Shareholder Power and the Decline of Labor*

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Abstract

Using establishment-level data from the US Census Bureau's Longitudinal Business Database for 1982-2015, this paper examines how shareholder power affects firm employment and payroll decisions. Consistent with theory of the firm based on conflicts of interests between shareholders and stakeholders, we find that establishments owned by firms with larger and more concentrated institutional shareholders have lower employment and payroll. This result is not driven by exposure to industry and local shocks and holds up in a difference-in-differences design that exploits large increases in concentrated institutional ownership. The relation is more pronounced in industries where labor is relatively less unionized, in more concentrated local labor markets, and for dedicated and activist institutions. These labor losses are accompanied by higher shareholder returns but lower labor productivity. Our findings support employment policies that aim at reforming shareholder capitalism.

Key words: Shareholder power; institutional ownership; concentration; employment; payroll

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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., Pierce and Schott, 2016; and Autor, Dorn, Katz, Patterson, and Van Reenen, 2020). At the same time, public corporations, which account for a large share of private employment, underwent radical changes in their ownership structure with the rising importance of large institutional shareholders. Figure 1 plots the average block institutional ownership (defined as more than 5% holdings) for US public firms, and the ratio between aggregate wages and salaries to domestic gross income in the US from 1980 to 2014. It shows that the measure of large institutional ownership increased almost threefold over the period, while the "labor share" of domestic income exhibited a steady decline. These concurrent trends suggest that there may be a 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.[1] Yet, there is a dearth of systematic evidence on the role of large institutional shareholders in the governance of labor.

In an attempt to fill the gap, 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 find a robust negative within-establishment relation between shareholder power, measured by ownership of large institutional shareholders, and establishments' employment and payroll.

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

[1] 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).

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 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, shareholder power hurts labor.

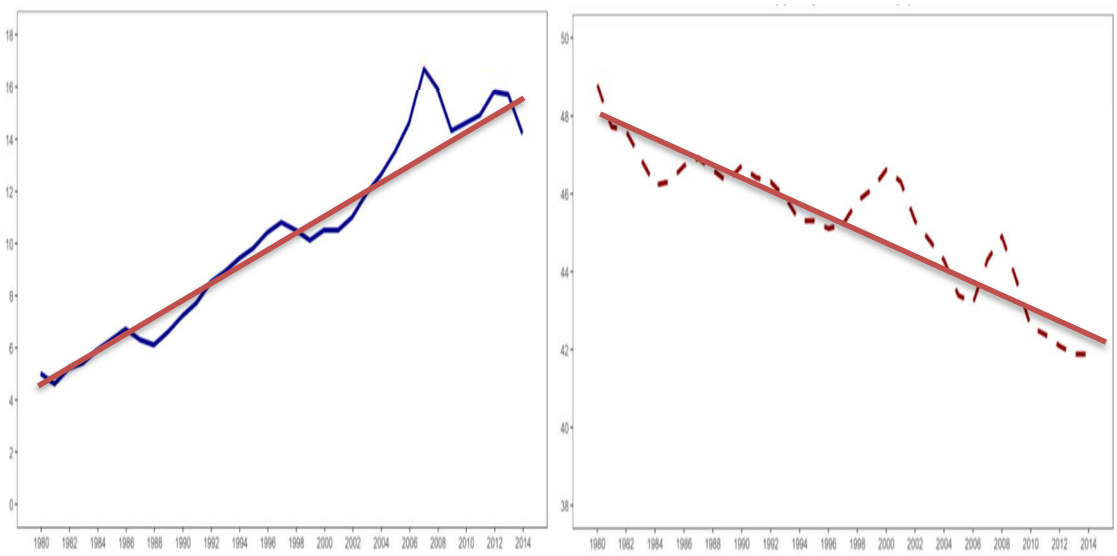

Figure 1: Trends in Average Block Institutional Ownership of Public Firms and Employee Compensation-to-GDI Ratio in the US, 1980–2014. This figure plots the average block institutional ownership for public firms (blue solid line; left panel) and the ratio of total wage and salary accruals to domestic gross income (GDI) (red dotted line; right panel) in the US for the period 1980–2014. The red 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 13D, 13F, or 13G filings. The average block ownership is calculated excluding firms in the agriculture, financial, utility, and public administration sectors.

Consistent with this agency view of the firm, we find that establishments of firms owned by powerful institutional shareholders have significantly lower employment and payroll within establishments (i.e., using establishment fixed effects). The relation is robust to several proxies for shareholder power, including the percentage ownership of the largest one or five institutional shareholders, blockholders (defined as the institutional shareholders with an at least 5% stake), and the Herfindahl-Hirschman Index (HHI) of institutional investors'

ownership. 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. The negative association between shareholder power and employment and payroll holds up in several batteries of specification and robustness checks – 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. It also holds up in the aggregate at the industry sector level.[2] Finally, we confirm the negative relation in a difference-in-differences design that exploits large changes in powerful institutional ownership to addresses selection issues.

After establishing the negative relation between shareholder power and labor outcomes, we take a first step toward clarifying the mechanism by determining which powerful 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 by higher shareholder returns but lower labor productivity. The 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.

[2] We also find a robust negative relation between ownership by large institutional shareholders and the labor share of income, defined as the ratio of payroll to revenues, both at the firm and aggregate industry sector levels.

While there is an active literature on the determinants of the decline of labor, the role of corporate governance and ownership structure has received limited attention. A number of explanations have been 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, 2020). 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 findings are complementary to existing explanations, and support employment policies aimed at broadening the objective of the firm beyond the narrow shareholder value maximization, such as allowing for labor participation in firm governance.

We also contribute to the literature on corporate governance and labor by exploring the link between corporate ownership structure and the firm's labor decisions. This literature shows that measures of managerial entrenchment, such as state-level anti-takeover statues 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 of specific types of institutions, such as private equities (Lichtenberg and Siegel, 1990; and Davis et al., 2014) and activist hedge funds (Brav, Jiang, and Kim, 2015). To the best of our knowledge, this paper provides the first evidence on the labor impact of shareholder power for the universe of large institutional shareholders. Our findings indicate that, while there is heterogeneity depending on institution type, concentrated institutional ownership negatively affects labor across a broad spectrum of institutions and in a representative sample of establishments owned by US public corporations.

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 data sets 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 data set 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).[3] 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 data sets (see, for example, Schoar 2002; and Benmelech, Bergman, and Kim, 2020). Specifically, firm size is measured by the log number 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 U.S. 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.

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

The main ownership variables of interest are defined as the holdings in a stock by a given type of institutional investors as a percentage of shares outstanding. "Overall IO" 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 the Form 13D, 13F, or 13G. To better distinguish between ownership types among institutional shareholders, we also consider three additional variables: "Quasi-index IO," "Dedicated IO," and "Transient IO," which are the percentages owned by quasi-index, dedicated, and transient institutional investors as classified by Bushee (1998), all scaled by "Overall IO." "Activist IO" 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 IO."

