility through externalization of administrative control and limiting the duration of employment (Bidwell et al. 2013; Kalleberg et al. 2003). We expect such nonstandard employment relationships to be related to higher benefit

than wage inequality, both within and between workplaces.

Some nonstandard work arrangements (especially temporary and part-time work) are associated with characteristics of "bad" jobs, including low pay and no access to health insurance and pension benefits (Kalleberg, Reskin, and Hudson 2000; McGovern, Smeaton, and Hill 2004). As discussed in the previous section, nonstandard employment relations enable employers to lower benefit costs by providing them a legal basis to pay lower benefits to flexible staffers (Kalleberg et al. 2003). Nondiscrimination rules in the Federal Tax Code require firms not to discriminate in favor of highly-compensated employees, if the firm's benefit plan is to receive favorable tax treatment. The idea is that the benefits received by the highest paid employees may not exceed the corresponding benefits awarded to less well-paid co-workers by more than a certain amount or ratio. However, the laws governing nondiscrimination in the provision of benefits allow firms to exclude certain workers from calculations, including workers with three or fewer years of service, part-time or seasonal workers, young workers (under age 25), and workers employed under a collective bargaining agreement. Carrington, McCue, and Pierce (2002) reveal that firms skirt these nondiscrimination rules by moving workers into part-time positions. We therefore expect the spread of part-time employment to increase benefit inequality even more than wage inequality.

Contingency-based pay practices that reward workers for their productivity or expected productivity is another growing form of nonstandard employment (Lazear 2000). Between 1976 and 1998, performance-contingent pay systems, which seek to tie individual compensation to measures of performance, accounted for 21 percent of the increase in wage inequality among men and for most of the increase in wage inequality above the 80th percentile (Lemieux, MacLeod, and Parent 2009). Performance-contingent pay systems should contribute to rising benefit inequality even more than to wage inequality. This is because some important performance-pay practices are classified as benefits (e.g., year-end bonuses, profit-sharing cash bonuses, contract-signing bonuses, attendance bonuses, and hiring bonuses) and they are normally given to high-paid workers (Gittleman and Pierce 2015; Hanley 2011). Utilizing the ECEC data for 2002 to 2010, Gittleman and Pierce (2015) found that in pay-for-performance jobs, wages were indeed higher than for other jobs, but compensation was higher still. Importantly, they show that performance-pay practices accounted for 9.4 percent of the increase in wage inequality between 2002 and 2010, and 16.7 percent of the increase in compensation inequality.

The decline in employment by large firms, which tend to pay higher wages and benefits, should also result in a greater increase in benefit inequality than in wage inequality. Research reports that the decline in hiring by large firms, which pay lower-skilled workers a higher wage premium than they pay higher-skilled workers, explains part of rising earnings inequality (Cobb and Stevens 2017; Davis and Cobb 2010; Kristal and Cohen 2017), but also that large firms exert a greater effect on workers' benefits than on their earnings (Kalleberg and Van Buren 1996).

Large firms tend to provide more generous benefits than small firms for at least three reasons. First, large organizations are more likely to have an internal labor market, which normally includes generous fringe benefits to retain workers (Pfeffer and Cohen 1984; Kalleberg and Van Buren 1996). Second, large firms tend to operate in highly concentrated industries that typically enjoy some monopolistic profits, and thus they can afford the high costs of generous benefits. Third, large firms can achieve greater economies of scale in benefits purchasing, thereby lowering their benefit costs. As more workers are employed in smaller firms, employers may discard or limit benefits, especially when the costs of such benefits rise, as in the case of health insurance. We therefore expect to find that the decline in employment by large firms increased benefit inequality even more than it affected wage inequality.

In summary, nonstandard work arrangements and externalization of employment

relations should increase both between- and within-workplace inequality. The latter component should have increased through the expansion of part-time employment and performance-pay practices, and the former component should have increased through outsourcing functions such as janitorial services to non-benefit-providing firms and the related reduction of hiring by large firms. Studies on outsourcing among call-center workers (Van Jaarsveld and Yanadori 2011) and janitors and security guards (Dube and Kaplan 2010) report that outsourced workers receive lower pay and lower benefits than do workers employed by the end-users of their services. Other forms of externalization, such as the use of temporary-help agencies and reclassification of employees as independent contractors (a practice that has become common in the "gig" economy), also provide opportunities for employers to lower labor costs by avoiding benefits.

DATA, VARIABLES, AND METHOD

Data

We analyzed benefit and wage inequality based on unique linked employer–job administrative data from the Bureau of Labor Statistics (BLS) Employer Costs for Employee Compensation (ECEC) microdata. The ECEC nonpublic microdata, which can be analyzed only on the BLS onsite researcher program, are the best data available for measuring benefit inequality over time and the organizational dynamics underlying benefit and wage inequality. They span a substantial period, contain information at the job level on the hourly employer cost of compensation for employees (covering 23 benefits areas) for a representative national sample of jobs, enable us to link jobs to their establishments, and are derived from employer and administrative records.

The ECEC randomly surveys U.S. establishments over a period of five years. Data are collected quarterly; during the 1982 to 2015 period, the quarterly samples averaged about 36,000 job observations from 7,000 establishments. The ECEC covers establishments in private industry and in state and local government. Establishments with one worker or more are included in the survey; the survey excludes establishments belonging to the federal government, the military, and the agricultural industry. The sample is selected by means of a three-stage stratified design with probability proportionate to employment size sampling at each stage.[4] The first stage is a probability sample of areas; the second is a probability sample of establishments within sampled areas (establishments in the sampling frame are stratified by ownership and industry); and the third stage is a probability selection of occupations within sampled areas and establishments.[5] Depending on establishment size, the BLS randomly samples one to eight jobs in the establishment (in state and local government units up to 20 jobs may be selected). Jobs are sampled proportionate to employment in the job, but when weighted according to the BLS weights the data represent the average worker and not the average job.[6] All job categories are fixed for the duration of the five-year cycle over which each establishment is traced.

The ECEC data provide important information on the sampled jobs and the establishment where they are done (via a unique establishment identification number), but they do not contain individual worker-level or demographic information. At the establishment level there is information on the number of employees, industry codes, and ownership (state government, local government, and private industry). Job-specific information includes occupation codes (one-digit codes for 1982 to 1995, three-digit for 1996 to 2003, and six-digit from 2004 onward), usual hours of work, union status, and incentive pay status (time-based or incentive-based pay). Since 2007, jobs have also been assigned a work level, which has proven highly useful in controlling for skill differences across jobs (Gittleman and Pierce 2011). Importantly, payroll records for individuals in the sampled jobs are used for recording information on wages and other compensation costs. The BLS converts the data into costs per hour worked and averaged over incumbents at a job. We used ECEC

weights in all estimates, and we also weighted the ECEC cost data by hours, as is common in studies of wage inequality.

