Solidarity Within and Across Workplaces: How Cross-Workplace Coordination Affects Earnings Inequality

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The post–World War II period of wage compression provides a strong contrast to the last forty years of rising inequality. In this article, I argue that inequality was previously constrained by pay coordination that spanned multiple workplaces. Cross-workplace coordination practices range from multi-employer bargaining agreements to informal employer collusion. To quantify the influence of these practices on inequality, I draw on establishment-level Bureau of Labor Statistics microdata from 1968 to 1977. Inequality between workplaces did not increase during the 1970s and inequality was lower among workers likely to be covered by cross-workplace coordination. Unionization, large establishments, and pension provision reduced inequality across workplaces, not only among coworkers within workplaces. These findings indicate that cross-workplace coordination mitigated inequality during the postwar period of egalitarian economic growth.

Keywords: inequality, labor market institutions, wages, organizations, economic sociology

Since the 1970s, real earnings growth for most U.S. workers has sputtered and nearly stalled. At the same time, those at the top of the earnings distribution have enjoyed rapid gains (Song et al. 2018). Together, these trends mean rising earnings inequality amidst an erosion of job quality for the bulk of U.S. workers (Kalleberg 2009). As a result of these divergent earnings trajectories, average income in the bottom half of the income distribution has stagnated at around $16,000 per year since 1980, while overall income has grown 60 per-cent during the same period (Piketty, Saez, and Zucman 2018).

This upward redistribution of the gains from economic growth stands in contrast to the post–World War II economic boom, during which earnings growth was broadly shared (Bernstein 2016; Kopczuk, Saez, and Song 2010). Part of the rise in inequality is attributable to technological change increasing demand for skills without a sufficient offsetting increase in the supply of educated workers (Goldin and Katz 2008). However, since at least 2000, the col-

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lege wage premium has stabilized while inequality has continued rising (Autor 2017). Moreover, the growth in earnings inequality since 1980 has largely been due to growing earnings differences in pay between firms, as highly paid workers increasingly work together and increasingly work at high-paying paying firms (Song et al. 2018). These patterns lend renewed urgency to research about organizational practices, like increased use of pay for performance compensation, and labor market institutions, like declining labor unions, that could exacerbate inequality (Western and Rosenfeld 2011; Cobb and Stevens 2017; Lemieux 2008). The key to returning to egalitarian growth may lie in reformed organizational and institutional arrangements, rather than in skill supply per se.

Prior research investigating institutional and organizational effects on earnings has emphasized two mechanisms. First, groups of similar workers impose fairness norms among themselves and instigate power struggles inside workplaces that chasten managers and executives—highly paid employees who might otherwise seek yet higher pay for themselves. When these workplace pay norms deteriorate, through a decline in collective bargaining (Western and Rosenfeld 2011; Farber et al. 2018), or due to outsourcing and occupational segregation across workplaces (Handwerker 2018), earnings inequality can increase. Second, direct government regulation of compensation has ebbed since the 1970s. Specifically, early research suggested that minimum wages—which rose little during the 1970s and declined steadily in real terms through the 1980s—played a role in heightening inequality in the 1980s (Lee 1999; Autor, Manning, and Smith 2016). Together, within-workplace fairness norms and government regulation are two mechanisms through which organizational practices and labor market institutions affect earnings and inequality, above and beyond changes in the competitive labor market's fundamental supply and demand for skill.

This vision of institutional earnings effects is bifocal: it sees politics and coordination bubbling up inside the workplace or imposed from above as policy constraint. Lost between micro- and macropolitics is the meso-level of interaction among networks of firms, which could also

function to standardize earnings across different workplaces. Research in economic sociology emphasizes the importance of various interactions and connections between firms for a variety of outcomes—in the networked economy (Powell 1990), across noncompeting peer firms (Zuckerman and Sgourev 2006) and among buyers and suppliers (Whitford 2005; Wilmers 2018). Case studies in labor history emphasize how labor market institutions spanning multiple workplaces can yoke together compensation for workers employed at different employers. Indeed, cross-workplace coordination is particularly prominent in studies of wage determination in the kinds of low- and middle-skill jobs that have seen their quality degrade since the 1970s. For example, multi-employer collective bargaining agreements improved working standards in fragmented industries, from longshore and construction trades to garment workers, janitors, truckers, and actors (Hartman 1969; Carpenter 1972; Cobble 1991). Beyond formal multi-employer agreements, qualitative research on local labor markets during postwar wage compression found that tacit pay coordination among manufacturing companies standardized local area wage rates (Reynolds 1951). Among large industrial corporations, the spread of personnel departments focused on wage standardization abetted coordination and standardization across workplaces and companies (Jacoby 2004; Baron, Dobbin, and Jennings 1986). This theoretical and historical warrant justifies renewed attention to the ways that institutions and interactions spanning different workplaces affect earnings inequality.

In this article, I argue that understanding institutional and organizational wage effects—and by extension, understanding rising inequality and declining job quality—require attention to dynamics between workplaces (not just within them or imposed from above by direct government regulation). I draw on economic sociology and institutional labor economics to outline two ways that institutions and norms can affect earnings across different workplaces: through direct formal commitments (such as multi-employer collective bargaining agreements) and through informal pay coordination across workplaces. Rather than

government fiat or workgroup solidarity, these cross-workplace processes involve multiparty commitments, workplace-spanning norms and tacit coordination.

To test these ideas about job quality and cross-workplace coordination, I use neglected establishment-level survey data from the 1970s to assess the effects of unionization, workplace size, and compensation techniques on between-workplace earnings inequality. This empirical approach allows analysis of labor market institutions during a historical period in which prior research suggests they were particularly important (Goldin and Katz 2008; Kochan and Kimball, forthcoming). This period thus provides a strategic site at which to distinguish different channels through which norms and co-ordination contributed to pay compression during the post–World War II period. Moreover, these data provide the first series on between-workplace earnings inequality from prior to the 1980s. I contextualize these data by presenting longer trends in inequality within- and between-employers and discussing implications for research on changes in labor market institutions and employer coordination since the 1970s.

By filling in the cross-workplace meso-level of processes of wage compression, this article contributes to debates around rising inequality and job quality in several ways. First, I use insights from economic sociology and industrial relations about norms and interactions across workplaces to broaden research on institutional and organizational wage effects. Second, I introduce data from prior to the rise in inequality that allows workplace-level measurement of institutional and organizational sources of pay compression. Unlike studies using more recent data, which infer the effects of institutions and organizational practices through the consequences of their uneven deterioration, this analysis studies the institutional foundations of a relatively egalitarian earnings distribution during a period when these institutions were intact and influential. I can thus distinguish the precise channels through which institutional earnings effects operated.

Future research on the preconditions and risks involved in cross-workplace earnings co-

ordination would provide insight about an understudied, but historically important, area for policymakers seeking to revive egalitarian growth. Beyond increasing educational attainment, bolstering single-company unionism or limiting outsourcing and beyond adjustments in the minimum wage, this article shows how cross-workplace coordination mechanisms can shape the earnings distribution.

SOLIDARITY AND REGULATION AS SOURCES OF EQUALITY

Research on institutional and organizational sources of pay compression focuses on two sources: workgroup solidarity and government regulation. In the former channel, social norms and solidarity within firms and within workplaces reduce inequality. In the latter channel, direct government regulation imposes minimum wages and standards on firms. I first outline theory and research on these two sources. Later, I specify the third, understudied, class of pay compression channels, which hinge on agreements and norms between workplaces.

A long tradition in organizational sociology and institutional labor economics attributes deviations from market wages to power struggles inside workplaces and companies. In Alvin Gouldner's study of bureaucratization, the informal solidarity of underground gypsum miners undermines managerial attempts at disciplining workers (1954). The solidaristic work group also grounded Hugh Clegg's theory of labor union power, according to which groups of similar workers use collective action to improve their working conditions (1972). A recent programmatic restatement describes the distinctive view of institutional labor economics as "organizations are characterized by groups with competing objectives and perspectives" (Osterman 2011, 640). Informal norms and processes of group conflict within a workplace ground institutional wage determination in intuitive ideas about small group cohesion and power.

Building on this research tradition, an influential explanation for recent increases in earnings inequality emphasizes the decline of group bargaining power dynamics and solidaristic processes within workplaces and companies. This argument proceeds from two directions.

First, pay-setting processes within organizations appear increasingly responsive to labor market prices. The spread of variable compensation links worker pay to individual performance (Lemieux, MacLeod, and Parent 2009). Norms that previously constrained executive pay have eroded (Piketty and Saez 2003). The decline of labor unions is associated with increased within-firm inequality between workers and executives (Rosenfeld 2006; Freeman 1984). For lower-paid workers, the pay premium associated with working at a large firm has been steadily declining since at least the late 1980s (Cobb and Lin 2017). The messy conflicts and loyalties of work group wage determination appear to be melting into a competitive labor market that sets wages according to skill.

