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SHAREHOLDER POWER AND THE DECLINE OF LABOR

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ABSTRACT

Shareholder power in the US grew over recent decades due to a steep rise in concentrated institutional ownership. Using establishment-level data from the US Census Bureau's Longitudinal Business Database for 1982-2015, this paper examines the impact of increases in concentrated institutional ownership on employment, wages, shareholder returns, and labor productivity. Consistent with theory of the firm based on conflicts of interests between shareholders and stakeholders, we find that establishments of firms that experience an increase in ownership by larger and more concentrated institutional shareholders have lower employment and wages. This result holds in both panel regressions with establishment fixed effects and a difference-in-differences design that exploits large increases in concentrated institutional ownership, and is robust to controls for industry and local shocks. The result is more pronounced in industries where labor is relatively less unionized, in more monopsonistic local labor markets, and for dedicated and activist institutional shareholders. The labor losses are accompanied by higher shareholder returns but no improvements in labor productivity, suggesting that shareholder power mainly reallocates rents away from workers. Our results imply that the rise in concentrated institutional ownership could explain about a quarter of the secular decline in the aggregate labor share.

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1. Introduction

The decline of labor, amid stagnant wages and falling employment, is a well-documented stylized fact of US labor markets over the last decades (see, e.g., Autor and Katz, 1999; Pierce and Schott, 2016; and Autor, Dorn, Katz, Patterson, and Van Reenen, 2020). At the same time, public corporations, which account for half of private employment in the US, underwent radical changes in their ownership structure with the rising importance of large institutional shareholders. Figure 1 shows how one common measure of concentrated ownership for US public firms, block institutional ownership (defined as more than 5% stock holdings), increased threefold from 1980 to 2014. By the end of the period, on average concentrated institutional shareholders held over 20% of the equity shares of US public corporations.[1] In parallel, Figure 1 shows that the "labor share," measured as the ratio between aggregate wages and salaries to domestic gross income in the US, exhibited a steady decline.

Classical theory of the firm based on agency conflicts between shareholders and workers suggests these concurrent trends may partly reflect a direct link between the ownership structure of public corporations and their employment decisions. In fact, prominent commentators in the popular press and CEOs of large corporations have recently expressed concerns that the so-called "shareholder capitalism" – i.e., the North American style of governance that since the 1980s has centered around the maximization of shareholder value as the main objective of the firm – may have hurt workers.[2] Growing evidence on the impact of governance on employment (e.g., Bertrand and Mullainathan, 2003; and Davis et al., 2014) and on the effect of declining worker power on wages (e.g., Stansbury and Summers, 2020; and Farber et al., 2021) suggest that the impact of increases in shareholder power on labor could be substantial. Yet, even though concentrated institutional shareholders now control a large share of publicly traded firms, there is little systematic evidence on their impact on employment, wages, and firm outcomes.

[1] See Table 1 for different measures of concentrated institutional ownership in the analysis sample. Among the important regulatory changes that contributed to the rise in shareholder power are the issuance of the Avon Letter in 1988 by the Department of Labor, which led to more active engagement by pension funds via proxy proposals, and new SEC rules on proxy voting in 1992 which facilitated institutional activism by reducing communication barriers between institutional investors and management (see Rock (2015) for details).

[2] See, for example, Business Roundtable Statement on the Purpose of the Corporation (2019) at https://opportunity.businessroundtable.org/ourcommitment/, Posner (2019), Krugman (2015), and Stiglitz (2019).

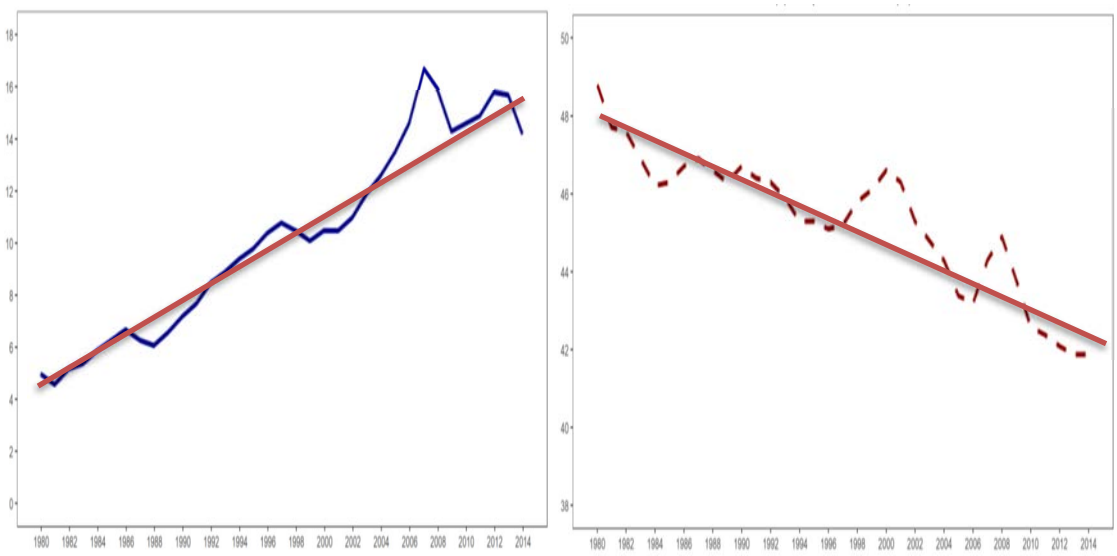


Figure 1: Trends in Concentrated Institutional Ownership of Public Firms and Employee Compensation-to-GDI Ratio in the US, 1980–2014. This figure plots the average block institutional ownership for public firms (blue solid line; left panel) and the ratio of total wage and salary accruals to domestic gross income (GDI) (red dotted line; right panel) in the US for the period 1980–2014. The red linear lines in both panels show linear time trends. Institutional ownership is from Thomson Reuter 13F filings data and the compensation-to-GDI ratio is from the Federal Reserve Economic Data. Block institutional ownership is the percentage owned by institutional blockholders, defined as the institutional investors with more than 5% holdings as filed through Form 13D, 13F, or 13G. The average block ownership is calculated excluding firms in the agriculture, financial, utilities, and public administration sectors.

To study the role of increases in shareholder power, proxied by concentrated institutional ownership, this paper uses micro data from the Census Bureau's Longitudinal Business Database (LBD). Specifically, we assemble a rich establishment-level dataset that spans the 1982 to 2015 period and contains information on employment, payroll, and detailed ownership structure for over seven million establishment-year observations. Using this dataset, we document that increases in shareholder power, measured by ownership of large and concentrated institutional shareholders, are reliably associated with reductions in establishments' employment and wages.

Our analysis is guided by the classical agency theory of the firm, which dates back to Jensen and Meckling (1976) (see Shleifer and Vishny, 1997; and Stein, 2003, for comprehensive reviews). In this class of theory, there is a fundamental conflict of interests over the allocation of firm resources between shareholders and stakeholders, including workers. Shareholders with large and concentrated ownership could hurt workers through two distinct but related

channels. First, they have more bargaining power and can more easily renege ex post on implicit contracts not to fire workers or cut payroll via restructurings or hostile takeovers, as in the "breach of trust" hypothesis of Shleifer and Summers (1988). Second, they can more easily monitor managers and force them to fire workers or cut payroll against their will, as per the "quiet life" hypothesis of Bertrand and Mullainathan (2003). In both cases, the presence of powerful shareholders hurts labor.

Consistent with this agency view of the firm, we find that an increase in shareholder power due to growing concentration among institutional shareholders is associated with reliably lower employment and wages within establishments (i.e., using establishment fixed effects). Importantly, we confirm the negative relation in a difference-in-differences design that exploits large changes in powerful institutional ownership to addresses selection issues. The relation is robust to several robustness checks, which include using multiple proxies for shareholder power, such as the percentage ownership of the largest one or five institutional shareholders, blockholders (defined as institutional shareholders with an at least 5% stake), and the Herfindahl-Hirschman Index (HHI) of institutional investors' ownership. The robustness and specification checks also include controlling for time-varying industry and local market conditions, limiting the sample to manufacturing, and using the symmetric growth rate of employment or payroll, wages per employee, and indicators for forced layoff announcement as the outcome variable. The relation is economically significant across the measures of shareholder power: a 10-percentage point increase in large shareholder ownership is associated with a 2.1 to 2.5% reduction in a given establishment's employment and payroll. It also holds up in the aggregate at the industry sector level.[3]

After establishing the negative relation between shareholder power and labor outcomes, we take a step toward clarifying the mechanism by determining which powerful institutional shareholders have the larger impact on labor and when. First, we explore variation in worker bargaining power and find that the employment and payroll losses are larger in industries where a smaller fraction of workers is unionized and in local labor markets where firms have more bargaining power vis-à-vis workers. Second, the labor losses are accompanied

[3] We also find a negative relation between ownership by large institutional shareholders and the labor share of income, defined as the ratio of payroll to revenues, at the industry sector level.

by higher shareholder returns but lower labor productivity within one year and no apparent improvements in productivity over longer two- or three-year horizons. The short-run loss of output and efficiency is hard to reconcile with a monitoring channel and rather, in line with a wealth transfer from workers to shareholders. Finally, we find that only institutional shareholders with control motives – i.e., "dedicated" institutions based on the classification of Bushee (1998) or "activist" institutions – have a strong negative association with employment and payroll. Other types of shareholders without control motives, such as "quasi-index" and "transient" institutions, have a weaker and if anything, positive relation with employment and payroll. Anecdotal evidence from shareholder activism campaigns further points to the maximization of shareholder value as the stated goal to reduce labor-related expenses. Overall, the collection of evidence indicates that shareholder power has largely a reallocative impact, as labor cuts take value away from workers toward shareholders without increasing firm revenues.

Our paper makes several key contributions to the literature. Our paper provides the first causal evidence of the impacts of concentrated institutional ownership on employment and wages for the universe of institutional shareholders and publicly traded firms in the US. We thereby contribute to the growing literature on the impact of corporate governance and labor. This literature has shown that measures of managerial entrenchment, such as state-level anti-takeover statutes and dual-class shares, are associated with higher wages (Bertrand and Mullainathan, 2003; and Cronqvist et al., 2009). Another strand of this literature examines the impact on labor and productivity of ownership by specific types of institutions, such as private equity (Lichtenberg and Siegel, 1990; and Davis et al., 2014) and activist hedge funds (Brav, Jiang, and Kim, 2015). Our evidence is important in light of the fact that, as we show below, concentrated ownership constitutes up to forty percent of the overall ownership by institutions. In turn, institutions own on average more than half of the shares of US public corporations, which constitute over half of aggregate GDP and employment in the US. Hence, the negative causal effects of concentrated institutional ownership on employment and wages we document affect a substantial number of establishments and employees.

Another primary contribution is to assess the impact of the substantial growth of powerful institutional shareholders in the US over recent decades on the sluggish employment

and earnings growth and declining labor share in the US. Our finding that the rise in concentrated stock ownership has helped to depress the labor share complements a number of important explanations set forth, including technology (Acemoglu, 2002), import penetration (Autor, Dorn, and Hanson, 2013; Acemoglu, Autor, Dorn, Hanson, and Price, 2016; and Pierce and Schott, 2016), industry concentration and superstar firms (Autor, Dorn, Katz, Patterson, and Van Reenen, 2020), and labor market concentration (Benmelech, Bergman, and Kim, 2022). A related recent literature also examines the role of firms in wage-setting (see, for example, Card, Heining, and Kline, 2013; and Song, Price, Guvenen, Bloom, and von Wachter, 2019). Our results reinforce these findings by providing a novel rationale for the role of firms in employment and wage setting decisions.

By showing that increases in concentrated ownership by institutional shareholders lead to a decrease in wages accompanied by an increase in shareholder value, our findings are also complementary to an ongoing literature documenting the relative decline in worker power and its impact on wages and employment. For example, Stansbury and Summers (2020) use aggregate industry-level data on union membership to argue that reduced worker power provides an explanation for rising firm valuations amid stagnant wage growth and declining labor share. Farber et al. (2021) use microdata on union membership dating back to 1936 to show that unions reduce wage inequality. By providing firm-level evidence that the rise of powerful institutional shareholders caused a redistribution of rents away from labor to capital owners, we document another important factor behind declining worker power. Our finding that rising shareholder power has larger effects if union representation is weak highlights a novel and potentially important interplay between these two channels.

A final contribution is that we take a first step toward clarifying the broader consequences of rising shareholder power for the productivity and stock market valuations of US firms. By doing so, we join a recent literature that uses microdata to better understand the determinants of value added and the declining labor share (see, for example, Kehrig and Vincent, 2021), which had not yet examined the role of concentrated institutional shareholders. These results also contribute to the broader literature on the consequences of concentrated institutional shareholders for US firms. For example, Aghion, Van Reenen, and Zingales (2013) study the role of institutional shareholders in the governance of innovation. This literature has

traditionally focused on the overall level of institutional ownership. Our contribution here is to highlight that, in addition to the overall level, the concentration of institutional ownership matters for US firms. Consistent with the previous literature, we find that overall institutional ownership is positively correlated with productivity. We then show that at least in the short-run the relation with ownership concentration is negative and discuss an agency rationale for it. Leveraging microdata to further explore the broader consequences of ownership concentration for US firms constitutes an interesting avenue for future research.

The rest of this paper is organized as follows. Section 2 describes the data and variables used and provides descriptive statistics. Section 3 details the main empirical specification, our main establishment-level results, and covers several specification and robustness checks. Section 4 explores mechanisms underlying the main results. Section 5 examines the aggregate implications. Section 6 concludes.

2. Data and descriptive statistics

This section describes the datasets used in the empirical analysis, sample selection procedures, and resulting samples.

2.1. Data sources and sample construction

Our data source for establishment observations is the Longitudinal Business Database (LBD) from the US Census Bureau. The LBD is a comprehensive dataset of establishments in the United States, covering all private business establishments with at least one employee (Jarmin and Miranda, 2002; and Chow et al., 2021). The dataset provides annual establishment-level information on employment, payroll, industry classification, and geographic location (such as counties).[4] We use the log of establishment-level employment and payroll as main outcome variables in our empirical analysis.