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.[4] 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 1981–2014). 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 the nearest thousand to follow the Census Bureau's disclosure rules.

[4] 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 full year.

We construct data on collective bargaining coverage by following the approach in Hirsch and Macpherson (2003) and Benmelech, Bergman, and Kim (2020).[5] Below we provide a detailed account of the data source and construction that are relevant for our empirical analysis. 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.[6] The resulting dataset provides union coverage rate estimates, defined as the number of employees covered by labor unions divided by total employment, by Census Industry Code (CIC) beginning in 1983. Because our establishment-level data use SIC codes, we match the union coverage data with Census establishment-level data at the industry level as follows.[7] For the years 1983–2002, we use the 1980 and 1990 Census Bureau's concordances between CIC codes and SIC codes. For 2003–2015, during which the CIC is based on NAICS codes, we first match 2000 CIC codes to 1990 CIC codes using the Census Bureau's concordance and then use the Census Bureau's concordance between 1990 CIC and SIC codes to match with the Census establishment-level data.[8] 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 1983 information for years 1981 and 1982.[9]

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 market concentration (Benmelech, Bergman, and Kim, 2020). 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.[10]

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[5] For the data used in Hirsch and Macpherson (2003) see www.unionstats.com.
[6] The database is available at http://www.nber.org/data/morg.html.
[7] The CPS ORG data employ the 1980 CIC classification (based on SIC codes) from 1983 to 1991, the 1990 CIC classification from 1992 to 2002 (based on SIC codes), and the 2000 CIC (based on NAICS codes) from 2000 and on.
[8] 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.
[9] The Census establishment-level datasets use different vintages of SIC and NAICS codes across years (see for example, Table 1 in Fort and Klimek, 2018). Thus, we use the appropriate vintage of the industry codes for each year (for example, SIC1997 for 1997).
[e] Firm-level revenue variables are available from 1997 in the RE LBD and throughout the sample period from 1982 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 is 59.7%, consistent with rising "institutionalization" of public firm ownership in the past decades. The average ownership by blockholders, defined as institutional investors with at least 5% ownership, is 14.7% and exhibits considerable variation with a standard deviation of 14.5%. 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 a bulk of institutional shareholding is across dispersed, less active owners.

[Insert Table 1 here.]

Turning to establishment characteristics, the average establishment in the full sample employs about 62 workers and pays $2.5 million with an average annual pay of $29,500 per worker with a standard deviation of $28,400. The average establishment's (public) parent firm owns more than 2,000 establishments, and the average age of establishments is 10.8 years. Panel B shows similar mean values of institutional ownership variables for manufacturing establishments. They however exhibit larger employment and payroll per establishment on average (296 and $13.7 million), relative to those in the full sample, with an average annual pay of $42,700 per worker.

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:

$$y_{ijkt} = \alpha_i + \alpha_{kt} + \beta_1 Large\ IO_{jt-1} + \beta_2 Overall\ IO_{jt-1} + \gamma' X_{it-} + \varepsilon_{ijkt}, \quad (1)$$

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 industry-by-year fixed effects; *Large* IO_{jt-1} is a measure of large institutional shareholders' ownership (see below); *Overall* IO_{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 the firm. 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, then we would expect *Large IO* variables to have no incremental explanatory power after controlling for *Overall IO*.[11]

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"

[11] We examine an alternative functional form that controls for *Overall IO* by scaling *Large IO* by it in Section 3.3.

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 2.0% (= 0.1 × (exp(-0.217) – 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 1.9%, *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 (significant at a less than 1% level). A ten-percentage point increase in top five ownership is associated with 2.1% and 2.2% 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 IO* is positive and generally smaller in magnitude than that of our main variables of interest, *Large IO*. 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 harm workers. This can be the case either because diffused institutional shareholders do not have the ability (or incentives) 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 the next section 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 3.3% 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 1.4% and 1.5% (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

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 Panel A.1 of Table 4.

[Insert Table 4 here.]

Across the columns, the panel 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, Panel 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, Panel A.2 of Table 4 shows that the results are robust to controlling for alternative measures of local labor market conditions using industry-commuting zone-year fixed effects.

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, Panel 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 IO (MA)" in column 2 (-0.321) is almost 40% larger than that on "Top 5 IO" 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 Panel 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 IO/overall IO" 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, Panel C of Table 4 confirms that the baseline results are robust to how we control for overall institutional ownership. In addition, Panel 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 IO altogether.

In additional robustness analysis, we consider two alternative specifications. First, we repeat the analysis at the firm instead of the establishment level and use a specification that is otherwise the same as the baseline. The establishment-level specification is more conservative because it controls for more granular establishment fixed effects. However, 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 closures or sales of existing establishments ("establishment exit") and creation of new establishments ("establishment entry"). Panel A of Appendix Table A1 presents the results.[12] The estimates at the firm level remain strongly 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.

[12] We estimate the firm-level specification using the firm-level RE LBD, which is available from 1997 to 2015.

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:

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

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 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.[13]

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 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 IO" in column 6 is -0.075 and significant at a less than 1% level, comparable with an unweighted estimate in column 6 in Panel A (-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%.[14]

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 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

[13] 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).

[14] 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 decisions 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 repat the analysis using indicators for forced layoffs from Falato and Liang (2016) to address the concern that the results may be driven by voluntary separations rather than the firm's decision to lay off employees.

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.

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 the 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.[15]

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

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

where $d[t+\tau]_{jt}$ 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).

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 Panel A of Table 5, we first examine the characteristics of establishments that experience large increases in block institutional ownership one year before the event relative to those of establishments that experience a large

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

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.

[Insert Table 5 here.]

Panel B of Table 5 presents estimates of Eq. (3) in columns 1 and 2. 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 $\tau = 2$ and then all $\tau \geq 4$ when log employment is the dependent variable, and for all $\tau \geq 1$ 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 -0.021 for log employment and payroll, 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 (Panel A), which in turn implies 1.9% and 2.2% (= exp(0.132 × -0.150) – 1 and exp(0.132 × -0.166) – 1) declines in 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 address residual concerns with the DD specification. First, we show that, when we add controls for pre-event overall IO and block IO as well as their respective interactions with the event-time indicators, the estimates on $d[t+\tau] \times Treat$ for the post-event period are little changed and, if anything, somewhat larger in magnitude. This specification addresses the concern that the treated and the control group display differences in the levels of these variables pre-event (Panel A), which may be driving the result. The estimates using the latest overall IO and block IO variables that are pre-determined by the

event year are shown in columns 3 and 4. The estimated treatment effects, as well as (no) pre-trends are very similar to the baseline DD estimates in columns 1 and 2.

