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IZA DP No. 17233

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ABSTRACT

Sharing Is Caring: Employee Stock Ownership Plans and Employee Well-Being in U.S. Manufacturing*

Do employees fare better in firms they partly own? Examining workers' reviews of their employers on Glassdoor, we compare employee satisfaction between firms in which workers own company shares through an employee stock ownership plan (ESOP) and conventional firms in which they do not. Focusing on workers in U.S. manufacturing, we find employees report greater satisfaction in employee-owned firms overall and with specific aspects of jobs such as firm culture. This satisfaction premium is greater when the ESOP is the product of collective bargaining or employees own a larger stake of firm equity. Employee well-being can thus differ by ownership arrangement.

JEL Classification: J52, J28, M14

Keywords: ESOP, job satisfaction, collective bargaining, culture

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1 Introduction

The idea of employees having ownership in their firms has been of great interest to policymakers across the political spectrum. From Margaret Thatcher[1] and Ronald Reagan[2] to Bernie Sanders[3], both right-leaning and left-leaning policymakers have advocated for employee ownership. Academic researchers as well, including for instance Blasi *et al.* (2013), have expressed support for the idea that offering employees a stake in their firms can lead to a more engaged workforce, more productive firms, and a more equitable society. In his 19th-century writings on political economy, morals, and utilitarianism, John Stuart Mill argued that employee ownership would provide such benefits, and in addition, would contribute to workers' receiving greater happiness from their employment.[4] We empirically test Mill's hypothesis, asking do workers experience improved well-being in employee-owned firms?

Though employee ownership can be implemented in diverse ways and degrees, employee stock ownership plans, or ESOPs, are the most common vehicle in the United States for implementing broad-based employee ownership. Other ownership structures include, for instance, cooperatives and professional partnerships.[5] According to data from the National Center for Employee Ownership (NCEO), although only about 6,300 U.S. companies have an ESOP, because such employers tend to be large, about 14.7 million individuals currently participate in an ESOP.[6] Although most ESOPs are in privately-held firms (92%), the majority of participants (84%) are in publicly-traded firms. For the most part, ESOPs have a minority employee ownership share (70%). ESOPs though extends beyond the United States to other large economies. In Europe, as of 2022, there were about 6.8 million employee shareholders who collectively held €447 billion in capitalization.[7] In China, by the end of 2019, at least 430,000 employees were participating in a company ESOP (Li *et al.*, 2022). Employee ownership is thus a global phenomenon that impacts millions of workers.

Various potential benefits of employee ownership have been evaluated empirically, mostly in the context of ESOP firms. For instance, Kruse *et al.* (2010) study many aspects of work,

[1] The privatization program undertaken by Margaret Thatcher and the Major government was the primary reason for the flourishing of employee stock ownership plans in the United Kingdom (Pendleton *et al.*, 1996).

[2] See this excerpt from a speech Ronald Reagan gave in July 1974.

[3] See this press release from Bernie Sander's Senate office.

[4] See Witztum (2005) and Qizilbash (2006).

[5] In cooperatives, member-workers typically have equal share and may own the firm alone, or they may share ownership with other institutions such as a federation. Professional partnerships are often similar to cooperatives in that they have many non-members (e.g., lawyers who are not partners and support staff, or nursing and support staff who are not doctor-partners), though non-members are excluded from ownership and decision rights associated with it. Cooperatives are rare in the United States, while professional partnerships are common in such fields as law, consulting, and medicine.

[6] Statistics about U.S. ESOPs are available here.

[7] See the 2022 Annual Economic Survey of Employee Share Ownership in European Countries.

including pay, fringe benefits, job security, and job satisfaction, looking between ESOPs of varying degrees of ownership. There is little evidence however, about whether workers are happier or more satisfied with their jobs in firms where they are part owners compared with workers in conventional firms in which they are not. The presence of an ESOP may alter worker well-being since, for instance, ESOPs operate within a legal framework specifying arrangements for direct and indirect employee influence on firm decision-making. Additionally, since workers directly profit when the firm profits, interpersonal relationships between coworkers and supervisors may differ, for better (e.g., collaborative teamwork) or for worse (e.g., peer pressure). In this paper, we investigate this yet-to-be studied comparison through the lens of employee well-being, as proxied for by job satisfaction, in U.S. manufacturing.

Theoretically, we analyze the implications of these arrangements for employee well-being. ESOP firms are likely to provide packages of compensation, workplace culture, workplace safety, and other amenities that, for a given expense, more closely align with workers' preferences than that which conventional firms can offer because of a greater willingness to share information by both management and workers. Moreover, with greater cooperation among employees in different roles and ranks as well as between workers and management, productivity is likely to be greater in ESOP firms than in conventional firms, generating a larger surplus that can be in part allocated to workers in the form of better pay and working conditions (Mortensen, 2003). We predict ESOPs that are introduced on the basis of collective bargaining agreements between unions and management likely exhibit stronger effects on employee satisfaction because of the expressed cooperation between the two parties.

Empirically, we use responses to employee surveys on Glassdoor to compare overall job satisfaction and satisfaction with specific aspects of jobs between ESOP firms and conventional firms. As Kahneman and Krueger (2006) argue, this subjective measure of well-being captures individuals' perceptions of their experiences; and when it is reported close or in direct reference to the actual experience, it acutely gauges actual feelings. Because there is substantial heterogeneity across sectors of the economy in terms of, for instance, job design, compensation, organizational culture, and workplace safety, to reduce the effect of any such unobservables, we narrow in on the U.S. manufacturing sector using data on job satisfaction from a large cross-section of workers over the past decade.

To identify the association between employee ownership and employee well-being, the ideal experiment would be to randomly assign workers to firms and randomly assign firms to having an ESOP. This is, of course, not feasible. Alternatively, we could test how employee well-being evolves around when firms adopt ESOPs compared with conventional firms that do not, as in Kim and Ouimet (2014). While we do consider such an approach, it is not our primary specification because there are too few ESOP adoptions and too few employee

surveys before and after adoption to argue the relation is definitively causal. Furthermore, adopting an ESOP may itself be an endogenous response to low employee morale. We instead employ as our benchmark a fixed effects research design. We identify establishments belonging to firms with ESOPs and those belonging to conventional firms operating in the same industry and local geography, and compared employee satisfaction between them.

We find firms with ESOPs exhibit greater employee satisfaction overall and with non-pecuniary aspects of their jobs, such as firm culture. Looking between ESOPs, we find that those established through collective bargaining especially and those in which workers have greater ownership stakes as well exhibit greater premia in job satisfaction. We attribute the improved job satisfaction we document at ESOP firms to the presence of an ESOP.

2 Previous Literature

Most of the literature on the relationship between employee well-being and ownership focuses on just one or a few determinants of well-being and on a single aspect of ownership. Any trade-off that exists between the various components of a work arrangement are not captured in most studies, and ownership is often defined only in terms of rights to profit. The literature provides limited inference about the association between ownership type and employee well-being, the center of this analysis.

Whether the presence of an ESOP increases the size of the surplus to be shared with employees remains inconclusive empirically. A meta-analysis of literature on a diverse set of EOFs and CFs and in many countries by O'Boyle *et al.* (2016) suggests a small productivity advantage for EOFs. While one study of productivity in Japanese firms finds ESOPs raise productivity by 4-5% (Jones and Kato, 1995), another study of U.K. firms with and without ESOPs reveals mixed performance effects, with any advantage among EOFs disappearing over time (Whitfield *et al.*, 2017). The impact on firm output may depend on the size of the ESOP, as Kim and Ouimet (2014) document that small ESOPs increase productivity whereas ESOPs introduced among firms with many employees exhibit weaker effects. A summary of the literature is cautiously presented by Kruse (2022): "The accumulated evidence on the economic performance of firms that have employee ownership gives no reason to think that performance would be hurt, and in fact suggests that performance may be enhanced."

The most comprehensive study is that of Kruse *et al.* (2010). The authors analyze responses to employee surveys administered in several U.S. companies, as well as responses to items added in two waves of the General Social Survey (GSS), to examine the effects of collective incentives, including employee share ownership, on various outcomes. In firms where employees have more ownership, the authors document tendencies for greater partic-

ipation in decisions, higher quality supervision and treatment of employees, greater concern for workplace safety, higher pay and benefits, greater job security, and higher job satisfaction. In this analysis, however, there are no conventional firms; the comparison is between EOFs with varying degrees of ownership. Moreover, their survey data do not permit definitive conclusions about whether there are possible trade-offs amongst these outcomes. Kruse *et al.* (2010) concludes "prior research on employee outcomes under shared capitalism has yielded generally positive results," with the caveat that such results may be context specific.

Our focal measure of interest is employees' satisfaction with their jobs. While previous work has considered the relation between job satisfaction and employee ownership, such analyses have largely been limited to single firms and found mixed conclusions. Long (1978) finds that job satisfaction increased after employees purchased a trucking company, and Tucker *et al.* (1989) document an increase in employee satisfaction after an ESOP was introduced at a company of 40 employees. Arando *et al.* (2015) examine retail establishments that belonged to the same firm (Mondragon cooperative group) but differed in whether they were employee-owned, finding that establishments with employee ownership reported lower employee satisfaction. A recent exception is Kruse *et al.* (2010), who document a positive relation between employee ownership and job satisfaction across firms, though conventional firms without employee ownership are absent from their sample.

Specific aspects of work that may affect employee well-being have been studied in the context of ESOPs. For job security, Kurtulus and Kruse (2018) find greater employment stability in publicly-traded EOFs compared with publicly-traded CFs, Garcia-Louzao (2021) finds EOFs have similar fluctuations in employment and hours worked to CFs in Spain, and Whitfield *et al.* (2017) show EOFs in the United Kingdom appear to neither offer greater job security nor experience lower turnover. For wages, Kim and Ouimet (2014) find that introducing an ESOP in public firms does not reduce wages, consistent with the yearly earnings premium that Kruse *et al.* (2010) document for workers in EOFs using the GSS. For workplace safety, evidence has been scarce and mixed.[8] Based on employee surveys in EOFs and CFs in the plywood industry, Grunberg *et al.* (1996) conclude that workplace safety was no better, and perhaps even worse, in EOFs. On the other hand, Palis (2023) suggests there is a reduction in injury rates after an establishment adopts an ESOP.

In addition to overall satisfaction, a key innovation in using the Glassdoor data is examining differences in employees' perceptions of workplace amenities, such as firm culture and work-life balance. Workers place high monetary value on having improved non-wage amenities (Maestas *et al.*, 2023); for instance, intangible aspects, such as culture and respect, factor

[8]Though not employee ownership per se, labor unions, another form of organized employee participation, have proven effective in helping workers exercise their rights to workplace safety (Sojourner and Yang, 2022).

into the well-being workers experience from their working arrangements (Sockin, 2022; Dube *et al.*, 2022). Considering only differences in earnings or fringe benefits would overlook additional benefits or compensating differentials workers may face working for an EOF.

The literature reviewed here suggests mixed effects of ownership type on the elements of working arrangements that determine employee well-being. Past work has generally analyzed small samples and few firms, or has focused on variation within EOFs rather than offering comparisons with CFs. Further, the extant literature has oft made comparisons between firms with multiple establishments, which may differ not only by ownership type but also location, industry, size and other factors. Thus, it remains inconclusive as to which ownership form, EOF or CF, provides greater well-being to employees. We turn next to a theoretical framework that forms the basis for developing hypotheses concerning employee well-being between firms with ESOPs and those without.

3 Theoretical Framework

3.1 Properties of Employee Ownership and an ESOP

In the legal sense, ownership of a firm entails three principal rights: to receive its fruits, i.e., profits, to make decisions on how to run the firm, and to obtain information about it. The right to transfer these rights may be considered the fourth right of ownership. The identity of owners is commonly used as a criterion for classifying firms. Firms may be owned by insiders who work in the firm, such as employees, managers, and executives, or by outsiders. Owners may be numerous or few and they may hold similar stakes or unequal stakes. Owners may be customers or suppliers to the firm, members of a family, unrelated individuals, institutions, and so on (Connelly *et al.*, 2010; Hansmann, 2000; Pierce *et al.*, 1991).

Employee ownership may be implemented in several ways, such as cooperatives, partnerships of professionals, employee stock purchase plans, and employee stock ownership plans (ESOPs). They differ in how ownership shares are held, how decision-making is exercised, and may affect differently the mechanisms through which employee ownership impacts employee well-being. Our focus is on ESOPs — the most common vehicle for employee ownership in the United States — through which employees own a firm in part or in full.

An ESOP is a broad-based ownership plan in which practically all employees at all levels of the organizational hierarchy participate. The firm contributes stock or money to purchase stock for an ESOP trust, using loans, employee wage concessions, or firm profits. The ESOP trust allocates shares in proportion to employees' compensation below a certain limit (to prevent top-heavy ownership by top executives) and tenure; in some firms, shares are

equally distributed among all employees. Employees may own any percentage of the firm's equity.[9] The plan may acquire additional shares over time and may invest in other firms. U.S. federal law and regulations specify certain aspects of the allocation of rights to profits, decision-making, and information as well as the transfer of ownership, supplemented by firm-specific details included in the "ESOP document," which is written by firm management, with input from unions when the ESOP is collectively bargained. We summarize the rights associated with ownership below.[10]

Profit. Participants in an ESOP, i.e., employee-owners, have similar financial rights as non-employee owners. Employee-owners receive annual dividends, which they may cash or reinvest in the firm's shares. Employee owners benefit from appreciation in the value of firm stock, a result of the firm accumulating profits over time and the expectation of future profits. However, in contrast with non-employee shareholders, particularly in publicly-traded firms, employees' right to transfer ownership is limited as they can sell their shares only when they exit the firm (if they have completed the vesting period of around four years).

Decision-making influence. Employee owners have the same decision-making rights as other owners in firm governance, e.g., voting on mergers, acquisitions, and directors. Employee-owners also have indirect decision-making rights. An ESOP is a legal trust, with trustees appointed by management or a union (if the ESOP was collectively bargained). Trustees have a legal fiduciary responsibility to represent employee-owners' interests in dealing with top management and can be sued for breach of trust by ESOP participants, the U.S. Department of Labor, and state attorneys general.

An instrument for employee influence on decision-making in ESOP companies is the ESOP committee. Although the law does not mandate ESOP committees, it addresses some of their functions and roles. ESOP committees are present in nearly all ESOP companies, with members appointed by the board and management, elected by employees, or staffed by volunteers. The ESOP committee's roles include facilitating communication between em-

[9]There are regulations and limitations regarding the ownership share that top executives can hold to ensure fairness and to prevent undue concentration of ownership among a few individuals. While there is no explicit cap on the share of an ESOP that top executives can own, various regulatory constraints and testing requirements prevent excessive concentration of ownership ("top heavy") among a few individuals and ensure the plan benefits a wide range of employees. For example, in 2024, the IRS limited the contribution to employees' ESOP accounts to the lesser of 100% of the participant's compensation or $66,000.

[10]ESOPs are introduced for several potential reasons, including a desire to motivate workers for better performance, executives of a public company seeking to control votes of a larger proportion of share (to ward off a hostile takeover attempt and other reasons), a desire to share company wealth with workers, a mechanism for retiring sole owners to sell a company upon to workers-insiders, tax benefits, and more. For general information about ESOPs, see Blasi (2016) and Kim and Ouimet (2014). For technical details, see https://www.nceo.org/articles/comprehensive-overview-employee-ownership.

ployees and management and encouraging employee participation in decision-making at the establishment level. There is considerable variation in the activities of ESOP committees.[11] ESOP trustees and committees act on behalf of all ESOP participants, including lower-skill, higher-skill, and managerial employees. This stands in contrast with a union, which typically represents a limited segment of non-managerial employees and does not have representation on the board of directors or a vote in corporate affairs. In ESOPs established through collective bargaining, various forms of employee participation may be introduced, generally raising the influence employees have on establishment and corporate decision-making.