Second, organizations appear increasingly homogenous with respect to their workers' skills, occupation, and education level (Weil 2014). When companies outsource low-wage work, earnings decline for affected workers (Goldschmidt and Schmieder 2017; Dube and Kaplan 2010). As workplace fissuring separates workers in different occupations and with different skill levels across employers, fairness norms and rent sharing have less influence over wages. When pay differences align with firm boundaries, within-firm compression effects are avoided. The work group, with its attendant politics, fairness norms, and comparison groups, is thus receding in importance as a force mitigating wage inequality. This is due to both increased penetration of market-driven wage determination and an increasingly fragmented employment structure.

Beyond intra-organizational fairness norms, researchers have also considered the effects of changing government policy on inequality. Most prominently, the declining real value of the federal minimum wage contributed to stagnating wages and inequality in the bottom of the earnings distribution (Lee 1999; Autor, Manning, and Smith 2016). Declining minimum wages are a direct reduction in regulatory intervention in the wage distribution. Indirect government policies have also been important. Increased international trade penetration, deregulation, increased low-wage immigration, and lowered top income taxes have all contributed to rising earnings inequality (Alderson and Nielsen 2002; Autor, Dorn, and Hanson 2013; Fortin and Lemieux 1997; Card 2009; Piketty and Saez 2003).

These pathways of workplace fairness norms and government policy intervention, coupled with changing supply and demand for skill (discussed later) provide powerful explanations for inequality dynamics. But they leave open several puzzles. First, if outsourcing is a way to successfully avoid costly internal fairness norms, why would companies wait until the 1980s to begin outsourcing? A possible explanation is that cross-workplace agreements lowered incentives to outsource prior to the 1980s (but see also Autor 2003). Second, if norms exist within workplaces, why would they not exist across workplaces? Given findings in economic sociology about the importance of firm identity and interactions with peers and competitors (White 1981; Zuckerman and Sgourev 2006), wage norms, comparisons and coordination are likely to exist across as well as within workplaces. Third, if establishment-level collective bargaining agreements compress earnings within a workplace, multi-employer collective bargaining agreements should compress earnings across multiple workplaces. Addressing these dilemmas in the current institutional-organizational account of earnings inequality requires more careful consideration of the third channel of organizational and institutional earnings effects: cross-workplace coordination.

EARNINGS COORDINATION ACROSS WORKPLACES

Cross-workplace wage coordination practices fall along a spectrum of more and less formal commitments across workplaces and employers. The most formal are multi-employer collective bargaining agreements. Unions also spur more tacit coordination processes, such as pattern bargaining and coercive comparison. Beyond unions, informal coordination among large establishments can stem from the social order of product markets and embeddedness emphasized by economic sociologists, or via professionalized compensation practices from human resources and personnel departments. Through all of these processes, earnings differences across workplaces are muted due to in-

stitutional constraints and organizational practices. In the following section, I outline these coordination processes and formulate predictions about the effects of organizational practices and labor market institutions on inequality both within and between workplaces.

As noted earlier, collective bargaining heightens and reflects within-firm workgroup solidarity. But unions can also compress pay between different workplaces (Freeman 1980; Western and Rosenfeld 2011). Comparative research finds that coordinated, industry-wide collective bargaining restricts inequality (Wallerstein 1999). In the U.S. context, multi-employer bargaining was widespread up to the 1980s in industries ranging from construction and trucking to retail and hotels. Multi-employer bargaining is particularly important in industries with many fragmented employers who join together in employer associations to bargain with a union (Slichter, Healey, and Livernash 1960). In project-based industries like construction or media production, multi-employer contracts allow standardized wage and benefit schedules even as union members experience frequent moves across employers. Unions representing these workers sought to implement contracts that would cover all members in a local labor market in a given occupation, such as building trades or waitress unions (Cobble 1991), or industry, such as garment and other needle trades (Carpenter 1972). In trucking and entertainment unions, these multi-employer agreements were national in scope.

In manufacturing, practices of pattern bargaining involved provisions bargained in a lead contract setting a pattern of wage and benefits standards for subsequent agreements in peer employers represented by the same union or operating in the same sector (Budd 1992). More broadly, Arthur Ross identifies various levels of "orbits of coercive comparison" ranging from competitor firms within national product markets to rivalries between officials in different unions, each of which originate pressures to coordinate wage setting across groups of workers (1948). By activating equity concerns beyond individual workplaces, these orbits of comparison serve to compress average wages among unionized workplaces.

In both the formal multi-employer agreements and the less formal processes of pattern bargaining and coercive comparison, unionization is expected to reduce cross-workplace inequality. Consistent with a union wage premium, these agreements will also tend to increase wages among unionized workplaces (however, even given higher average pay, some of the most productive or profitable covered workplaces could still receive lower pay than if their wages were set independently). In this way, collective bargaining can also heighten inequality between union and non-union firms. In some cases union threat effects can lead non-union companies to adopt union-level pay scales (Farber 2005). But, in general, if pay compression in the union sector comes in part from increased wages, then the growing gap between union and non-union firms can heighten inequality (Rees 1962). This is particularly true when comparing unionized companies to companies in other industries and geographical regions: some non-union companies face little union threat.

Another informal source of cross-workplace earnings coordination is normative pressures exercised among employers directly. For example, in Lloyd Reynolds's classic study of the 1950s New Haven labor market, he finds employers who believe it is "not ethical to pay too high a wage. . . . If you do, you will end up in the same position as the gasoline stations who indulge in excessive price cutting" (1951, 160). Very small workplaces are more likely to fly under the radar of these normative pressures than large workplaces are. Another 1950s labor market study, in Trenton, New Jersey, finds that "gentlemen's" hiring codes against "labor pirating" were particularly strong in larger workplaces (Lester 1954, 63–64). There are two reasons for this. First, large workplaces are more prominent and their wage-setting decisions are more likely to be visible to peer workplaces. Research in economic sociology emphasizes the ways that large and visible establishments set patterns for their peers and competitors (White 1981; Podolny 2010). Second, assuming some critical mass and tipping point dynamics of employee coordination are needed to maintain a wage norm, it is easier for a small number of

Table 1. Predicted Inequality Effects of Labor-Market Institutions and Organizational Practices

	Within Firm	Among Similar Firms	Premium
Union	–	–	+
Large workplace	–	–	?
Pension	–	–	+
Performance pay	+	+	+

Source: Author's.

large workplaces to collude and coordinate earnings than for the many small workplaces that would be needed for the norm to cover enough workers. Normative pay coordination among employers at large workplaces is thus stronger than among small workplaces.

The stable, visible position of large workplaces leads them to transmit less variability in earnings for employees across workplaces. Unlike collective bargaining-driven coordination, however, these normative processes need not be associated with higher earnings for workers. As the Reynolds statement indicates, employers can use cross-workplace coordination to restrain earnings growth. Although these practices tend to be informal, some companies sign nonpoaching and noncompete agreements that can facilitate collusive reductions in worker earnings (Starr, Prescott, and Bishara 2018). Of course, research finds that large companies pay a premium (Cobb and Lin 2017). Less research, however, has considered the workplace-size effect. Thus the prediction of the effect of working at a large workplace on earnings is ambiguous.

Finally, beyond unionization and size, organizations' choices among compensation practices can also affect inequality. Variable compensation and bonuses can increase inequality (Lemieux, MacLeod, and Parent 2009). Variable compensation could increase inequality within establishments (if bonuses are tied to individual or team performance) or across establishments (if bonuses are tied to workplace-wide performance), or both. On the other hand, other compensation practices could decrease inequality. Specifically, workplaces that offer defined benefit pensions are required to offer pension coverage widely and pay benefits relatively equally, due to Internal Revenue Service

regulations designed to prevent employers from skewing pensions only to highly paid executives (Clark, Mulvey, and Schieber 2004). Beyond these within-workplace equality effects, pension provision can serve as a coordination mechanism: pension provision (particularly in the 1970s, when defined benefit pensions were at their zenith) is a large, observable portion of compensation, signaling workplaces with formalized personnel and human resources practices. In this way, the rise of nonwage compensation could actually diminish cross-workplace inequality (Dobbin 1992).

Table 1 summarizes these predicted effects of labor market institutions and organizational practices on different axes of inequality. Several labor market institutions are predicted to compress pay within workplaces and among similar workplaces, while also providing pay premiums that can heighten inequality between groups of workplaces.