Second, in Appendix Table A3, Panel A we show that the estimates are also little changed when we employ alternative DD approach of Sun and Abraham (2021) that is robust to treatment effects heterogeneity. This robustness check addresses the concern that standard two-way fixed effects difference-in-differences estimates can be biased when the OLS estimator does not aggregate the treatment effects with appropriate weights (see also Borusyak, Jaravel, and Spiess (2021)). In our setting, the concern is mitigated because we have never-treated observations in the control group. Lastly, in Panel B of Appendix Table A3 we show that simple average post-event coefficient estimates are statistically significant and of similar economic magnitudes.[16]

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, 2020), we measure employee bargaining power relative to shareholders using industry-level unionization rates and local labor market-

[16] 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. The main 2SLS-IV estimates in Panel B are negative for all the large IO variables. That said, the estimates are not statistically significant for payroll and the Kleibergen-Paap rk Wald F statistics suggests that S&P 500 inclusion is a weak instrument in our setting, which is to be expected since its variation is driven primarily by index funds rather than active institutions.

level HHI of firm employment.[17] We estimate the following regression that interacts measures of large institutional ownership with the two proxies for labor bargaining power in turn:

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

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, a_{iKt} 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 double-clustered at the firm and commuting zone levels.

[Insert Table 6 here.]

Table 6 presents estimation results for Eq. (4) that uses industry unionization 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 the unionization rate 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 0.5% 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

[17] 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 unionization 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 (IO) × 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 revenues per employee as the dependent variable.[18]

[Insert Table 7 here.]

Columns 1 to 4 of Table 7 show a negative relation between labor productivity and all four measures of shareholder power. The coefficient estimates are significant at a less than 1% level for all proxies but the ownership HHI. The estimate for "Total block ownership" in column 3 shows that, when a given establishment experiences a ten-percentage point increase in block institutional ownership, its labor productivity declines by 2.5%.[19] Further supporting bargaining and conflicts of interests between powerful shareholders and workers, we find a significantly negative relation between large shareholder ownership and shareholder returns per employee, a measure of "shareholder value."[20] Specifically, columns 5 to 8 show a consistently positive relation between shareholder returns and the four measures of shareholder power, which is significant at a less than 1% level. The relation with shareholder returns is also economically significant. For example, the estimate for "Total block ownership" in column 7 shows 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 Table 7 suggest that the negative effects of powerful institutional shareholders on labor are more likely due to conflicts of interest between shareholders and workers, rather than strict monitoring of management in terms of its relationship with employees.[21]

4.3. Types of institutional shareholders

[18] 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).

[19] In Appendix Table A5, we show that the impact on productivity is robust to weighting by revenues and, when we look at dynamics, while its statistical significance weakens, the impact does not reverse over the longer run period of one or two years forward.

[20] We define shareholder returns as the change in log market value of equity per employee, which is measured as the ratio of stock market capitalization to the number of employees from Compustat.

[21] We have also examined whether, in line with the results on bargaining in the previous section, there is an interaction effects of large IO and industry unionization rates on shareholder value. The interaction effect is qualitatively consistent with the employment results, but statistically marginally significant or insignificant depending on the large IO measure. 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 unionization rates.

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. We then calculate the percentage of shares owned by each of the institutional investor types scaled by overall percentage institutional 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.

Panel A of Table 8 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. A plausible interpretation of the positive relations is that quasi-index funds are less likely to engage management relative to other types of institutions. 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).

[Insert Table 8 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 IO/Overall IO" in columns 3 and 7 show that a ten-percentage point increase in the relative share of dedicated institutional ownership is associated with 0.7% reductions both in employment and payroll.

The largest magnitude of the negative effect on labor comes from activist institutional investors. The coefficients on "Activist IO/Overall IO" in columns 4 (-0.725) and 8 (-0.761) 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

5.2% to 5.3% 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 their 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 Table 8 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.[22] The coefficient estimates are all positive and statistically significant across our four proxies, indicating that powerful shareholder-owned firms are more likely to be the 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

[22] 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 defined as equal to one for firms that have at least one announcement of an activism campaign in a given year.

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 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 1982 to 2014. The results shown in Figure 2 indicate that the rise in shareholder power explains about a 2 percentage-point decline, which is roughly one-third of the overall decline in total wages and salaries relative to GDI.

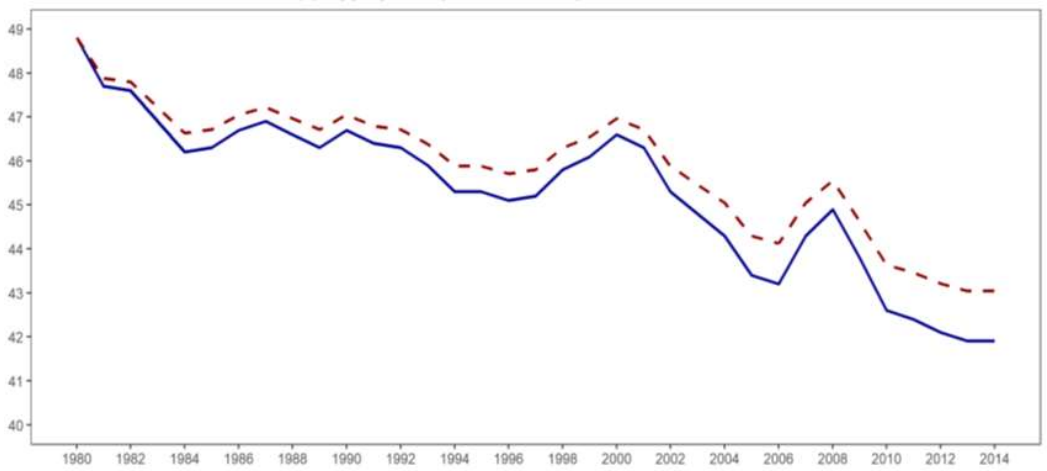

Figure 2: Implications for the Trend in Employee Compensation-to-GDI Ratio in the US, 1980–2014. This figure plots the ratio of total wage and salary accruals to domestic gross income (GDI) (blue solid line) and the counterfactual ratio of total wage and salary accruals to domestic gross income (GDI) (red dotted line) in the US for the period 1980–2014. The counterfactual ratio is constructed as the product of the estimate for block institutional ownership from Table 3 (Panel A, Column 3) times the change in average

blockholder ownership in any 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 13D, 13F, or 13G filings. The average block ownership is calculated excluding firms in the agriculture, financial, utility, and public administration sectors.

Of course, this 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 defined by SIC codes: manufacturing, retail trade, wholesale trade, and services.[23] 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.[24] To preserve the full time-series, we retrieve firm-level revenues from Compustat.[25]

[Insert Table 9 here.]

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

[23] Relative to Autor et al. (2020), we exclude utilities and transportation and finance sectors, given that our baseline establishment samples exclude the utilities and finance industries.

[24] 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 labor income or share. Another caveat is that our measure of the labor share uses revenues as a coarse measure of value added, which are not adjusted for intermediate input costs.