Information. The baseline information that employee-owners receive is similar to that of other owners, which exceeds the information accessible to employees in conventional firms. This is especially true for privately-held firms that, unlike publicly-traded firms, are not legally obligated to publish financial information. ESOP trustees and committees share with employee-owners financial and operational information about the firm and its establishments with employees.[12]

3.2 Employee Well-Being

Employee well-being is derived from extrinsic and intrinsic elements employees receive or experience in their workplace. It is a broad concept that captures the utility an employee derives from different aspects of a job. Such aspects, which generally require the use of costly resources, can include compensation and benefits, safety, employment stability, autonomy, empowerment, interesting work, opportunities for learning and advancement, interpersonal relations, work-life balance, trust between employees and with management, recognition of individual and group contributions, and more. Researchers often use job satisfaction to proxy for employee well-being since it is a "viable index of the work-related component of utility" (Bryson *et al.*, 2016) and may be considered the only measure that reflects "the entire panoply of job characteristics" (Hamermesh, 2001).

The various elements can heighten or lessen an employee's well-being. A certain level of well-being can be obtained through different combinations of elements. For example, an individual may be equally satisfied with a job that offers more autonomy and less safety as with a job that is safer but offers less autonomy. Having more of both results in greater well-being as long as the aspects are amenities. In the case of a dis-amenity, such as irregular scheduling, greater incidence would result in reduced employee well-being. Given individuals

[11] See https://www.nceo.org/articles/duties-esop-committee and Ash *et al.* (2022).

[12] Using a matched sample of firms with and without ESOPs, Bova *et al.* (2015) conclude that employee ownership leads to more disclosure by firms, e.g., more forecasts, annual reports, and conference calls.

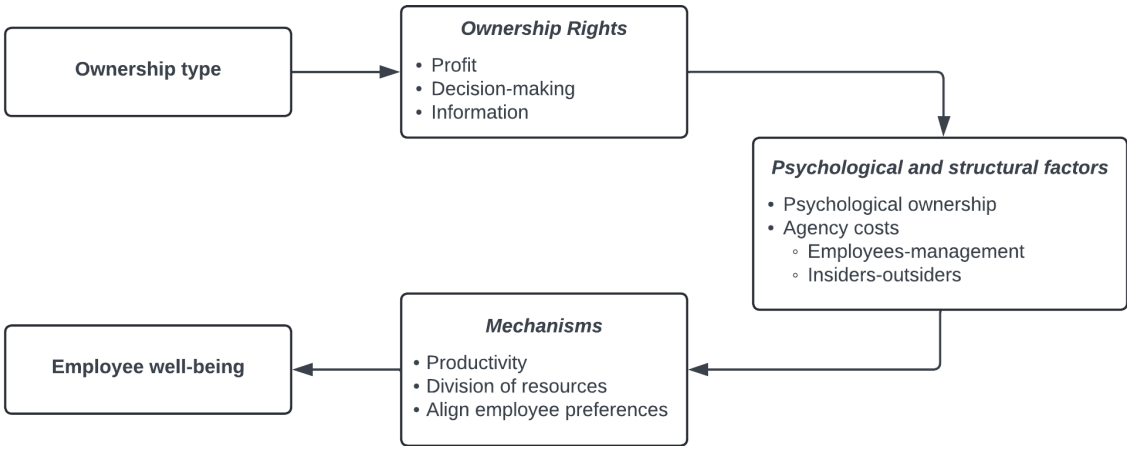
exhibit different preferences, they will differently value the various attributes.

Many elements are provided at the same level to employees in the same job category in the same organizational unit, so they are akin to public goods. Consider, for instance, workers' rights or the office building itself. Since employees have differential preferences, they will enjoy different levels of well-being even for the same combination of attributes. Hence, it matters whether the elements are directed to the preferences of the average employee or those of the "marginal" employee, i.e., one who is indifferent between (joining or exiting) a given employer and their most attractive alternative. By its definition, average well-being amongst a firm's employees would likely be greater, or at least no worse, under the former.

3.3 Theory of Ownership and Employee Well-being

Several factors related to ownership may generate differences in the well-being of similar employees in EOFs and CFs. We explore three mechanisms for why one ownership type may enhance employee well-being more than another type: (a) greater productivity, which provides resources that can be used to enhance employee well-being, (b) preferential treatment of employees vis-à-vis the allocation of more resources, and (c) better alignment between the provision of elements that affect well-being and employee preferences.[13] We develop a framework linking ownership to employee well-being through these three mechanisms, drawing on Klein (1987), Pierce *et al.* (1991), and Connelly *et al.* (2010). Figure 1 summarizes this framework.

Figure 1: Theoretical framework



[13] In addition, employees may self-select based on their preferences for a type of ownership, which may impact the three mechanisms. There is no discussion in the literature of significant self-selection by employees into EOFs or CFs, and we do not explore it in this section.

Productivity. Pierce *et al.* (1991) develop a conceptual model to explain how employee ownership leads to social-psychological and behavioral effects. The model posits that formal ownership (as implemented in ESOPs) can create psychological ownership, integrating employees with the organization.[14] This integration influences commitment, motivation, and performance. Providing employees with ownership stakes further fosters a sense of reciprocity and gratitude that results in better employee motivation (Kruse *et al.*, 2010; O'Reilly and Pfeffer, 2000). However, if employee expectations for influence are not met because their ownership stake in the firm is minute or because of opposition by top management (or because the expectations were set too high), they may be demotivated in comparison to their CF counterparts (Pierce *et al.*, 1991). Better-motivated employees contribute to greater organizational productivity (Herzberg *et al.*, 1966).

In EOFs, compared with CFs, there is a better alignment of incentives between employees and other stakeholders, e.g., owners, coworkers, managers, and outside shareholders. Broad-based ownership implies that all employees, from production workers to engineers and managers, participate in ownership in similar, if not equal, degrees. That creates a sense of integration with the organization that permeates horizontally and vertically throughout the organizational hierarchy. Klein (1987) and Buchko (1992) find that financial contribution as employee-owners in EOFs is strongly associated with greater identification and commitment to the organization. This induces fewer agency problems and greater collaboration, reducing agency costs and elevating the productivity of employees in all organizational roles and therefore of the entire organization.

The organization theory and strategic HR management literature has identified complementarity among certain practices as important to productivity. In particular, compensation and incentives have to be coupled with employee autonomy or participation in decision-making. For effective decision-making, employees must have access to relevant information and training, while managers must monitor and supervise. These practices must be aligned at the individual, team, unit and firm levels. The combination of complementary practices is called high-performance work systems (HPWS). There is some evidence that such systems contribute to productivity and favorable outcomes for employees (Bloom and van Reenen, 2011; Cappelli and Neumark, 2001; Ichniowski and Shaw, 1997; Pil and MacDuffie, 1996).

EOF practices at the firm level – incentives, decision-making, and information sharing – complement each other due to the legal requirements of ESOPs. Some CFs may adopt a similar system at the firm level through profit sharing and information sharing, but they will

[14]Psychological ownership is a feeling of possessiveness and attachment to an organization even without legal ownership. According to Pierce *et al.* (2001), psychological ownership increases commitment and loyalty to the organization, enhances job satisfaction and organizational identification, and results in greater motivation to work responsibly and effectively toward the organization's goals.

rarely, if ever, invite employees to have a representative on the board of directors or to vote on major decisions. Importantly, the level and the existence of profit sharing can be changed and terminated at any time at management's discretion, whereas an ESOP is much harder to terminate. The presence of ESOP committees in establishments at the workplace level introduces a measure of influence in decision-making also at lower levels of a firm, although without complementary unit-level incentives. As noted in the literature review, there is a tendency in EOFs to introduce employee participation in decision-making at lower levels of the organization. In this regard, given the logic of effective organization, an EOF may be regarded as a HPWS by design that engenders stronger motivational effects throughout the firm and therefore, induces greater productivity.

Employee-owners have their employment and wealth linked to the same firm and hold their shares for an extended period of time, hence their time horizon is longer than that of outside shareholders who dominate decision-making in CFs. This is conducive to a tendency of EOFs to make decisions that generate greater long-term productivity than CFs. However, employee-owners could be more risk averse (Kruse *et al.*, 2010) than outside shareholders and consequently demand cautious strategies and investments, which may lower productivity. The productivity of EOFs likely rises with the proportion of the firm owned by employees through the channels discussed above. However, if employee-owners dominate the decision-making process and weaken managerial authority, discipline may suffer, in turn possibly lowering productivity.

The weight of theoretical arguments suggests EOFs enjoy greater productivity than their CF counterparts, generating a larger pie for improving elements of employee well-being.

Division of firm resources. Employee ownership likely produces an allocation of firm resources that is skewed more toward employee well-being. First, the greater productivity of EOFs provides resources necessary for employee well-being. Second, employee influence on decision-making may be used to enhance their well-being. Third, low- and middle-level managers in EOFs may better understand the effects of employee ownership on motivation and productivity than their CF counterparts because of their own personal experience and because many elements of well-being have public good aspects such as organizational culture and work-life balance. If these are provided in an establishment, all employees, including those in managerial roles, will benefit from them. This is likely to lead to support for measures that improve employee well-being both as causes and consequences of enhanced productivity. This effect is likely to be stronger the larger is the stake employees have in firm ownership and when an ESOP is collectively bargained, vis-à-vis enhancing employee influence through various forms and levels of participation in firm decision-making.

Aligning the provision of inputs into well-being and employee preferences. Employees in EOFs can express their preferences for wages, working conditions, skill development, safety, and other elements of well-being more effectively than in CFs (Drèze, 1976).[15] EOFs are, therefore, better positioned to match the workplace elements they provide with the preferences of their employees. This alignment means that the package of compensation, work-life balance, and other amenities offered by EOFs is likely to provide greater satisfaction compared with similar-cost packages in CFs, where such customization is less feasible. Again, this effect is likely to be stronger the greater the employees' share in firm ownership and in EOFs with collectively bargained ESOPs. We expect that unions in CFs would take on a similar role of promoting employee well-being. However, a union generally represents only a segment of employees, often the lower-skilled employees, to the exclusion of higher-skilled and managerial employees. In effect, unions pursue well-being of their members rather than that of the entire workforce, which, in comparison to an EOF, may generate well-being gains for the former but not the latter. In an EOF with a union, the competing interests are moderated by the broad incentives associated with the ESOP. In an EOF where the ESOP is pursuant to a collective bargaining agreement, the two sides, union and management, have an overlapping interest in promoting the long-run success of the firm.

We propose the following central hypothesis.

Hypothesis. Employee well-being is greater in EOFs than in comparable CFs.

This hypothesis encompasses all employees. We do not preclude the possibility that, in certain cases, lower-skill workers will benefit more or less than higher-skill employees on certain elements of well-being. For example, workplace injuries directly affect production workers more so than managers, and better workplace safety may affect expressions of job satisfaction more for the former than for the latter. Similarly, higher-skill and managerial employees may benefit more from opportunities for career advancement than non-managers. We do not develop hypotheses about such effects but leave them for empirical investigation.

4 Data and Measures

Our analysis focuses on employee ownership in the U.S. manufacturing sector, the industry with the second largest share of U.S. ESOPs.[16] Our analytical sample pulls together

[15] Although ESOP committees do not have specific mandates concerning workplace well-being elements, they do focus on communication between employees and managers (Clifford *et al.*, 2003).

[16] According to NCEO, 20% of ESOPs are in manufacturing, just shy of the 21% for professional, scientific, and technical services industry. See Figure 1 of this web article.

a database of employee-owned firms from the National Center for Employee Ownership (NCEO) and employer reviews from Glassdoor. We also make use of online job ads from Burning Glass Technologies (BGT) to analyze firms' labor demand and allocate establishments into local labor markets. Our analyses include all employees, controlling for occupation based on each worker's job title. In some analyses, we divide employees into two groups, non-managerial and managerial employees. The two groups generally differ in decision-making power, access to information, and compensation. We further identify production workers in the non-managerial group. The takeaways from production workers are similar to those from non-managerial employees more broadly.

Since these data sources exist separately, there is no single identification number that NCEO and Glassdoor (and BGT) use. However, since we observe the name of each firm in both datasets, we can harmonize and match on names, keeping only matches made with a sufficiently high degree of confidence. The details of this process are described in Appendix A. We then identify establishments as pairings of a firm and a location, where locations correspond roughly to U.S. cities, the most granular level feasible for Glassdoor reviews.

We incorporate a number of supplementary data sources, in particular Compustat (to identify whether a conventional firm is publicly-traded), the Office of Labor Management Standards and the National Labor Relations Board (to identify whether an establishment is unionized), pay reports from Glassdoor (to consider an employee's wage), and the Occupational Safety and Health Administration (to consider an establishment's injury rates). For purposes of exposition, we relegate their descriptions to Appendix B.

4.1 National Center for Employee Ownership

The National Center for Employee Ownership (NCEO) collects data from IRS Form 5500 concerning a firm's employee stock ownership plan, or ESOP. We obtain a list of the ESOPs examined by the NCEO as of 2020 using research files made available by the U.S. Department of Labor. Each observation in these data corresponds to an active ESOP (meaning terminated plans are excluded) with more than one participant. For each ESOP, in addition to the firm name and address, we observe the plan's start date, the number of participants in the plan, and whether the plan is pursuant to a collective bargaining agreement. In 2020, contributions made by participants in these firms and total benefits paid out to participants was $93 billion and $144 billion, respectively.

The number of firms with ESOPs in the NCEO database is 6,143. Among these, there are 1,735 firms in which employees own a majority stake and 4,408 in which employees have either a minority stake or such information is unavailable. Our focal variable of interest is

whether an establishment is employee-owned, which we capture through an indicator variable set equal to 1 if the firm associated with the establishment is in the NCEO dataset, and 0 otherwise. We also calculate two measures of ownership intensity to consider possible heterogeneity between ESOPs. The first is the ratio of total plan assets to the number of participating employees, the second the ratio of total plan assets to the firm's total equity, where firm equity is available for public firms through Compustat. Although a single firm may sponsor multiple ESOPs, because our empirical analysis focuses on differences between establishments by whether or not they are employee-owned, distinguishing between ESOPs in the case of multiple is not of meaningful concern.

4.2 Glassdoor Reviews

Our measures of employee well-being come from Glassdoor, an online platform where workers can go to search for jobs, compare their labor market earnings with that of others, and learn about a firm's workplace amenities through reviews written by current and former employees. Visitors to Glassdoor are incentivized to contribute through a "give-to-get" mechanism, whereby users gain access to the content provided by others once they contribute themselves.[17] To satisfy the give-to-get mechanism, a user visiting the website will typically provide an employer review or a pay report, though they could alternatively provide a rating of the firm's fringe benefits or report an interview experience.

Our analysis focuses on employer reviews, as they allow us to better understand the dimensions of well-being that are unobservable from the outside yet known to employees with inside knowledge of the firm. A sample employer review form is presented in Appendix Figure A1. We also make use of workers' pay reports but only in so far as they offer two additional observables beyond that which is available in an employer review: a worker's labor market earnings and years of work experience. We are able to merge workers' employer reviews with their pay reports (if they provide both) because we observe in each dataset a unique identifier for each worker, a unique identifier for each firm, and the years when the two were provided. We consider reviews submitted by current or former full-time employees from manufacturing firms from 2012 through the first half of 2023. To reduce the computational burden of matching firm names, based on data from Burning Glass Technologies (described in more detail below), we restrict our attention to establishments that advertise on average at least one production worker job opening per year over the last six years.