CONTROLLING FOR COMPETITIVE LABOR MARKET FORCES

Alongside these various channels of institutional and organizational effects on pay, supply, and demand in the labor market are key determinants of workers' pay. In this article, I focus on clarifying how labor market institutions affect earnings, rather than on decomposing changing inequality into components due to institutions and skill supply (Western and Rosenfeld 2011; Lemieux 2008). Nonetheless, it is critical to control as much as possible for the effect of market forces on earnings in order to identify institutional and organizational features that affect earnings inequality. I address this issue with several strategies.

First, I focus on a period in which rising demand for skill did not translate into an increas-

ing college-wage premium or rising inequality.[1] Most research on inequality focuses on the period after 1980, in which labor market institutions deteriorated, skill demand outpaced supply, and inequality grew—all simultaneously. The 1970s, by contrast, presents a case in which even proponents of skill supply explanations acknowledge that although demand for skill had already outpaced the supply of college graduates, inequality did not rise (Goldin and Katz 2008). This choice of period does not lend itself to quantifying the general importance of institutional compared to skill supply and demand determinants of inequality. It does, however, offer a strategic setting for understanding how institutional and organizational constraints affect the earnings distribution during a period of strong apparent institutional influence.

However, even if skill supply and demand were not shaping the overall national trend in earnings inequality during this period, it is likely that subnational variation in skill supply influenced pay: some regions could be undersupplied with educated workers and some industries could be particularly rapid adopters of skill-biased technology. To address this concern, I condition on the industry and region in which workplaces operate. This strategy addresses concerns about subnational variation insofar as market-driven inequality is common within regions or within industries.

Nonetheless, in some cases, significant within-region or within-industry variation in labor demand can exist. To address this possibility, I proxy for microlevel skill supply and demand by controlling for the share of managerial compared to production employment within each workplace. Insofar as the share of managerial workers tracks the implementation of skill-biased technology, this approach corrects for firm-specific labor demand.

This comparison of production to nonproduction workers is similar to prior work using historical labor market data, which compares clerk earnings to unskilled laborers (Goldin and Margo 1992, see table VII for a summary of sources). Still, it hinges on the assumption that rough categories of managerial and production workers capture key differences in skill. In a supplementary analysis, I merge industry-level measures of organizational and institutional pay determinants into individual-level worker data. This allows a direct test of whether heterogeneity in skill, measured by educational attainment, explains institutional pay compression.

Taken together, these multiple strategies for holding constant skill supply and demand allow a research design that focuses on how institutional and organizational, rather than market-driven, inequality functions. But, despite this research design, it is likely that sorting on unobserved worker characteristics drives some of the variation in inequality modeled in the following section. I consider the implications of this sorting more thoroughly in the discussion.

DATA

I draw on workplace-level microdata from the Employer Expenditure for Employee Compensation (EEEC) surveys from 1968, 1970, 1972, 1974, 1976, and 1977.[2] As far as I know, they are the only U.S., nationally representative, workplace-level wage or earnings data series available from before the 1980s. They were acquired from the National Archives and had to be recoded from a combined Packed BCD (binary-coded decimal) and EBCDIC (extended binary coded decimal interchange code) format into a usable text format. A subset of these microdata were used by Richard Freeman in an early study of union wage effects (1980), but they have not been used to study inequality trends or other organizational wage effects.

The EEEC data are based on workplace-level surveys of nonfarm employers that ask about

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1. As Claudia Goldin and Lawrence Katz put it in their canonical study of wage inequality and the supply and demand for skill: "But where supply-demand forces fall a bit flat, institutional factors can reconcile patterns in the skill premium. In that sense we combine the usual supply and demand framework with institutional rigidities and alterations. The broader framework is most important in understanding wage structure changes during the 1940s and in contrasting changes from the mid- to late 1970s to those of the early 1980s" (2008, 293).

2. The first survey covering the full nonfarm economy was fielded in 1968. After 1977, the survey was redesigned. The only years available from the National Archives are 1968 through 1977.

employee compensation costs the respondent employers face. The sample frames were drawn from state unemployment insurance records and sampling was stratified by employment, industry, and geographical location (BLS 1971, 1974). The Bureau of Labor Statistics calculates survey weights based on sampling probability and correcting for nonresponse. However, these weights aim to be representative for employers rather than for workers. Because the latter is the relevant population for studying earnings inequality, I adjust the BLS weights by multiplying by the total hours compensated by each employer.

The survey asks about compensation separately by office and non-office employees. Office employees include all managerial, professional or clerical workers; non-office employees include all other workers, from production to janitorial to retail sales. Proprietors and unpaid family workers are excluded from the survey (BLS 1971, 1974). This distinction between office and non-office employees allows the rough control for workplace-specific skill composition introduced above.

Using these data, it is also possible to compare earnings and other compensation costs within workplaces between office and production employees. It is also possible to compare earnings levels among workplaces that participate in a given institutional or organizational condition that could affect average earnings at the workplace (such as the union earnings premium or the workplace-size premium). Finally, the data can be used to compare the degree of residual between-workplace inequality among workplaces covered by an institutional condition or organizational practice and those not covered. This final comparison provides the core test of the idea that cross-workplace earnings coordination reduces inequality. I specify more precisely the models needed to capture these various facets of inequality below.

Table 2 shows variable means from across waves of the EEEC. The weighted data are disproportionately composed of manufacturing firms (42 percent to 37 percent in these data, versus 27 percent to 22 percent from the Current Employment Statistics data). It is unclear from the historical BLS codebooks whether this manufacturing oversample was by design or whether it reflects problems in sampling strategy. During the 1960s, the EEEC was steadily broadened from a focus on manufacturing to include more and more service-sector establishments. This manufacturing oversample may be a holdover from this sampling strategy. Regardless, the data also include substantial portions of construction, transportation and utilities, retail and service workplaces. Over time, consistent with changes in the industry composition of the economy overall, FIRE and services become more prominent in the data. In a robustness test, I present results with weights adjusted for industry representativeness.

The EEEC can be used to construct several measures of worker pay, including average annual earnings, hourly wages, and overall compensation. I focus on logged overall annual compensation, defined as annual worker pay in the form of direct wage earnings, employer pension contributions, paid leave, and bonuses. Recent research shows that including nonwage forms of payment affects patterns in inequality (Piketty, Saez, and Zucman 2018). Because the EEEC is an employer-directed survey, asking about all costs incurred by employers to compensate workers, it is well suited to capture these nonwage payments that are neglected in worker-directed labor market surveys. I deflate average annual compensation with the consumer price index for all urban consumers; table 2 shows that after some earnings growth from 1968 to 1974, earnings slowed from 1974 to 1977, consistent with the onset of an overall pay slowdown beginning during this period.

The EEEC includes several measures that correspond to the organizational and institutional concepts discussed previously. First, the survey asks whether there is collective bargaining at a given workplace. Table 2 shows that between 38 and 45 percent of employment is at workplaces with some collective bargaining agreement. This percentage is rightly higher than estimates from household-based surveys, as workplaces all include employees that are not covered by a collective bargaining agreement.

Second, workplaces are categorized according to their size: fewer than twenty employees, twenty to ninety-nine, one hundred to 499, and

Table 2. Descriptive Statistics

	1968 Mean	1968 SD	1970 Mean	1970 SD	1972 Mean	1972 SD	1974 Mean	1974 SD	1976 Mean	1976 SD	1977 Mean	1977 SD
log(average annual compensation)	10.20	0.48	10.26	0.44	10.28	0.44	10.41	0.45	10.43	0.40	10.41	0.43
Union	0.44	0.50	0.45	0.50	0.37	0.48	0.40	0.49	0.45	0.50	0.38	0.49
Establishment size: < 20	0.21	0.41	0.18	0.39	0.22	0.42	0.08	0.28	0.01	0.11	0.06	0.24
Establishment size: 20–99	0.25	0.43	0.24	0.43	0.27	0.44	0.32	0.47	0.28	0.45	0.33	0.47
Establishment size: 100–499	0.23	0.42	0.22	0.42	0.23	0.42	0.27	0.44	0.27	0.44	0.30	0.46
Establishment size: 500+	0.31	0.46	0.35	0.48	0.28	0.45	0.32	0.47	0.44	0.50	0.31	0.46
Pension	0.05	0.21	0.71	0.45	0.67	0.47	0.75	0.43	0.80	0.40	0.76	0.43
Bonuses	0.40	0.49	0.37	0.48	0.33	0.47	0.39	0.49	0.37	0.48	0.35	0.48
Share office workers	0.30	0.30	0.34	0.32	0.35	0.32	0.33	0.35	0.34	0.35	0.35	0.37
Weekly hours	38	8	39	8	38	7	40	12	39	10	39	10
Metro area	0.06	0.23	0.55	0.50	0.51	0.50	0.78	0.42	0.76	0.43	0.73	0.44
Employees	1,597	4,664	1,964	5,369	877	2,173	94	221	1,973	6,084	135	429
Northeast	0.28	0.45	0.28	0.45	0.26	0.44	0.27	0.44	0.22	0.41	0.26	0.44
South	0.27	0.44	0.26	0.44	0.29	0.45	0.27	0.44	0.26	0.44	0.27	0.44
Midwest	0.29	0.45	0.31	0.46	0.31	0.46	0.32	0.47	0.35	0.48	0.32	0.47
West	0.16	0.37	0.15	0.36	0.14	0.35	0.15	0.36	0.16	0.37	0.16	0.36
Mining	0.01	0.12	0.02	0.12	0.02	0.12	0.02	0.12	0.01	0.11	0.02	0.14
Construction	0.06	0.24	0.07	0.25	0.06	0.23	0.06	0.23	0.03	0.16	0.04	0.20
Manufacturing	0.42	0.49	0.42	0.49	0.37	0.48	0.41	0.49	0.43	0.50	0.37	0.48
Transportation and utilities	0.09	0.29	0.10	0.30	0.08	0.27	0.08	0.27	0.13	0.34	0.09	0.29
Wholesale	0.05	0.23	0.06	0.24	0.06	0.25	0.08	0.27	0.05	0.22	0.06	0.24
Retail	0.14	0.34	0.12	0.33	0.16	0.37	0.13	0.33	0.12	0.32	0.14	0.35
FIRE	0.06	0.24	0.08	0.27	0.07	0.26	0.08	0.27	0.08	0.28	0.09	0.28
Services	0.16	0.37	0.14	0.35	0.18	0.38	0.15	0.36	0.15	0.35	0.19	0.39
N	4,258		3,752		5,015		3,747		1,813		2,681	