[25] While revenues from Compustat have the advantage of fuller time-series coverage relative to the revenue-enhanced 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 explanatory variable. For example, the unconditional within-sector standard deviation of the block ownership variable is about 2.8%. Thus, the coefficient estimate on "Total bock ownership" in column 6 implies that a 1-SD increase in block ownership is associated with a 2.8% (= 0.028 × (exp(-6.531) – 1)) decline in employment in a given sector. The corresponding coefficient at the establishment level in column 1 of Table 3 (Panel A) shows a similar economic magnitude of a within-establishment decline in payroll by 2% (= 0.145 × (exp(-0.150) – 1)) in response to a 1-SD increase in block ownership. Thus, the aggregate analysis confirms a material labor impact of rising shareholder power.

Turning to the implications for the labor share, between the beginning and the end of our sample period (1981-2015) it declined on average by 6.8 percentage points, which is comparable to the aggregate time-series decline in Figure 2. Over the same period, block institutional ownership increased, on average, by 8.9%. Thus, the coefficient estimate in column 3 of Table 9 implies that the 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 roughly comparable to our earlier back-of-the-envelope exercise 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 (Table 7), 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 repeat the analysis of the firm-level labor share by weighting the observations using firm revenues, the relation with the large institutional ownership variables becomes negative (albeit insignificant). Second, the negative relation between the aggregated sector-level large shareholder ownership and 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), 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.

Further reinforcing the notion that aggregation is driving the sector-level result, when we decompose the overall effect by margin using the decomposition approach of Autor et al. (2020), we find that both the within-firm and between-firm components contribute to the negative effect of large shareholders on the labor share (Panel C of Appendix Table A6). By contrast, the entry and exit components, which are arguably due to smaller firms, attenuate the impact.[26]

6. Conclusion

Labor markets in the U.S. 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 employment and labor income would be lower at firms owned by more powerful institutional shareholders, because the objectives and interests of the shareholders more likely conflict with those of the workers. Using confidential establishment-level data from the U.S. Census Bureau's Longitudinal Business Database from 1982-2015, we provide comprehensive evidence that supports this explanation, namely that establishments of firms owned by large and highly concentrated institutional shareholders have considerably lower employment and payroll. Overall, these findings support employment policies aimed at reforming shareholder capitalism by broadening the objective of the firm beyond the narrow maximization of shareholder value, such as increasing labor representation on boards or allowing for labor participation in firm governance.

[26] In Panel B of Appendix Table A6, we also show that the aggregate implications are robust to using a specification in first differences instead of levels.

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Table 1: Summary statistics on establishment observations from the LBD, 1982–2015

Panel A: All industries

	Mean	STD
Overall IO	0.597	0.266
Top 1 ownership	0.087	0.065
Top 5 ownership	0.237	0.120
Total block ownership	0.147	0.145
HHI of institutional ownership	0.072	0.110
Total employment	61.98	294.60
Log total employment	2.781	1.492
Total payroll ($000)	2,471.0	70,880.0
Log total payroll	5.811	1.715
Average wage ($000)	29.530	28.410
Log average wage	3.030	0.847
Establishments per firm	2,084	2,531
Establishments per segments (SIC3)	1,546	2,169
Establishments per segments (SIC4)	1,483	2,107
Establishment age (/100)	0.108	0.084
Emp growth rate	-0.004	0.356
Pay growth rate	0.005	0.422
Quasi index IO	0.585	0.224
Dedicated IO	0.131	0.164
Transient IO	0.215	0.152
Activist IO	0.005	0.017
Union	0.080	0.104
Observations	7,340,000	-

Panel B: Manufacturing

	Mean	STD
Overall IO	0.537	0.244
Top 1 ownership	0.081	0.059
Top 5 ownership	0.215	0.111
Total block ownership	0.120	0.128
HHI of institutional ownership	0.077	0.114
Total employment	295.50	792.10
Log total employment	4.517	1.645
Total payroll ($000)	13,670.0	64,110.0
Log total payroll	8.072	1.755
Average wage ($000)	42.680	29.310
Log average wage	3.549	0.660
Establishments per firm	331.9	829.3
Establishments per segments (SIC3)	19.4	34.9
Establishments per segments (SIC4)	16.7	33.8
Establishment age (/100)	0.149	0.096

Emp growth rate	-0.017	0.316
Pay growth rate	0.006	0.437
Quasi index IO	0.597	0.209
Dedicated IO	0.158	0.170
Transient IO	0.193	0.141
Activist IO	0.005	0.018
Unionization rate	0.185	0.117
Observations	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. We require each observation in the sample to have the lagged observation. "Total wage" is the total payroll in thousand dollars; "Total employment" is the number of total employees; "Average wage" is computed as total wage 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; "Emp (pay) growth rate" is the change in employment (payroll) scaled by sum of current and lagged employment (payroll); and "Unionization rate" is the industry-level percentage of the workforce covered by collective bargaining collected from the CPS. 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 IO" is the percentage owned by all institutional investors, "Top 1 ownership," "Top 5 ownership," and "Top 10 ownership," are the percentage owned by the largest, the largest 5, and the largest 10 institutional investors, respectively. "Top block ownership" is the percentage owned by blockholders, which are defined as the institutional investors with more than 5% holdings as filed through 13D, 13F, or 13G filings. "Quasi index IO," "Dedicated IO,' and "Transient IO" are the percentage owned by quasi-index, dedicated, and transient institutional investors as classified by Bushee (1998), scaled by overall institutional ownership. "Activist IO" is the percentage 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. "HHI of 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. The number of observations is rounded to the nearest thousand to follow the Census Bureau's disclosure rules.

Table 2: Effect of top institutional owners on establishment-level employment and payroll

Panel A: Full sample

	(1)	(2)	(3)	(4)
Dep. Var.:	Log emp.		Log pay	
Top 1 ownership	-0.217	-	-0.205	-
	-4.55	**-**	**-5.22**	**-**
Top 5 ownership	-	-0.233	-	-0.253
	-	**-6.00**	-	**-6.48**
Overall IO	0.069	0.123	0.084	0.149
	2.75	**4.85**	**3.35**	**5.84**
log(est's per segment)	-0.004	-0.004	0.003	0.003
	-0.76	**-0.81**	**0.56**	**0.50**
log(est's 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	0.9170	0.9170	0.9233	0.9233

Panel B: Manufacturing

	(1)	(2)	(3)	(4)
Dep. Var.:	Log emp.		Log pay	
Top 1 ownership	-0.295	-	-0.320	-
	-5.13	**-**	**-5.35**	**-**
Top 5 ownership	-	-0.290	-	-0.322
	-	**-6.76**	-	**-7.39**
Overall IO	0.194	0.261	0.228	0.304
	8.78	**9.73**	**9.43**	**10.55**
log(est's per segment)	0.005	0.004	0.007	0.006
	0.96	**0.84**	**1.26**	**1.12**
log(est's 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	0.9260	0.9260	0.9231	0.9231

Note: This table presents the effect 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 *t*-statistics based on standard errors adjusted for sample clustering at the firm are reported below the coefficient estimates. The numbers of observations are rounded to the nearest thousand to follow the Census Bureau's disclosure rules.