Each employer review constitutes an employee-employer match where we observe a rich set of observables about the job, including the worker's job title, location, firm tenure (i.e.,

[17] This "give-to-get" mechanism helps to reduce the selection bias implicit in online reviews whereby extreme experiences are more likely to be contributed than more moderate views (Marinescu *et al.*, 2021).

years employed with the firm), and whether the match is still an ongoing employment relationship or has ended. For a subset of workers whom have filled out a profile on the platform, we also observe their gender and age. Our final sample consists of 199,737 reviews spanning 17,655 establishments representing 5,531 firms. Sample sizes for non-managers and managers, on average per establishment or labor market, are detailed in Appendix Table A1.

When providing an employer review, workers are asked to provide a 1–5 stars Likert scale rating for their job satisfaction overall. They are also asked to similarly rate their satisfaction with five sub-categories: career opportunities, compensation and benefits, culture and values, senior leadership, and work-life balance. These six ratings are our principal outcomes of interest. Beyond these ratings, each respondent is asked to provide a free-response description of the 'pros' (positive aspects) and 'cons' (negative aspects) of their experiences with their employer. Further, workers are asked whether they would recommend their employer to a friend, whether they approve of the CEO's performance, and whether they have a positive outlook of the firm's prospects over the next six months.

Glassdoor reviews offer an unique look into the hard-to-observe aspects of well-being that may differ between employee-owned and conventional firms, yet are unavailable in nearly all other datasets with individual employers.[18] A growing body of literature has used Glassdoor reviews to speak to employee well-being directly (e.g., Gornall *et al.*, 2021; Liu *et al.*, 2022; Sockin, 2022) or to employer reputation over employee well-being (e.g., Sockin and Sojourner, 2023). With regards to whether reviews on Glassdoor have external validity for U.S. labor markets more broadly, Sockin (2022) shows that, between industries and occupations, job satisfaction ratings on Glassdoor have a robust correlation of about one-half with overall satisfaction ratings in the National Longitudinal Survey of Youth 1997 (NLSY97), a nationally representative survey. However, Sockin (2022) finds the average job satisfaction level in Glassdoor is below that of the NLSY97, suggesting respondents on Glassdoor may be less satisfied than the average employee within each firm. Further, firms that experience improvements in job satisfaction ratings on Glassdoor outperform firms in the stock market that experience declines (Green *et al.*, 2019), suggesting Glassdoor ratings reveal fundamental information about firms that traditional observables cannot fully capture.

As ratings of satisfaction are intrinsically subjective, it is possibile that respondents differently interpret the review questionnaire or differently value each additional star. For one, the survey displayed to respondents does not include a description of each item (see Appendix Figure A1). Moreover, respondents may exhibit different reporting functions (Oswald, 2008) such that a three-stars rating may be a positive response for some but a neutral or nega-

[18] A rare exception is the Shift dataset, which is limited in coverage to workers in lower-skill industries and not manufacturing. For further description, see Schneider and Harknett (2022).

tive response for others. As Bond and Lang (2019) note, this latter property of subjective ratings is admittedly problematic for comparing the mean level across sub-groups — as our analysis does between workers at employee-owned firms and workers at conventional firms. However, as the comparison we are making is not across workers of different observable characteristics, but rather a characteristic of the employers for whom they work, for the psychometric properties of Glassdoor ratings to bias our results, any such differences would have to correlate with employee ownership. Further, given that we observe job satisfaction premia across EOFs of varying types (e.g., collectively-bargained or not, and minority or majority stake) after accounting for observable differences across workers (e.g., age and job title) and employers (e.g., Tobin's Q), such differences would have to correlate with employee ownership on unobservables. We see no clear reason why they should.

4.3 Burning Glass Technologies Job Advertisements

Differences in employee satisfaction between employee-owned and conventional firms could reflect differences in hiring practices, e.g., the offering of greater wages, more intense screening on human capital, or the targeting of different skills. With this in mind, we examine online job postings from Burning Glass Technologies (BGT) who scrape more than 40,000 online job boards and company websites. A growing literature has used BGT data to study firms' labor demand for skills (e.g., Deming and Kahn, 2018; Ben-Ner *et al.*, 2023). In this regard, we consider the demand for general human capital, i.e., required years of education or work experience, alongside the demand for specific human capital, i.e., engineering, operations, and people skills.[19] We also consider whether advertised compensation may differ between EOFs and CFs by considering the logarithm of the posted wage.

We focus on job postings for manufacturing firms from 2017 to 2022, restricting our attention to establishments that post on average at least one production worker (i.e., Standard Occupational Classification (SOC) codes 49 and 51) posting per year. The resulting sample, for which summary statistics are available in Appendix Table A2, includes 6.26 million job ads, of which 1 million are for managers. On average, managerial job postings demand 2.4 additional years of education and 2.3 years of experience than non-managerial job postings.

We also use the BGT data to partition establishments into local labor markets, i.e., industry cross commuting zone pairs. For industry, each job posting includes a 3-digit North American Industry Classification System (NAICS) code. We assign establishments to their

[19] Appendix Table A3 lists the ten most frequent terms for each skill. Engineering terms generally reflect conceptual and analytical skills, with 'product development' being the most frequent. Operations terms generally reflect manual skills, with 'forklift operation' being the most frequent. People skills generally reflect aspects regarding working with others, featuring terms such as 'teamwork/collaboration' and 'mentoring.'

most frequent industry. For commuting zone, we match county Federal Information Processing System (FIPS) codes in BGT to U.S. commuting zones using the crosswalk of Autor and Dorn (2013). We also incorporate two BGT measures in our benchmark specification as additional controls. The first, to proxy for establishment size, is the logarithm of job postings by each firm at a given latitude and longitude. The second, to proxy for firm size[20], is the logarithm of establishments (i.e., latitude-longitude pairs) observed for each firm.

4.4 Sample Summary

Table 1 presents means of Glassdoor reviews for non-managers and managers in EOFs and CFs. Our sample consists of 199,737 employee reviews, of which 156,152 are for non-managers and 43,585 managers. The majority (64%) are submitted by current employees, 58% are from public firms, and a small fraction (5%) are from unionized establishments. Employees in EOFs exhibit longer firm tenure on average than those in CFs: 41% and 60% of EOF non-managers and managers, respectively, have tenure of five years or longer, compared with 31% and 48% for CFs. Moreover, workers in EOFs report receiving greater hourly wages and exhibit on average more years of work experience. Employees in EOFs also exhibit greater satisfaction with their employers. Non-managers and managers in EOFs report, respectively, 7.4% and 5.8% greater overall job satisfaction ratings than non-managers and managers in CFs. They also report greater average ratings for each sub-category: career opportunities, compensation and benefits, culture and values, senior leadership, and work-life balance.

5 Empirical Framework and Identification Strategy

We aim to identify whether there are differences between EOFs and CFs along latent dimensions of worker well-being, proxied for by workers' reported ratings of satisfaction in Glassdoor reviews. Our identification strategy compares employees' satisfaction ratings between EOFs and CFs that operate within the same local labor market accounting for observables across workers, establishments, and firms. Our benchmark empirical specification is

$$Y_{i,j,k,l,t} = \beta \times EOF_k + \gamma X_{i,t} + \rho X_{k,l} + \lambda_{n(k),z(l)} + \lambda_{o(j)} + \lambda_t + \varepsilon_{i,j,k,l,t}, \tag{1}$$

where $Y_{i,j,k,l,t}$ reflects a Glassdoor rating submitted in year-quarter t by employee i with job title j working at firm k's establishment in location l. EOF_k is an indicator equal to 1 if firm k is employee-owned and 0 otherwise. The vector of worker-level observables $X_{i,t}$ includes

[20]Proxying for firm size with total postings in lieu of total establishments yields similar results.

Table 1: Descriptive Statistics for Glassdoor

		Non-manager			Manager		
	Overall	All	CF	EOF	All	CF	EOF
Panel A. Summary statistics of observables							
Overall rating	3.48	3.47	3.40	3.65	3.52	3.47	3.67
	(1.30)	(1.30)	(1.33)	(1.19)	(1.29)	(1.33)	(1.17)
Career opportunities rating	3.30	3.28	3.22	3.46	3.38	3.33	3.51
	(1.35)	(1.36)	(1.38)	(1.28)	(1.33)	(1.36)	(1.24)
Compensation and benefits rating	3.57	3.55	3.48	3.73	3.64	3.59	3.79
	(1.19)	(1.20)	(1.23)	(1.09)	(1.14)	(1.17)	(1.03)
Culture and values rating	3.34	3.32	3.26	3.49	3.38	3.33	3.54
	(1.43)	(1.44)	(1.46)	(1.35)	(1.43)	(1.45)	(1.33)
Senior leadership rating	2.97	2.96	2.92	3.07	3.03	3.00	3.11
	(1.42)	(1.42)	(1.45)	(1.35)	(1.42)	(1.45)	(1.32)
Work-life balance rating	3.33	3.34	3.28	3.51	3.28	3.25	3.36
	(1.38)	(1.39)	(1.40)	(1.33)	(1.36)	(1.38)	(1.30)
1(Current employee)	0.64	0.64	0.62	0.68	0.62	0.62	0.64
	(0.48)	(0.48)	(0.49)	(0.47)	(0.48)	(0.49)	(0.48)
1(Public firm)	0.58	0.58	0.45	0.94	0.57	0.44	0.95
	(0.49)	(0.49)	(0.50)	(0.23)	(0.50)	(0.50)	(0.21)
1(Unionized plant)	0.05	0.05	0.03	0.08	0.05	0.04	0.09
	(0.21)	(0.21)	(0.18)	(0.26)	(0.22)	(0.20)	(0.29)
1(Firm tenure at least 5 years)	0.38	0.34	0.31	0.41	0.51	0.48	0.60
	(0.48)	(0.47)	(0.46)	(0.49)	(0.50)	(0.50)	(0.49)
Hourly wage	39.80	37.21	35.73	41.08	49.69	48.16	53.94
	(18.84)	(17.61)	(17.60)	(17.04)	(20.08)	(19.94)	(19.86)
Years of experience	7.43	6.74	6.58	7.14	10.07	9.89	10.56
	(7.65)	(7.34)	(7.30)	(7.42)	(8.20)	(8.15)	(8.33)
1(Female)	0.30	0.29	0.30	0.27	0.33	0.33	0.34
	(0.46)	(0.45)	(0.46)	(0.45)	(0.47)	(0.47)	(0.47)
Age	36.74	35.74	35.83	35.50	40.26	40.38	39.89
	(10.37)	(10.19)	(10.20)	(10.14)	(10.23)	(10.27)	(10.12)
Panel B. Sample sizes							
Full sample	199,737	156,152	115,463	40,689	43,585	32,516	11,069
Has tenure	161,666	126,191	94,072	32,119	35,475	26,688	8,787
Has hourly wage	114,242	90,554	65,374	25,180	23,688	17,413	6,275
Has years of experience	116,826	92,467	66,957	25,510	24,359	17,841	6,518
Has gender	100,080	78,118	57,321	20,797	21,962	16,341	5,621
Has age	33,671	26,254	19,092	7,162	7,417	5,575	1,842

Notes: Table reports the mean and standard deviation (in parentheses) across our outcomes of interest and observables for non-managers and managers in Glassdoor reviews for EOFs and CFs.

an indicator for the worker is still employed with the firm when their review is submitted. The vector of establishment-level observables $X_{k,l}$ includes the logarithm of firm k's total establishments, the logarithm of firm k's total posted vacancies in location l, an indicator the establishment for firm k in location l is unionized, and an indicator the firm k is public.[21] We

[21]The latter is especially relevant given that nearly 95% of reviews at EOFs are for public firms (Table 1).

include fixed effects for each NAICS industry $n(k)$ (of which there are 19) cross commuting zone c (of which there are 459) $\lambda_{n(k),z(l)}$, for each two-digit SOC occupation $\lambda_{o(j)}$, and for each calendar year-quarter λ_t. The coefficient β captures, among workers with the same occupation in the same local labor market, the mean difference in job satisfaction between those who are employed at EOFs and those who are employed at CFs.

Since this analysis is cross-sectional, we cannot claim a short-run causal relationship, i.e., that an establishment switching from a CF to an EOF improves job satisfaction. It is possible that unobservable worker and firm factors, such as task complexity, capital intensity, or selection into EOFs, confound our results. However, given the richness of our fixed effects model, such factors, in order to bias our estimates, would have to be correlated with both job satisfaction and EOFs, and at the same time, be orthogonal to our covariates, e.g., the industry and size of the firm, the commuting zone, size, and unionization of the establishment, and the employee's occupation.

It is quite possible causality runs in the reverse direction. For one, it could be that workers with certain preferences select into employee-owned firms. Though this seems unlikely given the particularly low incidence with which EOFs advertise employee ownership in their job postings, making it hard to conceive that workers can easily sort along this dimension.[22] It could also be that more satisfied workplaces select into employee ownership. Given the infrequency with which firms adopt employee ownership, especially within our sample, speaking to establishment-level selection while interesting is not feasible.[23]

To allay this concern, we consider two additional analyses. The first narrows in on workers who review both an EOF and a CF, allowing for the identification of an EOF satisfaction premium including worker fixed effects. This is discussed in Section 6.1. The second narrows in on firms that adopted employee ownership. Given the dearth of manufacturing employers that convert to employee ownership after 2012 and have coverage in the Glassdoor sample, we cannot implement an event-study research design around the timing of ESOP adoption.[24] However, for a limited sample of employers that do adopt an ESOP, we can estimate a difference-in-differences design as in Kim and Ouimet (2014).[25] As this analysis is still largely

[22]Appendix Table A4 records the share of non-managerial and managerial job postings in BGT that mention "esop," "employee ownership," or "employee stock ownership" for EOFs. For minority-share EOFs, the incidence is 0.6%. For majority-share EOFs, the incidence is much greater but does not exceed 20%. It thus seems unlikely workers learn a firm is employee owned through its job postings.

[23]In our sample of manufacturing firms, only 46 conventional firms adopt an ESOP after 2008. While this may in part reflect coverage in Glassdoor, ESOP adoption is generally rare; among U.S. public firms in all industries between 1982 and 2001, Kim and Ouimet (2014) identify only 739 firms that adopted an ESOP.

[24]The limitation rests in sample coverage and the infrequency of ESOP adoption. Less than 3% of reviews among EOFs belong to firms whose ESOP began after 2012. (For reviews submitted before the ESOP began, we shut down the indicator for employee ownership). Of those, only about one-third belong to an establishment where we observe a review before and after the ownership plan was introduced.

[25]Using U.S. Census data from 1982–2001, Kim and Ouimet (2014) consider employee outcomes after 410

suggestive, we relegate the results to Section 6.5, rather than making it our benchmark. Together, the two suggest our results are less the product of selection into employee ownership and more likely the presence of a (collectively-bargained) ESOP itself.

6 Differences in Satisfaction Between EOFs and CFs

We begin by estimating equation (1) on workers' overall ratings of job satisfaction. The result, recorded in the first column of Table 2, is a statistically and economically significant premium of 0.104 stars in job satisfaction at EOFs. Given a sample average of 3.48 stars, this difference translates to a premium of about 3%. Put differently, given a standard deviation in overall ratings of 1.30 stars (Table 1), employees at EOFs appear to enjoy 0.08 standard deviations greater satisfaction in their jobs. To put this 0.104-star premium into perspective, it is larger in magnitude than the declines observed following news a firm engaged in tax avoidance (Lee *et al.*, 2021) or corporate misconduct (Gadgil and Sockin, 2020), though shallower in magnitude than the declines observed after a firm receives an Accounting and Auditing Enforcement Release (AAER) from the U.S. Securities and Exchange Commission (Zhou and Makridis, 2021).