Variables

We use ECEC microdata to calculate two compensation measures at the job level, which we then aggregate in the main analyses to the establishment level. *Employer-provided benefits* per job are computed from the hour's-work dollar value of all voluntary benefits provided by employers as defined by the BLS (measured by employer cost). Included are health and life insurance, several forms of leave, pension and savings plans, and nonproduction bonuses,[7] but not legally required expenditures on Social Security, workers' compensation, and unemployment insurance.[8] *Wages* per job are computed on the basis of total earnings before payroll deductions and are adjusted to include overtime premium pay and shift differentials. Production bonuses,[9] incentive earnings, commission payments, and cost-of-living adjustments are included by the BLS in wage and salary rates. Cost figures are deflated to 2015 dollars using the Consumer Price Index for All Urban Consumers (CPI-U). Table 1 presents the proportion of employees covered by various benefits and their cost as a share of total compensation. It shows that employer-provided benefits mainly serve vital social and economic insurance functions, and nonproduction bonuses play only a modest role in total benefit costs and hence in total compensation.

The independent variables most relevant to our arguments index the institutional factors that we expect should determine benefits more than wages. First, we use the establishment data to construct variables for government ownership and size categories. *Large establishments* are defined as having more than 250 employees, and *small establishments* as having under 50 employees. We then use the ECEC job-specific information to construct measures at the establishment level. *Union coverage* is measured by the percentage of all weighted observations in the establishment covered by a collective bargaining agreement. Unlike the more common measure for union coverage, calculated from the May/ORG CPS surveys based on individual workers' reported union status, in the ECEC it is based on whether the job is reported as primarily covered by a union contract.[10] The available measure in the ECEC for *part-time employment* is the percentage of workers in the establishment with number of hours worked per (current) year fewer than 1,500.[11] *Performance-pay practices* is measured by the percentage of jobs in each establishment with an incentivized pay structure, that is, pay is tied, at least in part, to commissions, piece rates, production bonuses, or other incentives based on production or sales. We expect that an increase in the proportion of jobs with performance-based pay will increase benefit inequality more than wage inequality. This is due to the expansion of performance-pay practices that classify pay as benefits and are typically given to high-paid workers. Data on establishment size and performance-pay practices are available from 1990 onward.

To account for changes in characteristics known to affect wages and benefits, such as workforce skill level, in the regression analysis we control for several variables available in the ECEC. All models include variables for the percentage of workers in nine major occupational classifications: professional, technical, and related occupations (*professional*); executive, administrative, and managerial occupations (*managers*); sales occupations (*sales*); administrative support occupations, including clerical (*clerical*); service occupations (*service*); precision production, craft, and repair occupations (*production*); machine operators, assemblers, and inspectors (*operators*); transportation and material-moving occupations (*transportation*); and handlers, equipment cleaners, helpers, and laborers (omitted category). Since 2007, ECEC has also included data on the *level of skill* required for the job, from rank 1 to 16. We include this in the models as a continuous variable, averaged within the establishment.[12] Appendix Table A1 presents descriptive statistics of the relevant variables.

Table 1. Employer Costs for Employee Compensation (per hour, in constant 2015 dollars), 1982 and 2015

	1982				2015			
	% Covered	$ Cost (among covered)	$ Cost (all)	% of Total Compensation	% Covered	$ Cost (among covered)	$ Cost (all)	% of Total Compensation
Total compensation		10.94	10.94	100%		31.94	31.94	100%
Wages and salaries		8.77	8.77	80.2%		23.78	23.78	74.4%
Total benefits		2.16	2.16	19.8%		8.21	8.21	25.7%
Insurance		.59	.51	4.6%		3.93	3.03	9.5%
Heath insurance	86.5%	.53	.45	4.2%	77.2%	3.84	2.97	9.3%
Life insurance	81.0%	.06	.05	.5%	66.0%	.09	.06	.2%
Pension		1.13	.62	5.7%		5.67	1.84	5.8%
Defined benefits	69.3%	.86	.60	5.4%	25.9%	4.41	1.14	3.6%
Defined contributions	11.0%	.27	.03	.3%	55.5%	1.26	.70	2.2%
Paid leave		.93	.88	8.0%		2.83	2.48	7.8%
Vacations	87.3%	.48	.42	3.8%	78.9%	1.57	1.24	3.9%
Holidays	84.2%	.36	.30	2.7%	80.3%	.93	.75	2.3%
Sick leave	57.2%	.20	.12	1.1%	67.3%	.52	.35	1.1%
Other leave	52.8%	.08	.04	.4%	42.0%	.34	.14	.4%
Nonproduction bonuses	28.3%	.34	.10	.9%	33.9%	2.25	.76	2.4%

Source: Authors' calculations of job-level data from the BLS-ECEC.
Note: Wages and salaries include production bonuses, incentive earnings, commission payments, and cost-of-living adjustments; they are adjusted to include overtime premium pay and shift differentials. Voluntary benefits include health insurance, life insurance, pension (defined benefit pensions and defined contribution plans), paid leave (vacations, holidays, sick leave, and other paid leave), supplemental pay (nonproduction bonuses), and other benefits (severance pay, supplemental unemployment plans, and merchandise discounts in department stores). Total compensation includes wages and voluntary benefits.

Method

Because our arguments relate to both organizational dynamics and longitudinal processes, we used three different methods. In the first step of our analysis, we decomposed the entire variance in hourly benefits and wages into between- and within-establishment components for each year. This was done with a simple variance decomposition model, estimated for each year for wages, total benefits, and the three main components of benefits: health, pension, and paid leave. Dependent variables were transformed using the inverse hyperbolic sine (Burbidge, Magee, and Robb 1988), so they could be interpreted like a logged value, but preserved zero values.[13] Results from the decompositions made it possible empirically to test our first research question—whether between- and within-workplace inequality is larger in benefits than in wages. Computing the decomposition for each year also enables us to test whether between- and within-workplace inequality increased more for benefits than for wages.