Source: Author's analysis based on the EEEC.

more than five hundred. Table 2 shows that though much of the size distribution remains constant over time, a drop-off is evident for the smallest workplaces (fewer than twenty employees) after 1972. The BLS methods books do not indicate any change in sampling approach at this time, but it is likely that this reduction in small workplaces is attributable to sampling strategy.

Much previous research on employer-size wage effects has focused on the size of the parent company rather than the size of the immediate workplace. But, insofar as wage determination happens within local labor markets, workplace size could also be important. A subset of survey years include information on affiliation with a larger parent company. In a robustness check, which follows, I test whether workplace size remains important, conditional on connection to a larger company.

Finally, workplaces are asked how much of total compensation is paid in the form of retirement and bonus payments. Using this compensation information, I construct a binary indicator showing whether a workplace pays pension or bonus payments.[3] Consistent with the discussion, I expect that bonus payments, as a form of variable compensation, will be associated with increased inequality, while pension payments will be associated with pay compression.

In addition to these main variables of interest, I construct controls for the share of office workers out of total employment, average weekly hours, metropolitan-nonmetropolitan location, Standard Industrial Classification (SIC) two-digit industry, year, and census region. These controls aim to adjust for the influence on earnings and inequality of different production technologies and local labor market settings and allow comparison across similar workplaces with different organizational practices and varying exposure to labor market institutions. However, a limitation of the EEEC data is that few other controls (particularly for worker composition) are available.

INEQUALITY IN THE 1970S

During the 1970s inflation and productivity stagnation marked a strong break from the rapid economic growth of the 1960s (Stein 2011). However, the Current Population Survey (CPS) indicates that earnings inequality actually held fairly steady, as the costs of economic recession and turmoil were shared across the earnings distribution (Western and Rosenfeld 2011). Data from the March CPS in figure 1 show that earnings variance increases steadily from the late 1970s, but was stable from 1968 to 1977. Household surveys like the CPS, however, do not distinguish earnings inequality between and within workplaces, which is important for testing the proposed theory.

The longest linked employer-employee data for the United States, the Social Security Administration (SSA) data, begins in 1978. Figure 1 shows that since 1980 both within- and between-firm earnings inequality have increased. This increase is particularly rapid between firms, which accounts for two thirds of increased inequality during this period. However, figure 1 also shows that the SSA data document declines in between- and within-firm inequality during its brief, pre-1980 coverage, from 1978 to 1980.

In figure 1, I also present the first between-workplace (or establishment) earnings inequality series available for the 1970s, based on the EEEC. Figure 1 shows that between-workplace annual earnings inequality declined steadily during the 1970s. The variance of logged earnings was around 0.23 in 1968 and declined around 20 percent to 0.18 by 1977. This level is slightly lower than the 0.25 with which the SSA series begins. This difference could be due to sample adjustments made to the SSA series (such as keeping only full-time workers). Other trends from the EEEC, not pictured here, show that hourly wage and hourly compensation measures of inequality also held steady during the 1970s (but did not decrease). The within-workplace ratio between office and non-office workers also held steady during the period.

3. Another approach here would be to use a continuous variable indicating the amount of compensation received as a bonus or as retirement payments. However, bonus and retirement payments are included as part of the overall compensation predicted as the dependent variable.

Figure 1. Earnings Inequality Between Workplaces Declined in the 1970s, Increased Since 1980
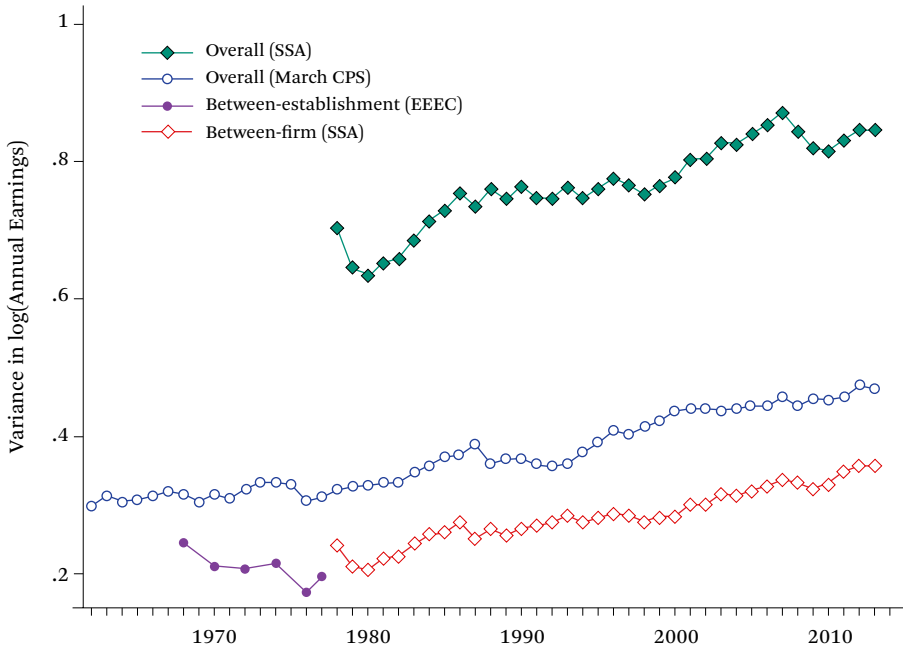
Source: Author's analysis based on the Social Security Administration earnings series (Song et al. 2018) and CPS data (Autor, Katz, and Kearney 2008).
Note: The SSA data include firms in private-sector-dominant industries and those making about a certain minimum threshold ($3,770 in 2013). March CPS data are restricted to private-sector, full-time, full-year workers, defined as working thirty-five hours and higher per week and at least forty weeks in the last year. For comparability with the SSA data, workers making less than $3,770 per year are excluded. EEEC data include private-sector establishments and are discussed in text.

These trends show, consistent with prior research, that earnings inequality overall did not increase until the 1980s. They also show, for the first time, that this pattern holds not only overall but also between workplaces. In the analysis that follows I ask which organizational and institutional pathways constrained inequality during this period. To do so, I delve deeper into the EEEC data to focus on variation in inequality and earnings across more and less institutionally and organizationally constrained workplaces.

METHODS

To study institutional and organizational effects on earnings inequality in more detail, I use two approaches: an ordinary least squares model of within-workplace pay ratios and a variance function regression model of between-workplace variance. The model of within-

workplace pay ratios allows institutional and organizational inequality effects to be measured where prior research most expects to find them: on the division of economic surplus between managerial and nonmanagerial employees within the same workplace. The variance function regression model, in contrast, is well suited to testing, first, differences in average pay among workplaces covered and not covered by labor market institutions and, second, between-workplace variance among workplaces participating in institutional and organizational coordination conditions relative to those that are not participating.