These estimates may seem economically small and one might have anticipated larger differences given that we study structural differences in firm ownership compared with singular instances of corporate behavior. However, it is worth noting that Gornall *et al.* (2021) consider the effects of private equity leveraged buyouts (LBOs), which similarly involve a change in employee ownership, on Glassdoor ratings and document effects that are about one-half the magnitude of these EOF premia. In turn, our estimates appear reasonably non-trivial.

Table 2: EOF-CF Comparison of Glassdoor Ratings of Job Satisfaction

	Overall rating	Career opportunities	Compensation & benefits	Culture & values	Senior leadership	Work-life balance
1(EOF)	0.104***	0.107***	0.053	0.119***	0.088***	0.127**
	(0.030)	(0.024)	(0.036)	(0.035)	(0.029)	(0.055)
Mean DV	3.48	3.30	3.57	3.34	2.97	3.33
N	199,404	174,103	174,153	173,328	172,888	173,822
Adjusted R^2	0.12	0.11	0.08	0.12	0.11	0.12

Notes: Table examines the difference in average rating between reviews from EOFs and those from CFs. Additional controls include: postings per establishment, establishments per firm, and indicators for the firm is publicly traded, the establishment is unionized, and the worker is a current employee. Coefficients on the additional control variables are presented in Appendix Table A5. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

firms adopted ESOPs. Such administrative data do not speak to employee well-being beyond wages.

Importantly, workers value on being in a workplace that provides them with greater job satisfaction. For one, workers will forego a higher wage to enjoy amenities that provide them with greater satisfaction, e.g., research (Stern, 2004) and corporate social responsibility (Burbano, 2016). Sockin (2022) estimates that one additional star in Glassdoor overall rating is valued on average by workers as the equivalent of about $10,000 in annual income. According to this estimate, employees at EOFs experience $1,040 in additional amenity value, or 1.3% of the average wage in our sample, each year from their jobs. Two, the provision of information on well-being can affect how workers sort across labor market opportunities. Ward (2022) finds that workers avoid applying to a job when they are presented with a signal that employees at the firm experience below-average levels of workplace happiness. Sockin and Sojourner (2023) show small firms with higher Glassdoor ratings receive a boost in application rates and Benson *et al.* (2020) find through an experiment on an online labor market that good-reputation employers recruit workers more quickly.

To better understand what aspects of work may be fueling this job satisfaction premium, we turn to the five sub-category ratings. The coefficients from estimating equation (1) on workers' ratings for each aspect are presented in the remaining columns of Table 2. Across all five dimensions, we observe greater levels of satisfaction at employee-owned establishments. While the differences are broad-based, the widest gap is for work-life balance, equivalent to 0.10 standard deviations. The smallest and (only) non-significant difference is for compensation and benefits — suggesting that pecuniary differences indeed are not the driving force behind this wedge, a concern we return to in our robustness checks.

6.1 Sensitivity Analysis

We next examine the robustness of our Glassdoor results to a number of modelling and sampling decisions. The results from each of these robustness exercises are presented in Appendix Table A6. For ease of comparison, we record our baseline estimates in panel A.

First, we revisit the fixed effects from the baseline specification, i.e., fixed effects for each NAICS industry cross commuting zone and for each occupation. Our identification strategy aims to compare similar workers between EOFs and CFs operating in the same labor market. Under the baseline, a labor market is considered to be an industry cross commuting zone pair. In panel B, we tighten our definition of a labor market to be an industry cross commuting zone cross occupation cross year-quarter, and include a fixed effect for each one. While this reduces our sample considerably, we continue to observe a satisfaction premia among EOFs.

Continuing with alternative definitions for a labor market, we reconsider geography, which under the baseline was U.S. commuting zones. There is evidence though that labor markets

are even more geographically segmented.[26] In panel C, we redefine a labor market to be the cross between a NAICS industry and a U.S. city (of which there are 3,073). Re-estimating equation (1) with NAICS-city fixed effects in lieu of NAICS-commuting zone in panel C produces similar takeaways. It is possible though for a respondent not to disclose their location (or job title). To show our results are not driven by the selection of reviewers who choose not to conceal identifying information, we consider an alternative specification using only reviews where the location or job title is concealed, without controlling for occupation or commuting zone. The results (Appendix Table A7) are similar to the baseline.

We also alter the baseline model to allow for the possibility that workers in EOFs have different tasks, requirements, or seniority than those in CFs. We do so in two ways. First, we consider a more granular characterization of each worker's role in the firm, their job title. Job titles have considerable explanatory power over occupations: Whereas the former explains 90% of the variance in posted wages, the latter explains at most one-third (Marinescu and Wolthoff, 2020). In panel D, rather than including a fixed effect for each occupation, we include a fixed effect for each job title (of which there are 32,796). The results again are similar. Second, recognizing that EOFs and CFs might implement differently shaped job ladders, such that the same job title is not comparable between them, we compare workers with the same levels of seniority. We define seniority as the mean years of experience within a firm-job title pair, the idea being that as job titles become more senior, they will require more experience in order to be accessed (Sockin and Sockin, 2019), and that this minimum may differ by firm. We also account for the standard deviation of years experience within a firm-job title pair to proxy for differential dispersion in the width of the job ladder across firms. Again, we observe greater satisfaction within EOFs (Appendix Table A8).

Next, we recognize that, even within the same industry, there may be selection in which workers sort into employee-owned firms. In other words, the demographic composition of the workforce within an EOF may differ from that of a CF, in which case the average worker's preferences and expectations over the workplace might differ as well. We do not account for worker demographics in the baseline model since such observables are available only for a limited sub-sample of workers (see panel B of Table 1). In panel E, however, we estimate a specification that accounts for differences by gender and human capital accumulation by including gender cross years of experience fixed effects. Though our sample is reduced by two-thirds, the takeaways are unchanged from the baseline. The same is true, despite the even thinner sample, if we were to instead include gender cross age fixed effects (Appendix

[26] Marinescu and Rathelot (2018) show U.S. job seekers are 35% less likely to apply to a job 10 miles from their zip code of residence, while Adrjan *et al.* (2023) find two-fifths of a firm's labor market competitors for a given vacancy operate in the same U.S. county.

Table A9). Thus, our results do not reflect demographic differences between EOFs and CFs.

The differences in job satisfaction we document may reflect differences in wages between establishments rather than differences in well-being beyond pay. Although one-third of workplace amenities have a greater impact on job satisfaction than pay, higher-paid workers do exhibit greater satisfaction with their jobs (Sockin, 2022). To rule out that differences in wages drive our results, we consider the sample of workers who, for the same firm and year, contribute a Glassdoor review and Glassdoor pay report. We then re-estimate equation (1) including as an additional observable the logarithm of each worker's hourly wage and report the results in panel F. Even after accounting for differences in wages, we still observe a satisfaction premium within EOFs, especially for work-life balance. This is also perhaps not too surprising given that wages exhibit little predictive power for overall satisfaction beyond that of the five sub-category ratings (Appendix Table A10).

While we have demonstrated the robustness of our results to additional employee-level observables, there remains firm-level observables that may correlate with job satisfaction yet are omitted from our baseline model. Though we include a comprehensive set of firm-level (industry, whether publicly traded, and total establishments) and establishment-level (whether unionized and total postings) controls, they are by no means exhaustive. For instance, not accounted for are firm employment (not just new vacancies), firm age, and firm profitability. Using a fixed Glassdoor employer lookup table from January 2022, we are able to incorporate the logarithm of firm employment and firm age as additional covariates. Using data from Compustat, we also incorporate the logarithm of Tobin's Q to capture firm profitability. As shown in panel G, doing so does not change our results. We also show in panel H that our results do not reflect differential responses to the COVID-19 pandemic by restricting the sample to only reviews submitted before March 2020.

We next test the extent to which any single employee-owned firm drives our results. Under the baseline, the unit of analysis is each review, meaning one employee-owned (or conventional) firm with many reviews may have outsize influence. A simple means to address this concern is to re-weight reviews such that each EOF contributes equally. If we were to apply sample weights such that each firm (Appendix Table A11) or establishment (Appendix Table A12) is given equal cumulative weight across reviews, the results again are similar. The satisfaction premium for EOFs is thus a broad-based phenomenon.

We also observe a non-trivial number of workers employed at more than one U.S. manufacturing firm during the sample period. Specifically, there are about 14,000 reviews for such workers, 3,000 of which are for an EOF. With this set of repeat respondents, we can add worker fixed effects to equation (1). This specification is quite demanding, as it restricts the sample to workers with at least two reviews (otherwise there would be no within-worker

variation). Identification of β now stems from differences in job satisfaction for the same worker who has reviewed both an EOF and a CF. The results are presented in Appendix Table A13. Under this within-worker specification, we observe broadly positive estimates (with the exception of compensation and benefits), though we cannot reject that they are statistically different from zero at conventional levels. When we separately consider satisfaction premia for collectively-bargained and non-collectively-bargained ESOPs, we observe robustly greater satisfaction overall and with culture and values especially for the former. That we observe such satisfaction premia even for the same worker suggests our estimates are not simply the product of workers differently selecting into employee ownership.

6.2 Heterogeneity Between Employees

While these results reveal that job satisfaction at EOFs is greater across workers on average, they do not speak to whether that premium is enjoyed by all workers within the firm. It may be that these average effects mask meaningful heterogeneity between workers within EOFs. To examine whether this satisfaction boon is enjoyed throughout, we re-estimate equation (1) but partition the sample into six observable categories according to whether the employee: is a manager or not, is a current or former employee at the time of the review, and has been employed with the firm less than or at least five years. The estimates within each of these six sub-samples are recorded in Appendix Table A14.

Looking first at heterogeneity by occupation, we observe that both non-managers (panel A) and managers (panel B) experience greater job satisfaction in EOFs of 0.09 and 0.14 stars, respectively. Looking at the sub-category ratings, both experience particularly large premia with respect to their firms' culture and values, career opportunities, and work-life balance. Looking between workers within the same establishment, the differences between the two groups are not statistically significant (Appendix Table A15).

Next, we investigate whether the elevated levels of job satisfaction are observed among current employees still with the firm and former employees who have since left. For both the former (panel C) and the latter (panel D), we observe significantly higher satisfaction in EOFs, reflecting in part workers' improved sentiment towards their firms' culture and career opportunities. Interestingly, within the same establishment, we observe that the improvement in job satisfaction EOFs offer their employees is significantly greater for former employees (Appendix Table A15). This could reflect less frequent involuntary separations at employee-owned establishments (e.g., Kruse *et al.*, 2010; Whitfield *et al.*, 2017), which would imply former employees at EOFs are more likely to have left on their own volition. It could reflect *ex post* regret among employees who have left an EOF for a CF, which would not

be inconsistent with the within-worker specifications of Appendix Table A13. It could also simply reflect how employees receive ESOP benefits upon separating, such that our estimates reflect a satisfaction boon from former employees receiving a windfall in income that former employees from conventional firms, absent severance pay (which is not required under the Fair Labor Standards Act), would not receive.[27]

Last, we consider the possibility that job satisfaction within EOFs differs depending on how long workers have been with the firm. If the satisfaction premium widens with firm tenure, then that would suggest there is a learning process by which workers become more satisfied as they adapt to a workplace with employee ownership. If instead it does not, that would suggest the boon to job satisfaction is present from the onset of employment with EOFs — suggesting possible selection into employee ownership, either on the side of the worker or the firm, or the constant presence of favorable workplace characteristics. Considering separately workers with fewer than five years of firm tenure from those with more in Panels E and F, both groups report greater satisfaction in EOFs. Looking within the same establishment (Appendix Table A15), the differences are generally small but significant for career opportunities and senior leadership. Moreover, we find positive effects uniformly in the cross-section by firm tenure (Appendix Table A16). While this argues for selection into employee ownership, evidence presented in Section 6.5 suggests otherwise — though we cannot rule such selection out.

6.3 Heterogeneity Between EOFs

While we have documented evidence that employees in employee-owned firms exhibit greater job satisfaction, not all EOFs are alike. For instance, some EOFs operate alongside collective bargaining arrangements while others do not; some have ownership plans that account for a majority stake in firm equity while others do not. In this section, we investigate whether there are differences in the satisfaction premium between different types of EOFs.

By Collective Bargaining Arrangement: Collective bargaining may be an important determinant of well-being if it facilitates workers bargaining over wages or workplace amenities during contract negotiations. Collective bargaining, for instance, has been found to reduce weekly working hours (Frandsen, 2016), which may improve work-life balance, and raise wages for lower-skilled workers (Kahn, 2000). Further, Doellgast *et al.* (2009) show that across countries, workplace-level collective bargaining agreements are associated with

[27] While plans may differ between employers, ESOP benefits are generally distributed after separating in a lump-sum payment or in regular installments over a period of no more than five years. For more details, see https://www.nceo.org/articles/esop-participant-distribution-rules.

improved well-being, e.g., lower dismissal rates. Recall we can identify whether an employee-owned firm in our sample operates with collectively bargained ESOP using the NCEO dataset. Among our sample of reviews for employee-owned firms, 35% are under a collective bargaining arrangement.[28] To test for heterogeneous effects in the presence of collective bargaining, we re-estimate equation (1) with separate coefficients on employee ownership for firms with collective bargaining and ones without. The results are recorded in Table 3.

Two key takeaways emerge. First, we observe a premium in overall satisfaction for both types of EOFs, those with collective bargaining and those without. The premium for both types appears to reflect broad-based improvements in well-being. Second, the presence of collective bargaining appears to redouble the improvements in job satisfaction. For overall job satisfaction, as well as for each sub-category except compensation and benefits, the premium among EOFs with collective bargaining is significantly larger than that for other EOFs. The wedge is largest for work-life balance, with workers at collectively-bargained EOFs enjoying on average an additional 0.18 stars, or 13% of a standard deviation.

Table 3: Glassdoor Ratings of Job Satisfaction by Whether ESOP Collective Bargained

	Overall rating	Career opportunities	Compensation & benefits	Culture & values	Senior leadership	Work-life balance
1(EOF) x 1(Collective bargaining)	0.176***	0.187***	0.090**	0.223***	0.166***	0.243***
	(0.034)	(0.034)	(0.046)	(0.039)	(0.035)	(0.060)
1(EOF) x 1(No collective bargaining)	0.067*	0.065**	0.033	0.064	0.046	0.066
	(0.035)	(0.026)	(0.040)	(0.039)	(0.032)	(0.069)
Mean DV	3.48	3.30	3.57	3.34	2.97	3.33
N	199,404	174,103	174,153	173,328	172,888	173,822
P-value of equality	0.008	0.001	0.218	0.001	0.004	0.034

Notes: Table examines the difference in average rating between reviews from EOFs and those from CFs when accounting for whether the firm's ESOP was established through collective bargaining. Additional controls include: postings per establishment, establishments per firm, and indicators for the firm is publicly traded, the establishment is unionized, and the worker is a current employee. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

This accords with the findings of McCarthy *et al.* (2021), who argue there is a complementary relationship between unions and financial participation, and may reflect the presence of more workers' rights written into the collective bargaining agreement, which Arold *et al.* (2024) show is positively correlated with workers' perceptions of management being pro-worker. This may also help rationalize why Cramton *et al.* (2015) find that the

[28] That this percentage is so considerable warrants further discussion. First, when we examine the share of EOFs represented in the Glassdoor sample that have collectively-bargained ESOPs rather than the share of reviews, the percentage falls to 21%. This is still appreciably larger than the share of manufacturing firms in the entire NCEO database with collectively-bargained ESOPs, which is roughly 5%. The over-representation of collectively-bargained ESOPs likely reflects how such firms tend to be larger and are thus more likely to be covered by Glassdoor as they have more potential reviewers.

announcement of a unionized ESOP generates a 33-to-86% larger stock market reaction than that of a non-unionized ESOP.