In our second analysis, examining the second research question, we estimated OLS models for the effects of establishment covariates on the inverse hyperbolic sine (IHS) mean establishment incomes (the between-workplace inequality component) and the standard deviation of establishment IHS incomes (the within-workplace inequality component). To determine whether establishment-level pay-setting affected benefits more than wages, we analyzed separate models for both and compared the results. The equation for the between-workplace inequality component is

$$IHS\ I_{wt} = \delta_0 + \delta X_{wt} + \varphi_w + \varphi_t + \epsilon_{ijt}$$

where $IHS\ I_{wt}$ is the year-specific mean log of hourly establishment wages or benefits, X_{wt} indexes a vector of observed establishment-level variables, and $\varphi_w + \varphi_t$ are establishment and year fixed-effects.[14] A positive coefficient for establishment-level variables, such as union coverage, indicates that unionized workplaces offer their workers higher compensation than do nonunionized workplaces. The equation for the within-workplace inequality component is identical, except the dependent variable is the standard deviation of establishment IHS hourly incomes. Here a positive coefficient for union coverage indicates that unionized workplaces, unlike nonunionized workplaces, are related to higher compensation inequality for their workers.[15]

In our last analysis we aggregated the ECEC data to the two-digit industrial classification, to make use of a panel of comparable industries over time, something that cannot be done with the establishment data (Appendix Table A2 presents descriptive statistics of the relevant variables at the two-digit industry level). This enabled us to study changes over time in benefit and wage inequality within 35 SIC industries for 1982 to 2003, and within 51 NAICS industries for 2004 to 2015. We utilized error correction models (ECMs) with fixed-effects estimators for industries. ECMs are appropriate in the presence of non-stationarity and cointegration, given that the errors are stationary.[16] In these models, current changes in the dependent variable (measured in first difference, i.e., $Y_t - Y_{t-1}$) are a function of both short-term changes (i.e., first differences) in the independent variables and their long-term levels.[17] We use an industry fixed-effect estimation strategy to control for omitted variable bias (e.g., relative levels of capital investment) and other relative fixed traits such as geographic location. We use workplace attributes aggregated to two-digit industries to predict change in benefit inequality, while controlling for wage inequality, to test whether the effects on benefit inequality are "net" of the effects on wage inequality. Standard errors are clustered at the industry level in all models to address potential serial correlations in income within industries. The ECMs are weighted by industry employment size so they give greater weight to industries with more workers.

FINDINGS

Was Income Inequality Greater in Benefits Than in Wages between and within Workplaces?

Before addressing the study's three research questions, we use the rich data on benefit

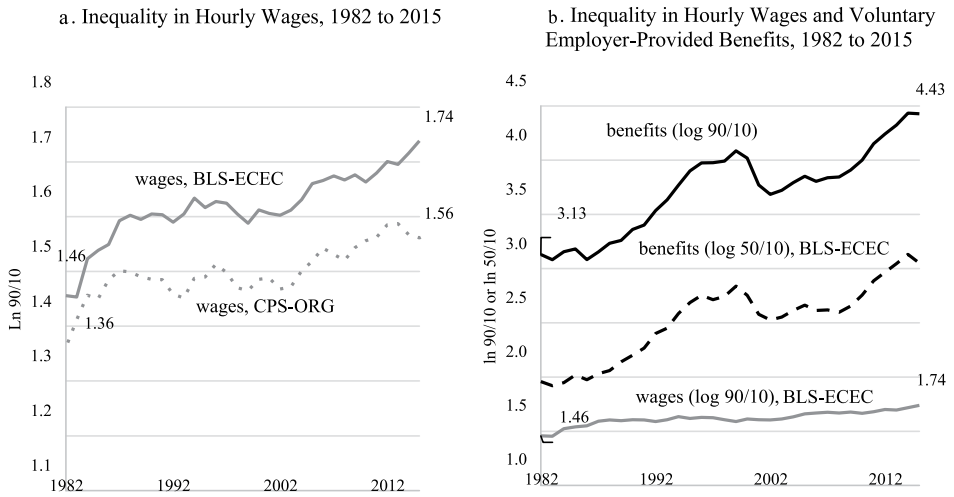


Figure 1. Inequality in Hourly Wages and Voluntary Employer-Provided Benefits, 1982 to 2015

Source: CPS-ORG from the Economic Policy Institute's State of Working America Data Library. BLS-ECEC data from authors' calculations.

Note: See Table 1 for what is included in wages and benefits.

costs at the job level to compare levels and trends in benefit and wage inequality over time for the entire economy covered by the ECEC. Figure 1 and Table 2 present wages and benefits inequality for 1982 to 2015. These show the results we expected, based on evidence for specific years in previous studies on employers' benefit costs (Monaco and Pierce 2015; Pierce 2001, 2010): benefit inequality grew more than twice as fast as wage inequality. For example, in 2015, the average hourly benefit cost of workers located at the 90th percentile was $22.5 (their wages were $52), and the average hourly benefit cost of workers located at the 10th percentile was only $0.30 (their average wage was $9). Therefore, the 90/10 ratio was 4.43 for benefits and "only" 1.74 for wages, even when wages are not top-coded, as is the case with ECEC data, which consequently reveal higher wage inequality than the frequently used CPS-ORG data (see Figure 1a). Most recent studies on inequality grapple with the important question of the causes of rising wage inequality (about 19 percent since 1982: see Table 2 and Figure 1a), but benefit inequality increased even more sharply, by 42 percent, over the past 30 years, and by 33 percent without counting health insurance, where costs increased disproportionately (data not shown). Comparing the rise in benefit inequality with rising wage inequality (Table 2), we find that nearly all the rise in benefit inequality was at the lower tail (50/10) of the income distribution, whereas for wages the rise was mostly at the upper tail (90/50).

Turning to the first research question, Figure 2 presents results from the decomposition of variance in wages and benefits to the between- and within-establishments components. Findings from previous studies anticipated that benefits inequality would have grown more than wage inequality (Pierce 2010), and results from the decomposition reveal that benefit inequality grew both between and within establishments. The findings in Figure 2 are consistent with our first expectation, that between- and within-workplace inequality was larger in benefits than in wages, and that between- and within-workplace benefits inequality increased more than wages inequality. Between-workplace inequality in pensions, paid leave, and health insurance, accounting for about 80 to 85 percent of total benefit costs (see Table 1), radically increased during the 1990s and even more so during the following two decades. Consequently, in 2015, between-workplace inequality was almost six times higher in total benefits than in wages.