In addition, we use a set of control variables standard among research analyzing establishment-level data employing Census micro datasets (see, for example, Schoar 2002; and Benmelech, Bergman, and Kim, 2022). Specifically, firm size is measured by the log number

[4] The LBD employment, measured as of March 12 of a given year, includes full-time and part-time workers.

of establishments of a given firm, while firm-segment size is measured by the log number of establishments belonging to the firm in a given three-digit standard industry code (SIC) industry. Establishment age is defined as the number of years since an establishment's inception—identified by the flag for establishment's inception in the LBD—or its first appearance in the LBD, whichever is the earliest. The starting year is censored in 1977 when the coverage of the LBD begins.

The institutional ownership data are from Thomson Reuters 13F SEC filings. All institutional investment managers with greater than $100 million in equity assets under discretionary management are required to file a Form 13F with the Securities and Exchange Commission on a quarterly basis. All common stock holdings of 10,000 or more shares or having a value of $200,000 or more must be reported. Qualified securities include stocks listed for trading in the US. The quarterly holdings reported in the Form 13F represent the aggregate holdings of an institution (e.g., the Vanguard family of funds), rather than the holdings of any individual portfolio (e.g., the Contra fund in the Fidelity family of funds). Throughout the paper, an institutional investor (or shareholder) is defined as an institution that files a 13F.

The main ownership variables of interest are defined as the holdings in a given firm's equity shares by a given type of institutional investors as a percentage of shares outstanding. *Overall institutional ownership* is the percentage owned by all institutional investors. *Top 1 ownership* and *Top 5 ownership* are the percentages owned by the largest one and five institutional investors, respectively. *Total block ownership* is the percentage owned by all blockholding institutions, which are defined as the institutional investors with more than 5% holdings as filed through Form 13D, 13F, or 13G. To better distinguish between ownership types among institutional shareholders, we also consider three additional variables: *Quasi-index ownership*, *Dedicated ownership*, and *Transient ownership*, which are the percentages owned by quasi-index, dedicated, and transient institutional investors as classified by Bushee (1998), all scaled by *Overall institutional ownership*. *Activist ownership* is the percentage owned by activist institutional investors as classified by Grennan (2019) based on institutional investors that have engaged in shareholder activism campaigns, scaled by *Overall institutional ownership*.

We require that each establishment observation from the LBD have non-missing, positive values for employment and payroll, as well as the one-year lagged observation, which

is used in part of our analysis that uses the growth rate of employment or payroll as an outcome. We then match establishments with firm-level institutional ownership variables from Thomson Reuters as of the first quarter of the previous year using the Census Bureau's bridge file between the firm identifiers in the LBD and Compustat.[5] We require that establishments have the matched institutional ownership variables. We exclude the agriculture (SIC 0100-0900), utilities (SIC 4900-4999), financials (SIC 6000-6999), and public administration (SIC 9000-9999) industries from our sample. This sample selection procedure yields approximately 7,340,000 establishment-year observations from 1982–2015 (the Thomson Reuters data are available from 1980 but we require up to two-year lagged institutional ownership variables for part of the analysis). A subsample for the manufacturing sector (SIC 2000-3999), which is used in part of our analysis, includes approximately 533,000 establishment-year observations. The numbers of observations are rounded to follow the Census Bureau's disclosure rules.

We construct data on collective bargaining coverage by following the approach in Hirsch and Macpherson (2003) and Benmelech, Bergman, and Kim (2022). Below we provide a brief description of the data source and construction, and refer to Benmelech, Bergman, and Kim (2022) for details. We compute the fraction of workers covered by labor unions at the industry level using the Current Population Survey (CPS) Outgoing Rotation Groups (ORG) data. The resulting data provide union coverage rate estimates, defined as the number of employees covered by labor unions divided by total employment, by Census Industry Code (CIC). Because our establishment-level data use SIC codes, we match the union coverage data with Census establishment-level data at the industry level using the Census Bureau's concordances between CIC codes and SIC codes.[6] Given that our industry-level database on union coverage begins in 1983 whereas our sample period starts in 1982, we impute the rate of collective bargaining coverage using the 1983 information for years 1981 and 1982.

Lastly, we compute the Herfindahl-Hirschman Index of firm employment from the LBD at the three-digit SIC industry-by-commuting zone level as the measure of local labor

[5] Given that the LBD information on employment is as of March of a given year, institutional ownership as of the first quarter of the previous year represents the ownership information that is lagged by a year.
[6] For the majority of CIC industries used in the CPS, this matching procedure results in direct linkages to three-digit SIC industries. In a minority of cases, the procedure results in a match to a two- or four-digit SIC industry, in which case the finer industry classification is used.

market concentration (Benmelech, Bergman, and Kim, 2022). This variable is an (inverse) proxy for employees' bargaining power relative to shareholders. In the analysis of the mechanisms below, we supplement the main data with additional sources that include information on firm revenues from the revenue-enhanced LBD (RE LBD) and Compustat. The firm-level revenue variables are available from 1997 in the RE LBD and throughout the sample period in Compustat.

2.2. Descriptive statistics

Table 1 shows descriptive statistics for institutional ownership and establishment characteristics for establishments in the full sample (Panel A) and in the manufacturing sample (Panel B) from 1982-2015. Focusing on the full sample, the average overall institutional ownership, shown under "Main control variables," is 59.7%, consistent with rising "institutionalization" of public firm ownership in the past decades. Panel B shows similar mean values of institutional ownership variables for manufacturing establishments. The high level of ownership by institutions in the US motivates our focus on concentrated ownership by these institutions, as the rest of the shares are held by more diffused investors, such as retail investors and insiders who hold smaller individual stakes.[7]

Turning to our main explanatory variables, the average ownership by the largest five institutional investors or by blockholders, defined as institutional investors with at least 5% ownership, are 23.7% and 14.7%, respectively, and exhibit considerable variation with a standard deviation of 12% and 14.5%. As for the additional explanatory variables, ownership by "quasi-index" institutions are 58.5% of all institutional ownership, whereas ownership by "dedicated" institutions, likely active monitors, accounts for 13.1% of all institutional ownership. These statistics suggest that, while the bulk of institutional shareholding is across less active owners, large and active institutions hold considerable ownership stakes in US public corporations.

[Insert Table 1 here.]

The average establishment in the full sample employs 62 workers and pays about $2.5 million with average annual pay of $29,500 per worker with a standard deviation of $28,400,

[7] For example, the median CEO ownership in ExecuComp between 1992 and 2012 is about 1%.

all shown under "Main dependent variables." Manufacturing establishments exhibit larger employment and payroll per establishment on average (296 and $13.7 million), relative to those in the full sample, with average annual pay of $42,700 per worker. As for the main control variables, the average establishment's (public) parent firm owns more than 2,000 establishments, and the average age of establishments is 10.8 years.

3. Empirical analysis

This section provides baseline estimates for the within-establishment relation between ownership by large institutional shareholders and employment or payroll, explores large increases in institutional ownership as a quasi-experiment, and examines robustness of the baseline results.

3.1. Baseline results – ownership by large institutional shareholders, employment, and payroll

We estimate the relation between ownership by large institutional shareholders, which presumably increases shareholder power, and establishment-level employment and payroll using the following equation:

$$\begin{aligned} y_{ijkt} = \alpha_i + \alpha_{kt} + \beta_1 &Large\ Institutional\ Ownership_{jt-1} \\ &+ \beta_2 Overall\ Institutional\ Ownership_{jt-1} \\ &+ \gamma' X_{it-1} + \varepsilon_{ijkt}, \end{aligned} \quad (1)$$

where y_{ijkt} is the log of either of total employment or payroll, i indexes establishment, j firm, k industry, and t year; a_i represents establishment fixed effects; a_{kt} represents three-digit SIC industry-by-year fixed effects; *Large institutional ownership*$_{jt-1}$ is a measure of large institutional shareholders' ownership; *Overall institutional ownership*$_{jt-1}$ is overall institutional ownership; X_{it-1} is a set of establishment-level control variables, including firm size and firm-segment size, and ε_{ijkt} is the residual. Standard errors are clustered at the firm level.

The coefficient of interest is β_1, which represents the within-establishment semi-elasticity of employment or payroll to a measure of large institutional ownership, after controlling for overall institutional ownership, establishment-level covariates, and time-varying industry conditions. We first employ ownership by top institutional investors as a

measure of large shareholder ownership, and then employ total institutional blockholder ownership and concentration of ownership across institutions. The premise is that institutional investors would have strong incentives to maximize shareholder value, as well as power to do so, potentially at the expense of employees, when they have large fractional ownership (Shleifer and Vishny, 1986) or when ownership is concentrated in the hands of few institutional investors. The control for overall institutional ownership helps address alternative interpretations due to omitted factors not related to institutions' incentives to monitor managers or bargaining power relative to employees. If our main estimates were due to omitted factors that drive institutions' decisions to buy or sell shares in a given firm for reasons unrelated to monitoring or bargaining power, then we would expect the *Large institutional ownership* variables to have no incremental explanatory power after controlling for *Overall institutional ownership*.[8]

Table 2, Panel A shows estimation results for Eq. (1) using the top one and five institutional ownership variables on the full industry sample. Columns 1 and 2 (columns 3 and 4) present the baseline within-establishment relation between ownership of the top institutional shareholders and log employment (payroll). The coefficient on *Top 1 ownership* in column 1 is -0.217 and significant at a less than 1% level. This estimate shows that for a given business establishment, a ten-percentage point increase in the largest institution's ownership (relative to the mean of 8.7%) is associated with a 2.1% (= $\exp(-0.217 \times 0.1) - 1$) decline in employment, controlling for time-varying industry conditions and establishment characteristics. The coefficient in column 3 shows a similar magnitude of a within-establishment decline in payroll (by 2%, *t*-stat = 5.22) in response to a ten-percentage point increase in the largest institution's ownership. These significantly negative relations are consistent with the idea that when the firm's largest institutional shareholder increases ownership and, thus, incentives to monitor or bargaining power, it reduces employment and payroll at its establishments in an attempt to maximize shareholder value.

Similarly, columns 2 and 4 show that the collective ownership of top five institutional shareholders is negatively associated with establishment-level employment and payroll

[8] We examine an alternative functional form that controls for *Overall institutional ownership* by scaling *Large institutional ownership* by it in Section 3.2.

(significant at a less than 1% level). A ten-percentage point increase in top five ownership is associated with 2.3% and 2.5% declines in number of employees and wage bills, indicating a similar magnitude of the association with that for top one ownership.

Across the columns, the coefficients on control variables have expected signs – the log number of establishments per firm, a measure of the owner firm's scope, is significantly positively correlated with both establishment-level employment and payroll. Importantly, the coefficient on *Overall institutional ownership* is positive and generally smaller in magnitude than that of our main variables of interest, *Large institutional ownership*. The positive relation between general institutional ownership and employment and payroll indicates that, unless they are powerful, the presence of institutional shareholders may not in and of itself hurt workers. This can be the case either because diffused institutional shareholders do not have the ability to influence firm decisions on labor or because their objectives differ from those of large institutional shareholders, as it may be the case for passive buy-and-hold institutions. We explore this possibility in more detail in Section 4 by analyzing the effects by institution type.

[Insert Table 2 here.]

Panel B presents estimates of Eq. (1) on a subsample of manufacturing establishments. Similar to the full sample results in Panel A, the coefficients on top one and five ownership variables are consistently negative and significant at a less than 1% level. The economic magnitude of the effect is somewhat larger in manufacturing than for all industries – for example, estimates in columns 2 and 4 indicate that a ten-percentage point increase in top five institutional ownership is associated with 2.9% and 3.2% reductions in employment and payroll within establishments. This larger magnitude decline in manufacturing employment and payroll is consistent with existing work documenting that the decline of labor over the past decades is most pronounced in manufacturing (e.g., Pierce and Schott, 2016; and Autor et al., 2020).

Next, we explore how powerful institutional shareholders affect establishment-level employment and payroll by estimating Eq. (1) using total institutional blockholder ownership and the Herfindahl-Hirschman Index (HHI) of institutional investors' ownership as measures of shareholder power. Table 3 shows the estimation results.

[Insert Table 3 here.]

The coefficients on *Total block ownership* in columns 1 and 3 in Panel A show that, when a given establishment experiences a ten-percentage point increase in block institutional ownership, its employment and payroll decline by 1.5% and 1.7% (significant at a less than 1% level). Similarly, the significantly negative coefficients on *HHI institutional ownership* in columns 2 and 4 show that when ownership becomes more concentrated among few institutions, the establishment experiences reductions in employment and wage bills. A one-standard deviation (SD) increase in the HHI (0.110) would lead to an about 1% reduction in establishment employment and payroll.

Panel B presents estimates for establishments in the manufacturing sector, showing similarly negative within-establishment relations between changes in block ownership or concentration of ownership and employment and payroll. The economic magnitude of the effect is more pronounced in manufacturing particularly when the HHI is employed to measure shareholder power – the coefficient on the HHI is 52% (employment) to 104% (payroll) larger in manufacturing relative to the full set of industries as shown in Panel A.

3.2. Robustness tests

This section examines the robustness of the baseline results to alternative specifications and definitions of the institutional ownership measures.

3.2.1. Local labor market conditions

A potential concern for our baseline results is that ownership of large institutional investors is correlated with local labor market conditions, which would affect labor market outcomes such as employment and wages. For example, a spurious correlation may arise if large institutional investors target firms operating in labor markets that are expected to become smaller, in which employment and wages tend to decrease (e.g., Moretti, 2011). To mitigate this type of concern, we re-estimate the baseline regression in Eq. (1) with county-by-year fixed effects, and present estimation results in Row A.1 of Table 4.

[Insert Table 4 here.]

Across the columns, the row shows that the estimated association of top one, five, block, or concentrated institutional ownership with labor quantities is more pronounced once

time-varying local labor market conditions are controlled for. For example, relative to the employment effect estimate in Table 2, Panel A, column 1 (-0.217), the coefficient on *Top 1 ownership* in Table 4, Row A.1, column 1 (-0.286) is about one-third larger. Similarly, the estimated semi-elasticity of payroll to top one ownership in column 5 is about one-third larger than the comparable estimate in Table 2, Panel A, column 3 (-0.274 vs. -0.205). These results suggest that omitted time-varying local market conditions are unlikely to explain the baseline findings. In addition, Row A.2 of Table 4 shows that the results are robust to controlling for alternative measures of local labor market conditions using industry-by-commuting zone-by-year fixed effects.