For the within-workplace model, I predict the ratio of logged pay for office relative to nonoffice production employees, similar to prior research on the CEO-to-worker pay ratio (Shin 2014). Because office workers tend to be managers, executives, and clerks, this approach cap-

tures an important dimension of within-workplace inequality. I first calculate the pay ratio as $log(w_{oi}/w_{pi})$, for office o to production p workers in each establishment i. I then model this ratio as a function of a vector, x_i', of labor market institutions and organizational characteristics predicted to affect within-workplace earnings inequality: union presence, workplace size, and pension and bonus compensation. I also include a vector of controls, z_i', for the share of office workers out of total employment, average weekly hours, metropolitan-nonmetropolitan location and SIC two-digit industry, year, and census region dummies:

$$log(w_{oi}/w_{pi}) = \pi_1 x_i' + \pi_1 z_i' + e_i. \qquad (1)$$

Ideally the controls in z_i' would adjust for any confounding influences that could influence both inequality and coverage by labor market institutions. Unfortunately, the EEEC data include limited information on each workplace. Most important, the EEEC does not include information on the composition of individual workers aside from the rough share of office workers out of total employment. Estimated π_1 effects should therefore be interpreted as a total effect of differences in pay for similar workers (such as through rent sharing) along with the degree of sorting of different workers across workplaces and job type categories. These two dimensions are likely intertwined: if a union forces an employer to pay managers less and unionized production workers more, it is likely that, over time, the employer will be able to hire only relatively lower-quality managers and perhaps higher-quality production workers. Prior work that includes worker fixed effects in analysis of firm size and union wage premiums finds that effects of institutional and organizational pay premiums persist even conditional on unobserved, time-invariant worker selection (Cobb and Lin 2017; Freeman 1984; Gittleman and Kleiner 2016). Nonetheless, unobserved worker sorting should be considered part of these estimates (as well as in the models that follow).

Second, I fit a variance function regression used in prior research on earnings inequality (Western and Rosenfeld 2011; Wilmers 2017; VanHeuvelen 2018). These models allow both

the between-group and within-group components of between-workplace inequality to vary as a function of covariates. For example, as noted, collective bargaining agreements are associated with a union wage premium for union relative to non-union companies. But, consistent with the predictions about cross-workplace earnings coordination and multi-employer collective bargaining, inequality could be lower among union companies than among non-union companies. The variance function regression allows both of these effects to be modeled.

First, I predict logged earnings w_i, for all workers in workplace i:

$$w_i = \beta_1 x_i' + \beta_2 z_i' + e_i, \qquad (2)$$

where x_i' is the vector of labor market institutions and organizational practices; w_i' includes the controls noted. The estimates in β_1 indicate pay gaps between workplaces with different exposure to labor market institutions. For example, the workplace-wide wage premium associated with unionization is captured in these models. Likewise, larger workplaces and workplaces with retirement benefits are expected to offer higher compensation than small workplaces and those without retirement benefits. This equation of mean earnings at the workplace level thus captures differences in compensation between workplaces participating in these organizational and institutional categories relative to workplaces not covered by those categories. By controlling for z_i', this model also removes any variability in earnings attributable to a workplace's share of office workers out of total employment, average weekly hours, metropolitan-nonmetropolitan location and industry, year, and census region. As in other models of mean earnings, this means that x_i' coefficients are estimated conditional on these workplace characteristics. But it also means that the variation remaining in the residuals e_i has been stripped of inequality arising from differences in average pay across characteristics like industries, regions, and office–non-office workplace composition.

The next equation models the residuals from equation (2) to predict conditional variances:

$$log(\sigma_i^2) = \lambda_1 x_i' + \lambda_2 z_i', \qquad (3)$$

where σ_i is the residual from the mean earnings equation. I model this within-group variance using participation in labor market institutions and organizational characteristics, x_i' and the controls just introduced, w_i'. The estimates in λ_1 indicate the degree to which organizations participating in similar organizational practices and labor market institutions have more similar earnings relative to workplaces that do not participate in those institutions. This between-workplace dimension of inequality is the type expected to be governed by cross-workplace coordination processes. Workplaces covered by labor market institutions or with organizational features that make coordination likely should have lower inequality among them than workplaces outside those coordination circuits. For example, there should be less pay inequality among workplaces in a given region and industry that are unionized than among workplaces that are not unionized.

Taken together, these models capture the effects of labor market institutions and organizational characteristics on each of the three types of inequality discussed—inequality between types of employees within the same workplace, pay differences between different workplaces, and varying levels of inequality across peer workplaces.

FINDINGS

Table 3 presents the models of the ratio of office to production worker earnings. These models provide evidence on the influence of institutions and organizational practices on within-workplace inequality, which is the main axis of inequality considered in research on fairness norms and pay compression. Coefficients are sensitive to including EEEC survey weights in the model, so both weighted and unweighted models are presented in table 3.

Table 3 shows that collective bargaining is consistently associated with a lower office to production worker pay gap across both weighted and unweighted models. Conditional on controls, including industry, region, and office worker share, the office to production worker gap is around 10 percent to 15 percent smaller in union relative to non-union work-places. Consistent with prior research and with theories of workgroup solidarity and fairness norms, unions are associated with a smaller gap between production and office employees in the same workplace.

Workplace size patterns are more ambiguous. The smallest workplaces (fewer than twenty employees) have the narrowest office to production worker pay ratios. However, relative to midsize workplaces (twenty to 499 employees), the largest workplaces have a smaller gap. This nonlinearity is consistent with work that emphasizes the pay-compressing effect of the largest, most bureaucratized organizations. It could also indicate more salient fairness norms imposed across workers and managers in smaller workplaces. Of course, apparent effects of workplace size can also involve a fixed level of inequality shifting within and between workplaces: if small workplaces achieve low inequality by outsourcing low-pay occupations, and larger workplaces concentrate more variety of occupations, then similar variability in pay across tasks can result from shifting tasks across organizational boundaries.

Finally, pay practices have mixed influences on within-workplace inequality. The relationship between a higher share of compensation costs in pension payments and pay gaps appears negative, as predicted, but is not robust to controls. Performance pay or bonus compensation, by contrast, is generally associated with a small increase in pay gaps.

Overall, these models of within-workplace pay inequality support prior research showing the importance of labor market institutions and organizational practices on pay compression within workplaces. These associations between labor market institutions and within-workplace pay compression, usually studied in more recent data, did indeed hold in the 1970s.

Next, I turn to the variance function regression results, which estimate the effects of labor market institutions and organizational characteristics on pay differences between groups of workplaces and on varying levels of inequality within groups of workplaces.

Table 4 presents results of the variance function regression models predicting average hourly compensation across all employees within each workplace. The β coefficients show

Table 3. Institutional and Organizational Effects on Within-Workplace Inequality

	Weighted		Unweighted	
	(1)	(2)	(3)	(4)
Union	−0.173***	−0.103***	−0.205***	−0.133***
	(0.009)	(0.010)	(0.010)	(0.010)
Establishment size: 20–99	0.258***	0.259***	0.323***	0.305***
	(0.014)	(0.014)	(0.016)	(0.015)
Establishment size: 100–499	0.248***	0.235***	0.374***	0.297***
	(0.015)	(0.015)	(0.017)	(0.016)
Establishment size: 500+	0.143***	0.164***	0.242***	0.190***
	(0.015)	(0.015)	(0.018)	(0.017)
Pension	−0.047***	−0.016	−0.052***	−0.018
	(0.012)	(0.012)	(0.014)	(0.013)
Bonuses	0.025**	0.030***	0.007	0.039***
	(0.009)	(0.008)	(0.009)	(0.009)
Share office workers		−0.290***		−0.437***
		(0.021)		(0.023)
Weekly hours		−0.018***		−0.020***
		(0.001)		(0.001)
Metro		0.042***		0.077***
		(0.010)		(0.009)
Constant	0.257***	0.911***	0.371***	1.006***
	(0.014)	(0.041)	(0.017)	(0.043)
R-squared	0.059	0.165	0.087	0.235
Year effects	Yes	Yes	Yes	Yes
Industry effects		Yes		Yes
Region effects		Yes		Yes
Observations	14,325	14,325	14,325	14,325

Source: Author's analysis based on the EEEC.
Note: Outcome is the office to production worker compensation ratio. Standard errors in parentheses. Workplaces with only office or only production employees are excluded from the models.
*p < .05; **p < .01; ***p < .001 (two-tailed tests)

that all measures of labor market institutions and organizational practices are associated with workplace-level wage premiums: workers in unionized workplaces, large workplaces, and workplaces with pensions and bonuses all earn a compensation premium relative to workers in other workplaces. However, consistent with the ambiguous prediction on workplace size, earnings do not increase linearly for larger workplaces. Although workplaces with more than twenty employees have consistently higher earnings, the differences between medium-sized workplaces (between twenty to ninety-nine and one hundred to 499 employees) and large workplaces (five hundred or more em-

ployees) are small and sensitive to controls. Nonetheless, these results overall suggest that the kinds of organizational practices and labor market institutions associated with lower within-workplace inequality are also associated with higher average earnings at the workplace level.