Table 2. Hourly Inequality in Wages, Voluntary Benefits, and Total Compensation, 1982 to 2015

	Level of Inequality			Percentage Change		
	1982	1999	2015	1982 to 1999	2000 to 2015	1982 to 2015
Overall inequality (log 90/10)						
Wages	1.46	1.59	1.74	9%	8%	19%
Benefits	3.13	4.09	4.43	31%	10%	42%
Total compensation	1.62	1.77	1.99	9%	11%	23%
Lower-tail inequality (log 50/10)						
Wages	.69	.67	.71	–3%	6%	3%
Benefits	1.96	2.84	3.05	45%	11%	56%
Upper-tail inequality (log 90/50)						
Wages	.77	.92	1.03	20%	9%	34%
Benefits	1.17	1.25	1.38	7%	9%	18%

Source: Authors' calculations of job-level data from the BLS-ECEC. See note for Table 1 for what is included in wages and benefits.

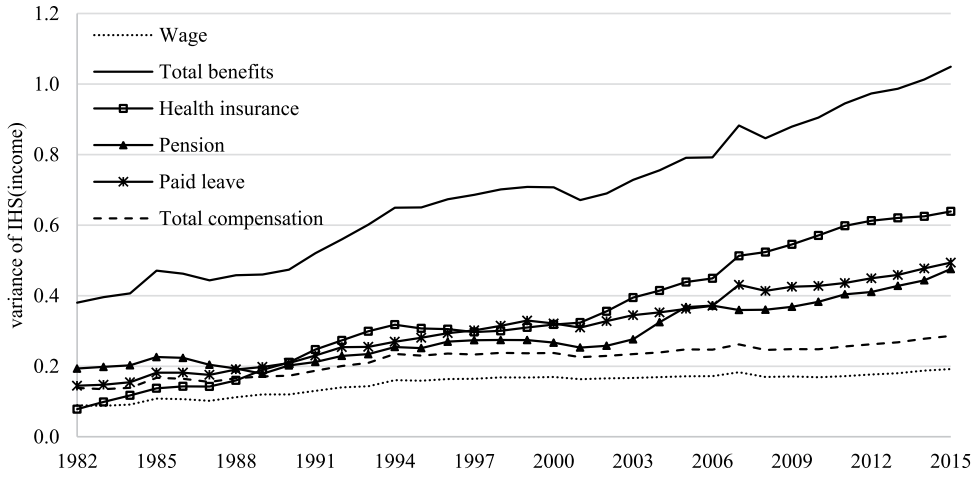
This is not very surprising; we know that workplaces differ greatly in their benefits package. The findings for within-workplace inequalities might be more surprising, if we believe that all employees in an establishment get similar benefits, even if they are paid different wages. We find the opposite: within-workplace benefit inequality is larger than wage inequality. But this was not always true: back in the 1980s, within-workplace inequality was lower in benefits, health insurance in particular, than in wages. But since the early 1990s, inequality between employees at the same establishment increased more rapidly in benefits than in wages. As a result, in 2015, within-workplace inequality was almost twice as high in total benefits as in wages (but within-workplace inequality in overall levels of compensation was not markedly different from that in wages).

The findings for wages are similar to those of previous studies showing that wages vary more within workplaces than among workplaces, and the increase in between-workplace variance was larger than the increase in within-workplace variance (Sørensen 2007; Wilmer 2018). Yet the levels of between- and within-workplace variance in wages in the ECEC data are slightly lower than those of the Social Security Administration (Song et al. 2015) and the Longitudinal Employer-Household Dynamics data (Barth et al. 2016). The discrepancy is probably due to wage variation within jobs, which is not captured in the ECEC data.

Do Workplace Compensation Practices Affect Benefits More Than Wages?

To test our second research question—how organizations affect inequality in benefits more than wages—we estimated the effects of labor unions and of standard employment relations on mean establishment wages or benefits (Table 3 presents the between-workplace inequality component) and the standard deviation of establishment wages or benefits (Table 4 presents the within-workplace inequality component), controlling for other available determinants. Because of the major change in the ECEC sampling structure in the shift from the Standard Industrial Classification (SIC) to the North American Industrial Classification System (NAICS) in 2004, we present the analyses separately for the two periods. Because of lack of data availability for all variables for all years, we present two

a. Between Workplaces



b. Within Workplaces

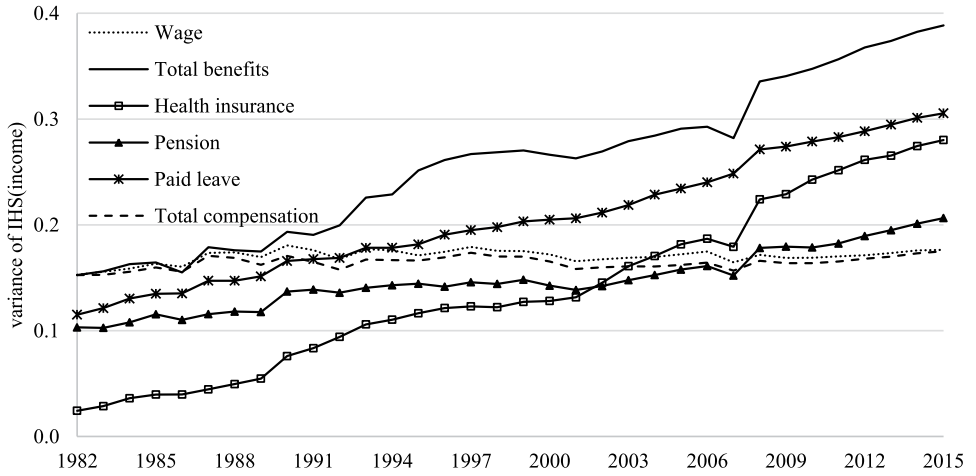


Figure 2. Decomposition of Variance in Hourly Wages and Hourly Benefits within and between Workplaces, 1982 to 2015
Source: Authors' calculations of job-level data from the BLS-ECEC.

models for each dependent variable in each of the two periods.

Overall, we find empirical support for our claim that workplace-level pay-settings enable workplaces to exert a greater effect on benefits than on wages. The results show that unions raised the level of benefits more than wages, while decreasing within-establishment inequality in benefits more than in wages. In both periods, mean establishment benefits increased with union presence more than mean establishment wages (Table 3), although only in recent years has within-establishment inequality in benefits declined more than wage inequality with union presence at the establishment (Table 4).