Why might there be this synergy between employee ownership and collective bargaining? Based on a survey of 68 ESOPs, McHugh *et al.* (1999) conclude that plans tend to be more egalitarian and participative when workers in a bargaining unit were involved in the ESOP. Moreover, from a study of 122 ESOPs, Yates (2006) finds that employee ownership may offer union members a better working life, along with more influence in the firm's management and governance. Indeed, at least in the U.K. bus industry, Pendleton *et al.* (1995) suggest there is a complementary rather than competitive relationship between unions and new forms of employee representation. That job satisfaction is higher in firms with collectively-bargained ESOPs may also help rationalize why there are fewer strikes and labor disputes in unionized EOFs than in unionized CFs (Cramton *et al.*, 2008).

By Minority-Majority Ownership: We next unpack the coarseness of our indicator variable for employee ownership. Using such a binary measure may oversimplify the effects of an ESOP; as stated in the theoretical framework of Section 3, we anticipate that the degree to which employee well-being is improved in EOFs could increase with the ownership stake employees have in the firm. This stems from the division of resources being steered more towards employees, better alignment of resources with employees' preferences, and a greater focus on the long-run productivity of the firm. Kruse (1992) suggests that stock ownership triggers motivation if it surpasses a minimum threshold. A greater ownership stake, on the other hand, might lead to more free riding (Holmstrom, 1982) and expose employees to increased firm-specific risk (Kruse *et al.*, 2022).

In lieu of our binary measure, we consider two alternative, continuous measures that preserve differences in ownership intensity between EOFs. They are the ratio of the plan's assets to (i) the firm's equity and (ii) the number of participating employees. Among EOFs in our sample, the average for these two ratios is 1.06 percent and $180,000 per participant, respectively. For all CFs in our sample, both of these ratios are zero. Since the takeaways are similar between the two, we report the results for the ratio of the plan's assets to firm equity in Table 4 and relegate those for plan's assets per participating employee to Appendix Table A17. Consistent with our theory, we find employees experience greater job satisfaction when there is employee ownership (panel A) and that, among firms with employee ownership, there is an increasing relation between the intensity of ownership and job satisfaction (panel B).

We also test whether we observe differences in satisfaction among workers participating in an ESOP by whether they collectively have a majority-ownership stake or a minority-ownership stake. We further partition between public and private firms since the near entirety

Table 4: Glassdoor Ratings of Job Satisfaction by Ownership Intensity to Firm Equity

	Overall rating	Career opportunities	Compensation & benefits	Culture & values	Senior leadership	Work-life balance
			Panel A: CFs & EOFs			
Percent of plan assets to firm equity	0.033***	0.043***	0.002	0.039***	0.042***	0.082***
	(0.007)	(0.009)	(0.011)	(0.008)	(0.007)	(0.020)
Mean percentage	1.45	1.45	1.45	1.45	1.45	1.45
Mean DV	3.57	3.39	3.67	3.42	3.03	3.40
N	109,446	94,604	94,646	94,199	93,940	94,461
			Panel B: Only EOFs			
Percent of plan assets to firm equity	0.047***	0.045***	0.036***	0.061***	0.054***	0.084***
	(0.008)	(0.009)	(0.009)	(0.012)	(0.010)	(0.015)
Mean percentage	1.45	1.45	1.45	1.45	1.45	1.45
Mean DV	3.68	3.50	3.77	3.53	3.11	3.47
N	43,511	37,159	37,146	36,971	36,885	37,066

Notes: Table examines the difference in average rating between reviews from EOFs and those from CFs using the ratio of plan assets to firm equity as the measure of employee ownership. Additional controls include: postings per establishment, establishments per firm, and indicators for the firm is publicly traded, the establishment is unionized, and the worker is a current employee. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

of Glassdoor reviews we observe for public ESOPs involve a minority stake. For private ESOPs, we observe 2,905 reviews, of which about one-quarter involve a majority ownership stake (Appendix Table A18). Given our regression framework, this empirical exercise tests, conditional on a battery of worker and firm observables, whether there are differences in job satisfaction between CFs and EOFs based on whether employees have a majority stake in the ESOP. The results are summarized in Table 5.

Three takeaways are worth highlighting. First, for public firms in which employees own a minority stake, we observe a positive satisfaction overall and with each sub-category. Second, workers in private employee-owned firms where they have a majority stake report, compared with those in conventional firms, significantly greater satisfaction with culture and values and work-life balance. These premia are comparable in magnitude to those observed among collectively-bargained ESOPs (Table 3), yet none of these firms with majority ownership have an ESOP that is collectively-bargained. Third, we do not observe a clear satisfaction premium among private EOFs in which workers own a minority stake. While we cannot rule out the estimates are significantly different from those for private, majority-stake EOFs (except for work-life balance), we also cannot rule out that they are different from zero (except for compensation and benefits). Thus, employee ownership may not always be associated with greater job satisfaction; in this case, for private firms in which there is neither collective bargaining nor dominant control by employee owners.

There are several possible explanations for why the relation of minority employee ownership is stronger in publicly-traded than in privately-held firms. In the former, even a small

Table 5: EOF-CF Comparison by Minority- or Majority-Stake and Public or Private

	Overall rating	Career opportunities	Compensation & benefits	Culture & values	Senior leadership	Work-life balance
1(Public minority EOF)	0.114***	0.122***	0.077**	0.125***	0.100***	0.133**
	(0.032)	(0.026)	(0.039)	(0.037)	(0.030)	(0.061)
1(Private majority EOF)	0.104	-0.002	-0.012	0.215**	0.126	0.274***
	(0.070)	(0.090)	(0.064)	(0.092)	(0.091)	(0.098)
1(Private minority EOF)	-0.010	-0.021	-0.216**	0.010	-0.079	0.001
	(0.101)	(0.089)	(0.109)	(0.120)	(0.108)	(0.091)
Mean DV	3.48	3.30	3.57	3.34	2.97	3.33
N	199,392	174,091	174,141	173,316	172,877	173,811
P-value: private maj. = public min.	0.901	0.190	0.237	0.363	0.790	0.210
P-value: private maj. = private min.	0.348	0.878	0.101	0.170	0.142	0.038

Notes: Table examines the difference in average rating between reviews from EOFs and those from CFs when accounting for whether the EOF is public or private, and minority- or majority-owned by employees. Additional controls include: postings per establishment, establishments per firm, and indicators for the firm is publicly traded, the establishment is unionized, and the worker is a current employee. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

share of ownership may provide a disproportionately large influence on decision-making. (The Securities and Exchange Commission (SEC) designates shareholders that hold 5 percent of the share as a block holder). In contrast, in the latter, the owner — often a sole proprietor who established the company — may hold most decision-making power even when employees have a significant ownership share. In publicly-traded firms, there is more transparency and oversight by external entities. Furthermore, owners in privately-held firms may personally select executives who are loyal to the owner; in public firms, loyalty to mostly anonymous shareholders may be superseded by loyalty to the company and to the shareholders that work in the firm, i.e., employee owners.

These results are consistent with findings that show employees in more intensive shared ownership programs are more cooperative than employees in firms with less intensive programs (Freeman *et al.*, 2010). Workers who cooperate often rely on peer monitoring that is based on trust and a stronger organizational culture which complements formal control and supervision methods (Tsui and Vance, 2023). If such cooperation and trust induces improved interpersonal relationships among coworkers and with management, we might anticipate workers to feel more satisfied with their jobs (Sockin, 2022).

6.4 Additional Mechanisms

Why might workers within an EOF report greater job satisfaction with their jobs, especially with regards to culture, career opportunities, leadership, and work-life balance? Below, we test four possible explanations beyond collective bargaining agreements and ownership stake.

One possibility is that employees within EOFs are more optimistic about their firms' prospects for the future. Their satisfaction today may reflect perceived job stability or future earnings growth. Indeed, job seekers avoid firms with worse financial prospects (e.g., Brown and Matsa, 2016), especially if they are risk averse (Kruse *et al.*, 2022). In a Glassdoor review, workers can report whether they approve of the CEO's performance and whether they have a positive business outlook for the firm over the next six months. Creating an indicator variable for each of these two outcomes and re-estimating equation (1) reveals that workers in EOFs have weakly more positive business outlook for the firm and, although positive, the approval of CEO's performance is not significant, suggesting rosier outlooks are not a key factor driving our results (Appendix Table A19).

A second explanation may relate to the working conditions EOFs and CFs provide. Workers may be more satisfied when they feel their work environment is safer (Gyekye, 2005). This relation may be especially salient in the manufacturing sector, where workplace accidents can be especially harmful or even fatal. This is perhaps best evidenced by workers' willingness to forego higher wages to work in jobs that are not characterized by bad working conditions (Gronberg and Reed, 1994) and have lower fatality risks (Lavetti and Schmutte, 2018). We investigate workplace hazards using data from the Occupational Safety and Health Administration (OSHA). While we do observe that EOFs in manufacturing, compared with CFs in manufacturing, experience fewer cumulative injuries, cases with days away from work[29], and deaths per 100,000 hours worked (Appendix Table A20), such differences cannot rationalize the satisfaction premium we observe among employees at EOFs (Appendix Table A21).

A third possibility is that EOFs require different skills and workers. While we have shown workers in EOFs report greater satisfaction even within the same job titles (Table A6), the same position may require different tasks or responsibilities across employers. Indeed, Deming and Kahn (2018) estimate that firms explain 30 percent of the total variation in (posted) skill requirements. To test whether there are differences in skill requirements or applicant screening between EOFs and CFs, we compare the content of their job postings in BGT. We consider not only the years of education and experience required, but the listing of engineering and operations skills, as these cover the spectrum of skills required in manufacturing (Ben-Ner *et al.*, 2023), as well as people skills, the prevalence and return to which have grown over time in the U.S. labor market (Deming, 2017). We also compare the magnitude of the posted wage, as employers may advertise higher wages to attract workers. To this end, we re-estimate equation (1) on our sample of BGT job ads and record the resulting coefficients for each measure in Appendix Table A22.

We first consider years of education and years of experience required in the job advertise-

[29] Cases with days away from work captures workers needing to leave work due to an injury or illness.

ment. The former we measure as the average of the minimum and maximum degree required, the latter the minimum of the required experience range listed. Between job postings for EOFs and CFs, we observe no significant difference. Next, we consider the demand for engineering, operations, or people skills. We create an indicator variable equal to 1 if the posting demands the skill, and 0 otherwise. Despite these skills being common — with engineering, people, and operations skills respectively being advertised in 35%, 29%, and 57% of postings in our sample (Appendix Table A2) — we observe no significant difference for either of the three. Last, and consistent with observing minimal differences in screening requirements, we find little difference in the wages EOFs and CFs advertise. Our estimates suggest that, when hiring for the same occupation in the same labor market, EOFs neither post different wages nor demand different requirements or skills. Together with the low incidence of employee ownership being mentioned in job postings (Table A4), we interpret these results as evidence against workers differentially sorting on observables into employee-owned firms.

Last, we consider whether the EOF premium reflects differential personnel practices. Kruse *et al.* (2010) document a complementarity between employee ownership and high-performance work systems (HPWS), such as job training and supervision. Similarly, Bloom and van Reenen (2011) argue there are complements among human resource management practices, such as individual bonuses, group bonuses and team work. To the extent that an ESOP constitutes a group incentive for workers, we might observe greater satisfaction within EOFs in the presence of other HPWS. To this end, we consider three HPWS (autonomy, bonuses, and job training) and identify differences in their quality between firms by capturing the average level of satisfaction among Glassdoor reviews with each HPWS for each firm.[30] We measure these three HPWS by identifying whether a worker discusses them positively (in the pros) or negatively (in the cons) and taking the firm-level average. We add these three firm-level measures of satisfaction with HPWS to equation (1) and record the results in Appendix Table A23. Accounting for differences between firms in HPWS reduces the EOF premium by only 1–2%, suggesting additional HPWS cannot rationalize our results.

6.5 Plausibly Causal Research Design

Since we observe multiple Glassdoor reviews before and after some firms adopted an ESOP, in the spirit of Kim and Ouimet (2014), we can estimate a difference-in-differences research design in which we compare the differences in satisfaction before and after a firm adopts an

[30] We identify the following phrases in both the pros and cons: 'independence' and 'autonomy' for autonomy, 'bonus' for bonuses, and 'training' for training. If observed in the pros, we assign to that review +1 for that HPWS; if in the cons, we assign −1. We then average across all reviews for the firm. In this way, each worker is assigned the mean level of (observed) satisfaction associated specifically with each HPWS.

ESOP, with the differences in satisfaction over time for firms that never adopt an ESOP. This exercise is plausibly causal, however given the sparseness of the sample for firms that adopt (only about 200 reviews before and after[31]), we are unable to test for parallel trends in our outcomes of interest before ESOP adoption. Moreover, given that we observe multiple reviews for only 9 firms before and after an ESOP is adopted, our estimates may very well lack external validity. With that in mind, we interpret these results as further suggestive evidence. The difference-in-differences specification follows

$$Y_{i,k,l,t} = \beta 1\{\text{Adopts}\}_{k,l} \times 1\{t \geq \tau_{k,l}\} + \gamma X_{i,t} + \rho X_{k,l} + \lambda_{n(k),z(l)} + \lambda_{o(i,k)} + \lambda_t + \lambda_{\tau_{k,l}} + \varepsilon_{i,k,l,t}. \quad (2)$$

Equation (2) includes the same fixed effects and covariates as the benchmark specification. However, now the main coefficient of interest β captures the average difference in Glassdoor ratings after an establishment adopts an ESOP relative to establishments that do not, compared with the same difference that prevailed before the establishment adopted an ESOP. The variable $1\{\text{Adopts}\}_{k,l}$ is an indicator equal to 1 if the establishment ever adopts an ESOP over the sample period, and 0 otherwise. The variable $1\{t \geq \tau_{k,l}\}$ is an indicator equal to 1 if the Glassdoor review is submitted after the year-quarter $\tau_{k,l}$ when the establishment adopted an ESOP. We include fixed effects for the date of ESOP adoption $\lambda_{\tau_{k,l}}$ to account for differential timing into adoption and differences in levels between adopters and never-adopters that exist before adoption. (We lump conventional firms together into a single category of never-adoption). The results are presented in Table 6.

When we look at all 9 ESOP adopters, we observe a positive coefficient for culture and values that is statistically distinguishable from zero at the 10 percent level. While the estimates for senior leadership and work-life balance are similar in magnitude, they are not distinguishable from zero. When we consider though in Panel B the firms that adopted collectively-bargained ESOPs, of which there are two, we observe broadly positive effects on ratings of satisfaction that are statistically significant. After the collectively-bargained ESOP is introduced, satisfaction ratings for these two firms jump an additional 0.2–0.4 stars beyond ratings for firms that never adopted an ESOP. This evidence suggests that our results at least in part reflect changes that materialize once an ESOP arises. It is worth noting that changing ownership itself does not guarantee improved employee well-being, as Gornall *et al.* (2021) show job satisfaction declines following a private equity leveraged buyout.