3.2.2. Alternative measures of institutional ownership

We also re-estimate the baseline regression in Eq. (1) using a moving average of institutional ownership, which includes two recent lags, to allow for a delayed response of employment and payroll to ownership. Estimates in Table 4, Row B show that the effect of powerful institutional ownership, measured using moving averages, is consistently negative and highly statistically significant (largely at a less than 1% level). Interestingly, the economic magnitude of the effect is generally larger than those of the baseline results in Tables 2 and 3, indicating that further lagged changes in large institutional ownership have a greater effect on labor, relative to more recent changes. For example, the coefficient on *Top 5 ownership* in column 2 (-0.321) is almost 40% larger than that on *Top 5 ownership* in column 2 in Table 2, Panel A (-0.233).

Our main analysis controls for overall institutional ownership to ensure that the main estimates capture the effect of shareholder power due to large and concentrated ownership by institutional shareholders, rather than high institutional ownership that is widely held across many investors. We examine the robustness of our baseline results by employing an alternative specification that scales the measures of top and blockholder ownership by overall institutional ownership, instead of including it as a control variable. This alternative variable measures the relative importance of large institutional ownership among all institutional owners (same as the institution type shares employed in Section 4.3). The estimation results shown in Row C of Table 4 are largely similar to the baseline results in Tables 2 and 3. As the fraction of shares

owned by top or blockholding institutions among all institutional ownership increases, employment and payroll of establishments owned by the firm decrease (all coefficients are significant at the 1% level). The coefficients on *Top 5 ownership/Overall institutional ownership* in columns 2 (-0.134) and 5 (-0.142) show that when the relative importance of top five institutional ownership (among all institutional ownership) increases by 10 percentage points, the establishment's employment and payroll would decline by 1.3% and 1.4%. Thus, Row C of Table 4 confirms that the baseline results are robust to how we control for overall institutional ownership. In addition, Row D of Table 4 shows that the results are also robust to another sensitivity check on the baseline specification, which is to drop the control for *Overall institutional ownership* altogether.

3.2.3. Alternative specifications

In additional robustness analysis, we consider two alternative specifications. First, we repeat the analysis at the firm instead of the establishment level using a specification that includes firm fixed effects and is otherwise the same as the baseline. While the establishment-level specification is more conservative because it controls for more granular establishment fixed effects, one concern is that it may under-estimate the labor impact because it focuses on the within-establishment intensive margin. In comparison, the firm-level specification examines whether large institutional owners affect employees also via the potentially important extensive margins, which include closure or sales of existing establishments ("establishment exit") and creation or purchases of new establishments ("establishment entry"). Panel A of Appendix Table A1 presents the results.[9] The firm-level estimates remain highly significant and are somewhat larger in magnitude than their establishment-level counterparts, suggesting that large institutional shareholders affect employees both at the intensive and extensive margins.

Second, we employ an alternative specification that uses growth rates of establishment-level employment and payroll, instead of their log's, as dependent variables. Specifically, we estimate the following regression:

[9] We estimate the firm-level specification using the firm-level RE LBD, which is available from 1997.

$$growth_{ijkt} = \alpha_{kt} + \beta_1 Large\ Institutional\ Ownership_{jt-1} + \beta_2 Overall\ Institutional\ Ownership_{jt-1} + \gamma' X_{it-1} + \varepsilon_{ijkt}, \quad (2)$$

where $growth_{ijkt}$ is the symmetric growth rate of total employment or payroll, defined as $(y_{ijkt} - y_{ijkt-1})/(y_{ijkt}+y_{ijkt-1})/2$, i indexes establishment, j firm, k industry, and t year; and all other variables are defined as in Eq. (1), except that X_{it-1} also includes establishment age. We use a symmetric measure of employment and payroll growth following Davis, Haltiwanger, and Schuh (1996) to ensure that the result is not driven by the very largest employment or payroll increases and decreases. We do not include establishment fixed effects in Eq. (2), given that calculating the growth rates within establishments is equivalent to differencing out the fixed effects in the outcome variables.

Appendix Table A1, Panel B shows estimation results of Eq. (2). The coefficients on top and block institutional ownership variables show a negative within-establishment relation between shareholder power and employment and pay growth rates, consistent with our baseline results for level changes. The negative relation is more pronounced for payroll growth relative to employment growth. For example, estimates in columns 1 and 5 show that a ten-percentage point increase in top institutional ownership is associated with a 0.3-percentage point reduction in employment growth rate but with a 0.8-percentage point reduction in payroll growth rate. This finding indirectly suggests that greater ownership by large institutional investors is associated with lower per-employee wage growth. Similarly, columns 2-3 and 6-7 show that top five and total block institutional ownership variables are also associated with slower employment and pay growth, while columns 4 and 8 indicate a muted effect of the HHI of institutional ownership on the growth of labor. Overall, we find qualitatively consistent results using growth rates of the employee outcomes as dependent variable, in place of the levels along with establishment fixed effects.

An important question relevant for aggregate implications of our micro-level results is how powerful institutional investors "allocate" employment and payroll cuts across establishments of different sizes. One possibility is that powerful institutions prefer cutting both employment and payroll at larger establishments to reduce overall labor costs, which would imply a considerable aggregate effect of shareholder power both on employment and

wages. Alternatively, powerful institutions might focus on cutting wages at larger establishments by exploiting their bargaining power while keeping their employment (perhaps because the larger establishments are more productive – see, e.g., Bento and Restuccia, 2017). This alternative scenario would imply that the negative effect of powerful shareholders on aggregate labor may be more pronounced for wages than employment. We explore these possibilities by re-estimating Eq. (2) with establishment observations weighted by their employment.[10]

Panel C of Appendix Table A1 shows estimation results. We find that when establishments are weighted by size, the estimated relation between ownership of large institutions and employment growth is largely statistically insignificant and economically small (columns 1 through 4). In contrast, the presence of powerful institutional shareholders is associated with a significant reduction in establishment-level payroll growth (columns 5 to 8) and pay per employee growth (columns 9 to 12). For example, the coefficient on *Top 5 ownership* in column 6 is -0.075 and significant at a less than 1% level, comparable with an unweighted estimate for payroll growth in column 6 in Panel B (-0.079). The estimate in columns 10 suggests that, when top five institutional ownership increases by 10 percentage points, the growth rate of per-employee wages would decrease by 0.47%.

These results, combined with the unweighted baseline results, describe how large institutional investors cut employment and wage bills across establishments: For larger establishments (which are likely more productive), they would push for a wage cut but not necessarily a cut in overall employment. For smaller establishments (which are likely less productive), they appear to push for reductions both in head counts and wages, representing an overall down-scale of labor. Importantly, the employment-weighted results suggest that the aggregate impact of the rise of large institutional shareholders on pay and the labor share of income may be negative. We investigate this question in Section 5.[11]

[10] We prefer estimating Eq. (2) instead of Eq. (1) in weighting observations by establishment employment because (log) employment itself is one of the outcome variables in Eq. (1).

[11] In Appendix Table A2, we examine two final sets of robustness checks. First, we repeat the baseline analysis after excluding firms that eventually undergo bankruptcy or are involved in acquisitions to ensure that the results are not mechanically driven by other corporate events that have been previously shown to affect labor outcomes. For example, Greenwood and Schor (2009) find that activist investor-targeted firms are more likely to be acquired. Second, we repeat the analysis using indicators for forced layoffs from Falato and Liang (2016) to address the

3.3. Identification – Difference-in-differences analysis of large increases in institutional ownership

One concern with our empirical approach so far is that powerful institutional shareholders may "cherry pick" firms they invest in. In other words, it is not that powerful institutional shareholders lead to employment and payroll cuts, but rather that they tend to invest in firms with declining labor. To address this identification challenge, which is an instance of a standard selection (or reverse causality) concern, we employ a difference-in-differences (DD) approach that exploits "large" increases in institutional ownership. Specifically, we examine a sub-sample of establishments that experience an increase in block institutional ownership by 5% or more as our "treatment" group. We then assemble a "control" group of establishments that experience an increase of the same size in overall institutional ownership but not block institutional ownership.[12]

Using these two groups, we estimate the following difference-in-differences equation:

$$y_{ijkt} = \alpha_{i\times Treat} + \alpha_{kt} + \sum_{\tau=-5}^{-2} \lambda_\tau d[t+\tau]_{jt} + \sum_{\tau=0}^{5} \lambda_\tau d[t+\tau]_{jt} + \sum_{\tau=-5}^{-2} \delta_\tau d[t+\tau]_{jt} \times Treat_j + \sum_{\tau=0}^{5} \delta_\tau d[t+\tau]_{jt} \times Treat_j + \gamma' X_{it-1} + \varepsilon_{ijkt}, \quad (3)$$

where $a_{i\times Treat}$ represents establishment-by-treatment indicator fixed effects and $d[t+\tau]_{jt}$ is an indicator variable equal to one if year t is $|\tau|$ years ($-5 \leq \tau \leq 5$) before or after a large increase in block or overall institutional ownership, and zero otherwise. "Year t-1" is the baseline year and thus $d[t-1]$ is equal to zero by construction. $Treat_j$ is an indicator variable equal to one if establishments of firm j experience a more than 5% increase in block institutional ownership, and zero if a more than 5% increase in overall institutional ownership but not block institutional ownership. All other variables are defined as in Eq. (1).

[Insert Table 5 here.]

The key identifying assumption for this design is that there is no differential trend between the treatment and control groups pre-event; but not necessarily that establishments are similar across the two groups. Even then, in Table 5 we first examine the characteristics of establishments that experience large increases in block institutional ownership one year before

concern that the results may be driven by voluntary separations rather than the firm's decision to lay off employees.

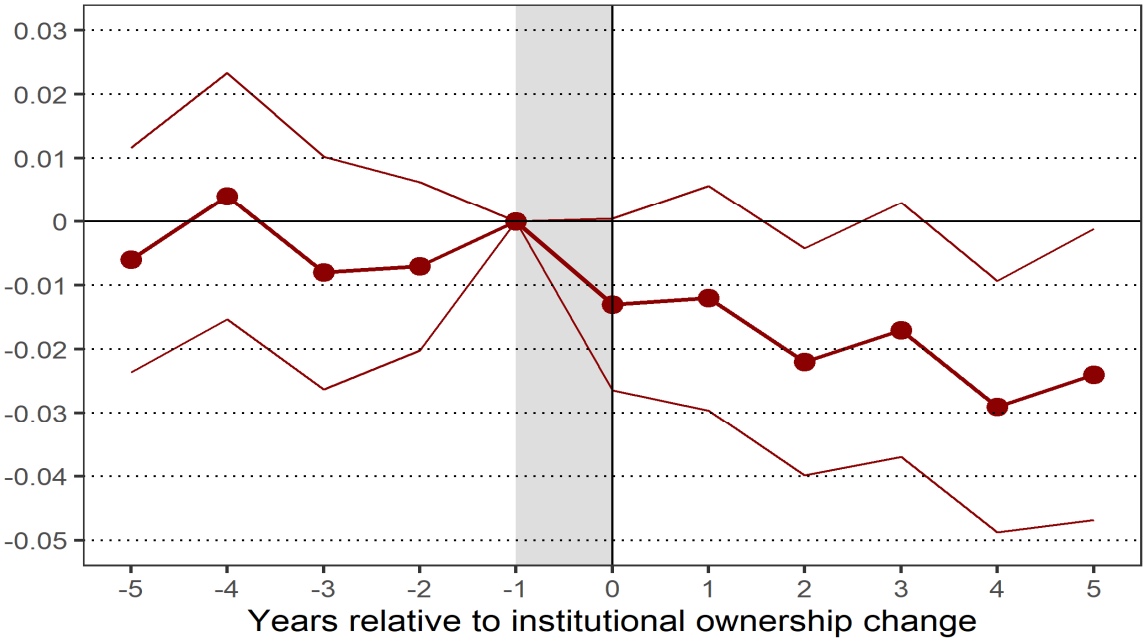
[12] Specifically, we require that block ownership of the control establishments not increase by more than 5%.

the event relative to those of establishments that experience a large increase in overall institutional ownership. The results indicate that the two groups are comparable along observable characteristics such as employment, firm and segment size, and age, showing no evidence of selection on these observables. However, the two groups differ in terms of the level of pre-event overall institutional ownership and total block ownership. Because these differences in the levels of institutional ownership may lead to a violation of the parallel-trend assumption, in a robustness analysis below we add to the DD specification controls for pre-event overall institutional ownership and total block ownership as well as their respective interactions with the event-time indicators (see Abadie, 2005).

Figure 2 presents estimates of Eq. (3). The plotted estimates are for the DD estimator of Sun and Abraham (2021), which is robust to treatment effects heterogeneity. This estimator addresses the concern that standard two-way fixed effects difference-in-differences estimates can be biased because they do not aggregate the treatment effects with appropriate weights (see also Borusyak, Jaravel, and Spiess, 2021). In our setting, the concern is mitigated because we do have never-treated observations in the control group. The estimates on $d[t+\tau] \times Treat$ for the pre-event period (i.e., τ = -5 through -2) are statistically insignificant and economically small, pointing to no differential pre-trends between the two groups. The coefficients on $d[t+\tau] \times Treat$ for the post-event period are all negative, indicating that establishments that experience a large increase in block institutional ownership undergo employment and payroll losses relative to plausibly comparable establishments that experience a large increase in overall but not block institutional ownership. The estimates are significant at the 10% level or less for τ = 2 and $\tau \geq 4$ when log employment is the dependent variable, and for all $\tau > 0$ when log payroll is the dependent variable.