These results indicate that unionized workplaces compensated their workers with high wages and even higher benefits, while narrowing gaps in benefits more than in wages. Estimating similar models that explain the components of benefits, we found that the results hold for health insurance, pension, and paid leave (data not shown). Yet although unionized establishments were more equal in the total benefits package than in wages, we did not find

Table 3. OLS Coefficients of Mean Establishment IHS Hourly Wages or Benefits on Establishment Covariates, 1982 to 2015

	Wage	Benefit	Wage	Benefit	Wage	Benefit	Wage	Benefit
	1982-2003	1982-2003	1991-2003	1991-2003	2004-2015	2004-2015	2008-2015	2008-2015
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Union	.395***	**.882***	.344***	**.743***	.340***	**.936***	.277***	**.803***
	(67.65)	(76.43)	(46.97)	(55.38)	(65.51)	(89.86)	(55.69)	(69.89)
Part-time	−.318***	**−.786***	−.432***	**−1.049***	−.400***	**−1.366***	−.191***	**−1.063***
	(−39.14)	(−54.69)	(−43.49)	(−56.45)	(−58.96)	(−10.46)	(−32.75)	(−65.01)
Government	−.050***	**.168***	−.063***	**.057***	−.077***	**.059***	−.092***	**.005**
	(−9.08)	(16.80)	(−9.34)	(4.22)	(−15.55)	(6.33)	(−21.62)	(.51)
Performance			.382***	**.038**	.243***	**.061****	.136***	**.012**
			(16.22)	(1.51)	(22.06)	(3.28)	(14.20)	(.54)
Small employers[a]			−.038***	**−.217***	−.034***	**−.286***	−.037***	**−.307***
			(−5.67)	(−19.50)	(−8.54)	(−35.06)	(−1.61)	(−33.26)
Large employers[a]			.105***	**.232***	.102***	**.254***	.054***	**.204***
			(17.57)	(25.96)	(26.27)	(33.69)	(15.37)	(23.71)
Skill level							.153***	**.198***
							(191.36)	(91.73)
Constant	2.234***	.398***	2.635***	.950***	3.460***	1.460***	2.773***	**1.230***
	(134.00)	(13.89)	(181.06)	(34.51)	(346.33)	(60.91)	(432.62)	(72.17)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Establishment FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nine one-digit occupation dummies	Yes	Yes	Yes	Yes	Yes	Yes	No	No
σ^2u (establishments)	.148	.258	.148	.256	.102	.219	.092	.246
σ^2e	.326	.572	.312	.545	.297	.622	.297	.597
Intra-class correlation (establishments)	.171	.169	.183	.180	.106	.110	.106	.146
Number of establishments	7,599	7,599	7,599	7,599	11,662	11,662	11,652	11,652
Observations (establishment ×year)	101,661	101,661	72,595	72,595	118,073	118,073	89,107	89,107

Source: Authors' calculations of establishment-level data from the BLS-ECEC.
Note: Table entries are OLS estimates with *t* statistics in parentheses. Standard errors are adjusted for within-establishment clustering. Benefits' coefficients that are significantly different from the wage coefficients are in bold. IHS is an abbreviation of the inverse hyperbolic sine transformation.
[a]Ref.: medium-size employers (having more than 50 jobs and under 250 jobs).
*$p < .05$; **$p < .01$; ***$p < .001$ (two-tailed test).

Table 4. OLS Coefficients of Establishment Standard Deviation of IHS Hourly Wages or Benefits on Establishment Covariates, 1982 to 2015

	Wage	Benefit	Wage	Benefit	Wage	Benefit	Wage	Benefit
	1982-2003	1982-2003	1991-2003	1991-2003	2004-2015	2004-2015	2008-2015	2008-2015
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Union	−.030***	−.030***	−.022***	−.023**	−.016***	**−.054****	−.044***	**−.105****
	(−8.43)	(−5.90)	(−4.66)	(−3.17)	(−5.09)	(−9.27)	(−1.97)	(−14.06)
Part-time	−.012*	**.170****	−.024***	**.293****	.001	**.379****	.054***	**.454****
	(−2.42)	(22.02)	(−3.72)	(22.03)	(.24)	(33.52)	(1.42)	(32.39)
Government	.042***	**.025****	.049***	.057***	.045***	**.148****	.074***	**.211****
	(11.69)	(4.83)	(9.55)	(6.77)	(14.78)	(21.52)	(2.23)	(25.21)
Performance			.162***	**.071****	.137***	**.050****	.135***	**.053****
			(15.48)	(4.56)	(18.76)	(5.12)	(14.47)	(4.47)
Small employers[a]			−.018***	−.009	−.022***	**−.005**	−.028***	−.016*
			(−4.33)	(−1.47)	(−7.34)	(−.84)	(−8.19)	(−2.26)
Large employers[a]			.000	**−.033****	.005	**−.019****	.010***	**−.016***
			(.07)	(−6.72)	(1.89)	(−3.89)	(3.35)	(−2.53)
Skill level							.029***	.030***
							(4.12)	(23.61)
Constant	.251***	.241***	.284***	.238***	.253***	.301***	.180***	.204***
	(27.65)	(16.89)	(30.37)	(14.12)	(42.46)	(25.55)	(30.47)	(19.01)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Establishment FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nine one-digit occupation dummies	Yes	Yes	Yes	Yes	Yes	Yes	No	No
σ^2u (establishments)	.081	.137	.085	.144	.068	.137	.082	.166
σ^2e	.185	.282	.191	.282	.186	.368	.189	.385
Intra-class correlation (establishments)	.161	.191	.168	.191	.117	.122	.159	.156
Number of establishments	7,565	7,565	7,565	7,565	11,656	11,656	11,642	11,642
Observations (establishment × year)	93,706	93,706	66,985	66,985	109,750	109,750	82,948	82,948

Source: Authors' calculations of establishment-level data from the BLS-ECEC.
Note: Table entries are OLS estimates with *t* statistics in parentheses. Standard errors are adjusted for within-establishment clustering. Benefits' coefficients that are significantly different from the wage coefficients are in bold. IHS is an abbreviation of the inverse hyperbolic sine transformation.
[a]Ref.: medium-size employers (having more than 50 jobs and under 250 jobs).
*$p < .05$; **$p < .01$; ***$p < .001$ (two-tailed test).

such an effect when analyzing only health insurance or pension, plausibly due to a two-tier compensation system in unionized workplaces.