Table 4 also includes estimates of the conditional residual variances: these estimates indicate how levels of between-workplace inequality vary among workplaces covered by labor market institutions relative to those not covered. These λ coefficients show that unions, large workplaces, and pension provision are associated with lower residual inequality. In-

Table 4. Institutional and Organizational Effects on Workplace Earnings and Between-Workplace Inequality

	(1)		(2)	
	β	λ	β	λ
Union	0.210***	−0.505***	0.132***	−0.087**
	(0.006)	(0.030)	(0.004)	(0.032)
Establishment size: 20–99	0.058***	−0.012	0.033***	−0.127***
	(0.010)	(0.041)	(0.007)	(0.038)
Establishment size: 100–499	0.019	−0.139**	−0.002	−0.294***
	(0.010)	(0.044)	(0.007)	(0.043)
Establishment size: 500+	0.087***	−0.624***	0.042***	−0.714***
	(0.009)	(0.043)	(0.007)	(0.044)
Pension	0.233***	−0.369***	0.115***	−0.124***
	(0.008)	(0.039)	(0.005)	(0.030)
Bonuses	0.064***	−0.130***	0.017***	0.010
	(0.005)	(0.028)	(0.004)	(0.027)
Share office workers			0.591***	0.227***
			(0.008)	(0.048)
Weekly hours			0.027***	−0.010***
			(0.000)	(0.001)
Metro			0.045***	0.066*
			(0.004)	(0.028)
Constant	9.984***	−1.228***	9.075***	−1.929***
	(0.008)	(0.038)	(0.018)	(0.117)
R-squared	0.197		0.625	
Year effects	Yes	Yes	Yes	Yes
Industry effects			Yes	Yes
Region effects			Yes	Yes
Observations	21,266	21,266	21,266	21,266

Source: Author's analysis based on the EEEC.
Note: All estimates are β and λ coefficients from the variance function regression, predicting mean and variances of logged annual compensation. Standard errors are in parentheses and were calculated using the iterated weighting procedure described in the text.
*p < .05; **p < .01; ***p < .001 (two-tailed tests)

equality in average compensation is less among unionized workplaces and larger workplaces than among non-union workplaces and smaller workplaces. These variance patterns refer to residual or within-group inequality, after earnings differences across regions, industries, and other attributes are controlled out. Similarly, these patterns persist even with controls for conditional variances: if unionization tends to occur in industries or regions that have less earnings inequality, controls for industry and region in the variance equation correct for it. The λ coefficients should thus be interpreted

as conditional, within-group, or residual earnings variances between workplaces. The union pay compression coefficient shrinks when controls are included, but remains negative and statistically significant. Unlike the mean estimates for establishment-size earnings effects, which do not increase linearly, the between-establishment earnings variances associated with larger establishments are progressively more negative. This pattern is consistent with greater informal, cross-workplace earnings coordination among larger workplaces.

Contrary to predictions, the organizational

practice expected to increase between-workplace inequality—variable compensation—is not associated with higher variance. In the results presented later, variable compensation does increase between-workplace inequality for office employees. This difference in effects between office and production workers could reflect the quite different character of bonuses for each group.

Overall, the results of the conditional variance analysis demonstrate that labor market institutions and organizational practices affect inequality between workplaces in addition to within workplaces. This between-workplace pay compression is the type predicted by the presence of cross-workplace pay coordination practices.

ROBUSTNESS CHECKS AND ALTERNATIVE EXPLANATIONS

As noted, a key limitation of this analysis is that the EEEC is a workplace-level survey and the most disaggregated earnings information is available at the broad workgroup level. As a result, unobserved worker heterogeneity could drive some of the patterns in earnings identified. For example, unionized workplaces have more similar earnings to each other than to non-union workplaces, even in the same industry and region. This similarity could result from multi-employer collective bargaining or pattern bargaining in the union-sector workplaces, by which earnings levels across workplaces and employers are formally tied together. But, the same pattern could result from more similar workers, perhaps by education level, sorting into the union workplaces, whereas non-union workplaces receive workers with more heterogeneity in educational attainment. Indeed, relative homogeneity in skill among workers in the union workplaces might have motivated unions to organize those workplaces in the first place.

These models discussed previously control for this kind of worker heterogeneity only insofar as it is correlated with the office–production worker distinction. To further assess the role of individual worker characteristics in driving apparently institutional and organizational pat-

terns in earnings inequality, I linked the EEEC to the March CPS. To do so, I calculated industry-region-year level versions of the institutional and organizational measures available in the EEEC and merged these into the individual-level March CPS data.[4]

Model 1 in table 5 shows that industry-level results of the variance function regression, and predicting individual-level CPS annual earnings rather than EEEC workplace-level annual compensation, are similar to the presented workplace-level results. Workers in industries with more unionization and larger workplaces have higher earnings and lower inequality. The exception to this consistency across data sets is pension presence: at the industry level, pension presence is not associated with lower inequality. The March CPS data also allow controls for workers' education level, age, gender, and race. Model 2 in table 5 shows that controlling for these worker characteristics reduces the size of the institutional and organizational coefficients, but they generally remain consistent with the EEEC workplace-level results.

This analysis of the linked CPS-EEEC data is reassuring, particularly for establishing the stability of the union and workplace-size inequality patterns. However, by moving to the individual worker-level CPS data, between- and within-workplace inequality can no longer be distinguished. Moreover, even with these controls for *observable* individual characteristics however, it is still possible that *unobservable* worker characteristics are driving apparently lower between-workplace inequality among unionized and large workplaces (I discuss this possibility further).

Assuming that the uneven distribution of human capital is not driving the results, another limitation of the main analysis is that not all institutional and organizational determinants of earnings are accounted for in these models. As noted, the main additional explanation for inequality levels is government regulation via the minimum wage. As the minimum wage is not a workplace-level institutional feature, it is difficult to control for here. During the period studied in this analysis, the real

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4. Industry was used at the two-digit SIC code. Geographical region is four census regions.

Table 5. Institutional and Organizational Effects on Workplace Earnings and Between-Workplace Inequality (Industry-Region-Year-Level Measures Matched to Worker-Level March CPS)

	(1)		(2)	
	β	λ	β	λ
Union	0.132***	−0.253***	0.067***	−0.307***
	(0.009)	(0.042)	(0.007)	(0.057)
Establishment size: 20–99	0.143***	−0.313***	0.098***	−0.352***
	(0.016)	(0.081)	(0.013)	(0.107)
Establishment size: 100–499	0.023	−0.159*	0.067***	−0.347***
	(0.014)	(0.073)	(0.012)	(0.095)
Establishment size: 500+	0.133***	−0.323***	0.107***	−0.413***
	(0.014)	(0.072)	(0.012)	(0.094)
Bonuses	0.007	−0.121*	−0.023**	−0.052
	(0.010)	(0.049)	(0.008)	(0.065)
Pension	−0.081***	0.022	−0.061***	0.073
	(0.011)	(0.057)	(0.009)	(0.075)
LTHS			−0.219***	0.260***
			(0.005)	(0.043)
Some college			0.105***	0.263***
			(0.006)	(0.053)
College graduate			0.329***	0.426***
			(0.008)	(0.067)
Post-college			0.463***	0.589***
			(0.012)	(0.101)
Female			−0.550***	0.012
			(0.005)	(0.040)
Constant	10.194***	−0.663***	9.923***	−0.647***
	(0.012)	(0.061)	(0.018)	(0.148)
R-squared	0.011		0.364	
Year effects	Yes	Yes	Yes	Yes
Age effects			Yes	Yes
Race effects			Yes	Yes
Observations	50,765	50,765	50,765	50,765

Source: Author's analysis based on the EEEC for industry-level market institutions and the March CPS for individual earnings and controls.

Note: All estimates are β and λ coefficients from the variance function regression, predicting mean and variances of logged annual labor earnings. Age categories are less than twenty-one, twenty-one to twenty-nine, thirty to thirty-nine, forty to forty-nine, fifty to fifty-nine, and sixty or older. Race is white, black, and other.

*p < .05; **p < .01; ***p < .001 (two-tailed tests)

value of the federal minimum wage remained fairly constant before falling steadily through the 1980s.[5] Year fixed effects included in the models should absorb any year-to-year varia-tion in the value of the minimum wage. How-ever, the minimum wage binds for only some workers and not others. It is possible that for some workplaces, say large workplaces, the min-

5. In 2015 dollars, after slipping slightly due to inflation from $10.86 in 1968 to $9.04 in 1972, small increases kept the real value of the minimum wage steady around $10 until a decade of decline began in 1980.