Importantly, the economic magnitude of the estimates is comparable to that of the baseline estimates in Table 3. For example, the estimates for $d[t+2] \times Treat$ are -0.022 and -0.022 for log employment and payroll and the estimates for $d[t+5] \times Treat$ are -0.024 and -0.026, which are similar to the magnitudes of the effect of the same relative change in block institutional ownership: relative to the control group, the treated group increases block institutional ownership by 13.2 percentage points (= 0.111 – (-0.021)) on average (Table 5), which in turn implies 0.020 (= -0.150 × 0.132) and 0.022 (= -0.166 ×0.132) declines in

Panel A – Effect on log employment



Panel B – Effect on log payroll

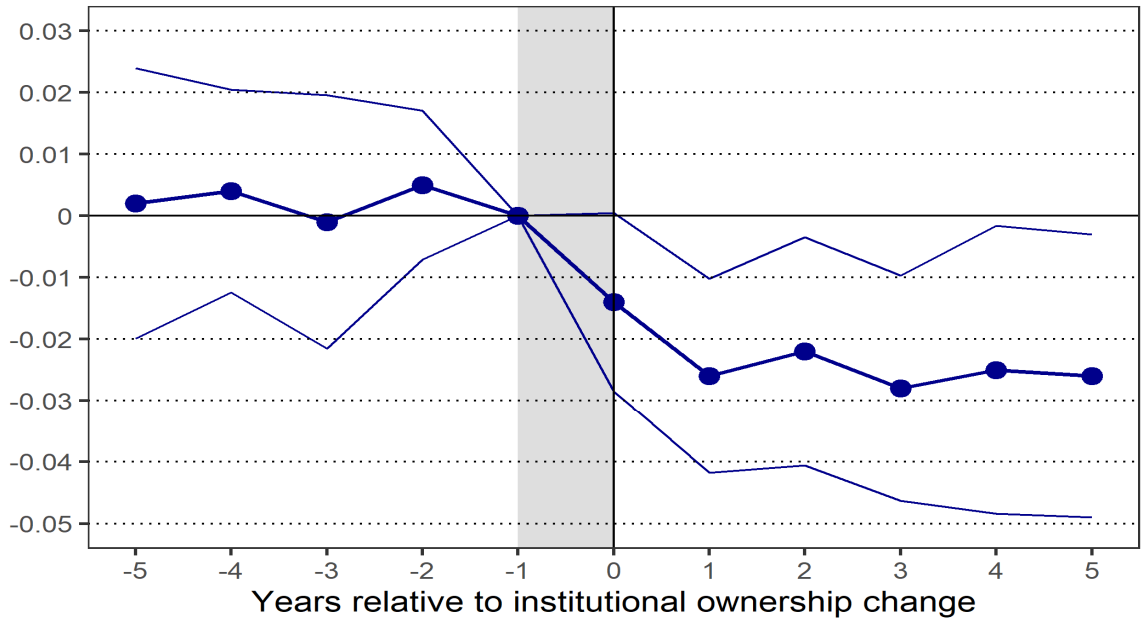


Figure 2: Difference-in-differences analysis. This figure plots the dynamic difference-in-differences (DD) estimates of the effect of large institutional ownership on employment (Panel A) and payroll (Panel B) of establishments. The dependent variables are defined in Table 1 and the sample is as in Table 5. Detailed estimates are reported in Columns 5 and 6 in Panel A of Appendix Table A3. The markers on the bold lines in the figure show estimates for the DD specification of Sun and Abraham (2021), which is robust to treatment effects heterogeneity. The 90% confidence intervals are based on standard errors adjusted for sample clustering at the firm level.

employment and total pay. Overall, the difference-in-differences results corroborate the validity of our baseline estimates and indicate that the baseline results are unlikely to be driven by selection of institutional shareholders into firms.

In robustness analysis, we show that the estimates on $d[t+\tau] \times Treat$ for the post-event period remain large and significant when we use standard two-way fixed effects to estimate Eq. (3) with or without controls for pre-event overall institutional ownership and total block ownership and their respective interactions with the event-time indicators (Panel A of Appendix Table A3). We also show that average post-event coefficient estimates are statistically significant and of similar economic magnitudes (Panel B of Appendix Table A3).[13]

4. Mechanism

The analysis so far shows a consistently negative within-establishment relation between powerful institutional ownership and labor outcomes. This section explores the mechanisms that underlie the baseline relation.

4.1. Bargaining power of employees – labor unions and labor market concentration

A plausible mechanism for powerful shareholders to affect the firm's labor force is through bargaining. To the extent that the firm and its employees jointly create rents that are to be shared, an increase in relative bargaining power of shareholders vis-à-vis employees would lead to smaller employment and payroll, as we show. Following the literature (e.g., Matsa, 2010; and Benmelech, Bergman, and Kim, 2022), we measure employee bargaining power relative to shareholders using industry-level unionization rates and local labor market-

[13] We also address external validity concerns with an alternative 2SLS-IV estimator similar to Aghion, Van Reenen, and Zingales (2013) to which we refer for details. The estimator uses the inclusion of a firm in the S&P 500 index as an instrumental variable for large institutional ownership. Panel A of Appendix Table A4 presents first-stage diagnostic tests of instrument validity. In line with the previous literature, there is a negative relation between S&P 500 inclusion and large institutional ownership, which likely owes to a relative increase in ownership by indexed funds that track the S&P 500 after inclusion (i.e., the denominator). The main 2SLS-IV estimates in Panel B are negative for all the large institutional ownership variables. However, the estimates are not statistically significant for payroll and the Kleibergen-Paap rk Wald *F* statistics suggest that S&P 500 inclusion is a weak instrument in our setting. This is to be expected since the relation with the instrument is driven primarily by index funds rather than active institutions.

level HHI of firm employment.[14] We estimate the following regression that interacts measures of large institutional ownership with the two proxies for labor bargaining power in turn:

$$y_{ijkct} = \alpha_i + \alpha_{kct} + \beta_1 Large\ IO_{jt-1} + \beta_2 Large\ IO_{jt-1} \times Labor\ Bargaining_{kct-1} + \beta_3 Labor\ Bargaining_{kct-1} + \beta_4 Overall\ IO_{jt-1} + \gamma' X_{it-1} + \varepsilon_{ijkct}, \quad (4)$$

where *Labor bargaining*$_{kct-1}$ is the one-year lagged fraction of workers covered by collective bargaining in industry k or the HHI of firm employment in industry k and commuting zone c, α_{kct} is industry-by-commuting zone-by-year fixed effects, and all other variables are defined as in Eq. (1). The coefficient of interest is β_2, which represents the interaction effect of large, powerful institutional ownership with labor bargaining power on establishment-level employment and payroll. Standard errors are clustered at the firm (and commuting zone) level when the measure of labor bargaining power is the fraction of workers covered by collective bargaining (HHI of firm employment in the local labor market).

[Insert Table 6 here.]

Table 6 presents estimation results for Eq. (4) that uses industry union coverage rates (Panel A) and local labor market concentration (Panel B) as proxies for labor bargaining power. The negative coefficient on *Top 1 ownership* in column 1 of Panel A confirms the baseline result that within-establishment, an increase in the largest institutional ownership is associated with a significant employment reduction. Importantly, the significantly positive coefficient on *Top 1 ownership* × *Union* (at the 1% level) in the column shows that high union coverage, which increases employee bargaining power, mitigates the negative effect of powerful institutional owners on employment. The estimates indicate that in industries where union coverage is zero, a ten-percentage point increase in the largest institutional ownership is associated with a 4.1% reduction in employment. However, in industries where collective bargaining coverage is one-SD above its mean (= 18.4%), the same magnitude increase in top institutional ownership is related with a much smaller 0.7% reduction in employment. The estimates in column 5 show a very similar magnitude of the mitigating effect of labor unions on payroll reductions.

Similarly, estimates in columns 2-3 and 6-7 show that the negative effects of top five institutions and total blockholder ownership are mitigated when labor unions provide stronger

[14] See Section 2.1 for details of constructing industry-level unionization rates. We use three-digit SIC industries and commuting zones to define local labor markets.

bargaining power to employees. Across the columns, the interaction effects of large shareholders' ownership and union coverage rates are significant at the 1% to 5% levels. Columns 4 and 8 show that labor unions might also mitigate the effect of concentrated institutional ownership, although the estimated positive coefficients on *HHI institutional ownership* × *Union* is insignificant at a conventional level. Taken together, the results in Panel A are consistent with higher collective bargaining coverage improving labor's bargaining power against shareholders, thereby mitigating the negative effect of large, powerful shareholders on the quantity of labor. A mutually non-exclusive explanation is that the (positive) effect of labor unions on employment and payroll (e.g., Freeman and Medoff, 1984) is more pronounced in the presence of powerful institutional shareholders.

Finally, the estimates in Panel B of Table 6 further corroborate the bargaining power interpretation of the baseline results. The coefficients on the interaction terms between large shareholder ownership and local labor market concentration are negative and generally statistically significant, indicating that powerful institutional shareholders have more negative effects on employment and payroll in more concentrated labor markets, in which firms presumably have greater bargaining power vis-à-vis workers.

4.2. Impact of powerful institutional investors on labor productivity and shareholder value

We further clarify the mechanism by examining the impact of powerful shareholders on firm-level labor productivity and shareholder returns per worker. If the employment and payroll losses are due to greater monitoring of managers and a reduction in their preference for quiet life, for example, then we would expect to see an improvement in overall labor efficiency as well. In contrast, bargaining and rent extraction would imply either no effect on productivity, if shareholder power simply reallocates cash flows away from workers, or even a loss in joint output and productivity, if the reallocation leads to inefficiencies such as loss of employee human capital or trust and morale (see Summers and Shleifer, 1988). To explore these predictions, we use information on firm revenues from the revenue-enhanced LBD (RE LBD) and estimate a variant of the baseline specification in Eq. (1) using firm-year

observations from 1997 through 2015 with the log of revenues per employee as the dependent variable.[15]

Figure 3 shows a negative relation between labor productivity and all four measures of shareholder power. The coefficient estimates are significant at the 10% level or less for all proxies but the ownership HHI. The estimate for *Total block ownership* implies that, when a given establishment experiences a ten-percentage point increase in block institutional ownership, its labor productivity declines by 4.1% within one year. In Panel A2 of Appendix Table A5, we examine the dynamic relation in more detail and find that the labor productivity effect becomes economically smaller within two years and largely insignificant within three years. The negative short-run impact on labor productivity is more consistent with bargaining or rent-extraction than monitoring.

Further supporting bargaining and conflicts of interests between powerful shareholders and workers, Figure 3 shows that there is a significantly positive relation between large shareholder ownership and shareholder returns per employee, defined as the change in log market value of equity per employee from Compustat, a measure of "shareholder value." Specifically, the figure shows a consistently positive relation between shareholder returns and the four measures of shareholder power, which is significant at the 10% level or less for all proxies. The relation with shareholder returns is also economically significant. For example, the estimate for *Total block ownership* implies that, when a given establishment experiences a ten-percentage point increase in block institutional ownership, its shareholder returns increase by 6.3%. Overall, the results in Figure 3 suggest that the negative effects of powerful institutional shareholders on labor are more likely due to conflicts of interest that lead to a redistribution of rents from workers to shareholders, rather than strict monitoring of management in terms of its relationship with employees.[16]

[15] The RE LBD is a new development by the Census Bureau and provides firm-level (but not establishment-level) revenues beginning in 1997 (see Haltiwanger et al., 2019).

[16] We also examine whether there is an interaction effect of large institutional ownership and industry union coverage on shareholder value, in line with the results on bargaining in Section 4.1. The interaction effect is qualitatively consistent with the employment and payroll results but statistically marginally significant or insignificant depending on the large institutional ownership measure employed. This weaker result is likely because we must rely on the noisier firm-level primary industry classifications from Compustat (as opposed to the more granular establishment-level classifications from the LBD) to assign industry-level union coverage rates.

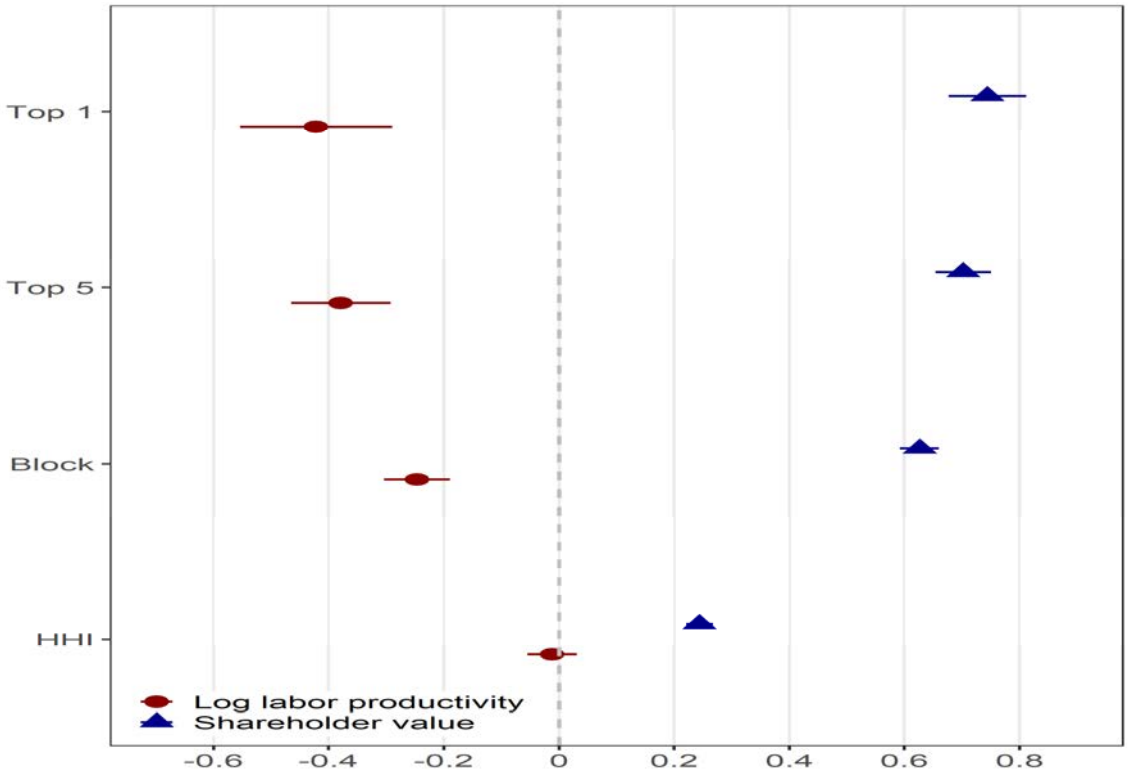


Figure 3: Mechanism – Impact on labor productivity and shareholder value. This figure plots estimates of the effect of large institutional owners on labor productivity and shareholder value. The dependent variable is the log of labor productivity, which is measured as revenue per employee from the revenue-enhanced LBD (red line, circle marker) and the logarithmic change in stock market value per employee, measured as the ratio of stock market capitalization to number of employees from Compustat (blue line, triangle marker). Variables for institutional ownership are lagged by one year. Detailed estimates are reported in Panel A1 of Appendix Table A5. The 90% confidence intervals are based on standard errors adjusted for sample clustering at the firm level.