The results shown in Tables 3 and 4 also reveal that nonstandard employment relations lower workplaces' benefits more than wages, while increasing within-workplace inequality in benefits more than in wages. These results hold for the entire benefits package, as well as for health insurance, pension, and paid leave separately (data not shown). More part-time workers in an establishment are associated with lower mean hourly wages and even lower mean hourly benefits (Table 3), and also wider benefit inequality among workers (Table 4). Employment at small workplaces is associated with lower mean benefits than wages, and employment at large workplaces is associated with higher mean benefits than wages (compared with medium-size workplaces). Large establishments are also associated with lower inequality in benefits, but less so in recent years when there was a steep decline in the premiums large firms paid to their low- and middle-wage workers while the premium for high-wage workers remained relatively constant (Cobb and Lin 2017).[18]

Against our expectation, we found that a higher share of jobs with an incentivized pay structure (i.e., pay is tied, at least in part, to production or nonproduction bonuses) raised the level of and inequality in wages more than in benefits. This is most likely because the BLS is inconsistent in classifying components of pay for performance to wages and benefits. Specifically, the BLS classifies components that are typically paid to high-income professionals and managers (e.g., year-end bonuses, profit-sharing cash bonuses, hiring bonuses) as benefits (these should be classified as wages), whereas components typically paid to blue-collar workers (e.g., piece rates, commissions, production bonuses) are classified as wages. It might be, therefore, that production bonuses, which are included in wage and salary measures, are more frequently used than nonproduction bonuses.

The analyses so far allow empirical testing as to whether labor unions and standard employment relations enabled workplaces to manipulate benefits more than wages by estimating whether their effect on benefits at the establishment level exceeded their effect on wages. In the following analysis, we examine how this larger effect on benefits affected *changes* in benefit and wage inequality between 1982 and 2015.

Why Is the Rise in Benefit Inequality Bigger Than the Rise in Wage Inequality?

To test the third research question more directly, namely, why the rise in benefit inequality has been greater than the rise in wage inequality, Table 5[19] provides estimates for the effect of these variables on annual change in hourly benefit inequality within a panel of two-digit industries, controlling for other determinants of wages and benefits available in the ECEC data.[20]

Overall, we find empirical support for our third claim, namely, that the decline in labor unions and the liberalization of employment practices yielded a larger increase in benefit inequality than in wage inequality. The decline in union coverage by 20 percentage points between 1982 and 2003 and by three percentage points between 2004 and 2015 promoted rising benefit inequality independent of its effect on rising wage inequality. In other words, de-unionization would have led to rising benefit inequality even if wage inequality had not increased. Also, the rise in part-time employment from 4.4 percent in 1982 to 7.4 percent in 2003, and from 8.9 percent in 2004 to 9.7 percent in 2015 (mostly in services, trade, and government industries), significantly increased benefit inequality more than wage inequality. The ECEC provides data on the share of jobs in large firms and the share of jobs with performance-pay practices only from 1990 onward.

As expected, the decline in employment in large establishments (within two-digit industries), a proxy for the spread of nonstandard employment relations and the decline of internal labor markets, increased benefit inequality

Table 5. Unstandardized Coefficients from Single Equation ECM, 1982 to 2015; Dependent Variable: Benefit Inequality (Gini Coefficient × 100)

	1982-2003	1991-2003	1991-2003	2004-2015	2004-2015
	Two-Digit SIC	Two-Digit SIC	Two-Digit SIC	Two-Digit NAICS	Two-Digit NAICS
	Model 1	Model 2	Model 3	Model 4	Model 5
Δ Wage inequality	.765***	.877***	.840***	.559*	.540**
	(5.78)	(5.43)	(5.02)	(2.59)	(2.66)
Wage inequality $_{(t-1)}$	.339***	.396**	.326**	.290*	.307*
	(4.19)	(3.27)	(2.49)	(2.27)	(2.61)
Δ Union coverage	−.142**	−.158**	−.092	−.140	−.092
	(−3.26)	(−2.55)	(−1.26)	(−1.91)	(−1.37)
Union coverage $_{(t-1)}$	−.054*	−.086	−.043	−.083*	−.064
	(−2.43)	(−1.65)	(−.98)	(−2.21)	(−1.48)
Δ Part-time employment	.182	.198	.202	.309*	.208
	(1.98)	(1.17)	(1.66)	(2.30)	(1.80)
Part-time employment $_{(t-1)}$	.123*	−.033	.017	.094	.070
	(2.21)	(−.30)	(.21)	(.71)	(.58)
Δ Government	−.195	−.083	−.050	−.142	−.125
	(−1.04)	(−.39)	(−.24)	(−2.36)	(−1.66)
Government $_{(t-1)}$	−.045	.033	−.013	.026	−.008
	(−.39)	(.20)	(−.09)	(.39)	(−.13)
Δ PTM Occupations	.001	−.010	−.019*	−.067	−.014
	(.10)	(−.86)	(−2.04)	(−.84)	(−.16)
PTM Occupations $_{(t-1)}$	.007	−.001	−.009	.004	−.003
	(.95)	(−.10)	(−1.10)	(.07)	(−.07)
Δ Small firms (<50)			−.136		−.102*
			(−1.93)		(−2.67)
Small firms (<50) $_{(t-1)}$			−.035		−.091
			(−.93)		(−2.11)
Δ Large firms (>250)			−.132*		−.232***
			(−2.20)		(−3.78)
Large firms (>250) $_{(t-1)}$			−.027		−.077
			(−.97)		(−1.67)
Δ Performance-pay practices			.192*		−.119
			(2.05)		(−1.20)
Performance-pay practices $_{(t-1)}$			.140*		−.038
			(2.31)		(−.55)
Dependent variable $_{(t-1)}$	−.393***	−.444***	−.389***	−.365***	−.396***
	(−1.61)	(−8.83)	(−11.40)	(−5.40)	(−5.74)
Constant	7.600***	10.628**	11.271***	8.103	15.155***
	(2.91)	(3.19)	(3.50)	(1.80)	(4.04)
Industry FE	Yes	Yes	Yes	Yes	Yes
R-squared within	.432	.452	.465	.259	.320
R-squared between	.005	.019	.015	.079	.073
R-squared overall	.222	.178	.232	.082	.110
Panel stationary test, *p*-value	.000	.000	.000	.000	.000
Number of industries	35	35	35	51	51
Observations (industry × year)	735	490	455	561	561

Source: Authors' calculations of two-digit industry-level data from the BLS-ECEC.
Note: See Appendix Table A2 for variables' descriptions. Table entries are OLS estimates with *t* statistics in parentheses. Standard errors are adjusted for within-industry clustering. Estimates do not include Bewley transformation and are weighted by industry's employment.
*$p < .05$; **$p < .01$; ***$p < .001$ (two-tailed test).

more than wage inequality. For both periods, we found a negative effect of employment in large firms on benefit inequality, controlling for wage inequality—indicating that the smaller the share of the workforce employed in large firms, the greater the benefit inequality among workers, even when wage inequality was constant. Another indicator of the liberalization of employment practices is the spread of performance-pay practices. The findings here are somewhat less convincing. We do find that the increase in the share of jobs with performance-pay practices caused rising benefit inequality independently of its effect on rising wage inequality, but only in the 1990s.