[31] Reviews written in the post-adoption period arrive on average about 28 months after ESOP adoption. As such, these estimates will not capture effects that materialize over the medium- or longer-run.

Table 6: EOF-CF Comparison in a Difference-in-Differences Research Design

	Overall rating	Career opportunities	Compensation & benefits	Culture & values	Senior leadership	Work-life balance
			Panel A: All EOFs			
1(Adopts ESOP) x 1(After plan adopted)	0.016	0.065	0.032	0.230*	0.195	0.222
	(0.133)	(0.078)	(0.093)	(0.135)	(0.130)	(0.155)
N	147,938	129,968	130,025	129,418	129,073	129,793
N: Pre-ESOP adoption	194	185	186	185	184	186
N: Post-ESOP adoption	219	190	190	190	188	187
			Panel B: Collectively-bargained EOFs			
1(Adopts ESOP) x 1(After plan adopted)	0.197***	0.134**	0.096	0.398***	0.333***	0.355**
	(0.069)	(0.058)	(0.074)	(0.080)	(0.115)	(0.163)
N	147,802	129,846	129,903	129,296	128,952	129,672
N: Pre-ESOP adoption	147	140	141	140	139	141
N: Post-ESOP adoption	130	113	113	113	112	111

Notes: Table examines the difference in average rating before and after an establishment implements an ESOP, compared with establishments that never implement an ESOP using all Glassdoor reviews. Worker and establishment controls include: postings per establishment, establishments per firm, and indicators for the firm is publicly traded, the establishment is unionized, and the worker is a current employee. We restrict the sample to the firms for which we observe at least two reviews before ESOP adoption: 9 in Panel A, 2 in Panel B. Observations for firms that adopt ESOPs are weighted such that each firm's share of the treated sample remains the same in the pre- and post-periods. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

7 Discussion and Concluding Remarks

This study advances our understanding of firm ownership structure and employee well-being both theoretically and empirically. We first introduce a comprehensive framework that links employee ownership to employee well-being through the mechanisms of enhanced productivity, resource distribution, and alignment with employee preferences. We then empirically show that workers in employee-owned firms report greater satisfaction with their jobs overall and with workplace amenities, such as firm culture and work-life balance, compared with their counterparts in non-employee-owned firms.

Our analysis underscores the importance of psychological ownership and reduced agency costs in driving these mechanisms. Regardless of an employee's role or rank, an ESOP, a broad-based employee stock ownership plan, provides a mechanism for employee voice and shared ownership. Although ownership stakes are not equal, shared ownership marries the long-term financial interests of all employee-owners – production workers, engineers, support staff, and managers – as well as non-employee-owners. Through voice and shared ownership, employees can mold the nature of work towards their preferences more so than they could in conventional firms. If a union agrees to the ownership sharing, it can act as a complementary voice and guarantor of the interests of its members who participate in ownership.

Although our empirical analysis is largely cross-sectional and neither people nor establish-

ments were assigned randomly to ownership type, our estimates and accompanying heterogeneity and sensitivity tests, as well as a differences-in-differences analysis among a handful of firms that introduced an ESOP after 2012, together strongly suggest employees experience improved well-being in the presence of an ESOP. Employees in EOFs are more satisfied overall and with different aspects of work, such as organizational culture and work-life balance. The premium in job satisfaction, while statistically significant, is modest at no more than one-tenth of a standard deviation. Employee ownership through an ESOP is thus not necessarily transformative for employee well-being but incremental.

The association between employee well-being and employee ownership does vary though by the type of ESOP. For one, the premium in satisfaction is largest for ESOPs established through collective bargaining between management and unions. This supports the idea that employee representation in the choice of the features of implementing employee ownership and the enhanced and formalized channels of employee participation in decision-making reinforce the mechanisms that lead to improved employee well-being. The satisfaction gain is also larger when employees have a greater stake in ownership, which indicates stronger incentives for employee productivity and greater influence on resource allocation and alignment with employee preferences. This work thus has implications for organizational theory: Our results highlight the roles collective bargaining and ownership intensity can play in amplifying positive effects, and illustrate how employee ownership can be a powerful tool for improving employee satisfaction and subsequently firm performance.

While this analysis focuses on a single sector of the U.S. economy and particularly on employee-owned firms, we believe the framework and findings have broader applicability. It would naturally be interesting for future research to investigate these mechanisms in different organizational forms, cultural settings, and industries. For conventional firms, our study suggests practical strategies to enhance employee well-being without transferring ownership, by adopting features of the mechanisms that promote well-being in EOFs. Conventional firms can share profits with, provide voice to, and share information with employees in credible ways by maintaining a culture of trust and consistency. For instance, conventional firms could heighten worker representation on boards and elect shop-floor representatives (Harju *et al.*, 2021), or simply allow workers to evaluate their managers and offer feedback (Cai and Wang, 2022). Psychological ownership may be generated without legal ownership (Pierce *et al.*, 2001; Brown *et al.*, 2014), with organizational trust at its foundation.

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ONLINE APPENDIX

A Details for Merging Sources on Firm Names

A.1 Standardization of Firm Names

Firm names from the same employer may vary in how they appear in multiple datasets. For example, '3M' (a company operating in industry, worker safety, healthcare, and consumer goods) may also appear as '3M Company' in another dataset. To minimize variations and improve the matching outcome, we perform standardization on firm names. This step is also crucial for calculating, for example, the total number of plants per firm or job postings per establishment in the BGT dataset, since the basis for aggregating the job postings and establishments is whether they are originated from the same employer name. To perform the steps below, employer names are lower-cased and regular expressions are involved to capture a variety of terms.

1. Internet suffixes (e.g., 'com', 'org', 'gov') are removed.
2. Non-alphanumeric characters replaced with space or nothing (e.g., '*', '-', '#', '', "').
3. Irrelevant words (e.g., 'and', 'amp', 'u.s.') are removed.
4. Common words are standardized (e.g., 'manufacturing' to 'mfg', 'technology' to 'tech', 'laboratories' to 'lab').
5. Firm legal forms (e.g., 'incorporated', 'company', or 'corporation') and their misspellings (e.g., 'inc', 'comapnies', 'corporatoin') are removed.
6. Extra spaces resulting from the previous steps are removed.

A.2 Fuzzymatching Process

After performing standardization, firm names across data sources are matched with fuzzy matching. A different maximum Jaro-Winkler distance threshold for each pair of data sources is specified based on our examination of which value starts to yield a bad matching result. We construct three different datasets. First, to construct the Glassdoor dataset, (standardized) firm names in BGT, NCEO, and Compustat are matched with exact matching. Establishments in both datasets are then matched through their firm names, cities, and states. Second, the job posting dataset is constructed by matching multiple datasets, as detailed below.

- Firm names in BGT and NCEO are matched with a maximum Jaro-Winkler distance index of zero (i.e., exact matching).

- Firm names in BGT and Form LM-10 are matched with a maximum Jaro-Winkler distance index of zero (i.e., exact matching). Establishments in both datasets are then matched through their firm names, cities, and states.
- Firm names in BGT and NLRB are matched with a maximum Jaro-Winkler distance index of 0.039. Establishments in both datasets are then matched through their firm names, cities, and states.
- Firm names in BGT and Compustat North America and Compustat Global are matched with a maximum Jaro-Winkler distance index of 0.018.

Finally, the workplace safety dataset is constructed by matching firm names in BGT and OSHA's Establishment Specific Injury and Illness Data with a maximum Jaro-Winkler distance index of 0.018. Establishments in both datasets are then matched through their firm names and zip codes.

B Supplemental Data

Compustat: According to the NCEO dataset, 7.4% of employee-owned companies are publicly traded.[32] Such firms generally have better financial resources than private firms (Phillips and Sertsios, 2016) and stricter external monitoring, both of which may have an effect on workers' satisfaction levels through rent sharing or elevated oversight. To account for this confounding factor and disentangle employee ownership from being publicly traded, we obtain a list of publicly-listed U.S. firms from Compustat North America and a list of international firms that are publicly traded from Compustat Global. We match firm names in Compustat to those in our sample through fuzzy matching (see Appendix A.2), and then construct an indicator equal to 1 if the firm is publicly traded and 0 otherwise.

Office of Labor Management Standards and National Labor Relations Board: Unionized workers have historically been found to be more dissatisfied with their jobs than their non-unionized counterparts (Laroche, 2016), though some evidence suggests the correlation may have reversed (Blanchflower and Bryson, 2020). Given the import of unionization in the U.S. manufacturing industry, we match firm names and locations to the Form LM-10 administered by the Office of Labor Management Standards.[33] We complement this dataset with filings for union representation administered by the National Labor Relations Board (NLRB). Each record includes the firm's name and city, as well as whether a union won the

[32]This corresponds to EOFs from all sectors in the US economy. Our job posting sample indicates that 38% of EOFs in the manufacturing sector are publicly traded and own 93% of EOF establishments.

[33]Form LM-10 records financial dealings above a certain amount between an employer and a union or officer, agent, shop steward, employee, or other representative of a union. For additional details, see here.

election. We then construct an indicator equal to 1 if the establishment has a union, either through matching with the Form LM-10 or an NLRB election, and 0 otherwise. We note this measure is establishment-specific, not firm-specific.

Glassdoor Pay Reports: In lieu of or in addition to providing an employer review, visitors to Glassdoor can provide a pay report in which they document their labor earnings. A pay report features the worker's location, job title, years of experience, and employer, as well as whether they are employed full time and salaried. Glassdoor pay reports are broadly representative when dis-aggregated, e.g., between industries and metropolitan statistical areas (Karabarbounis and Pinto, 2018). If a worker represented in our sample of employer reviews also provides a pay report for the same firm in the same year, we merge in their hourly wage and years of experience from their pay report. We use both pieces of information for robustness exercises. The hourly wage allows us to control for an additional variable that may fuel employee satisfaction, years of experience to control for additional employee demographics.

Occupational Safety and Health Administration: Workplace safety may contribute to differences in job satisfaction (Gyekye, 2005) and by allowing workers to be more involved in decision-making processes, employee ownership may facilitate lower injury rates. We briefly explore this possibility by compiling establishment-level data on annual workplace hazard rates for manufacturing firms spanning 2017–2022 from the U.S. Occupational Safety and Health Administration (OSHA). Such data is collected by OSHA for employers with more than 10 employees in the previous calendar year.[34] We consider three (cumulative) measures of workplace safety over the sample period: cases with days away from work, injuries, and fatalities per 100,000 hours worked. We truncate the top and bottom 2.5% of the distribution for each measure to account for outliers. The resulting sample includes 7,544 establishments spanning 3,578 U.S. manufacturing firms, of which 6,241 belong to CFs and the remaining 1,303 to EOFs. Summary statistics are available in Appendix Table A24.

[34]For further information on establishments covered in this reporting requirement, see here.

C Additional Figures and Tables

Table A1: Sample Sizes within Glassdoor Reviews

Summary measure	All	CF	EOF
Firms	5,531	5,290	257
Establishments	17,655	14,381	3,274
Reviews	199,737	147,979	51,758
...for non-managers	156,152	115,463	40,689
...for managers	43,585	32,516	11,069
Reviews per establishment	11.31	10.28	15.79
...for non-managers	8.84	8.02	12.41
...for managers	2.47	2.26	3.37
Reviews per naics-commuting zone	77.21	57.20	20.00
...for non-managers	60.36	44.63	15.73
...for managers	16.85	12.57	4.28

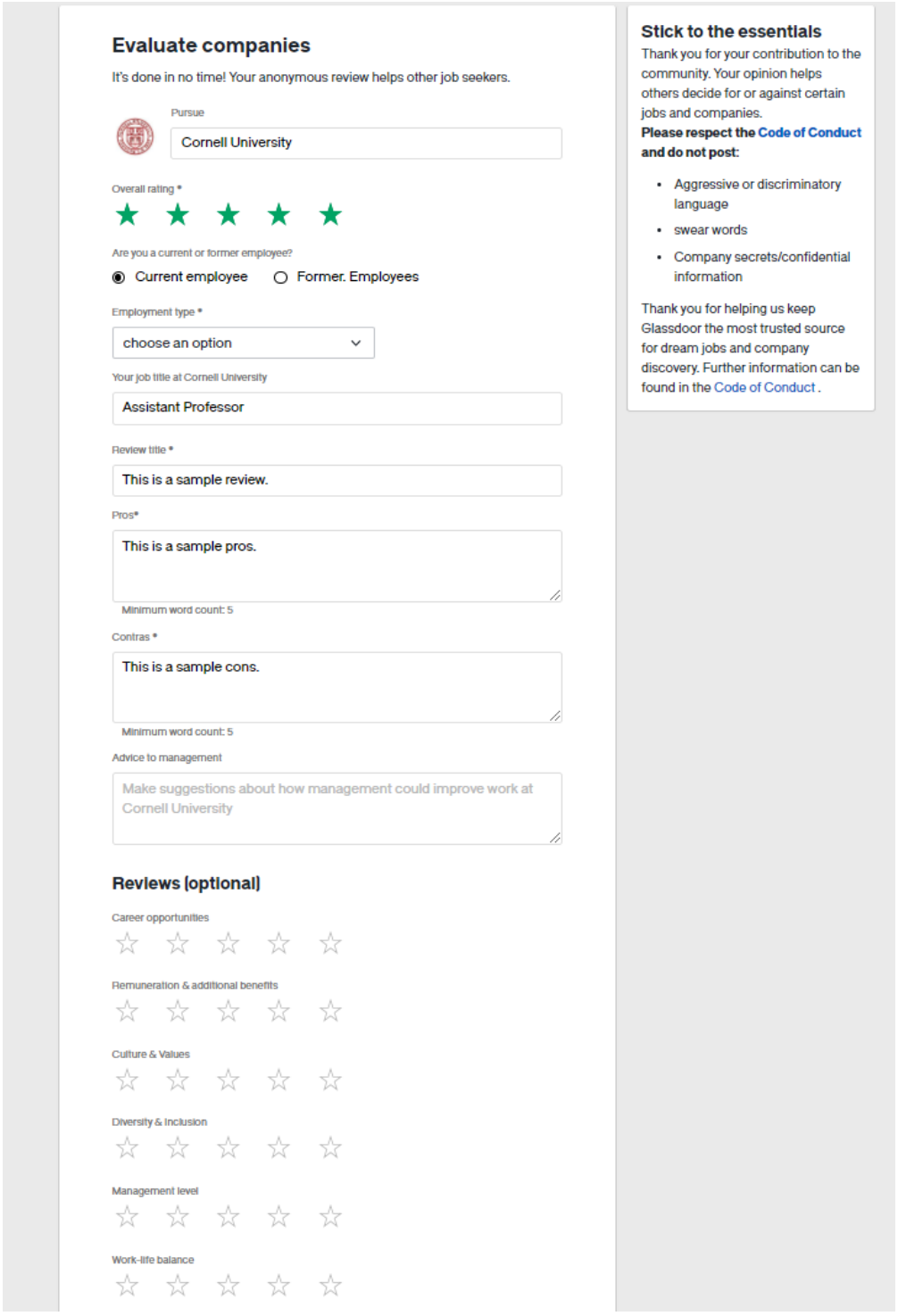
Notes: EOFs are identified in 2020 from the US Department of Labor/IRS Form 5500, then matched to the Glassdoor reviews dataset for the period 2012 through the first half of 2023.