4.3. Types of institutional shareholders

In our final tests to probe the mechanism, we examine what types of institutional investors drive the relation between shareholder power and establishment-level labor outcomes. Specifically, we follow Bushee's (1998) classification of institutional ownership into "quasi-index," "dedicated," and "transient" types. In addition, we define "activist" institutional investors following Grennan (2019), who bases a classification on whether a given institution has engaged in shareholder activism campaigns.[17] We then calculate the percentage of shares owned by each of the institutional investor types scaled by overall percentage institutional

[17] Grennan's list of activist institutions includes both hedge fund (a majority) and non-hedge fund institutions.

ownership. Thus, these measures capture the relative importance of specific institution types among all institutional investors' ownership for a given firm. We employ the measures in a variant of Eq. (1) in which the control for overall institutional ownership is dropped, given that the overall ownership is already controlled for by scaling the large institutional ownership variables by it.

Table 7 presents estimation results. Columns 1 and 5 show that an increase in quasi-index ownership share among overall institutional ownership is associated with increases in establishment employment and payroll. Similarly, an increase in the share of transient institutional ownership is significantly associated with higher payroll (column 6), although its association with employment is insignificant (column 2). A plausible interpretation of the positive or insignificant relations is that quasi-index and transient funds are less likely to engage management relative to other types of institutions in the governance of labor.

[Insert Table 7 here.]

In contrast, we find that the association between the relative ownership share of dedicated institutions, which have long-term investment horizons and stronger incentives to engage management (due to their concentrated holdings), and employment or payroll is significantly negative at the 1% level. The coefficients on *Dedicated ownership/Overall institutional ownership* in columns 3 and 7 show that a ten-percentage point increase in the relative share of dedicated institutional ownership is associated with 0.6% reductions both in employment and payroll.

The largest magnitude of the negative effect on labor comes from activist institutional investors. The coefficients on *Activist ownership/Overall institutional ownership* in columns 4 (-0.697) and 8 (-0.718) are significant at the 1% level. The estimates suggest that a ten-percentage point increase in activist institutional ownership shares among general institutional ownership would result in 6.7% to 6.9% reductions in establishment employment and payroll. This large, negative association between activist shareholders and employment and wage bills is consistent with evidence in Brav, Jiang, and Kim (2015), who focus on hedge fund activism events and manufacturing plants from 1994 to 2008.

Overall, the results in this section are consistent with dedicated (who hold concentrated ownership over a relatively long horizon) and activist institutions (who engage

in shareholder activism campaigns) pushing for a reduction in labor in the interest of shareholder value. One way for activist (and dedicated) investors to affect firms' labor is through intervention and public engagement with management. Panel B of Appendix Table A5 offers direct supporting evidence for this mechanism. We re-estimate our baseline specification in Eq. (1) at the firm level using an indicator for whether a firm becomes the target of a shareholder activism campaign in a given year as the dependent variable.[18] The coefficient estimates are all positive and statistically significant across our four proxies, indicating that powerful shareholder-owned firms are more likely to be targets of activism campaigns.

In addition, textual analysis of the announcements indicates that activism works through two main types of actions: formal proxy fights and shareholder proposals at annual meetings or soft engagement via public announcements in the press and newswires. We find that approximately three quarters of the target firms are involved in the former type of campaign, while about two thirds are involved in the latter. As for the stated objectives of the campaigns, about 45% of the campaigns involve firm operations, about 23% involve shareholder rights and maximizing shareholder value, and about 33% involve mergers and restructurings.

Anecdotal evidence also suggests that activist campaigns often directly target job cuts as important cost cutting measures to reduce operating expenses and boost shareholder value. For example, see "Canadian Pacific To Cut 4,500 Jobs," *The Wall Street Journal*, December 12, 2012. After activist investor Bill Ackman won a proxy battle at Canadian Pacific, the railroad company decided to cut 23% of their workforce under its new chief executive Hunter Harrison who was appointed by Ackman. Similarly, on November 28, 2012, Icahn Capital LP announced its intention to discuss the operations and direction of Enzon Pharmaceuticals Inc. and the company's plans to manage expenses and preserve value for shareholders. And on April 26, 2001, GAMCO Investors, Inc. announced that Mario Gabelli sent a letter to the

[18] The information on activist campaign is retrieved from the Capital IQ Key Developments database, which contains information on activism campaign announcements gathered from over 20,000 public news sources, as well as company press releases, regulatory filings, call transcripts, investor presentations, stock exchanges, regulatory websites, and company websites. The indicator is equal to one for firms that have at least one announcement of an activism campaign in a given year.

board of directors of Carter-Wallace, Inc. expressing its views that restructuring of the business from an operational and financial point of view was needed.

5. Aggregate Implications

As a first step toward examining the aggregate implications of our micro evidence, we perform a simple back-of-the-envelope counterfactual exercise to provide a first indication of how much of the time-series decline in labor income we can explain with rising shareholder power. Using the main estimates from Table 3 (Panel A, column 3), we calculate the implied time-series effect given the change in average block ownership from 1980 to 2014. The results shown in Figure 4 indicate that the rise in shareholder power explains about a 1.5 percentage-point decline, which is roughly one-quarter of the overall decline in total wages and salaries relative to GDI.

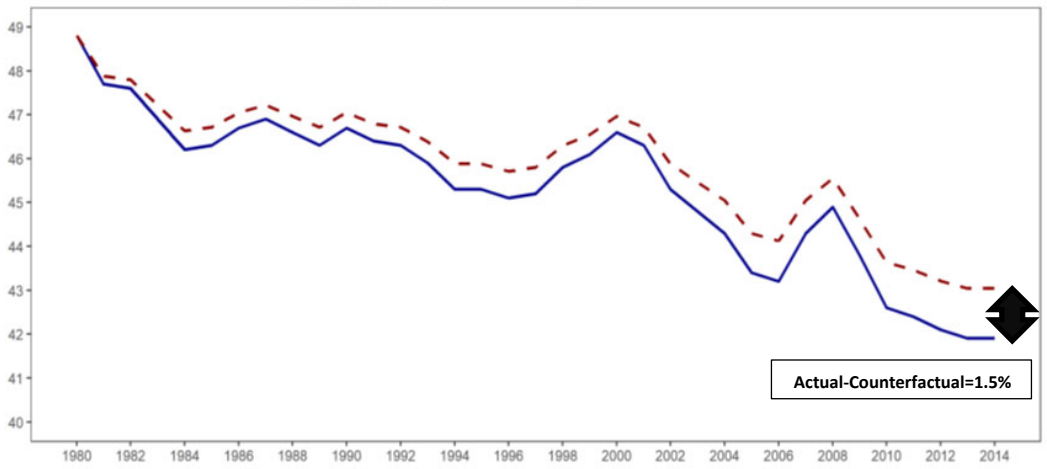


Figure 4: Aggregate Implications, 1980–2014. This figure plots the ratio of total wage and salary accruals to domestic gross income (GDI) (blue solid line) and the counterfactual ratio of total wage and salary accruals to GDI (red dotted line) in the US for the period 1980–2014. The counterfactual ratio is constructed as the actual ratio minus the product of the estimated coefficient on block institutional ownership from Table 3 (Panel A, column 3, -0.166) times the change in average blockholder ownership in a given year relative to 1980. The compensation-to-GDI ratio is from the Federal Reserve Economic Data. Block institutional ownership is the percentage owned by institutional blockholders, defined as the institutional investors with more than 5% holdings as filed through Form 13D, 13F, or 13G. The average block ownership is calculated excluding firms in the agriculture, financial, utilities, and public administration sectors.

Of course, this graphical analysis is illustrative and subject to the concern that we extrapolate the estimate from micro data to make inference for the aggregate, which may not

be valid if, for example, general or industry equilibrium effects lead to different estimates for the aggregates. Therefore, we next examine this possibility more closely using a more formal analysis of the aggregate implications. Specifically, we repeat the analysis of the effect of large institutional ownership on employment and payroll at the aggregate industry sector level. Following Autor et al. (2020), we aggregate at the following industry sectors: manufacturing, retail trade, wholesale trade, and services.[19] In addition to the log of employment and payroll, we also explore the implications for the labor share of income, defined as the ratio of payroll to revenues at the sector level.[20] To preserve the full time-series, we retrieve firm-level revenues from Compustat.[21]

[Insert Table 8 here.]

Table 8 shows sector-level estimation results using the top one and five as well as the block institutional ownership variables. Columns 1 to 3 present the within-sector relation between ownership of large institutional shareholders and the labor share of income, while columns 4 to 6 and 7 to 9 are for log employment and payroll, respectively. In line with the establishment-level estimates, the sector-level coefficient estimates are all negative and highly statistically significant in the majority of cases. To provide a comparative assessment of economic magnitudes, we calculate the implied change for a one-standard deviation (1-SD)

[19] Given the importance of consistent industry classifications over time in this sector-level analysis, we employ the Fort and Klimet (2018) vintage-consistent North American industry classification system (NAICS) codes, which are available in the LBD (no vintage-consistent SIC code is available in the LBD). We first assign each firm-year in the LBD a modal six-digit vintage-consistent NAICS code based on establishments' within-firm employment shares. We then aggregate employment, payroll, revenues, and institutional ownership variables from firm-years in the manufacturing (NAICS codes 31-33), retail trade (44-45), wholesale trade (42), and services (54-81) sectors based on their modal NAICS codes. We use firm-level modal NAICS instead of establishment-level NAICS codes because the revenue and institutional ownership variables are available at the firm, not the establishment, level. We exclude the industries that Autor et al. (2020) exclude, such as schools, religious and political organizations, and labor unions. Relative to Autor et al. (2020), we further exclude utilities & transportation and financial sectors, given that our baseline establishment sample excludes the utilities and financial sectors.

[20] An important measurement caveat is that the LBD payroll variable misses ancillary labor costs, such as health and pension benefits. To the extent that these costs also decline in response to an increase in large institutional ownership, our variable may understate the decline of the labor share. Another caveat is that our measure of the labor share uses revenues, which are not adjusted for intermediate input costs and thus are a coarse proxy for value added.

[21] While revenues from Compustat have the advantage of fuller time-series coverage relative to revenues from the RE LBD, which is available from 1997, one drawback is that they include foreign operations and, as such, are a less precise measure of domestic output. The sector-level analysis spans 1981-2015 (instead of 1982-2015) because we do not require an extra lag of institutional ownership data for this part of the analysis.

change in the explanatory variable. For example, the unconditional within-sector standard deviation of the block ownership variable is 2.8%. Thus, the coefficient estimate on *Total block ownership* in column 9 implies that a 1-SD increase in block ownership in a given sector is associated with a 10.9% (= exp(-4.107 × 0.028) – 1) decline in the sector's payroll. The corresponding coefficients at the establishment and firm level in column 3 in Table 3 (Panel A) and column 7 in Appendix Table A1 (Panel A), respectively, show similarly sizeable though a bit smaller economic magnitudes. In response to a 1-SD increase in block ownership, the implied within-establishment decline in payroll is by 2.4% (= exp(-0.166 × 0.145) – 1) and the implied within-firm decline in payroll is by 6.6% (= exp(-0.474 × 0.145) – 1). Thus, the aggregate analysis further strengthens the material labor impact of rising shareholder power.

We now turn to the implications for the labor share. Between 1981 and 2015, the sector-level labor share declined by 6.8 percentage points on average, which is comparable to the aggregate time-series decline in Figure 4. Over the same period, the sector-level block institutional ownership increased, on average, by 8.9 percentage points. Thus, the coefficient estimate in column 3 in Table 8 (-0.215) implies that the sector-level change in the labor share that can be attributed to the increase in block institutional ownership is -1.9 percentage points (= -0.215 × 0.089), which is comparable to our earlier back-of-the-envelope estimate in Figure 4 and corresponds to over one-quarter of the overall average decline of the labor share in the aggregated sector sample. These results suggest that shareholder power can explain part of the aggregate decline of payroll relative to measures of output.

In Appendix Table A6, we provide additional estimates to clarify the intuition of the aggregate results for the labor share. First, a negative relation between large institutional ownership and the labor share may appear inconsistent with our earlier finding of a negative relation with labor productivity (Figure 3), as the labor share and labor productivity are inversely related. However, the key difference between the two results lies in aggregation. Panel A of Appendix Table A6 shows that, when we run the analysis of the firm-level labor share by weighting the observations using firm revenues (columns 1-3), the relation with the large institutional ownership variables becomes negative (albeit insignificant). Second, the negative relation between sector-level large shareholder ownership and the labor share is consistent with our earlier finding of a significant negative relation with the growth rate of

wages per employee in employment-weighted regressions (see Appendix Table A1, Panel A), suggesting that cuts in wage rates are an important margin for larger firms. Because these firms represent a disproportionate share of aggregate revenues, they also drive the negative relation with the labor share in the aggregate.

To further examine the notion that aggregation drives the sector-level result, we decompose the overall effect on the labor share by margin using the decomposition approach of Melitz and Polanec (2015) and Autor et al. (2020). First, we show that the sector-level implications for the labor share are robust to using a specification that uses first differences instead of levels (Panel B of Appendix Table A6). Importantly, in Panels C and D we find that for most specifications the reallocation component, which captures the effect of (changes in) value-weighting, contributes to the overall effect on the sector-level labor share by as much or more than the unweighted component.[22]

6. Conclusion

Labor markets in the US have experienced a pronounced transformation over the last decades, with labor income stagnating despite strong productivity and profit growth. This paper sets forth an explanation based on the ownership structure of public firms. Motivated by the classical agency theory of the firm based on conflicts of interests between shareholders and stakeholders, we conjecture that increases in the concentration of more powerful institutional shareholders reduce employment and labor income, because the objectives and interests of the shareholders more likely conflict with those of the workers. Using confidential establishment-level data from the US Census Bureau's Longitudinal Business Database from 1982-2015, we provide comprehensive evidence that supports this explanation. Increases in concentration of institutional ownership lower establishment employment and payroll, while raising shareholder value without apparent increases in labor productivity. Overall, these

[22] Note that the negative unweighted component in the aggregate decomposition (Panels C and D) is not inconsistent with the positive unweighted firm-level estimate (Panel A) because the latter is for the short-term (i.e., one-year) relation while the former is for the long-term (i.e., 10-year) relation. The short-term unweighted effect on the labor share likely owes to the short-term negative effect on labor productivity more than offsetting the negative effect on wages. As we have shown in Panel A2 of Appendix Table A5, the productivity effect wanes in the long-run, which explains the negative long-run unweighted component.

findings suggest employment policies aimed at reforming shareholder capitalism by broadening the objective of the firm beyond the more narrow maximization of shareholder value, such as increasing labor representation on boards or allowing for labor participation in firm governance, may help to raise employment and wages. Future research should examine the impact of concentrated institutional ownership and policies affecting governance on the outcomes of different type of workers.