DISCUSSION

This article extends analyses of declining pay-setting institutions and rising income inequality beyond wages to include inequality in voluntary employer-provided benefits, which increased at more than twice the rate of wage inequality. It also advances conventional analyses of rising inequality by viewing benefit and wage inequality through a workplace lens. Our focus on workplaces follows our first argument, namely, that benefits are more organizationally embedded than wages, primarily because organizations have both greater incentive and greater ability to alter benefits than wages.

We explained that various public policies and tax laws provide incentives for organizations to focus on benefits—the welfare component of total compensation—and the lesser downward rigidity of benefits (compared with wages) enables employers to alter benefits more than wages. Moreover, some low-wage workers view benefits as less essential and less comparable than wages, and this gives employers additional incentives to focus on benefits (rather than wages) when they want to cut overall compensation. Although we did not directly test these mechanisms, the results of the empirical analyses are consistent with the argument advanced here, namely, the level and distribution of benefits are more organizationally embedded than wages. Specifically, we found that benefit inequality is higher than wage inequality between and within establishments, and between- and within-establishment inequality has increased in benefits more than in wages.

How do workplaces translate their ability to affect benefits more than wages into the actual availability and terms of benefits for their employees? The second argument we developed here is that workplaces are able to exert a greater effect on benefits than on wages through workplace-level pay-settings. The ECEC data enabled us directly to examine this argument by estimating the effect of measures for pay-setting institutions on the level and inequality in wages and benefits. Supporting our second claim, we found that labor unions and standard employment relations increase (average) benefits more than (average) wages, and they decrease benefits inequality more than wages inequality within workplaces.

Establishing that workplaces in general (first argument) and workplace compensation practices in particular (second argument) matter more for the level and distribution of benefits than of wages enables us to better understand why benefit inequality has grown faster than wage inequality over the past four decades. We found that the decline in labor unions and the liberalization of employment practices from 1982 to 2015, indicated by a decline in union coverage and employment in large firms and an increase in part-time employment and performance-pay practices, yielded a larger increase in benefit inequality than in wage inequality.

Our analysis is not without limitations, mostly due to issues of data availability. Despite their comprehensiveness, the ECEC data do not provide information for important dimensions of nonstandard work arrangements such as subcontracting, use of temporary-help agencies, and reclassification of employees as independent contractors. Such practices, in addition to part-time employment, employment in large firms, and performance-pay practices, should have increased benefit inequality more than wage inequality. Also, the years covered by the ECEC did not enable us to explore organizational dynamics in response to changes in law that have been an important explanation for

trends in benefits coverage (Kelly and Dobbin 1999). We did not directly analyze the effect of government regulation on benefit inequality at the year level, as the period under investigation included no large-scale legislative reform except the Affordable Care Act, which affected the results only for one benefit in 2014 to 2015.[21] Finally, it is important to note that the ECEC data cover only a sample of jobs within establishments. This makes the findings on within-workplace inequality less robust than the between-component of inequality.

Notwithstanding these data limitations, this study makes a number of important contributions to research on rising inequality, organizations, pay-setting institutions, and employer-provided benefits. We conclude that analyzing only wages leads not only to an underestimation of the magnitude of rising income inequality, but also to an underestimation of the central role of politics (broadly defined) in this rise. Political explanations of income inequality in rich countries have demonstrated the central role of pay-setting institutions such as labor unions, collective bargaining, internal labor markets, a minimum wage, and the public sector in underpinning levels of wage inequality, the common measure for income inequality in the labor market, among countries and within countries over time. Our results suggest the consequences of the transformation in the political landscape into economic liberalism for workers' well-being, healthcare, retirement, and economic security—and for widening income gaps—have been more severe than we thought.

In this context, it is important to reiterate that the United States is unique among rich countries in its relegating the provision of some social benefits to employers. In most rich countries, health benefits are provided to all citizens by the welfare state; other major social benefits, such as leave (both sick and vacation) are highly regulated and are provided to all or nearly all workers (Adema, Clarke, and Frey 2015; Hacker 2002). This probably explains why the share of voluntary employer-provided benefits of total compensation is greater in the United States than in other rich countries. It also implies that benefit inequality is likely lower in countries with an inclusive welfare state and stronger labor market regulations. Our study thus underscores the importance of politics, not only for shaping the nature of the welfare state, but also for shaping workplace compensation practices, regulations and tax codes, and as a consequence, inequality in total compensation.

APPENDIX

Table A1. Descriptive Statistics of Relevant Variables at the Establishment Level, 1982 to 2015

	1982 to 2003		2004 to 2015	
	Mean	SD	Mean	SD
Level-Inequality				
IHS of mean wages	3.09	.48	3.55	.50
IHS of standard deviation of wages	.35	.19	.34	.20
IHS of mean benefits	1.56	.83	2.04	1.04
IHS of standard deviation of benefits	.37	.29	.42	.37
Institutional Variables				
Small establishment (<50 workers)	.35		.35	
Large establishment (>250 workers)	.37		.36	
Government-owned establishment	.14		.14	
Union coverage (%)	.18	.33	.15	.32
Part-time employment (%)	.14	.25	.17	.28
Performance-pay practices (%)	.06	.18	.05	.17
Skill Variables				
One-digit occupational classifications (%)				
Professional	.14		.19	
Managers	.11		.09	
Services	.15		.19	
Sales	.08		.09	
Clerical	.19		.18	
Production	.11		.08	
Operators	.08		.05	
Transportation	.05		.08	
Laborer	.08		.05	
Skill level (mean)			4.92	2.27
N establishments	7,599		11,662	
N observations (year × establishment)	98,309		125,406	

Source: Authors' calculations of establishment-level data from the BLS-ECEC.
Note: Data on firm size and performance-pay practices are available only from 1990 onward. Due to the change from the Standard Industrial Classification (SIC) to the North American Industrial Classification System (NAICS) in 2004, we present the descriptive statistics separately for the two periods.