Table 3: Effect of blockholders and ownership concentration on establishment-level employment and payroll

Panel A: Full sample

	(1)	(2)	(3)	(4)
Dep. Var.:	Log emp.		Log pay	
Total block ownership	-0.150	-	-0.166	-
	-5.14	**-**	**-5.69**	**-**
HHI (institutional ownership)	-	-0.103	-	-0.085
	-	**-4.55**	-	**-2.78**
Overall IO	0.086	0.016	0.110	0.035
	3.69	**0.68**	**4.28**	**1.38**
log(est's per segment)	-0.004	-0.004	0.003	0.003
	-0.76	**-0.70**	**0.55**	**0.60**
log(est's 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	0.9170	0.9170	0.9233	0.9233

Panel B: Manufacturing

	(1)	(2)	(3)	(4)
Dep. Var.:	Log emp.		Log pay	
Total block ownership	-0.171	-	-0.195	-
	-6.37	**-**	**-6.83**	**-**
HHI (institutional ownership)	-	-0.157	-	-0.173
	-	**-7.02**	-	**-7.20**
Overall IO	0.215	0.129	0.255	0.157
	9.82	**6.42**	**10.57**	**7.43**
log(est's per segment)	0.005	0.005	0.006	0.007
	0.92	**1.02**	**1.21**	**1.32**
log(est's 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	0.9260	0.9260	0.9231	0.9231

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 *t*-statistics based on standard errors adjusted for sample clustering at the firm are reported below the coefficient estimates. The numbers of observations are rounded to the nearest thousand to follow the Census Bureau's disclosure rules.

Table 4: Robustness of baseline results

Panel A.1: Controlling for time-varying local labor market conditions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Var.:	Log emp.				Log pay			
Top 1 ownership	-0.286	-	-	-	-0.274	-	-	-
	-4.98	**-**	-	-	**-5.06**	**-**	-	-
Top 5 ownership	-	-0.256	-	-	-	-0.285	-	-
	-	**-5.95**	-	-	-	**-6.98**	-	-
Total block IO	-	-	-0.156	-	-	-	-0.173	-
	-	-	**-5.45**	-	-	-	**-6.27**	-
HHI (IO)	-	-	-	-0.108	-	-	-	-0.091
	-	-	-	**-4.50**	-	-	-	**-3.43**
Overall IO	0.072	0.126	0.086	0.013	0.087	0.154	0.110	0.032
	3.21	**5.31**	**4.03**	**0.63**	**4.04**	**6.61**	**4.84**	**1.41**
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
County-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	0.9186	0.9186	0.9186	0.9186	0.9248	0.9248	0.9248	0.9247

Panel A.2: Controlling for time-varying local industry-labor market conditions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Var.:	Log emp.				Log pay			
Top 1 ownership	-0.313	-	-	-	-0.320	-	-	-
	-4.64	**-**	-	-	**-5.40**	**-**	-	-
Top 5 ownership	-	-0.269	-	-	-	-0.315	-	-
	-	**-5.48**	-	-	-	**-7.09**	-	-
Total block IO	-	-	-0.165	-	-	-	-0.196	-
	-	-	**-5.13**	-	-	-	**-6.70**	-

HHI (IO)	-	-	-	-0.093	-	-	-	-0.086
	-	-	-	**-3.32**	-	-	-	**-3.85**
Overall IO	0.083	0.137	0.096	0.020	0.098	0.169	0.122	0.035
	3.17	**5.12**	**4.05**	**0.86**	**5.15**	**7.77**	**6.09**	**1.64**
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
R^2	0.935	0.935	0.935	0.935	0.934	0.934	0.934	0.934

Panel B: Moving average of institutional ownership measures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Var.:	Log emp.				Log pay			
Top 1 IO (MA)	-0.335	-	-	-	-0.303	-	-	-
	-4.34	**-**	-	-	**-4.04**	**-**	-	-
Top 5 IO (MA)	-	-0.321	-	-	-	-0.348	-	-
	-	**-5.82**	-	-	-	**-6.34**	-	-
Total block IO (MA)	-	-	-0.202	-	-	-	-0.221	-
	-	-	**-5.55**	-	-	-	**-5.78**	-
HHI (IO) (MA)	-	-	-	-0.120	-	-	-	-0.086
	-	-	-	**-3.88**	-	-	-	**-2.32**
Overall IO (MA)	0.089	0.160	0.114	0.022	0.099	0.185	0.137	0.042
	2.97	**5.02**	**3.82**	**0.75**	**3.29**	**5.85**	**4.22**	**1.25**
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	0.9170	0.9170	0.9170	0.9170	0.9233	0.9233	0.9233	0.9233

Panel C: Top and block ownership scaled by overall institutional ownership

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)
	Log emp.			Log pay		
Top 1 IO/overall IO	-0.110	-	-	-0.096	-	-
	-4.81	**-**	-	**-3.43**	**-**	-
Top 5 IO/overall IO	-	-0.134	-	-	-0.142	-
	-	**-6.59**	-	-	**-6.46**	-
Total block IO/overall IO	-	-	-0.056	-	-	-0.052
	-	-	**-3.71**	-	-	**-3.17**
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
R^2	0.9170	0.9170	0.9170	0.9233	0.9233	0.9233

Panel D: Not controlling for Overall IO

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log emp.				Log pay			
Top 1 ownership	-0.181	-	-	-	-0.146	-	-	-
	-3.20	**-**	-	-	**-2.29**	**-**	-	-
Top 5 ownership	-	-0.095	-	-	-	-0.088	-	-
	-	**-2.46**	-	-	-	**-2.02**	-	-
Total block IO	-	-	-0.081	-	-	-	-0.079	-
	-	-	**-2.84**	-	-	-	**-2.57**	-
HHI (IO)	-	-	-	-0.090	-	-	-	-0.075
	-	-	-	**-4.47**	-	-	-	**-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
R^2	0.917	0.917	0.917	0.917	0.9233	0.9233	0.9233	0.9233

Note: This table examines the robustness of the baseline effect of institutional ownership on employment and payroll of establishments. In Panels A and B, 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. In Panel C, the dependent variable is the log of employment (Columns 1 through 3) and the log of payroll (Columns 4 through 6). Panel A.1 includes county-by-year fixed effects, Panel A.2 includes county-by-commuting zone-by-year fixed effects, Panel B uses the two-year moving average of institutional ownership measures, and Panel C scales top and block institutional ownership measures by overall institutional ownership, as defined in Table 1. In Panel D, we do not include the Overall IO variable as control. Variables for institutional ownership are lagged by one year. The *t*-statistics based on standard errors adjusted for sample clustering at the firm are reported below the coefficient estimates. The numbers of observations are rounded to the nearest thousand to follow the Census Bureau's disclosure rules.