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Table 1: Summary statistics on analysis samples of establishments of publicly traded firms from the Longitudinal Business Database, 1982–2015

	Mean	STD	Mean	STD
	Panel A: All industries		**Panel B: Manufacturing**	
Main explanatory variables				
Top 1 ownership	0.087	0.065	0.081	0.059
Top 5 ownership	0.237	0.120	0.215	0.111
Total block ownership	0.147	0.145	0.120	0.128
HHI institutional ownership	0.072	0.110	0.077	0.114
Main dependent variables				
Total employment	61.98	294.60	295.50	792.10
Total payroll ($000)	2,471.0	70,880.0	13,670.0	64,110.0
Average wage ($000)	29.530	28.410	42.680	29.310
Main control variables				
Overall institutional ownership	0.597	0.266	0.537	0.244
Establishments per segment (SIC3)	1,546	2,169	19.4	34.9
Establishments per firm	2,084	2,531	331.9	829.3
Establishment age (/100)	0.108	0.084	0.149	0.096
Additional explanatory and dependent variables				
Quasi-index ownership/overall inst. ownership	0.585	0.224	0.597	0.209
Dedicated ownership/overall inst. ownership	0.131	0.164	0.158	0.170
Transient ownership/overall inst. ownership	0.215	0.152	0.193	0.141
Activist ownership/overall inst. ownership	0.005	0.017	0.005	0.018
Union coverage	0.080	0.104	0.185	0.117
Employment growth rate	-0.004	0.356	-0.017	0.316
Payroll growth rate	0.005	0.422	0.006	0.437
Observations	7,340,000		533,000	

Note: This table presents descriptive statistics on establishment-year observations used in the analysis from the Longitudinal Business Database (LBD) for the period 1982–2015. Panels A and B presents for the full and manufacturing samples, respectively. We require each observation in the sample to be present at least two consecutive years. "Total employment" is the number of total employees; "Total payroll" is the total payroll in thousand dollars; "Average wage" is computed as total payroll divided by total employment (in thousand dollars); "Establishments per segment" is the number of establishments in a given three-digit SIC industry segment of a given firm; "Establishments per firm" is the total number of establishments of a given firm; "Establishments age" is the number of years since a plant's birth, which is proxied either by the flag for establishments birth in the LBD or by its first appearance in the LBD, whichever is earliest; "Employment (payroll) growth rate" is the change in employment (payroll) scaled by sum of current and lagged employment (payroll). The institutional holdings data are obtained from Thomson-Reuters 13F SEC filings. The

ownership variables are defined as the percentage of shares outstanding owned by a given type of institutional investors: "Overall institutional ownership" is the percentage owned by all institutional investors; "Top 1 ownership" and "Top 5 ownership" are the percentage owned by the largest and largest five institutional investors, respectively; "Total block ownership" is the percentage owned by blockholders, which are defined as the institutional investors with more than 5% holdings as filed through Form 13D, 13F, or 13G; "HHI institutional ownership" is the ownership concentration Herfindahl-Hirschman Index, which approaches zero when the firm is owned by a large number of institutional investors of relatively equal size and reaches its maximum of one when it is controlled by a single large institutional investor; "Quasi-index ownership/overall inst. ownership," "Dedicated ownership/overall inst. ownership," and "Transient ownership/overall inst. ownership" are the percentage owned by quasi-index, dedicated, and transient institutional investors as classified by Bushee (1998), scaled by overall institutional ownership; "Activist ownership/overall inst. ownership" is the percentages owned by activist institutional investors as classified by Grennan (2019) based on institutions who have engaged in shareholder activism campaigns, scaled by overall institutional ownership. "Union coverage" is the industry-level percentage of the workforce covered by collective bargaining collected from the CPS. The numbers of observations are rounded to follow the Census Bureau's disclosure rules.

Table 2: The Labor impact of Top 1 and Top 5 institutional ownership

Panel A: Full sample

	(1)	(2)	(3)	(4)
Dep. Var.:	Log employment		Log payroll	
Top 1 ownership	-0.217		-0.205	
	[-4.55]		[-5.22]	
Top 5 ownership		-0.233		-0.253
		[-6.00]		[-6.48]
Overall institutional ownership	0.069	0.123	0.084	0.149
	[2.75]	[4.85]	[3.35]	[5.84]
log(establishments per segment)	-0.004	-0.004	0.003	0.003
	[-0.76]	[-0.81]	[0.56]	[0.50]
log(establishments per firm)	0.028	0.026	0.032	0.029
	[2.84]	[2.62]	[2.59]	[2.40]
Establishment fixed effects	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y
Observations	7,340,000	7,340,000	7,340,000	7,340,000
R^2	0.917	0.917	0.923	0.923

Panel B: Manufacturing

	(1)	(2)	(3)	(4)
Dep. Var.:	Log employment		Log payroll	
Top 1 ownership	-0.295		-0.320	
	[-5.13]		[-5.35]	
Top 5 ownership		-0.290		-0.322
		[-6.76]		[-7.39]
Overall institutional ownership	0.194	0.261	0.228	0.304
	[8.78]	[9.73]	[9.43]	[10.55]
log(establishments per segment)	0.005	0.004	0.007	0.006
	[0.96]	[0.84]	[1.26]	[1.12]
log(establishments per firm)	0.022	0.019	0.018	0.014
	[5.19]	[4.44]	[3.72]	[3.02]
Establishment fixed effects	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y
Observations	533,000	533,000	533,000	533,000
R^2	0.926	0.926	0.923	0.923

Note: This table presents the effect of top institutional ownership on employment and payroll of establishments. The dependent variable is the log of employment (Columns 1 and 2) and payroll (Columns 3 and 4) as defined in Table 1. Variables for institutional ownership are lagged by one year. Panel A (Panel B) presents estimates using the full (manufacturing) sample. The numbers of observations are rounded to follow the Census Bureau's disclosure rules. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates in square brackets.

Table 3: The Labor impact of blockholders and concentration measured by HHI

Panel A: Full sample

	(1)	(2)	(3)	(4)
Dep. Var.:	Log employment		Log payroll	
Total block ownership	-0.150		-0.166	
	[-5.14]		[-5.69]	
HHI institutional ownership		-0.103		-0.085
		[-4.55]		[-2.78]
Overall institutional ownership	0.086	0.016	0.110	0.035
	[3.69]	[0.68]	[4.28]	[1.38]
log(establishments per segment)	-0.004	-0.004	0.003	0.003
	[-0.76]	[-0.70]	[0.55]	[0.60]
log(establishments per firm)	0.027	0.029	0.030	0.033
	[2.72]	[2.92]	[2.47]	[2.67]
Establishment fixed effects	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y
Observations	7,340,000	7,340,000	7,340,000	7,340,000
R^2	0.917	0.917	0.923	0.923

Panel B: Manufacturing

	(1)	(2)	(3)	(4)
Dep. Var.:	Log employment		Log payroll	
Total block ownership	-0.171		-0.195	
	[-6.37]		[-6.83]	
HHI institutional ownership		-0.157		-0.173
		[-7.02]		[-7.20]
Overall institutional ownership	0.215	0.129	0.255	0.157
	[9.82]	[6.42]	[10.57]	[7.43]
log(establishments per segment)	0.005	0.005	0.006	0.007
	[0.92]	[1.02]	[1.21]	[1.32]
log(establishments per firm)	0.020	0.022	0.016	0.018
	[4.82]	[5.36]	[3.33]	[3.83]
Establishment fixed effects	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y
Observations	533,000	533,000	533,000	533,000
R^2	0.926	0.926	0.923	0.923

Note: This table presents the effect of blockholder ownership and concentration of institutional ownership on employment and payroll of establishments. The dependent variable is the log of employment (Columns 1 and 2) and payroll (Columns 3 and 4) as defined in Table 1. Variables for institutional ownership are lagged by one year. Panel A (Panel B) presents estimates using the full (manufacturing) sample. The numbers of observations are rounded to follow the Census Bureau's disclosure rules. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates in square brackets.

Table 4: Robustness of baseline results of impact of concentrated institutional ownership on establishment employment and payroll

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log employment				Log payroll			
Main Indep. Var.:	Top 1 ownership	Top 5 ownership	Total block ownership	HHI inst. ownership	Top 1 ownership	Top 5 ownership	Total block ownership	HHI inst. ownership
[A.1] Control for local labor market conditions	-0.286 [-4.98]	-0.256 [-5.95]	-0.156 [-5.45]	-0.108 [-4.50]	-0.274 [-5.06]	-0.285 [-6.98]	-0.173 [-6.27]	-0.091 [-3.43]
[A.2] Control for local industry-labor market conditions	-0.313 [-4.64]	-0.269 [-5.48]	-0.165 [-5.13]	-0.093 [-3.32]	-0.320 [-5.40]	-0.315 [-7.09]	-0.196 [-6.70]	-0.086 [-3.85]
[B] Use moving average of institutional ownership	-0.335 [-4.34]	-0.321 [-5.82]	-0.202 [-5.55]	-0.120 [-3.88]	-0.303 [-4.04]	-0.348 [-6.34]	-0.221 [-5.78]	-0.086 [-2.32]
[C] Use top and block owner-ship scaled by overall inst. own.	-0.110 [-4.81]	-0.134 [-6.59]	-0.056 [-3.71]		-0.096 [-3.43]	-0.142 [-6.46]	-0.052 [-3.17]	
[D] Drop control for overall institutional ownership	-0.181 [-3.20]	-0.095 [-2.46]	-0.081 [-2.84]	-0.090 [-4.47]	-0.146 [-2.29]	-0.088 [-2.02]	-0.079 [-2.57]	-0.075 [-2.55]
Establishment-level controls	Y	Y	Y	Y	Y	Y	Y	Y
Establishment fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000

Note: This table examines the robustness of the baseline effect of large institutional ownership on employment and payroll of establishments. The dependent variable is the log of employment (Columns 1 through 4) and the log of payroll (Columns 5 through 8) as defined in Table 1. Row A.1 includes county-by-year fixed effects, Row A.2 includes industry-by-commuting zone-by-year fixed effects, Row B uses the two-year moving average of institutional ownership measures, and Row C scales top and block institutional ownership measures by overall institutional ownership, as defined in Table 1. In Row D, we do not include *Overall institutional ownership* as control. Variables for institutional ownership are lagged by one year. The numbers of observations are rounded to follow the Census Bureau's disclosure rules. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates in square brackets.

Table 5: Identification – Diagnostics of difference-in-differences analysis

	(1) Treated	(2)	(3) Control	(4)	(5) Treated-Control
	Mean	STD	Mean	STD	*t*-stat.
Total block ownership$_{t-1}$	0.000	0.000	14.910	11.770	-24.15
Overall institutional ownership$_{t-1}$	44.530	21.730	54.130	21.640	-5.51
Change in total block ownership$_{t}$	11.140	9.612	-2.075	5.123	19.65
Change in overall inst. own.$_{t}$	9.450	16.460	11.330	8.472	-1.55
Log employment$_{t-1}$	2.824	1.486	2.757	1.456	1.04
Log payroll$_{t-1}$	5.723	1.703	5.670	1.681	0.72
Log average wage $_{t-1}$	2.899	0.838	2.913	0.816	-0.24
Establishments per segments$_{t-1}$	5.701	2.217	5.824	2.091	-0.68
Establishments per firm $_{t-1}$	6.529	1.750	6.537	1.661	-0.05
Establishment age (/100) $_{t-1}$	0.088	0.070	0.090	0.076	-0.85
Observations	429,000		757,000		

Note: This table presents diagnostic tests of the difference-in-differences analysis of the effect of large institutional ownership on employment and payroll of establishments. The diagnostic tests examine covariate balancing between the treated and control groups. The sample is limited to observations that involve more than 5% increases in block ("Treated") and overall institutional ownership ("Control"). All other variables are defined in Table 1. The numbers of observations are rounded to follow the Census Bureau's disclosure rules. The *t*-statistics for the test of the pre-event mean difference between Treated and Control based on standard errors adjusted for sample clustering at the firm level are reported in Column 5.

Table 6: Mechanism – Interaction with unionized labor and local labor market concentration

Panel A: Interaction with unionized labor

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log employment				Log payroll			
Main Indep. Var. (X):	Top 1 ownership	Top 5 ownership	Total block ownership	HHI inst. ownership	Top 1 ownership	Top 5 ownership	Total block ownership	HHI inst. ownership
X	-0.414	-0.330	-0.202	-0.111	-0.398	-0.346	-0.224	-0.116
	[-5.00]	[-5.97]	[-5.24]	[-3.06]	[-4.77]	[-5.90]	[-5.66]	[-4.09]
X × Union	1.843	1.107	0.819	0.093	1.826	0.939	0.886	0.350
	[3.20]	[3.07]	[2.86]	[0.37]	[2.46]	[2.08]	[2.56]	[0.94]
Establishment-level controls	Y	Y	Y	Y	Y	Y	Y	Y
Establishment fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000

Panel B: Interaction with local labor market concentration

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log employment				Log payroll			
Main Indep. Var. (X):	Top 1 ownership	Top 5 ownership	Total block ownership	HHI inst. ownership	Top 1 ownership	Top 5 ownership	Total block ownership	HHI inst. ownership
X	-0.178	-0.202	-0.105	-0.048	-0.157	-0.200	-0.108	-0.080
	[-2.34]	[-3.46]	[-2.38]	[-1.99]	[-1.68]	[-3.37]	[-2.29]	[-3.84]
X × HHI (SIC3-CZ)	-1.507	-0.747	-0.693	-0.485	-1.804	-1.280	-1.003	-0.065
	[-2.00]	[-1.39]	[-1.59]	[-2.46]	[-1.78]	[-1.93]	[-1.81]	[-0.23]
Establishment-level controls	Y	Y	Y	Y	Y	Y	Y	Y
Establishment fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Industry-CZ-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000

Note: This table examines bargaining power of labor as a mechanism behind the effect of large institutional ownership on employment and payroll of establishments. Panels A and B report results for the interaction with unionization and local labor market concentration, respectively. The dependent variable is the log of employment (Columns 1 through 4) and the log of payroll (Columns 5 through 8) as defined in Table 1. All explanatory variables are lagged by one year. The standalone variable for "Union" (Panel A) is included in regressions but omitted in the table and that for local labor market HHI at the three-digit SIC-by-commuting zone level (Panel B) is collinear with three-digit SIC-by-commuting zone fixed effects. The numbers of observations are rounded to follow the Census Bureau's disclosure rules. The *t*-statistics based on standard errors adjusted for sample clustering at the firm (Panel A) and firm and commuting zone levels (Panel B) are reported below the coefficient estimates in square brackets.