Table A2. Descriptive Statistics of Relevant Variables at the Two-Digit Industry Level, 1982 to 2015

	35 Industries (SIC)		51 Industries (NAICS)	
	1982 to 2003		2004 to 2015	
	Mean	SD	Mean	SD
Level-Inequality (Gini coefficient)				
Voluntary benefits	.39	.1	.42	.1
Wages	.26	.1	.27	.1
Independent Variables				
Union coverage (%)	27.1	21.8	16.1	15.0
Part-time employment (%)	6.7	10.8	9.3	11.9
Small firms (<50 workers) (%)	27.1	11.4	30.9	12.0
Large firms (>250 workers) (%)	43.6	23.4	37.6	21.6
Performance-pay practices (%)	4.2	6.5	5.2	5.7
Government (%)	4.8	14.4	5.2	13.6
PTM Occupations (%)	16.9	12.3	25.6	21.3
N industries	35		51	
N observations (year × industry)	770		612	

Source: Authors' calculations of two-digit industry-level data from the BLS-ECEC.
Note: Data on firm size and performance-pay practices are available only from 1990 onward. Due to the change from the Standard Industrial Classification (SIC) to the North American Industrial Classification System (NAICS) in 2004, we present the descriptive statistics separately for the two periods.

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Notes

1. See Esping-Andersen (1990), Skocpol (1992), Dobbin (1992), and Hacker (2002) for explanations of U.S. "exceptionalism" with respect to the limited coverage of the U.S. welfare state.
2. The economic literature is engaged in debate over the causes of wage rigidity (see Akerlof and Yellen 1990; Malcomson 1997), but why benefits are less sticky than wages remains an open question.
3. For example, only half of U.S. workers understand the effect of inflation on their pension and can do a simple calculation related to compounding of interest rates (Lusardi 2015; Lusardi and Mitchell 2014).
4. The BLS Quarterly Census of Employment and Wages (QCEW), which is created from State Unemployment Insurance (UI) files of establishments, serves as the sampling frame for the survey.
5. The BLS field economist receives the establishment's complete list of employees and their job titles. The field economist then uses the NCS Probability Selection of Occupations (PSO) technique to randomly select the jobs to be sampled. With this technique, the probability of selecting a given job is proportional to the number of workers in this job in the establishment.
6. The ECEC weighting process consists of multiple steps, including calculation of weights that reflect a three-stage sampling design, nonresponse adjustment at the establishment level and occupational level, adjustment for sample rotation, and benchmarking. A more detailed description of the weighting process is given in Chapter 8 of the *BLS*

Handbook of Methods (U.S. Bureau of Labor Statistics 2008).

7. According to the BLS, nonproduction bonuses—bonuses not directly tied to production—include Christmas or year-end bonuses, profit-sharing cash bonuses, suggestion bonuses, contract-signing bonuses, safety bonuses, attendance bonuses, hiring bonuses (since 2000), and referral bonuses (since 2000).
8. The ECEC data do not include information on the coverage and costs of parental leave and nonmonetary perks (e.g., cars, gym, cellphones, laptops, housing). According to the BLS National Compensation Survey, which includes data on employee access to family-friendly benefits (but not on the cost of benefits or access to non-monetary perks), parental leave—available to 15 percent and 26 percent of the entire workforce and the top wage decile, respectively (U.S. Bureau of Labor Statistics 2017)—is clustered in the ECEC with other types of leave in a residual category called "other leave." In addition, stock options, available mostly to top executives, are not covered by the ECEC.
9. According to the BLS, production bonuses, which are included in wage and salary measures, are defined as extra payment based on production in excess of a quota or on completion of a job in less than standard time.
10. To be considered covered by a collective bargaining agreement, BLS provides the following criteria: (1) a labor organization is recognized as the bargaining agent for all workers in the occupation; (2) wage and salary rates are determined through collective bargaining or negotiations; (3) settlement terms, which must include earnings provisions and may include benefit provisions, are embodied in a signed, mutually binding collective bargaining agreement. ECEC data on union coverage aggregated to the two-level industry are consistently about three percentage-points higher than the May/ORG CPS data for private-sector workers. Presumably this is because they are based on a survey of employers, whereas the CPS is a household survey.
11. This measure is closely correlated with jobs defined by the establishment surveyed as part-time, which are available only since 1990.
12. We also estimate models in which we include an indicator of the percent of each skill level within the industry as a measure for the industry's skill level. The results (not shown) are similar to those shown in Tables 3 and 4.
13. In the inverse hyperbolic sine transformation: $\sinh^{-1}(x) = \log(x + (x^2 + 1)^{1/2})$.
14. Because we have a limited panel in which an establishment is found in sample for only five years, but we have a pooled cross-sectional time series spanning a very long time, the establishment fixed-effect accounts for changes in the mean and the standard deviation of income values over the "life-span" of the establishment within the sample.
15. To test the robustness of the results, we conducted the same analyses at the detailed industry level (four-digit industry codes) and the results (not shown) were appreciably the same as those obtained at the establishment level.
16. To test whether the data series are cointegrated, we performed the standard two-step cointegration test by regressing Y on X (in levels) and then testing whether the residual was stationary. We ascertained that the errors were indeed stationary in all models.
17. Because we have more industries than years, and to be sure the results in Table 5 are not biased due to the introduction of a lagged dependent variable in the model, we estimated the models with the Arellano–Bond dynamic panel estimator: these results are consistent with our conclusions (data not shown).
18. Contrary to our expectation, we find that inequality in wages and benefits alike is higher in government-owned establishments. This may reflect the ECEC data structure that samples more jobs (up to 20) in government-owned establishments than in privately-owned establishments (one to eight jobs). The ECEC data provide firm identification, in addition to establishment identification, for the years 2007 onward. Estimating the same models at the firm level (data not shown), we find that inequality in wages and benefits alike is as expected: smaller in government-owned establishments (only the coefficient for government changes direction when moving to the firm level).
19. In its early years, the ECEC survey added new establishments to the survey by industry. We therefore control for the percentage of establishments in an industry newly introduced into the survey since the previous survey round.
20. To make sure the results were not largely confounded by omitted variable bias, we analyzed similar models (not shown) with additional industrial covariates that we obtained from other sources and merged with the ECEC data at the two-digit industrial classifications. The major shortcoming of the ECEC data is their lack of demographic information on the workers included in the sampled jobs. We therefore utilized the March CPS data on labor market demography to measure the percentages of young workers (under 25) and non-Hispanic white men in each industry. Adding these extra covariates to the models shown in Table 5 did not change the main results.
21. Analyzing models without 2014 to 2015 yields substantively identical results.

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