Table 6. Institutional and Organizational Effects on Workplace Earnings and Between-Workplace Inequality (Office Only)

	(1)		(2)	
	β	λ	β	λ
Union	0.064***	−0.605***	0.018*	−0.211***
	(0.008)	(0.051)	(0.007)	(0.056)
Establishment size: 20–99	0.128***	−0.177***	0.074***	−0.224***
	(0.011)	(0.040)	(0.010)	(0.043)
Establishment size: 100–499	0.119***	−0.538***	0.038***	−0.585***
	(0.011)	(0.042)	(0.010)	(0.046)
Establishment size: 500+	0.148***	−0.897***	0.056***	−1.212***
	(0.010)	(0.040)	(0.009)	(0.044)
Pension	0.088***	−0.264***	0.074***	−0.188***
	(0.010)	(0.038)	(0.008)	(0.032)
Bonuses	0.041***	−0.051	0.010*	0.067*
	(0.006)	(0.027)	(0.004)	(0.029)
Weekly hours			0.024***	0.008***
			(0.000)	(0.001)
Metro			0.050***	0.000
			(0.005)	(0.031)
Constant	10.302***	−1.288***	9.567***	−2.065***
	(0.010)	(0.038)	(0.026)	(0.144)
R-squared	0.039		0.400	
Year effects	Yes	Yes	Yes	Yes
Industry effects			Yes	Yes
Region effects			Yes	Yes
Observations	17,223	17,223	17,223	17,223

Source: Author's analysis based on the EEEC.
Note: All estimates are β and λ coefficients from the variance function regression, predicting mean and variances of logged annual compensation. Standard errors are in parentheses and were calculated using the iterated weighting procedure described in the text.
*p < .05; **p < .01; ***p < .001 (two-tailed tests)

imum wage is more likely to affect a larger number of workers. If this is the case, then apparently low inequality among large workplaces may by due, not to workplace size, but to increased exposure to the minimum wage.

To remove the potential influence of the minimum wage, I re-run the models focusing only on office workers. These managerial, professional, and clerical workers tend to be more highly paid than production workers and should be less likely to be directly affected by the minimum wage. Results in table 6 show that between-workplace inequality effects of institutional and organizational constraints are similar, and if anything more pronounced, for

this subset of employees. Based on this test drawing on more highly paid office employees, it is unlikely that varying minimum wage exposure is driving the overall results. Of course, this is not to say that the minimum wage does not have important distributional effects, only that it seems unlikely to drive the cross-workplace inequality effects associated with workplace-level institutional and organizational characteristics.

Another limitation of the main analysis is that I focus on workplace size rather than company size. As discussed, workplace size is likely to be important in local labor market settings where much wage determination occurs. How-

Table 7. Institutional and Organizational Effects on Workplace Earnings and Between-Workplace Inequality (1974–1977)

	(1)		(2)	
	β	λ	β	λ
Union	0.225***	−0.281***	0.159***	0.074
	(0.009)	(0.039)	(0.007)	(0.044)
Establishment size: 20–99	−0.200***	−0.061	−0.065***	−0.194*
	(0.027)	(0.083)	(0.017)	(0.083)
Establishment size: 100–499	−0.410***	−0.435***	−0.098***	−0.439***
	(0.027)	(0.086)	(0.018)	(0.088)
Establishment size: 500+	−0.332***	−0.840***	−0.020	−0.788***
	(0.027)	(0.087)	(0.018)	(0.091)
Large company	−0.053***	−0.048	−0.031***	−0.000
	(0.009)	(0.038)	(0.006)	(0.039)
Pension	0.207***	−0.214***	0.102***	−0.061
	(0.013)	(0.047)	(0.008)	(0.048)
Bonuses	0.070***	−0.183***	0.030***	−0.015
	(0.008)	(0.037)	(0.006)	(0.037)
Share office workers			0.466***	0.267***
			(0.012)	(0.065)
Weekly hours			0.022***	0.004**
			(0.000)	(0.001)
Metro			0.098***	0.095*
			(0.007)	(0.044)
Constant	10.457***	−1.114***	9.535***	−2.968***
	(0.026)	(0.080)	(0.032)	(0.181)
R-squared	0.157		0.621	
Year effects	Yes	Yes	Yes	Yes
Industry effects			Yes	Yes
Region effects			Yes	Yes
Observations	7,776	7,776	7,776	7,776

Source: Author's analysis based on the EEEC.
Note: All estimates are β and λ coefficients from the variance function regression, predicting mean and variances of logged annual compensation. Standard errors are in parentheses and were calculated using the iterated weighting procedure described in the text.
*p < .05; **p < .01; ***p < .001 (two-tailed tests)

ever, parent company size could also have important effects via company-wide pay-setting policies. In the later years of the survey (1974 to 1977), respondents were asked whether their workplace was connected to a larger parent company. To check whether workplace size effects persist conditional on this connection to a larger company, I re-run the analyses using the subsample of workplaces that responded to the parent company question. Results in table 7 show that the workplace-size effects hold up and that parent company affiliation has little association with between-workplace earnings inequality.

Finally, as noted, the weighted EEEC data overrepresents establishments in the manufacturing industry. To test whether this sampling issue affects results, I adjust the EEEC weights to mirror employment composition at the broad industry level in the Current Employment Statistics. Table 8 displays the results of the re-weighted models. All estimates are qual-

Table 8. Institutional and Organizational Effects on Workplace Earnings and Between-Workplace Inequality (Industry Re-weighting)

	(1)		(2)	
	β	λ	β	λ
Union	0.210***	−0.412***	0.133***	−0.062
	(0.006)	(0.030)	(0.004)	(0.034)
Establishment size: 20–99	0.057***	0.035	0.032***	−0.081*
	(0.009)	(0.035)	(0.007)	(0.034)
Establishment size: 100–499	0.018	−0.025	−0.003	−0.259***
	(0.010)	(0.041)	(0.007)	(0.041)
Establishment size: 500+	0.085***	−0.568***	0.039***	−0.733***
	(0.009)	(0.041)	(0.007)	(0.043)
Pension	0.238***	−0.323***	0.115***	−0.106***
	(0.008)	(0.035)	(0.005)	(0.030)
Bonuses	0.067***	−0.143***	0.018***	−0.001
	(0.005)	(0.028)	(0.004)	(0.028)
Share office workers			0.589***	0.308***
			(0.008)	(0.045)
Weekly hours			0.027***	−0.009***
			(0.000)	(0.001)
Metro			0.044***	0.015
			(0.004)	(0.027)
Constant	9.981***	−1.162***	9.067***	−2.025***
	(0.008)	(0.035)	(0.018)	(0.101)
R-squared	0.203		0.629	
Year effects	Yes	Yes	Yes	Yes
Industry effects			Yes	Yes
Region effects			Yes	Yes
Observations	21,266	21,266	21,266	21,266

Source: Author's analysis based on the EEEC.
Note: All estimates are β and λ coefficients from the variance function regression, predicting mean and variances of logged annual compensation. Standard errors are in parentheses and were calculated using the iterated weighting procedure described in the text.
*p < .05; **p < .01; ***p < .001 (two-tailed tests)

itatively similar to the main results and changing the weights does not affect the interpretation of most of the hypotheses. The key exception is that the association between unionization and between-workplace inequality shrinks slightly in the model with full controls (from −0.087 in the table 4 model to −0.062 in the re-weighted model) and loses statistical significance. This shift in the union coefficient suggests industry heterogeneity in the between-workplace wage compression influence of unions: collective bargaining was particularly successful at compressing wages in the manu-

facturing industry. However, the actual shift in the point estimate is small and not itself statistically significant.

Together, these checks provide evidence for the robustness of the main results presented earlier. Although the EEEC data have limitations, they show the importance of labor market institutions and organizational practices to limiting between-workplace inequality prior to 1980. But what happened to cross-workplace coordination after the 1970s? In the following section, I describe some key developments beyond the historical scope of the EEEC data.

Table 9. Inequality Effects of Labor-Market Institutions and Organizational Practices

	Within Firm	Among Similar Firms	Premium
Union	–	–	+
Large workplace	–	–	U
Pension	U	–	+
Performance pay	+	U	+

Source: Author's.

DEVELOPMENTS SINCE THE 1970S

In this article, I extend theories of the wage equalizing effects of labor market institutions and organizational practices to show that they affect inequality between workplaces in addition to inequality within workplaces. I do so by focusing on a period—the 1970s—in which strong labor market institutions compressed wages between workplaces. Understanding these patterns requires moving beyond theories that emphasize work group solidarity within workplaces and government regulation from above them, to considering patterns of coordination between workplaces. Table 9 summarizes the findings. The analysis clarifies the channels through which labor market institutions and organizational practices ensured good jobs prior to the take-off in inequality after 1980. Since the 1970s, many of these institutions and practices have deteriorated or transformed.