Table 7: Mechanism – Variation by institutional investor type

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log employment				Log payroll			
Quasi index ownership/Overall inst. ownership	0.046 [2.81]				0.036 [2.30]			
Transient ownership/Overall inst. ownership		0.010 [0.58]				0.036 [2.09]		
Dedicated ownership/Overall inst. ownership			-0.065 [-3.60]				-0.065 [-3.41]	
Activist ownership/Overall inst. ownership				-0.697 [-3.16]				-0.718 [-3.70]
Establishment-level controls	Y	Y	Y	Y	Y	Y	Y	Y
Establishment fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000
R^2	0.917	0.917	0.917	0.917	0.923	0.923	0.923	0.923

Note: This table presents the effect of institutional ownership on employment and payroll of establishments across different types of institutions. The dependent variable is the log of employment (Columns 1 through 4) and the log of payroll (Columns 5 through 8) as defined in Table 1. Variables for institutional ownership are lagged by one year. The numbers of observations are rounded to follow the Census Bureau's disclosure rules. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates in square brackets.

Table 8: Aggregate implications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dep. Var.:	Labor share			Log employment			Log payroll		
Top 1 ownership	-0.403			-6.071			-0.213		
	[-2.53]			[-1.76]			[-0.06]		
Top 5 ownership		-0.284			-6.392			-4.989	
		[-3.10]			[-3.56]			[-2.77]	
Total block ownership			-0.215			-6.531			-4.107
			[-2.41]			[-3.91]			[-2.41]
Overall institutional ownership	0.175	0.208	0.204	0.493	1.427	1.790	-0.057	0.973	0.999
	[4.17]	[4.38]	[4.21]	[0.59]	[1.49]	[1.89]	[-0.06]	[0.95]	[0.99]
Sector fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	140	140	140	140	140	140	140	140	140
R^2	0.844	0.848	0.844	0.887	0.889	0.891	0.878	0.883	0.882

Note: This table repeats the analysis of the effect of large institutional ownership on employment and payroll at the aggregate industry sector level from 1981-2015. The level of aggregation is at the following sectors: manufacturing, retail trade, wholesale trade, and services. The dependent variable is the labor share of income, defined as the ratio of payroll to revenues (Columns 1 to 3), the log of employment (Columns 4 to 6), and the log of payroll (Columns 7 to 9) as defined in Table 1. To preserve the full time-series, we retrieve firm-level revenues from Compustat. Variables for institutional ownership are lagged by one year. The *t*-statistics based on standard errors adjusted for sample clustering at the sector level are reported below the coefficient estimates in square brackets.

Appendix Table A1: Alternative specifications – firm-level analysis and growth rates of employment and payroll

Panel A: Firm-level employment and payroll

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log emp.				Log pay			
Top 1 ownership	-0.741	-	-	-	-0.714	-	-	-
	-8.39	-	-	-	**-7.47**	-	-	-
Top 5 ownership	-	-0.593	-	-	-	-0.624	-	-
	-	**-10.13**	-	-	-	**-9.29**	-	-
Total block ownership	-	-	-0.466	-	-	-	-0.474	-
	-	-	**-12.54**	-	-	-	**-10.41**	-
HHI (IO)	-	-	-	-0.209	-	-	-	-0.216
	-	-	-	**-7.90**	-	-	-	**-8.15**
Overall IO	0.655	0.787	0.748	0.509	0.657	0.805	0.757	0.513
	20.09	**20.88**	**21.70**	**17.15**	**15.73**	**15.93**	**16.17**	**13.90**
log(est's per firm)	0.499	0.497	0.496	0.500	0.456	0.454	0.453	0.457
	32.11	**31.94**	**31.98**	**32.02**	**27.56**	**27.34**	**27.30**	**27.50**
Firm fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000
R^2	0.9790	0.9790	0.9791	0.9790	0.9725	0.9725	0.9726	0.9725

Panel B: Employment and payroll growth

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Growth rate (emp.)				Growth rate (pay)			
Top 1 ownership	-0.030	-	-	-	-0.080	-	-	-
	-1.96	-	-	-	**-3.05**	-	-	-
Top 5 ownership	-	-0.036	-	-	-	-0.079	-	-
	-	**-3.13**	-	-	-	**-4.81**	-	-
Total block ownership	-	-	-0.026	-	-	-	-0.061	-
	-	-	**-3.01**	-	-	-	**-5.07**	-
HHI (IO)	-	-	-	0.002	-	-	-	-0.025
	-	-	-	**0.19**	-	-	-	**-1.39**
Overall IO	0.004	0.012	0.009	0.001	0.019	0.036	0.029	0.006
	0.79	**2.04**	**1.54**	**0.21**	**3.08**	**4.67**	**4.16**	**1.02**
Establishment-level controls	Y	Y	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000
R^2	0.0392	0.0392	0.0392	0.0392	0.3183	0.3184	0.3184	0.3183

Panel C: Employment and payroll growth weighted by establishment employment

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Growth rate (emp.)				Growth rate (pay)				Growth rate (wages)			
Top 1 ownership	-0.010	-	-	-	-0.059	-	-	-	-0.046	-	-	-
	-0.36	-	-	-	**-2.36**	-	-	-	**-3.50**	-	-	-
Top 5 ownership	-	-0.026	-	-	-	-0.075	-	-	-	-0.047	-	-
	-	**-1.40**	-	-	-	**-4.34**	-	-	-	**-5.02**	-	-
Total block ownership	-	-	-0.020	-	-	-	-0.055	-	-	-	-0.036	-
	-	-	**-1.68**	-	-	-	**-4.49**	-	-	-	**-4.87**	-
HHI (IO)	-	-	-	0.005	-	-	-	-0.016	-	-	-	-0.021
	-	-	-	**0.33**	-	-	-	**-1.20**	-	-	-	**-2.07**
Overall IO	0.002	0.009	0.007	0.001	0.018	0.036	0.028	0.008	0.016	0.026	0.021	0.007
	0.21	**0.97**	**0.89**	**0.22**	**3.31**	**5.12**	**4.78**	**1.49**	**2.81**	**4.15**	**3.80**	**1.46**
Establishment-level controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000
R^2	0.0794	0.0795	0.0795	0.0794	0.4342	0.4343	0.4343	0.4341	0.4756	0.4756	0.4756	0.4755

Note: This table examines the effect of large institutional ownership on employment and payroll at the firm level and for the growth rates of establishments. In Panel A, we repeat the baseline analysis at the firm level and include firm instead of establishment fixed effects using the revenue-enhance LBD from 1997-2015. The specification and variable definitions are otherwise the same as in the baseline. In Panels B and C, the dependent variable is the symmetric growth rate of employment (Columns 1 through 4) and payroll (Columns 5 through 8) as defined in Table 1. In Panel C, we estimate weighted regressions using the employment of establishments as the weight, and the dependent variable is the symmetric growth rate of wages in Columns 9 through 12. Variables for institutional ownership are lagged by one year. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates. The numbers of observations are rounded to follow the Census Bureau's disclosure rules.

Appendix Table A2: Alternative sample and employment outcomes

Panel A: Excluding acquisitions and bankruptcies

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Var.:	Log emp.				Log pay			
Top 1 ownership	-0.401	-	-	-	-0.443	-	-	-
	-3.69	-	-	-	**-3.76**	-	-	-
Top 5 ownership	-	-0.333	-	-	-	-0.403	-	-
	-	**-4.93**	-	-	-	**-5.29**	-	-
Total block ownership	-	-	-0.188	-	-	-	-0.236	-
	-	-	**-4.81**	-	-	-	**-5.52**	-
HHI (IO)	-	-	-	-0.117	-	-	-	-0.121
	-	-	-	**-3.05**	-	-	-	**-2.63**
Overall IO	0.066	0.133	0.078	-0.016	0.100	0.188	0.126	0.011
	2.21	**4.23**	**2.83**	**-0.54**	**4.11**	**6.78**	**4.94**	**0.35**
Establishment-level controls	Y	Y	Y	Y	Y	Y	Y	Y
Establishment fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	5,550,000	5,550,000	5,550,000	5,550,000	5,550,000	5,550,000	5,550,000	5,550,000
R^2	0.9219	0.9219	0.9219	0.9218	0.9272	0.9273	0.9272	0.9272

Panel B: Layoffs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Dep. Var.:	Layoff				Cost-cutting layoff				Downsizing			
Top 1 ownership	0.270	-	-	-	0.150	-	-	-	0.366	-	-	-
	7.97	-	-	-	**7.36**	**-**	-	-	**7.29**	-	-	-
Top 5 ownership	-	0.311	-	-	-	0.143	-	-	-	0.365	-	-
	-	**13.23**	-	-	-	**9.97**	-	-	-	**11.07**	-	-
Total block ownership	-	-	0.311	-	-	-	0.084	-	-	-	0.224.	-

	-	-	**13.23**	-	-	-	**8.37**	-	-	-	**9.94**	-
HHI (IO)	-	-	-	0.016	-	-	-	0.006	-	-	-	0.024
	-	-	-	**3.36**	-	-	-	**2.00**	-	-	-	**3.34**
Overall IO	-0.111	-0.201	-0.201	-0.001	-0.055	-0.092	-0.069	-0.034	-0.183	-0.278	-0.228	-0.001
	-11.08	**-15.22**	**-15.22**	**-8.23**	**-9.06**	**-11.49**	**-10.35**	**-6.45**	**-12.36**	**-15.00**	**-14.40**	**10.09**
Firm fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	76,146	76,146	76,146	76,107	76,146	76,146	76,146	76,107	42,914	42,914	42,914	42,885
R^2	0.3402	0.3421	0.3421	0.3395	0.2096	0.2106	0.2101	0.2089	0.3932	0.3948	0.3943	0.3925

Note: This table examines the effect of large institutional ownership on employment and payroll for an alternative sample and alternative employment outcomes. In Panel A, we repeat the baseline analysis after excluding firms that eventually undergo bankruptcy or are involved in acquisitions. The information on bankruptcies and acquisitions is from the Compustat delisting reason variable ("DLRSN"). The specification and variable definitions are otherwise the same as in the baseline. In Panel B, we repeat the analysis using a firm-level layoff indicator as the dependent variable (Columns 1 to 4). The information on layoffs announcements is from two data sources: the press, which we hand-collect from the Wall Street Journal and other major news sources using Factiva and Lexis-Nexis news searches, and Capital IQ's Key Development database (see Falato and Liang (2016) for additional details). Combining these two sources leads to an incidence of layoff announcements of about 8.5% of the firm-year observations. We also perform textual analysis of the news releases to gather more granular information on whether the layoff is motivated by cost-cutting reasons, whose incidence is about 2.6% of the firm-year observations (Columns 5 to 8). Finally, we also use downsizing announcements from Capital IQ's Key Development database, whose incidence is about 12% of the firm-year observations (Columns 9 to 12). Variables for institutional ownership are lagged by one year. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates. The numbers of observations are rounded in Panel A to follow the Census Bureau's disclosure rules.

Appendix Table A3: Detailed DD estimates and robustness to alternative specifications

Panel A: Detailed DD estimates and robustness to Sun and Abraham (2021) estimator

	(1)	(2)	(3)	(4)	(5)	(6)
	No control for pre-event diff. in IO		Control for pre- event diff. in IO		Sun and Abraham (2021)	
Dep. Var.:	Log emp.	Log pay	Log emp.	Log pay	Log emp.	Log pay
Treat × d[t-5]	-0.016	-0.006	-0.014	-0.004	-0.006	0.002
	-1.32	**-0.58**	**-1.10**	**-0.39**	**-0.56**	**0.15**
Treat × d[t-4]	-0.005	0.001	-0.001	-0.003	0.004	0.004
	-0.37	**0.06**	**-0.11**	**-0.31**	**0.34**	**0.40**
Treat × d[t-3]	-0.010	-0.002	-0.010	-0.004	-0.008	-0.001
	-1.05	**-0.23**	**-0.91**	**-0.48**	**-0.72**	**-0.08**
Treat × d[t-2]	-0.007	0.000	-0.010	-0.005	-0.007	0.005
	-1.09	**-0.03**	**-1.19**	**-0.52**	**-0.87**	**0.68**
Treat × d[t-1]	0.000	0.000	0.000	0.000	0.000	0.000
	-	-	-	-	-	-
Treat × d[t]	-0.007	-0.012	-0.013	-0.016	-0.013	-0.014
	-0.89	**-1.43**	**-1.28**	**-1.74**	**-1.59**	**-1.59**
Treat × d[t+1]	-0.010	-0.025	-0.023	-0.023	-0.012	-0.026
	-1.02	**-2.72**	**-1.94**	**-2.35**	**-1.12**	**-2.71**
Treat × d[t+2]	-0.022	-0.021	-0.033	-0.035	-0.022	-0.022
	-2.11	**-2.29**	**-2.56**	**-2.55**	**-2.03**	**-1.95**
Treat × d[t+3]	-0.014	-0.022	-0.019	-0.031	-0.017	-0.028
	-1.22	**-2.10**	**-1.29**	**-2.60**	**-1.40**	**-2.52**
Treat × d[t+4]	-0.020	-0.019	-0.020	-0.025	-0.029	-0.025
	-1.82	**-1.68**	**-1.30**	**-1.75**	**-2.42**	**-1.76**
Treat × d[t+5]	-0.022	-0.021	-0.024	-0.024	-0.024	-0.026
	-1.68	**-1.97**	**-1.37**	**-1.77**	**-1.73**	**-1.86**
Establishment-level controls	Y	Y	Y	Y	Y	Y
Establishment-treat fixed effects	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y
Control for overall and block IO (t-1 or earlier) × event indicators			Y	Y		
Observations	9,251,000	9,251,000	9,251,000	9,251,000	9,251,000	9,251,000
R^2	0.9178	0.9323	0.9179	0.9323	0.9294	0.9412

Panel B: Robustness to before-after DD

	(1)	(2)	(3)	(4)
Dep. Var.:	Log emp.	Log pay	Log emp.	Log pay
Treat × After	-0.014	-0.019	-0.019	-0.023
	-1.67	**-2.47**	**-1.77**	**-2.46**
Establishment-level controls	Y	Y	Y	Y
Establishment-treat fixed effects	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y
Control for overall and block IO (t-1) × After			Y	Y
Observations	9,251,000	9,251,000	9,251,000	9,251,000

R^2	0.9178	0.9323	0.9178	0.9323

Note: This table reports detailed estimates and robustness to alternative specifications for the difference-in-differences (DD) analysis of the effect of large institutional ownership on employment and payroll of establishments. The dependent variables are defined in Table 1 and the sample is as in Table 5. Panel A shows estimates for the specification without controls for pre-event (at t-1 or earlier) *Overall IO* and *Block IO* as well as their respective interactions with the event-time indicators (Columns 1 and 2) and estimates for the specification that adds those controls (Columns 3 and 4). We also report estimates using the alternative DD estimator of Sun and Abraham (2021) which is robust to treatment effects heterogeneity (Columns 5 and 6). Panel B shows results for a specification that replaces the dynamic event-time indicators for the years after the event with an "After" indicator, and omits the other event-time indicators. Estimates for the specification without controls for pre-event *Overall IO* and *Block IO* as well as their respective interactions with the "After" indicator are in Columns 1 and 2 and estimates for the specification that adds those controls are in Columns 3 and 4. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates. The numbers of observations are rounded to follow the Census Bureau's disclosure rules.