Table A2: Descriptive Statistics for BGT

	Overall	Non-manager			Manager		
		All	CF	EOF	All	CF	EOF
Panel A. Summary statistics of observables							
Posted salary	65,149.52	60,812.77	56,274.67	74,827.38	100,791.40	94,082.25	118,395.09
	(40,215.27)	(37,021.17)	(33,431.14)	(43,493.13)	(47,115.87)	(43,945.64)	(50,492.08)
Posted years of education	12.13	11.74	11.32	12.64	14.13	13.99	14.39
	(5.95)	(6.03)	(6.11)	(5.77)	(5.08)	(5.19)	(4.87)
Posted years of experience	4.77	4.32	3.94	5.06	6.61	6.41	6.97
	(3.25)	(3.07)	(2.88)	(3.31)	(3.30)	(3.28)	(3.29)
1(Posted engineering skills)	0.35	0.35	0.32	0.40	0.36	0.35	0.36
	(0.48)	(0.48)	(0.47)	(0.49)	(0.48)	(0.48)	(0.48)
1(Posted operations skills)	0.57	0.59	0.62	0.53	0.46	0.47	0.43
	(0.50)	(0.49)	(0.49)	(0.50)	(0.50)	(0.50)	(0.50)
1(Posted people skills)	0.29	0.26	0.25	0.28	0.42	0.40	0.45
	0.45	0.44	0.43	0.45	0.49	0.49	0.50
Panel B. Sample sizes							
Number of firms	13,316	13,316	12,965	351	9,210	8,919	291
Number of establishments	49,353	49,353	41,929	7,424	35,238	29,038	6,200
Number of job postings	6,260,084	5,244,870	3,579,717	1,665,153	1,015,214	651,660	363,554

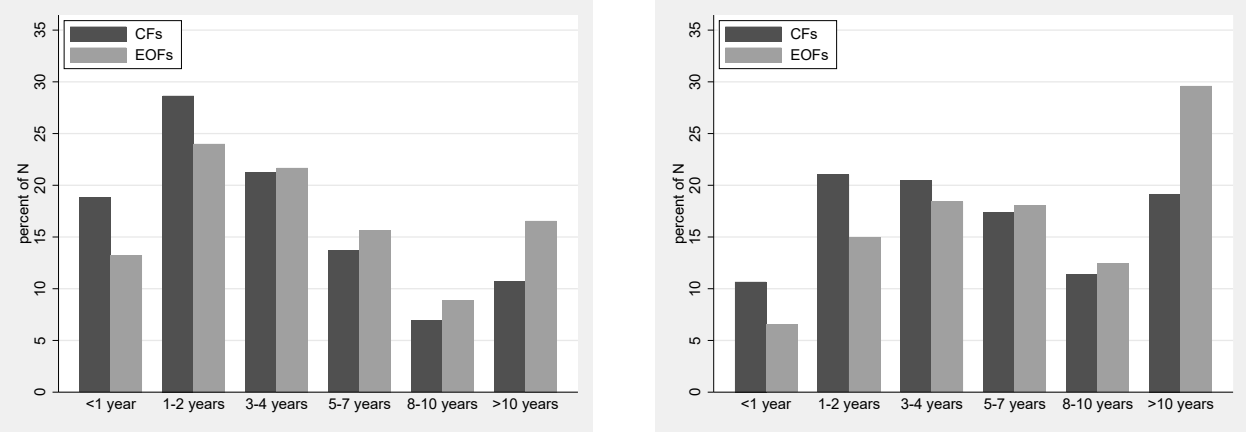
Notes: Table shows means and standard deviations (in parentheses) by firm type. Sample consists of 49,353 establishments (41,929 CFs and 7,424 EOFs) from 13,316 firms (12,965 CFs and 351 EOFs). 15.5%, 96.7%, and 65.1% of job postings have a posted salary, years of education, and years of experience, respectively.

Figure A1: Sample Glassdoor Review Form



Notes: This screenshot depicts the sample form for filling out an employer review for Cornell University on November 7, 2023. We do not consider ratings for diversity & inclusion as this feature was only introduced in October 1, 2020.

Figure A2: Distribution of Firm Tenure for EOFs and CFs from Glassdoor Reviews



(a) Non-managers (b) Managers

Notes: This figure plots the distribution of firm tenure among Glassdoor reviews for non-managers (panel a) and managers (panel b). Reviews for which firm tenure is unavailable are excluded.

Table A3: Top 10 Terms for Each Skill in BGT Postings

Task attribute	Frequent terms (number of postings)
Engineering	product development (321,905), chemistry (250,879), physics (176,338), simulation (165,884), experiments (119,880), system design (118,902), matlab (109,075), biology (107,256), new product development (106,740), product design (98,234)
Operations	forklift operation (406,659), machinery (350,716), manufacturing processes (326,953), procurement (297,581), predictive / preventative maintenance (269,788), hand tools (267,246), six sigma (256,489), purchasing (243,132), welding (225,814), test equipment (195,462)
People	teamwork / collaboration (1,651,606), mentoring (223,162)

Notes: Table shows ten most frequent terms in strings of terms extracted from the full text of BGT job postings. A string of terms reflects a job posting's content. There are 6,260,084 job postings in our sample.

Table A4: Incidence of ESOP-related Phrases in BGT Postings

	All	Non-manager	Manager
Minority EOF	0.62%	0.66%	0.45%
Majority EOF	19.49%	19.93%	15.70%

Notes: Table shows the number of BGT postings that mention the phrases 'esop', 'employee ownership', or 'employee stock ownership' in their full text over the total number of postings across all, non-manager, and manager occupations in 2021 and 2022 (763,032 job postings), by whether the firm is a minority EOF or a majority EOF.

Table A5: EOF-CF Comparison of Glassdoor Ratings of Job Satisfaction, with Control Variables Displayed

	Overall rating	Career opportunities	Compensation & benefits	Culture & values	Senior leadership	Work-life balance
1(EOF)	0.104***	0.107***	0.053	0.119***	0.088***	0.127**
	(0.030)	(0.024)	(0.036)	(0.035)	(0.029)	(0.055)
Plants per firm (1000s)	0.013*	0.021***	0.028***	0.004	-0.005	-0.001
	(0.007)	(0.006)	(0.008)	(0.008)	(0.007)	(0.012)
Postings per plant (1000s)	0.031***	0.040***	0.042***	0.038***	0.025***	0.028***
	(0.006)	(0.007)	(0.007)	(0.008)	(0.007)	(0.009)
1(Public firm)	0.050*	0.027	0.117***	0.031	0.031	-0.013
	(0.027)	(0.025)	(0.031)	(0.030)	(0.030)	(0.037)
1(Establishment unionized)	0.035	-0.016	-0.017	0.028	0.015	0.119***
	(0.032)	(0.030)	(0.037)	(0.033)	(0.032)	(0.042)
1(Current employee)	0.632***	0.578***	0.287***	0.670***	0.673***	0.524***
	(0.019)	(0.020)	(0.018)	(0.021)	(0.020)	(0.013)
Mean DV	3.48	3.30	3.57	3.34	2.97	3.33
N	199,404	174,103	174,153	173,328	172,888	173,822
Adjusted R^2	0.12	0.11	0.08	0.12	0.11	0.12

Notes: Table examines the difference in average rating between reviews from EOFs and those from CFs. Additional controls include: postings per establishment, establishments per firm, and indicators for the firm is publicly traded, the establishment is unionized, and the worker is a current employee. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

Table A6: EOF-CF Comparison of Glassdoor Ratings, Sensitivity Analysis

	Overall rating	Career opportunities	Compensation & benefits	Culture & values	Senior leadership	Work-life balance
			Panel A: Baseline			
1(EOF)	0.104***	0.107***	0.053	0.119***	0.088***	0.127**
	(0.030)	(0.024)	(0.036)	(0.035)	(0.029)	(0.055)
N	199,404	174,103	174,153	173,328	172,888	173,822
			Panel B: Tighter fixed effects			
1(EOF)	0.083**	0.099***	0.022	0.099**	0.062*	0.154***
	(0.034)	(0.027)	(0.043)	(0.042)	(0.034)	(0.058)
N	136,060	114,296	114,303	113,689	113,334	114,049
			Panel C: More granular geography for defining labor markets			
1(EOF)	0.079**	0.066**	0.058	0.090**	0.050	0.080
	(0.033)	(0.029)	(0.039)	(0.039)	(0.033)	(0.062)
N	197,950	172,644	172,696	171,857	171,411	172,354
			Panel D: With job title fixed effects			
1(EOF)	0.094***	0.101***	0.042	0.108***	0.078***	0.118***
	(0.028)	(0.024)	(0.036)	(0.033)	(0.029)	(0.044)
N	177,099	153,353	153,375	152,623	152,250	153,087
			Panel E: Account for worker demographics			
1(EOF)	0.112***	0.108***	0.045	0.108***	0.094***	0.148**
	(0.032)	(0.025)	(0.038)	(0.038)	(0.030)	(0.064)
N	69,265	60,620	60,675	60,477	60,290	60,624
			Panel F: Include worker's wage from Glassdoor pay report			
1(EOF)	0.084***	0.090***	0.031	0.089***	0.077***	0.124**
	(0.028)	(0.023)	(0.034)	(0.034)	(0.027)	(0.057)
N	113,879	97,727	97,752	97,427	97,077	97,593
			Panel G: Include additional firm observables			
1(EOF)	0.102***	0.146***	0.047	0.136***	0.109***	0.137**
	(0.039)	(0.031)	(0.060)	(0.040)	(0.037)	(0.066)
N	103,459	89,360	89,413	88,981	88,773	89,243
			Panel H: Only reviews before COVID-19 pandemic			
1(EOF)	0.119***	0.123***	0.076	0.156***	0.102***	0.116*
	(0.042)	(0.033)	(0.048)	(0.045)	(0.035)	(0.065)
N	77,735	75,223	75,351	75,008	74,869	75,279

Notes: Table examines the difference in average rating between reviews from EOFs and those from CFs. Additional controls include: postings per establishment, establishments per firm, and indicators for the firm is publicly traded, the establishment is unionized, and the worker is a current employee. In panel B, we instead incorporate a fixed effect for each NAICS-CZ × occupation × year-quarter. In panel C, in lieu of NAICS-CZ fixed effects, we use NAICS-city. In panel D, we include a fixed effect for each unique job title. In panel E, we restrict the sample to workers for whom we observe their gender and years of experience and include a fixed effect for each experience-gender pair. In panel F, we include the logarithm of the worker's hourly wage for those reviewers who have also provided a pay report. In panel G, we include three additional firm-level observables, two from a Glassdoor employer lookup table from January 2022 (the logarithm of firm size and of firm age) and one from Compustat (the logarithm of Tobin's Q). In panel H, we restrict the sample to reviews written before March 2020. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

Table A7: EOF-CF Comparison of Glassdoor Ratings using Only Reviews with Concealed Locations and Job Titles

	Overall rating	Career opportunities	Compensation & benefits	Culture & values	Senior leadership	Work-life balance
1(EOF)	0.145***	0.132***	0.142***	0.142***	0.099***	0.107**
	(0.032)	(0.031)	(0.048)	(0.042)	(0.033)	(0.051)
Mean DV	3.37	3.16	3.45	3.21	2.88	3.21
N	318,911	260,349	260,488	258,520	257,189	259,540
Adjusted R^2	0.10	0.09	0.06	0.09	0.09	0.07

Notes: Table examines the difference in average rating between reviews from EOFs and those from CFs, incorporating only the reviews in which the location or job title is concealed. Additional controls include: establishments per firm and indicators for the firm is publicly traded and the worker is a current employee. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

Table A8: EOF-CF Comparison of Glassdoor Ratings of Job Satisfaction Accounting for Seniority of the Worker's Job Title

	Overall rating	Career opportunities	Compensation & benefits	Culture & values	Senior leadership	Work-life balance
1(EOF)	0.072**	0.092***	0.019	0.085**	0.062**	0.102
	(0.033)	(0.027)	(0.042)	(0.038)	(0.031)	(0.065)
Mean experience in firm-job title	0.003**	-0.005***	0.010***	0.000	-0.005***	0.001
	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)
Std. dev. experience in firm-job title	-0.008***	-0.006***	-0.004**	-0.010***	-0.007***	-0.005**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Mean DV	3.50	3.34	3.59	3.36	2.96	3.35
N	118,605	102,716	102,738	102,252	101,987	102,553
Adjusted R^2	0.13	0.10	0.08	0.12	0.11	0.13

Notes: Table examines the difference in average rating between reviews from EOFs and those from CFs among reviewers accounting for the mean and standard deviation of the years of experience among workers working for the same firm with the same job title. Additional controls include: postings per establishment, establishments per firm, and indicators for the firm is publicly traded, the establishment is unionized, and the worker is a current employee. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

Table A9: EOF-CF Comparison of Glassdoor Ratings of Job Satisfaction Accounting for Each Reviewer's Age and Gender

	Overall rating	Career opportunities	Compensation & benefits	Culture & values	Senior leadership	Work-life balance
1(EOF)	0.094**	0.077**	0.010	0.093**	0.090**	0.118*
	(0.040)	(0.033)	(0.044)	(0.046)	(0.038)	(0.070)
Mean DV	3.41	3.24	3.53	3.32	2.93	3.35
N	32,210	29,819	29,834	29,666	29,623	29,786
Adjusted R^2	0.15	0.13	0.09	0.14	0.12	0.14

Notes: Table examines the difference in average rating between reviews from EOFs and those from CFs among reviewers whom we observe their age and gender, accounting for such demographic differences. Additional controls include: postings per establishment, establishments per firm, indicators for the firm is publicly traded, the establishment is unionized, and the worker is a current employee, and fixed effects for each age-gender pairing. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

Table A10: Predicting Overall Rating with Workers' Sub-Category Ratings and Wage

	Non-managers		Managers	
	(1)	(2)	(3)	(4)
Career opportunities rating	0.241***	0.239***	0.244***	0.245***
	(0.004)	(0.004)	(0.006)	(0.006)
Compensation and benefits rating	0.161***	0.160***	0.139***	0.136***
	(0.003)	(0.003)	(0.005)	(0.005)
Culture and values rating	0.272***	0.271***	0.286***	0.284***
	(0.003)	(0.003)	(0.007)	(0.007)
Senior leadership rating	0.199***	0.200***	0.220***	0.221***
	(0.004)	(0.004)	(0.006)	(0.006)
Work-life balance rating	0.106***	0.103***	0.101***	0.100***
	(0.003)	(0.003)	(0.005)	(0.005)
Log hourly wage		0.051***		0.056***
		(0.008)		(0.011)
N	76,495	76,495	20,322	20,322
Adjusted R^2	0.762	0.763	0.772	0.772

Notes: Table predicts overall job satisfaction rating using as inputs the five sub-category ratings and the worker's hourly wage from their pay report, separately for non-managers and managers. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

Table A11: EOF-CF Comparison of Glassdoor Ratings Equally Weighting Firms

	Overall rating	Career opportunities	Compensation & benefits	Culture & values	Senior leadership	Work-life balance
1(EOF)	0.116**	0.035	0.020	0.172***	0.078	0.142**
	(0.052)	(0.051)	(0.050)	(0.064)	(0.059)	(0.057)
Mean DV	3.23	3.01	3.25	3.08	2.86	3.15
N	199,404	174,103	174,153	173,328	172,888	173,822
Adjusted R^2	0.17	0.16	0.12	0.17	0.17	0.14

Notes: Table examines the difference in average rating between reviews from EOFs and those from CFs, where reviews are assigned weights such that each firm contributes equally. Additional controls include: postings per establishment, establishments per firm, and indicators for the firm is publicly traded, the establishment is unionized, and the worker is a current employee. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

Table A12: EOF-CF Comparison of Glassdoor Ratings Equally Weighting Establishments