Table 5: Identification – Difference-in-differences analysis

Panel A: Descriptive statistics and diagnostic tests

	Treated, t-1		Control, t-1		(1) – (3)
	(1)	(2)	(3)	(4)	(5)
	Mean	**STD**	**Mean**	**STD**	***t*-stat.**
Total block ownership	0	0	14.910	11.770	-24.15
Overall IO	44.530	21.730	54.130	21.640	-5.51
Change in total block ownership	11.140	9.612	-2.075	5.123	19.65
Change in overall IO	9.450	16.460	11.330	8.472	-1.55
Log total employment	2.824	1.486	2.757	1.456	1.04
Log total payroll	5.723	1.703	5.670	1.681	0.72
Log average wage	2.899	0.838	2.913	0.816	-0.24
Establishments per segments	5.701	2.217	5.824	2.091	-0.68
Establishments per firm	6.529	1.750	6.537	1.661	-0.05
Establishment age (/100)	0.088	0.070	0.090	0.076	-0.85
Observations	429,000		757,000		

Panel B: Difference-in-differences estimates

	(1)	(2)	(3)	(4)
Dep. Var.:	Log emp.	Log pay	Log emp.	Log pay
Treat × d[t-5]	-0.016	-0.006	-0.006	0.002
	-1.32	**-0.58**	**-0.56**	**0.15**
Treat × d[t-4]	-0.005	0.001	0.004	0.004
	-0.37	**0.06**	**0.34**	**0.40**
Treat × d[t-3]	-0.010	-0.002	-0.008	-0.001
	-1.05	**-0.23**	**-0.72**	**-0.08**
Treat × d[t-2]	-0.007	0.000	-0.007	0.005
	-1.09	**-0.03**	**-0.87**	**0.68**
Treat × d[t-1]	0.000	0.000	0.000	0.000
	-	**-**	**-**	**-**
Treat × d[t]	-0.007	-0.012	-0.013	-0.014
	-0.89	**-1.43**	**-1.59**	**-1.59**
Treat × d[t+1]	-0.010	-0.025	-0.012	-0.026
	-1.02	**-2.72**	**-1.12**	**-2.71**
Treat × d[t+2]	-0.022	-0.021	-0.022	-0.022
	-2.11	**-2.29**	**-2.03**	**-1.95**
Treat × d[t+3]	-0.014	-0.022	-0.017	-0.028
	-1.22	**-2.10**	**-1.40**	**-2.52**
Treat × d[t+4]	-0.020	-0.019	-0.029	-0.025
	-1.82	**-1.68**	**-2.42**	**-1.76**
Treat × d[t+5]	-0.022	-0.021	-0.024	-0.026
	-1.68	**-1.97**	**-1.73**	**-1.86**
Establishment-level controls	Y	Y	Y	Y
Establishment fixed effects	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y
Control for overall and block IO (t-1 or earlier)			Y	Y

× event indicators				
Observations	9,251,000	9,251,000	9,251,000	9,251,000
R^2	0.9178	0.9323	0.9294	0.9412

Note: This table repeats the baseline analysis of the effect of institutional ownership on employment and payroll of establishments in a difference-in-differences (DD) setting. Panel A presents descriptive statistic for the sample employed and results of diagnostic tests. Panel B presents the main DD estimates. The dependent variable is the log of employment (Columns 1 and 3) and payroll (Columns 2 and 4) as defined in Table 1. The sample is limited to observations that involve more than 5% increases in block ("Treat") and overall institutional ownership ("Control"). The main DD estimates are in columns 1 and 2. Estimates for a DD specification that adds 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 are in columns 3 and 4. The *t*-statistics based on standard errors adjusted for sample clustering at the firm are reported below the coefficient estimates. The numbers of observations are rounded to the nearest thousand to follow the Census Bureau's disclosure rules.

Table 6: Mechanism – Interaction with Unionized Labor and Labor Market Concentration

Panel A: Interaction with Unionized Labor

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log emp.				Log pay			
Top 1 ownership	-0.414	-	-	-	-0.398	-	-	-
	-5.00	-	**-**	-	**-4.77**	-	**-**	-
Top 1 ownership × Union	1.843	-	-	-	1.826	-	-	-
	3.20	-	-	-	**2.46**	-	-	-
Top 5 ownership	-	-0.330	-	-	-	-0.346	-	-
	-	**-5.97**	-	-	-	**-5.90**	-	-
Top 5 ownership × Union	-	1.107	-	-	-	0.939	-	-
	-	**3.07**	-	-	-	**2.08**	-	-
Total block ownership	-	-	-0.202	-	-	-	-0.224	-
	-	-	**-5.24**	-	-	-	**-5.66**	-
Total block ownership × Union	-	-	0.819	-	-	-	0.886	-
	-	-	**2.86**	-	-	-	**2.56**	-
HHI (IO)	-	-	-	-0.111	-	-	-	-0.116
	-	-	-	**-3.06**	-	-	-	**-4.09**
HHI (IO) × Union	-	-	-	0.093	-	-	-	0.350
	-	-	-	**0.37**	-	-	-	**0.94**
Overall IO	0.073	0.125	0.085	0.016	0.088	0.153	0.109	0.036
	3.13	**5.10**	**3.73**	**0.68**	**3.70**	**5.97**	**4.29**	**1.40**
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	0.9170	0.9170	0.9170	0.9170	0.9233	0.9233	0.9233	0.9233

Panel B: Interaction with Labor Market Concentration

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log emp.				Log pay			
Top 1 ownership	-0.178	-	-	-	-0.157	-	-	-
	-2.34	**-**	-	-	**-1.68**	**-**	-	-
Top 1 ownership × HHI (SIC3-CZ)	-1.507	-	-	-	-1.804	-	-	-
	-2.00	-	-	-	**-1.78**	-	-	-
Top 5 ownership	-	-0.202	-	-	-	-0.200	-	-
	-	**-3.46**	-	-	-	**-3.37**	-	-
Top 5 ownership × HHI (SIC3-CZ)	-	-0.747	-	-	-	-1.280	-	-
	-	**-1.39**	-	-	-	**-1.93**	-	-
Total block ownership	-	-	-0.105	-	-	-	-0.108	-
	-	-	**-2.38**	-	-	-	**-2.29**	-
Total block ownership × HHI (SIC3-CZ)	-	-	-0.693	-	-	-	-1.003	-
	-	-	**-1.59**	-	-	-	**-1.81**	-
HHI (IO)	-	-	-	-0.048	-	-	-	-0.080
	-	-	-	**-1.99**	-	-	-	**-3.84**
HHI (IO) × HHI (SIC3-CZ)	-	-	-	-0.485	-	-	-	-0.065
	-	-	-	**-2.46**	-	-	-	**-0.23**
Overall IO	0.079	0.135	0.093	0.018	0.093	0.165	0.117	0.035
	3.14	**5.24**	**4.04**	**0.81**	**4.68**	**7.52**	**5.75**	**1.69**
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
R^2	0.9350	0.9350	0.9350	0.9350	0.9393	0.9394	0.9394	0.9393

Note: This table examines unionized labor as a mechanism behind the effect of institutional ownership on employment and payroll of establishments. Panel A reports results for the interaction with unionization. Panel B reports results for the interaction with labor market concentration. 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 and industry-level unionization rates ("Union") are lagged by one year. The standalone "Union" variable (Panel A) and local labor market HHI at the three-digit SIC-by-commuting zone level (Panel B) are included in all regressions but omitted in the table. The *t*-statistics based on standard errors adjusted for sample clustering at the firm and commuting zone levels are reported below the coefficient estimates. The numbers of observations are rounded to the nearest thousand to follow the Census Bureau's disclosure rules.