Appendix Table A4: S&P 500 index inclusion IV

Panel A: First-stage

Dep. Var.:	(1) Top 1 IO/Overall IO	(2) Top 5 IO/Overall IO	(3) Total block IO/Overall IO
S&P 500	-0.077	-0.116	-0.056
	-3.09	**-4.01**	**-2.50**
Establishment-level controls	Y	Y	Y
Establishment fixed effects	Y	Y	Y
Industry-year fixed effects	Y	Y	Y
Observations	7,340,000	7,340,000	7,340,000
R^2	0.7164	0.7853	0.6738

Panel B: Second-stage

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)
	Log Emp.			Log Pay		
Top 1 IO/Overall IO	-0.383	-	-	-0.303	-	-
	-1.68	-	-	**-1.11**	-	-
Top 5 IO/Overall IO	-	-0.255	-	-	-0.202	-
	-	**-1.80**	-	-	**-1.17**	-
Total block IO/Overall IO	-	-	-0.533	-	-	-0.421
	-	-	**-1.59**	-	-	**-1.07**
Establishment-level controls	Y	Y	Y	Y	Y	Y
Establishment fixed effects	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y
Observations	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000
F-stat (Kleibergen-Paap rk Wald)	9.81	16.52	6.41	9.81	16.52	6.41

Note: This table presents results of the instrumental-variables (IV) analysis of the effect of large institutional ownership on employment and payroll of establishments in a two-stage least squares (2SLS-IV) setting. We employ the inclusion of a firm in the S&P 500 index as an instrumental variable for large institutional ownership, scaled by overall institutional ownership. Panel A presents first-stage diagnostic tests of instrument validity. Panel B presents the main 2SLS-IV estimates. The dependent variable is the log of employment (Columns 1 to 3) and payroll (Columns 4 to 6) as defined in Table 1. The sample is the same as the baseline. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates. The numbers of observations are rounded to follow the Census Bureau's disclosure rules.

Appendix Table A5: Mechanism – Detailed estimates and additional analysis of the impact on labor productivity and shareholder value

Panel A1: Detailed estimates of the analysis of the impact on labor productivity and shareholder value

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log labor productivity				ΔShareholder value per employee			
Top 1 ownership	-0.422	-	-	-	0.744	-	-	-
	-4.10	-	-	-	**14.13**	-	-	-
Top 5 ownership	-	-0.379	-	-	-	0.702	-	-
	-	**-5.61**	-	-	-	**18.80**	-	-
Total block ownership	-	-	-0.247	-	-	-	0.626	-
	-	-	**-5.53**	-	-	-	**23.87**	-
HHI (IO)	-	-	-	-0.012	-	-	-	0.244
	-	-	-	**-0.36**	-	-	-	**13.44**
Overall IO	0.154	0.245	0.199	0.095	-0.708	-0.882	-0.855	-0.538
	4.27	**5.88**	**5.32**	**2.87**	**-34.02**	**-35.60**	**-36.88**	**-28.57**
log(est's per firm)	-0.103	-0.104	-0.104	-0.101	-	-	-	-
	-9.04	**-9.16**	**-9.16**	**-8.85**	-	-	-	-
Firm fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	45,000	45,000	45,000	45,000	75,474	75,474	75,474	75,474
R^2	0.8292	0.8293	0.8293	0.8290	0.3650	0.3662	0.3682	0.3658

Note: This panel presents the effect of large institutional ownership on labor productivity and shareholder value. The dependent variable is the log of labor productivity, which is measured as revenue per employee from the revenue-enhanced LBD (Columns 1 through 4) and the logarithmic change in stock market value per employee, measured as the ratio of stock market capitalization to number of employees from Compustat (Columns 5 through 8). Variables for institutional ownership are lagged by one year. The numbers of observations in Columns 1 to 4 are rounded to follow the Census Bureau's disclosure rules. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates.

Panel A2: Additional analysis of the impact on labor productivity

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log labor productivity [t+1]				Log labor productivity [t+2]			
Top 1 ownership	-0.151	-	-	-	-0.121	-	-	-
	-1.43	-	-	-	**-1.14**	-	-	-
Top 5 ownership	-	-0.150	-	-	-	-0.075	-	-
	-	**-2.10**	-	-	-	**-1.04**	-	-
Total block ownership	-	-	-0.070	-	-	-	-0.025	-
	-	-	**-1.44**	-	-	-	**-0.52**	-
HHI (IO)	-	-	-	0.042	-	-	-	-0.001
	-	-	-	**1.09**	-	-	-	**-0.03**
Overall IO	0.062	0.100	0.071	0.051	0.034	0.047	0.029	0.018
	1.61	**2.23**	**1.76**	**1.42**	**0.84**	**0.99**	**0.67**	**0.48**
log(est's per firm)	-0.171	-0.171	-0.171	-0.169	-0.117	-0.117	-0.116	-0.116
	-14.65	**-14.68**	**-14.62**	**-14.55**	**-10.03**	**-10.02**	**-9.97**	**-9.99**
Firm fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	36,000	36,000	36,000	36,000	29,500	29,500	29,500	29,500
R^2	0.9648	0.9648	0.9648	0.9648	0.9651	0.9651	0.9651	0.9651

Note: This panel presents additional results on the effect of large institutional ownership on labor productivity. Columns 1 to 4 and 5 to 8 examine dynamics by replacing the log of current labor productivity with one- and two-year-ahead labor productivity as the dependent variable, respectively. Labor productivity is measured as revenue per employee from the revenue-enhanced LBD from 1997-2015. Variables for institutional ownership are lagged by one year. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates. The numbers of observations are rounded to follow the Census Bureau's disclosure rules.

Panel B: Additional analysis of the impact on shareholder activism

Dep. Var.:	(1)	(2)	(3)	(4)
		1(Activism)		
Top 1 ownership	0.543	-	-	-
	1.95	-	-	-
Top 5 ownership	-	0.679	-	-
	-	**3.53**	-	-
Total block ownership	-	-	0.619	-
	-	-	**3.42**	-
HHI (IO)	-	-	-	0.037
	-	-	-	**1.44**
Overall IO	0.012	-0.179	-0.250	0.092
	0.17	**-1.88**	**-2.14**	**1.47**
Firm fixed effects	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y
Observations	38,444	38,444	38,444	38,444
R^2	0.2343	0.2346	0.2690	0.2342

Note: This panel presents the effect of large institutional ownership on shareholder activism. The dependent variable is an indicator that equals one for years when a firm becomes the target of an announced shareholder activism campaign. Data on announcements of shareholder activism campaigns is from Capital IQ's Key Developments database for 2000-2010. Variables for institutional ownership are lagged by one year. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates.

Appendix Table A6: Aggregate implications – Additional results

Panel A: Firm-level analysis of the labor share

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:			Labor share			
Revenue-Weighted:		Yes			No	
Top 1 ownership	-0.038	-	-	0.103	-	-
	-0.56	-	-	**4.03**	-	-
Top 5 ownership	-	-0.024	-	-	0.082	-
	-	**-0.59**	-	-	**5.36**	-
Total block ownership	-	-	-0.021	-	-	0.051
	-	-	**-0.68**	-	-	**4.92**
Overall IO	-0.02	-0.01	-0.01	-0.049	-0.067	-0.055
	-0.99	**-0.60**	**-0.74**	**-6.79**	**-7.60**	**-7.14**
Firm fixed effects	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y
Observations	66,500	66,500	66,500	66,500	66,500	66,500
R^2	0.8748	0.8748	0.8748	0.8214	0.8215	0.8214

Panel B: Sector-level estimates – first-difference specification

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dep. Var.:		ΔLabor share			ΔLog emp.			ΔLog pay	
ΔTop 1 ownership	-0.423	-	-	-4.854	-	-	-0.637	-	-
	-2.05	-	-	**-1.33**	-	-	**-0.17**	-	-
ΔTop 5 ownership	-	-0.219	-	-	-5.336	-	-	-4.364	-
	-	**-2.00**	-	-	**-3.11**	-	-	**-2.40**	-
ΔTotal block ownership	-	-	-0.020	-	-	-4.502	-	-	-3.086
	-	-	**-0.19**	-	-	**-2.37**	-	-	**-1.65**
ΔOverall IO	0.119	0.138	0.079	-1.042	0.032	0.018	-1.458	-0.210	-0.433
	2.70	**2.49**	**1.27**	**-1.31**	**0.04**	**0.02**	**-1.98**	**-0.24**	**-0.43**

Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	100	100	100	100	100	100	100	100	100
R^2	0.2415	0.2443	0.2108	0.3599	0.3984	0.3899	0.3828	0.4106	0.3989

Panel C: Sector-level estimates – decomposition of the first-difference in labor share by margin

Dep. Var.:	(1) Unweighted	(2) Reallocation	(3) Entry+Exit	(4) Unweighted	(5) Reallocation	(6) Entry+Exit	(7) Unweighted	(8) Reallocation	(9) Entry+Exit
ΔTop 1 ownership	-0.450	-0.406	0.433	-	-	-	-	-	-
	-1.99	**-0.99**	**1.41**	-	-	-	-	-	-
ΔTop 5 ownership	-	-	-	-0.207	-0.415	0.403	-	-	-
	-	-	-	**-1.70**	**-2.09**	**2.80**	-	-	-
ΔTotal block ownership	-	-	-	-	-	-	-0.233	-0.079	0.292
	-	-	-	-	-	-	**-2.33**	**-0.49**	**2.65**
ΔOverall IO	0.041	0.224	-0.147	0.054	0.305	-0.221	0.074	0.208	-0.203
	0.76	**3.14**	**-3.13**	**0.88**	**3.89**	**-3.84**	**1.15**	**2.46**	**-3.72**
Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	100	100	100	100	100	100	100	100	100
R^2	0.3832	0.2358	0.1863	0.3801	0.2637	0.2417	0.3892	0.2287	0.2112

Panel D: Sector-level estimates – decomposition of the first-difference in large institutional ownership by margin

Dep. Var.: Margin of Δlarge inst. own.:	(1) Unweighted	(2) Reallocation	(3) Entry+Exit	(4) Unweighted	(5) Reallocation	(6) Entry+Exit	(7) Unweighted	(8) Reallocation	(9) Entry+Exit
	ΔLabor share								
ΔTop 1 ownership	-0.090	-0.316	0.230	-	-	-	-	-	-
	-0.37	**-3.60**	**1.46**	-	-	-	-	-	-
ΔTop 5 ownership	-	-	-	-0.208	-0.266	0.131	-	-	-
	-	-	-	**-1.21**	**-4.72**	**1.10**	-	-	-
ΔTotal block ownership	-	-	-	-	-	-	-0.047	-0.109	-0.006
	-	-	-	-	-	-	**-0.34**	**-1.21**	**-0.06**
ΔOverall IO	-0.148	0.098	0.086	-0.097	0.135	0.075	-0.146	0.101	0.146

	-2.13	**2.02**	**1.48**	**-1.34**	**2.52**	**0.99**	**-2.23**	**1.53**	**1.91**
Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	100	100	100	100	100	100	100	100	100
R^2	0.2149	0.2570	0.2585	0.2243	0.2670	0.2516	0.2148	0.2064	0.2408

Note: This table presents results for additional analysis of the effect of large institutional ownership on employment, payroll, and the labor share on an aggregated sample. In Panel A, the dependent variable is the firm-level labor share defined as the ratio of payroll from the LBD to revenues. To preserve the full time-series, we retrieve firm-level revenues from Compustat. We report results of regressions weighted by revenues (Columns 1 through 3) and unweighted (Columns 4 through 6). In Panel B, we repeat the analysis of the aggregate implications at the industry sector level using a specification in first differences (instead of levels). To focus on long-run changes, we calculate 10-year rolling changes. In Panel C (Panel D), for the labor share (large institutional ownership variables), we re-estimate the specification in changes separately for each margin of variation, unweighted (Columns 1, 4, and 7), reallocation (Columns 2, 5, and 8), and entry/exit (Columns 3, 6, and 9). The decomposition is implemented following the approach of Autor et al. (2020), to which we refer for details (see Section IV.B, eq. 5). In all panels, variables for institutional ownership are lagged by one year. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level in Panel A and sector level in Panels B-D are reported below the coefficient estimates. The numbers of observations are rounded in Panel A to follow the Census Bureau's disclosure rules.