	Overall rating	Career opportunities	Compensation & benefits	Culture & values	Senior leadership	Work-life balance
1(EOF)	0.132***	0.108***	0.097***	0.135***	0.088**	0.066
	(0.037)	(0.036)	(0.035)	(0.043)	(0.039)	(0.062)
Mean DV	3.31	3.11	3.41	3.12	2.86	3.11
N	199,404	174,103	174,153	173,328	172,888	173,822
Adjusted R^2	0.15	0.14	0.11	0.14	0.14	0.13

Notes: Table examines the difference in average rating between reviews from EOFs and those from CFs, where reviews are assigned weights such that each establishment contributes equally. Additional controls include: postings per establishment, establishments per firm, and indicators for the firm is publicly traded, the establishment is unionized, and the worker is a current employee. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

Table A13: EOF-CF Comparison of Glassdoor Ratings with Worker Fixed Effects

	Overall rating	Career opportunities	Compensation & benefits	Culture & values	Senior leadership	Work-life balance
			Panel A: All EOFs			
1(EOF)	0.096	0.156	-0.082	0.165	0.048	0.149
	(0.101)	(0.103)	(0.099)	(0.120)	(0.130)	(0.109)
			Panel B: Collectively-bargained EOFs			
1(EOF) x 1(Collective bargaining)	0.309**	0.321*	0.087	0.453***	0.160	0.315*
	(0.142)	(0.170)	(0.155)	(0.170)	(0.176)	(0.170)
1(EOF) x 1(No collective bargaining)	-0.013	0.080	-0.160	0.039	-0.003	0.073
	(0.109)	(0.130)	(0.104)	(0.135)	(0.153)	(0.127)
Mean DV	3.44	3.26	3.53	3.31	2.93	3.37
N	14,096	12,111	12,095	12,014	11,991	12,072
N: EOF	3756	3116	3119	3110	3094	3114
Adjusted R^2	0.63	0.60	0.54	0.62	0.59	0.59

Notes: Table examines the difference in average rating between reviews from EOFs and those from CFs when the sample is expanded to include all Glassdoor reviews. Additional controls include: postings per establishment, establishments per firm, indicators for the firm is publicly traded, the establishment is unionized, the worker is a current employee, and fixed effects for each worker. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

Table A14: EOF-CF Comparison of Glassdoor Ratings, Worker Heterogeneity

	Overall rating	Career opportunities	Compensation & benefits	Culture & values	Senior leadership	Work-life balance
			Panel A: Non-managers			
1(EOF)	0.094***	0.092***	0.048	0.098***	0.075**	0.125**
	(0.030)	(0.026)	(0.037)	(0.034)	(0.030)	(0.056)
Mean DV	3.47	3.28	3.54	3.32	2.96	3.34
N	155,791	135,444	135,485	134,807	134,393	135,208
			Panel B: Managers			
1(EOF)	0.138***	0.155***	0.071*	0.194***	0.126***	0.141**
	(0.041)	(0.030)	(0.040)	(0.047)	(0.037)	(0.065)
Mean DV	3.53	3.38	3.64	3.39	3.03	3.28
N	43,082	38,133	38,143	37,986	37,962	38,091
			Panel C: Current employees			
1(EOF)	0.078***	0.089***	0.028	0.094***	0.051	0.116**
	(0.029)	(0.025)	(0.036)	(0.034)	(0.031)	(0.057)
Mean DV	3.73	3.54	3.69	3.61	3.24	3.55
N	126,411	109,004	109,021	108,563	108,228	108,834
			Panel D: Former employees			
1(EOF)	0.174***	0.157***	0.112***	0.179***	0.170***	0.160***
	(0.040)	(0.035)	(0.043)	(0.043)	(0.034)	(0.058)
Mean DV	3.04	2.90	3.35	2.87	2.52	2.96
N	72,541	64,644	64,676	64,299	64,193	64,526
			Panel E: Firm tenure of less than five years			
1(EOF)	0.116***	0.117***	0.050	0.116***	0.096***	0.148**
	(0.032)	(0.027)	(0.035)	(0.036)	(0.030)	(0.062)
Mean DV	3.41	3.29	3.53	3.32	2.98	3.32
N	124,707	117,510	117,609	117,024	116,738	117,381
			Panel F: Firm tenure of at least five years			
1(EOF)	0.094***	0.111***	0.053	0.133***	0.093***	0.102**
	(0.030)	(0.026)	(0.039)	(0.036)	(0.032)	(0.050)
Mean DV	3.55	3.30	3.60	3.35	2.93	3.33
N	98,382	79,183	79,156	78,820	78,640	79,015

Notes: Table examines the difference in average rating between reviews from EOFs and those from CFs. Additional controls include: postings per establishment, establishments per firm, and indicators for the firm is publicly traded, the establishment is unionized, and the worker is a current employee. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

Table A15: EOF-CF Comparison of Glassdoor Ratings, Within Establishment Heterogeneity

	Overall rating	Career opportunities	Compensation & benefits	Culture & values	Senior leadership	Work-life balance
	Panel A: Non-managers vs. managers					
1(EOF) x 1(Manager)	-0.013	-0.007	-0.034	0.004	-0.021	-0.051*
	(0.018)	(0.024)	(0.022)	(0.024)	(0.025)	(0.027)
N	194,793	169,526	169,578	168,732	168,306	169,233
	Panel B: Current vs. former employees					
1(EOF) x 1(Former employee)	0.194***	0.195***	0.169***	0.163***	0.210***	0.120***
	(0.031)	(0.033)	(0.029)	(0.034)	(0.032)	(0.022)
N	194,793	169,526	169,578	168,732	168,306	169,233
	Panel C: Short vs. long tenure employees					
1(EOF) x 1(Firm tenure 5+ years)	-0.012	-0.049**	0.012	-0.007	-0.045*	-0.026
	(0.020)	(0.024)	(0.023)	(0.023)	(0.023)	(0.024)
N	156,744	147,972	148,136	147,389	147,084	147,830

Notes: Table examines the difference in average rating between reviews from EOFs and those from CFs. Regressions are at the review level and include as controls and fixed effects for each establishment and the year-quarter in which the review was submitted. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

Table A16: EOF-CF Comparison of Glassdoor Ratings of Job Satisfaction, by Tenure

	Overall rating	Career opportunities	Compensation & benefits	Culture & values	Senior leadership	Work-life balance
1(EOF)	0.133***	0.162***	0.086*	0.144***	0.164***	0.151**
	(0.047)	(0.041)	(0.048)	(0.049)	(0.049)	(0.074)
1(EOF) x 1(Firm tenure of 1–2 years)	0.017	0.003	0.006	0.010	-0.008	0.018
	(0.039)	(0.039)	(0.037)	(0.041)	(0.046)	(0.043)
1(EOF) x 1(Firm tenure of 3–4 years)	-0.015	-0.043	-0.034	-0.003	-0.062	0.025
	(0.041)	(0.039)	(0.040)	(0.041)	(0.048)	(0.044)
1(EOF) x 1(Firm tenure of 5–7 years)	-0.002	-0.035	-0.035	0.013	-0.060	-0.011
	(0.041)	(0.040)	(0.043)	(0.047)	(0.051)	(0.045)
1(EOF) x 1(Firm tenure of 8–10 years)	-0.068	-0.089*	-0.020	-0.012	-0.113**	-0.050
	(0.047)	(0.046)	(0.047)	(0.049)	(0.052)	(0.047)
1(EOF) x 1(Firm tenure of +10 years)	-0.025	-0.071*	-0.037	-0.018	-0.082*	-0.062
	(0.038)	(0.037)	(0.037)	(0.040)	(0.049)	(0.051)
Mean DV	3.44	3.30	3.58	3.34	2.97	3.33
N	148,824	140,695	140,837	140,165	139,874	140,565
Adjusted R^2	0.12	0.11	0.08	0.12	0.12	0.13

Notes: Table examines the difference in average rating between reviews from EOFs and those from CFs, allowing for heterogeneous effects across the distribution of worker tenure. Additional controls include: postings per establishment, establishments per firm, and indicators for the firm is publicly traded, the establishment is unionized, and the worker is a current employee. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

Table A17: Glassdoor Ratings of Job Satisfaction by Ownership Intensity per Participant

	Overall rating	Career opportunities	Compensation & benefits	Culture & values	Senior leadership	Work-life balance
			Panel A: CFs & EOFs			
Plan assets per person	0.598***	0.556***	0.431***	0.646***	0.496***	0.627***
	(0.124)	(0.105)	(0.139)	(0.156)	(0.121)	(0.166)
Mean assets (in millions)	0.178	0.178	0.178	0.178	0.178	0.178
Mean DV	3.48	3.30	3.57	3.33	2.97	3.33
N	199,032	173,773	173,824	173,000	172,561	173,494
			Panel B: Only EOFs			
Plan assets per person	0.547*	0.445	0.646**	0.446	0.327	0.320
	(0.314)	(0.303)	(0.316)	(0.389)	(0.298)	(0.364)
Mean assets (in millions)	0.178	0.178	0.178	0.178	0.178	0.178
Mean DV	3.65	3.47	3.74	3.50	3.08	3.48
N	51,146	43,808	43,804	43,589	43,491	43,706

Notes: Table examines the difference in average rating between reviews from EOFs and those from CFs using millions of dollars in plan assets per person as the measure of employee ownership. Additional controls include: postings per establishment, establishments per firm, and indicators for the firm is publicly traded, the establishment is unionized, and the worker is a current employee. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

Table A18: Sample Sizes within Glassdoor Reviews by Public/Private and CF/EOF

	Public			Private		
Summary measure	CF	Minority EOF	Majority EOF	CF	Minority EOF	Majority EOF
Firms	646	118	2	4,658	74	66
Establishments	4,318	3,022	8	10,012	187	108
Reviews	65,872	49,046	12	81,902	2,213	692

Notes: EOFs are identified in 2020 from the US Department of Labor/IRS Form 5500, then matched to the Glassdoor reviews dataset for the period 2012 through the first half of 2023.

Table A19: EOF-CF Comparison of Glassdoor Indicators of Employee Confidence

	Approve of the CEO's performance	Has positive business outlook for the firm
eof	0.014	0.019*
	(0.013)	(0.011)
Mean DV	0.52	0.53
N	143,319	157,480
Adjusted R^2	0.09	0.11

Notes: Table examines the difference in average Glassdoor responses of approval between reviews from employees in EOFs and those in CFs. Additional controls include: postings per establishment, establishments per firm, and indicators for the firm is publicly traded, the establishment is unionized, and the worker is a current employee. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

Table A20: EOF-CF Comparison of Worker Safety

	Number of cases with days away from work	Number of injuries	Number of deaths
1(EOF)	-0.102***	-0.159**	-0.002***
	(0.033)	(0.066)	(0.001)
Mean DV	0.537	1.581	0.001
N plants	7,544	7,544	7,544

Notes: Variables are measured per 100,000 work hours. Additional controls include: postings per establishment, establishments per firm, and indicators for the firm is publicly traded, the establishment is unionized, and the worker is a current employee. Regressions are estimated using wild bootstrapping with 9,999 resamples. Standard errors (in parentheses) are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

Table A21: Glassdoor Ratings Accounting for Differences in OSHA-related Outcomes

	Overall rating		Culture & values	
1(EOF)	0.125***	0.134***	0.170***	0.180***
	(0.044)	(0.043)	(0.054)	(0.053)
Number of cases with days away from work		0.034		0.009
		(0.028)		(0.032)
Number of injuries		-0.059***		-0.062***
		(0.016)		(0.018)
Number of deaths		3.472		2.272
		(2.149)		(2.323)
Mean DV	3.49	3.49	3.35	3.35
N	55,530	55,530	48,618	48,618
Adjusted R^2	0.14	0.14	0.14	0.14

Notes: Table examines the difference in average rating overall and in culture and values between reviews from EOFs and those from CFs, accounting for safety-related outcomes from OSHA. Number of cases with days away from work, injuries, and deaths are measured per 100,000 work hours. Additional controls include: postings per establishment, establishments per firm, and indicators for the firm is publicly traded, the establishment is unionized, and the worker is a current employee. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

Table A22: EOF-CF Comparison of Online Job Ads

	Posted years of education	Posted years of experience	1(Posted engineering skills)	1(Posted operations skills)	1(Posted people skills)	Log posted wage
1(EOF)	-0.100	0.248	-0.021	0.009	-0.006	0.027
	(0.309)	(0.154)	(0.016)	(0.013)	(0.013)	(0.028)
Mean DV	12.131	4.771	0.348	0.568	0.286	10.924
N	6,051,715	4,077,872	6,260,084	6,260,084	6,260,084	972,532
Adjusted R2	0.214	0.255	0.222	0.202	0.087	0.451

Notes: Table examines the difference in the content of a job posting between EOFs and CFs. The posted wage reflects the average of the minimum and maximum annual wage listed. Regressions are at the ad level and include as controls, postings per establishment, establishments per firm, an indicator the firm is publicly traded, an indicator the establishment is unionized, and fixed effects for the NAICS-CZ pair, occupation, and year-quarter in which the job ad was submitted. Standard errors, presented in parentheses, are clustered by firm. Estimates on control variables are not shown. Significance levels: * 10%, ** 5%, *** 1%.

Table A23: EOF-CF Comparison of Glassdoor Ratings of Job Satisfaction, Incorporating Measures of High-Performance Work Systems Across Firms

	Overall rating		Culture & values		Senior leadership		Work-life balance	
1(EOF)	0.103***	0.104***	0.117***	0.119***	0.087***	0.088***	0.125**	0.127**
	(0.028)	(0.030)	(0.032)	(0.035)	(0.027)	(0.029)	(0.055)	(0.055)
Satisfaction with job training	0.056***		0.058***		0.050***		0.044***	
	(0.006)		(0.006)		(0.006)		(0.006)	
Satisfaction with bonuses	0.024***		0.021***		0.024***		0.008	
	(0.005)		(0.006)		(0.006)		(0.005)	
Satisfaction with autonomy	0.007**		0.007*		0.008*		0.001	
	(0.003)		(0.004)		(0.005)		(0.003)	
Mean DV	3.48	3.48	3.34	3.34	2.97	2.97	3.33	3.33
N	199,404	199,404	173,328	173,328	172,888	172,888	173,822	173,822
Adjusted R^2	0.13	0.12	0.12	0.12	0.11	0.11	0.12	0.12

Notes: Table examines the difference in average ratings between reviews from EOFs and those from CFs, accounting for observed differences in broad satisfaction with high-performance work systems (HPWS) across firms. Additional controls include: postings per establishment, establishments per firm, and indicators for the firm is publicly traded, the establishment is unionized, and the worker is a current employee. The firm-level Glassdoor measures of autonomy, bonuses, and training are standardized to have mean zero and standard deviation one. Standard errors are clustered by firm. Significance levels: * 10%, ** 5%, *** 1%.

Table A24: Descriptive Statistics for OSHA

	All	CF	EOF
Panel A. Summary statistics of observables			
Number of cases with days away from work	0.537	0.578	0.339
	(0.799)	(0.844)	(0.487)
Number of injuries	1.581	1.688	1.068
	(1.658)	(1.735)	(1.082)
Number of deaths	0.001	0.001	0.000
	(0.018)	(0.019)	(0.004)
Panel B. Sample sizes			
Number of firms	3,578	3,378	200
Number of establishments	7,544	6,241	1,303

Notes: Table shows means and standard deviations (in parentheses) by firm type. Variables reflect 6-year establishment-level cumulative values (2017-2022) and are stated per 100,000 work hours. Observations below 2.5% and above 95% of the distribution of average work hours per employee are removed from the sample.

Supplementary References

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