Table 7: Mechanism – Impact on Labor Productivity and Shareholder Return

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 IO	-	-	-0.247	-	-	-	0.626	-
	-	-	**-5.53**	-	-	-	**23.87**	-
HHI of block ownership	-	-	-	-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 table presents the effect of top 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 (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 *t*-statistics based on standard errors adjusted for sample clustering at the firm are reported below the coefficient estimates. The numbers of observations in Columns 1 to 4 are rounded to the nearest thousand to follow the Census Bureau's disclosure rules.

Table 8: Mechanism – Variation by Institutional Investor Type and Impact on Shareholder Activism

Panel A: Variation by Institutional Investor Type

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log emp.				Log pay			
Quasi index IO/Overall IO	0.046	-	-	-	0.036	-	-	-
	2.81	**-**	**-**	**-**	**2.30**	-	-	-
Transient IO/Overall IO	-	0.010	-	-	-	0.036	-	-
	-	**0.58**	**-**	**-**	**-**	**2.09**	**-**	-
Dedicated IO/Overall IO	-	-	-0.065	-	-	-	-0.065	-
	-	-	**-3.60**	**-**	**-**	**-**	**-3.41**	-
Activist IO/Overall IO	-	-	-	-0.697	-	-	-	-0.718
	-	-	-	**-3.16**	**-**	-	-	**-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	0.9170	0.9170	0.9170	0.9170	0.9233	0.9233	0.9233	0.9233

Note: This panel 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 *t*-statistics based on standard errors adjusted for sample clustering at the firm are reported below the coefficient estimates. The numbers of observations are rounded to the nearest thousand to follow the Census Bureau's disclosure rules.

Panel B: Impact on 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 IO	-	-	0.619	-

	-	-	**3.42**	-
HHI of block ownership	-	-	-	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 top institutional owners 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. Variables for institutional ownership are lagged by one year. The *t*-statistics based on standard errors adjusted for sample clustering at the firm are reported below the coefficient estimates. Data on announcements of shareholder activism campaigns is from Capital IQ's Key Developments database for 2000-2010.

Table 9: Aggregate Implications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dep. Var.:		Labor share			Log emp.			Log pay	
Top 1 ownership	-0.403	-	-	-6.071	-	-	-0.213	-	-
	-2.53	**-**	**-**	**-1.76**	**-**	**-**	**-0.06**	**-**	**-**
Top 5 ownership	-	-0.284	-	-	-6.392	-	-	-4.989	-
	-	**-3.1**	**-**	**-**	**-3.56**	**-**	**-**	**-2.77**	**-**
Total block ownership	-	-	-0.215	-	-	-6.531	-	-	-4.107
	-	**-**	**-2.41**	**-**	**-**	**-3.91**	**-**	**-**	**-2.41**
Overall IO	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**
Industry 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	0.8437	0.8481	0.8441	0.8816	0.8888	0.8905	0.8778	0.8829	0.8817

Note: This table repeats the analysis of the effect of institutional ownership on employment and payroll of establishments 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 (Columns 1 to 3), defined as the ratio of payroll to revenues, and log of employment (Columns 4 to 6) and 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.

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

Panel A: Firm-level employment and payroll

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Var.:	Log emp.				Log pay			
Top 1 IO	-0.741	-	-	-	-0.714	-	-	-
	-8.39	**-**	-	-	**-7.47**	**-**	-	-
Top 5 IO	-	-0.593	-	-	-	-0.624	-	-
	-	**-10.13**	-	-	-	**-9.29**	-	-
Total block IO	-	-	-0.466	-	-	-	-0.474	-
	-	-	**-12.54**	-	-	-	**-10.41**	-
HHI of block ownership	-	-	-	-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

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Var.:	Growth rate (emp.)				Growth rate (pay)			
Top 1 IO	-0.030	-	-	-	-0.080	-	-	-
	-1.96	**-**	-	-	**-3.05**	**-**	-	-
Top 5 IO	-	-0.036	-	-	-	-0.079	-	-
	-	**-3.13**	-	-	-	**-4.81**	-	-
Total block IO	-	-	-0.026	-	-	-	-0.061	-
	-	-	**-3.01**	-	-	-	**-5.07**	-
HHI of block ownership	-	-	-	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: 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 IO	-0.010	-	-	-	-0.059	-	-	-	-0.046	-	-	-
	-0.36	**-**	**-**	**-**	**-2.36**	**-**	**-**	**-**	**-3.5**	**-**	**-**	**-**
Top 5 IO	-	-0.026	-	-	-	-0.075	-	-	-	-0.047	-	-
	-	**-1.4**	**-**	**-**	**-**	**-4.34**	**-**	**-**	**-**	**-5.02**	**-**	**-**
Total block IO	-	-	-0.020	-	-	-	-0.055	-	-	-	-0.036	-
	-	**-**	**-1.68**	**-**	**-**	**-**	**-4.49**	**-**	**-**	**-**	**-4.87**	**-**
HHI of block ownership	-	-	-	0.005	-	-	-	-0.016	-	-	-	-0.021
	-	**-**	**-**	**0.33**	**-**	**-**	**-**	**-1.2**	**-**	**-**	**-**	**-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**	**3.8**	**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	0.07943	0.07946	0.07946	0.07943	0.4342	0.4343	0.4343	0.4341	0.4756	0.4756	0.4756	0.4755

Note: This table examines the effect of 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 Panel B, 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. Variables for institutional ownership are lagged by one year. The *t*-statistics based on standard errors adjusted for sample clustering at the firm are reported below the coefficient estimates. The numbers of observations are rounded to the nearest thousand to follow the Census Bureau's disclosure rules.