Most prominently, labor unions have declined in both membership and power. Moreover, this decline has been accompanied by an apparent disintegration of coordinated bargaining (Moody 1988; Kochan, Katz, and McKersie 1994). After the 1970s, multi-employer collective bargaining agreements shrank and sometimes disappeared. In the wake of trucking deregulation, the number of members covered by the Teamsters' National Master Freight Agreement dwindled from 450,000 members in the 1960s to fewer than seventy-five thousand by the mid-2000s, a process that transformed the jobs of long-haul truckers (Viscelli 2016). At the same time, unions in manufacturing industries such as auto and steel that previously set industry-wide wage standards faced increased foreign and non-union domestic competition (Stein 2011). For example, in the auto industry, pattern bargaining was in decline by the late 1980s (Budd 1992). Even in settings where coordinated bargaining survived, the wage advantage associated with it seemed to diminish in the 1980s (Kochan and Riordan 2016). Cross-workplace wage comparisons appear to have become substantially less coercive.

However, despite this general decline in union power and coordination, some service-sector unions have bucked the trend. For example, in the mid-2000s, the hotel workers union lined up the expiration of hotel contracts covering sixty thousand workers in six heavily unionized cities in order to impose more bargaining pressure on national hotel brands (Abowd 2009). Likewise, the service employees union sought to reinvigorate city-wide janitorial contracts through the Justice for Janitors campaign (Erickson et al. 2002). Several cities, including New York and Seattle, have adopted more formally corporatist industry-specific labor boards to set standards in low-wage industries like restaurants and domestic service. These different approaches to coordination could both increase union bargaining leverage and achieve the kind of cross-workplace pay coordination and compression that characterized union bargaining prior to the 1980s.

Just as the influence of unions has waned, the earnings benefits of working at a large workplace or a large firm seem to be eroding for lower-wage workers (Cobb and Lin 2017). As a result, inequality has increased in large companies. However, inequality between large companies has grown at a similar rate to that among smaller companies (Song et al. 2018). Moreover, an apparent fracturing of corporate board interlocks and other pathways of cross-company interaction may have left large companies less capable of coordinating (Mizruchi 2013). On the other hand, one concerning possibility is that

cross-employer informal pay coordination remains, but, absent the normative constraints and commitments of the pre-1980s period, employers cooperate only by restraining wages. Consistent with this possibility, recent research finds that increased monopsony power by employers in local labor markets is associated with lower wages (Benmelech, Bergman, and Kim 2018; Azar, Marinescu, and Steinbaum 2017).

Finally, research has documented an increase in variable compensation since the 1970s (Lemieux, MacLeod, and Parent 2009). The results from the present analysis suggest that in the 1970s, the use of performance pay increased inequality among office workers rather than among production workers. The decline of defined-benefit pensions, by contrast, has affected workers across the occupation spectrum, but has rarely been considered as a source of rising earnings inequality (Cobb 2015). These shifts in compensation practices have continued since the 1980s. Their distributional implications show the importance of organization-level decisions in shaping societal earnings inequality.

FUTURE RESEARCH

The EEEC surveys provide nationally representative workplace-level data on wages and compensation from prior to the period of rising earnings inequality. They offer a unique opportunity to assess the effects of various institutional features that are usually studied only in their decline. However, a key limitation of these data is that they do not include individual worker characteristics. The apparent equalizing effects of labor market institutions could therefore be driven in part by increased sorting of similar workers across workplaces. However, these sorting processes themselves are of interest. Between-workplace inequality declining due to sorting indicates more heterogeneity in skill among coworkers. Industry-wide bargaining agreements can dampen incentives faced by employers and by workers for sorting within the industry: for better or worse, more productive companies would not be able to lure better employees. Future research should use linked worker-workplace data to investigate the relationship between increased worker sorting across workplaces and the decline of cross-

workplace pay coordination institutions and organizational practices.

Another limitation of these data is that the specific mechanisms of cross-workplace earnings compression—multi-employer bargaining agreements, pattern bargaining, and employer networks or interaction—are not directly observable. Future research should explore measures of these between-workplace connections (Wilmers 2018; Kochan and Riordan 2016). Although such measures are difficult to obtain in nationally representative data, they are critical for understanding the processes through which cross-workplace coordination occurs.

Beyond these outstanding empirical questions, the results presented here raise the question of the conditions under which cross-workplace pay coordination is possible (Dunlop 1958). Further research on this issue would shed light on the prospects for a reinvigoration of between-workplace institutional wage compression.

For example, when coordinated workplaces face strong low-wage competition, coordination at a high wage will be difficult to sustain. As noted, the pattern bargaining practiced by core industrial unions was challenged by non-union and foreign competitors. Indeed, even in the heyday of pattern bargaining in Detroit manufacturing, smaller and less financially stable companies often deviated from the key bargaining agreement (Levinson 1960). Yet in other industries, dynamics were different: declining multi-employer collective bargaining coverage in the building trades was not driven by wage gaps with non-union contractors (Belman and Voos 2006). Outside the union context, informal wage norms will likely be difficult to maintain in the face of external competition. Relatedly, substantial productivity and profitability differences across employers could make coordination on wage levels more difficult.

Beyond these objective competition and performance considerations, important subjective aspects are central to understanding how solidarity among workers across workplaces is achieved. Much sociology of labor unions emphasizes the solidarity gleaned from worker interaction and mobilization on the job, in a particular workplace (Fantasia 1989). Comparative research on Scandinavian and other European

countries with centralized bargaining suggests that solidarity and common worker interests can also stem from other sources (Katz 1993). This issue raises questions of worker identity and class consciousness. In some settings, like construction and restaurant unions in the United States, occupation-wide craft identities are crucial (Cobble 1991). In others, as with Sweden's blue-collar peak labor organization, broader identities of class and union member hold together centralized bargaining (Hibbs 1991).

Another area for future research concerns potential negative effects of cross-workplace coordination for workers. As noted throughout, cross-workplace pay coordination per se does not necessarily benefit workers. Future research should build on older studies of employer collusion (Reynolds 1951) in light of recent research on the monopsonistic effects of employer concentration in local labor markets (Benmelech, Bergman, and Kim 2018). If employers coordinate and set wages absent countervailing pressure from union organizations, workers are unlikely to benefit.

Second, even when coordination limits earnings inequality among peer workplaces (say, those represented by the same labor union), it can increase inequality between workplaces covered by favorable labor market institutions or organizational practices, relative to workplaces not so covered. The union–non-union gap is one source of what a past generation of structural sociologists called "industrial segmentation" (Tolbert, Horan, and Beck 1980; Kalleberg, Wallace, and Althauser 1981). Segmentation is a form of between-workplace inequality that exists between groups of workplaces (grouped by union status, size, and generosity of benefits provision). Moreover, just as with unions, insofar as large workplaces pay a premium to their workers, they can increase segmentation inequality between large and small workplaces. Here again, a labor market institution that fosters equality among its own workers could spur inequality between different groups of workplaces. Indeed, even pension provision can be a vector of increased segmentation between generous workplaces, like paternalistic companies that provide their employees excess pay and benefits (Jacoby 1997),

and outsider companies with poor pay and benefits. Future research should return to these themes and ask about the conditions under which these insider-outsider distinctions can be muted and overcome.

CONCLUSION

By bringing workplace-level data on the period of postwar wage compression, this analysis deepens our understanding of the institutional and organizational mechanisms that contributed to that unprecedented period of egalitarian economic growth. Unions and large workplaces did not just reduce inequality among managers and workers inside workplaces. They were also associated with lower inequality between workplaces, supporting wage norms and pay standardization across workplaces. These mechanisms of cross-workplace earnings coordination have been little studied as sources of the great compression in U.S. earnings. Alongside skill supply, workgroup solidarity, and government regulations, between-workplace coordination, commitments, and norms can affect earnings inequality.

Research on low-wage work and job quality would benefit from increased attention to these meso-level processes that affect wage determination. On the one hand, cross-workplace earnings coordination via multi-employer and pattern collective bargaining brought higher earnings to industries such as trucking, building services, and hotels, which have experienced low-wage job growth since the 1970s. Recent attempts by unions in hotels and other services to reinvigorate cross-workplace bargaining strategies could hold promise for spurring wage growth in low-wage jobs.

On the other hand, cross-workplace earnings coordination poses risks of segmentation, or exclusion of some workplaces and industries from the ambit of higher coordinated earnings. Moreover, employer collusion, absent countervailing union and worker pressure, could contribute to lower wages. The results here show that lower between-workplace inequality among larger workplaces was not accompanied by consistently higher earnings for larger workplaces. Understanding how these dynamics of monopsony and employer power can undermine earnings increases for low-wage jobs will

become increasingly important if trends in corporate consolidation continue (Benmelech, Bergman, and Kim 2018; Wilmers 2018).

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