Appendix Table A2: Alternative samples and employment outcomes

Panel A: Excluding acquisitions and bankruptcies

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	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 (institutional ownership)	-	-	-	-0.117	-	-	-	-0.121
	-	**-**	**-**	**-3.05**	**-**	**-**	**-**	**-2.63**
Overall IO	0.06597	0.133	0.07788	-0.01578	0.1004	0.1884	0.1256	0.0112
	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

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	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 IO	-	-	0.311	-	-	-	0.084	-	-	-	0.224.	-

	-	-	**13.23**	-	-	-	**8.37**	-	-	-	**9.94**	-
HHI of block ownership	-	-	-	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 institutional ownership on employment and payroll for an alternative sample and alternative employment outcomes. In Panel A, we repeat the baseline analysis after excluding acquisitions and bankruptcies. The information on bankruptcies and acquisitions is from Compustat delisting reason variable ("DLRSN"). The specification and variable definitions are otherwise 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-collected 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 are reported below the coefficient estimates. The numbers of observations are rounded to the nearest thousand in Panel A to follow the Census Bureau's disclosure rules.

Appendix Table A3: Robustness to alternative DD specifications

Panel A: Robustness to Imputed DD

Dep. Var.:	(1) Log emp.	(2) Log pay
Treat × d[t-5]	-0.006	0.002
	-0.56	**0.15**
Treat × d[t-4]	0.004	0.004
	0.34	**0.40**
Treat × d[t-3]	-0.008	-0.001
	-0.72	**-0.08**
Treat × d[t-2]	-0.007	0.005
	-0.87	**0.68**
Treat × d[t-1]	0.000	0.000
	-	**-**
Treat × d[t]	-0.013	-0.014
	-1.59	**-1.59**
Treat × d[t+1]	-0.012	-0.026
	-1.12	**-2.71**
Treat × d[t+2]	-0.022	-0.022
	-2.03	**-1.95**
Treat × d[t+3]	-0.017	-0.028
	-1.40	**-2.52**
Treat × d[t+4]	-0.029	-0.025
	-2.42	**-1.76**
Treat × d[t+5]	-0.024	-0.026
	-1.73	**-1.86**
Establishment-treat fixed effects	Y	Y
Establishment-level controls	Y	Y
Industry-year fixed effects	Y	Y
Observations	9,251,000	9,251,000
R^2	0.9294	0.9412

Panel B: Robustness to Before-After DD

Dep. Var.:	(1) Log emp.	(2) Log pay	(3) Log emp.	(4) Log pay
Treat × After	-0.014	-0.019	-0.019	-0.023
	-1.67	**-2.47**	**-1.77**	**-2.46**
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 repeats the difference-in-differences (DD) analysis of the effect of institutional ownership on employment and payroll of establishments for alternative specifications. Panel A presents the main DD estimates. The dependent variables are defined in Table 1.and the sample is as in Table 5. Panel A shows estimates for a DD specification that adds controls for all lags of overall IO and block IO as well as their respective interactions with the event-time indicators (columns 1 and 2) and for a specification that is estimated using the imputation

methodology of Sun and Abraham (2021) (columns 3 and 4). Panel B shows results for a specification that replaces the event-time dummies for the years after the event with an "After" indicator. Main estimates are in columns 1 and 2 and estimates for a specification that adds controls for overall IO and block IO as well as their respective interactions with the event-time dummies are in columns 3 and 4. The *t*-statistics based on standard errors adjusted for sample clustering at the firm are reported below the coefficient estimates. The numbers of observations are rounded to the nearest thousand to follow the Census Bureau's disclosure rules.

Appendix Table A4: Robustness to alternative identification

Panel A: S&P Index inclusion IV, fist-stage

	(1)	(2)	(3)
Dep. Var.:	Top 1 IO/Overall IO	Top 5 IO/Overall IO	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: S&P Index inclusion IV, second-stage

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:		Log Employment			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 repeats the identification analysis of the effect of 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. 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 2 to 4) 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 are reported below the coefficient estimates. The numbers of observations are rounded to the nearest thousand to follow the Census Bureau's disclosure rules.

Appendix Table A5: Mechanism – 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 IO	-	-	-0.070	-	-	-	-0.025	-
	-	-	**-1.44**	-	-	-	**-0.52**	-
HHI of block ownership	-	-	-	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 table presents additional results on the effect of top institutional owners on labor productivity. Columns 1 to 4 repeat the analysis of Table 7 with each observation weighted using revenues. Columns 5 to 8 and 9 to 12 examine dynamics by replacing current productivity with one-year-ahead and two-year-ahead productivity as the dependent variable, respectively. The log of labor productivity is measured as revenue per employee from the revenue-enhanced LBD. Variables for institutional ownership are lagged by one year. The *t*-statistics based on standard errors adjusted for sample clustering at the firm are reported below the coefficient estimates. The numbers of observations in Columns 1 to 4 are rounded to the nearest thousand to follow the Census Bureau's disclosure rules.

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**
Year fixed effects	Y	Y	Y	Y	Y	Y
Firm 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: Aggregate implications – first-difference specification

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dep. Var.:		Labor share			Log emp.			Log pay	
Top 1 ownership	-0.423	-	-	-4.854	-	-	-0.637	-	-
	-2.05	-	-	**-1.33**	-	-	**-0.17**	-	-
Top 5 ownership	-	-0.219	-	-	-5.336	-	-	-4.364	-
	-	**-2.00**	**-**	**-**	**-3.11**	**-**	**-**	**-2.40**	**-**
Total block ownership	-	-	-0.020	-	-	-4.502	-	-	-3.086
	-	**-**	**-0.19**	**-**	**-**	**-2.37**	**-**	**-**	**-1.65**
Overall 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: Aggregate implications – decomposition of the labor share by margins

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dep. Var.:	Within	Reallocation	Entry+Exit	Within	Reallocation	Entry+Exit	Within	Reallocation	Entry+Exit
Top 1 ownership	-0.450	-0.406	0.433	-	-	-	-	-	-
	-1.99	**-0.99**	**1.41**	**-**	**-**	**-**	**-**	**-**	**-**
Top 5 ownership	-	-	-	-0.207	-0.415	0.403	-	-	-
	-	**-**	**-**	**-1.70**	**-2.09**	**2.80**	**-**	**-**	**-**
Total block ownership	-	-	-	-	-	-	-0.233	-0.079	0.292
	-	**-**	**-**	**-**	**-**	**-**	**-2.33**	**-0.49**	**2.65**
Overall 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**
Industry fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
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

Note: This table reports additional analysis of the effect of institutional ownership on employment and payroll of establishments at the aggregate industry sector level. In Panel A, the dependent variable is the firm-level labor share defined as the ratio of payroll 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 to 3) and unweighted (columns 4 to 6). In Panel B, we repeat the analysis of the aggregate implications at the two-digit SIC industry sector level using a specification in first differences (instead of levels). To focus on long-run changes, we calculate the changes as 10-year rolling changes. In Panel C, for the labor share, we re-estimate the specification in changes separately for each margin of variation, within (Columns 1, 4, and 7), between (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-C are reported below the coefficient estimates. The numbers of observations are rounded to the nearest thousand in Panel A to follow the Census Bureau's disclosure rules.