Shareholder Power and the Decline of Labor*

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Abstract

Shareholder power in the US grew over recent decades due to a steep rise in the concentration of institutional ownership. Using a fixed-effects and two difference-in-differences designs and establishment-level data from the US Census Bureau's Longitudinal Business Database for 1982-2015, this paper finds that an increase in institutional ownership concentration has negative employment and wage effects. The effects are more pronounced for dedicated and activist institutional shareholders and in industries where labor unions are less prevalent. The labor losses are accompanied by higher shareholder returns but no improvements in labor productivity, suggesting that shareholder power mainly reallocates rents away from workers. The likelihood of shareholder activism campaigns, CEO and board turnover increases, pointing to governance changes as the mechanism. The rise in institutional ownership concentration explains about one-fourth of the secular decline in the aggregate labor share.

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., Autor and Katz, 1999; Pierce and Schott, 2016; and Autor, Dorn, Katz, Patterson, and Van Reenen, 2020). Over the same period, the ownership structure of public corporations, which account for about half of private employment in the US, underwent radical changes. Figure 1 shows that a common measure of ownership concentration—block institutional ownership defined as the total ownership share of institutions with 5% or more stock holdings of a given firm—increased threefold, on average, from 1980 to 2014. By the end of the period, block institutional shareholders held over 14% of the equity shares of US public corporations, on average.[1] Figure 1 also shows that the aggregate labor share of income, measured as the ratio between aggregate wages and salaries to domestic gross income in the US, exhibited a steady decline.

These concurrent trends may in part reflect a direct link between the ownership structure of corporations and their employment decisions. Ownership concentration gives shareholders power to influence firm decisions by reducing coordination costs among investors (Grossman and Hart, 1980). Under classical agency theory of the firm (e.g., Jensen and Meckling, 1976), this power, in turn, allows shareholders to appropriate a greater share of firm resources at the expenses of workers through various mechanisms, such as activist campaigns or appointing CEOs and directors who align with their interests.

However, there is a dearth of systematic evidence on the consequences of rising shareholder power for labor. In the popular press, whether "shareholder capitalism"—i.e., the North American style of governance that since the 1980s has centered around the maximization of shareholder value as the objective of the firm—hurt workers remains hotly debated.[2] A recent labor literature has focused on changes in worker power due to declining union representation (Stansbury and Summers, 2020; and Farber et al., 2021). The literature on institutional shareholders has focused on the acquisition of ownership stakes by specific institutions such as activist hedge funds (Brav, Jiang, and Kim, 2015), which tend to take minority stakes while, as we show, it takes high levels of ownership concentration to trigger negative labor effects.

[1] See Table A1 for different measures of institutional ownership concentration. Among the important regulatory changes that contributed to the rise in shareholder power are the issuance of the Avon Letter in 1988 by the Department of Labor, which led to more active engagement by pension funds via proxy proposals, and new SEC rules on proxy voting in 1992, which facilitated institutional activism by reducing communication barriers between institutional investors and management (see Rock (2015) for details).

[2] See, for example, Business Roundtable Statement on the Purpose of the Corporation (2019), Posner (2019), Krugman (2015), and Stiglitz (2019).

To study the employment and wage effects of increases in institutional ownership concentration, we use micro data from the Census Bureau's Longitudinal Business Database (LBD). 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-years. The main identification challenge is firm selection. The assignment of institutional ownership to firms is not random because institutional shareholders choose which firms to invest in. A spurious correlation with labor outcomes may arise if institutional shareholders target firm characteristics that are correlated with labor outcomes. An instance of this standard selection concern is the so-called "return chasing" whereby institutions target firms based on past stock returns (see Grinblatt, Titman, and Wermers, 1995; and Badrinath and Waha, 2002). We address selection using two designs: i) a fixed-effects design that controls for time-invariant unobserved differences across firms that may drive institutions' investment decisions, and ii) difference-in-differences (DD) designs that additionally difference out time-varying unobserved differences across firms. For example, the fixed-effects design controls for selection due to institutions targeting firms with leaner or more bloated payroll or any other time-invariant factors that are correlated with it. In addition, if institutions target firms with either a decline of growth opportunities or higher stock returns, then these time-varying factors that are common across treatment and control groups will be differenced out in the DD designs.

Our primary finding is that increases in shareholder power, measured by institutional ownership concentration, are reliably associated with reductions in employment and wages. In the fixed-effects design, we estimate large negative impacts on employment and payroll, ranging between -1% and -1.8% at the establishment level and -2.6% and -4.3% at the firm level for a one-standard deviation increase in various measures of institutional ownership concentration.[3] In the first DD design, we find similar impacts for large changes in total block institutional ownership (defined as increases by 5 percentage points or more in the variable) relative to changes in diffused institutional ownership of similar magnitude. The impacts are larger for the second DD that exploits quasi-random increases in ownership concentration due to a mega-merger between two institutions with control motives. These ownership concentration increases are plausibly unrelated to the individual firms

[3] The measures of institutional ownership concentration are the percentage ownership of the largest one or five institutional shareholders, the percentage ownership of blockholders, and the Herfindahl-Hirschman Index (HHI) of institutional investors' ownership.

owned by the merging institutions because of the large size of their investment portfolios. There is no evidence of differential pre-trends in the DD designs.

As for the timing of the impacts, they start materializing relatively quickly within the first two years and remain significant in the long run. The impacts hold up in the aggregate at the industry sector level[4] and to several robustness checks, which include controlling for county-by-year fixed effects to address selection on local market conditions, for pre-event firm characteristics and their interactions with the event-time indicators to address pre-event differences, and for hedge fund activist events to ensure that the impacts are not just coming from institutions that have been previously examined in the literature.

We provide three additional analyses to understand the negative labor impacts. First, we conduct heterogeneity analysis by the type of institution and find substantial heterogeneity along this dimension. There are reliably negative labor impacts only for institutions with control motives—i.e., "dedicated" institutions based on the classification of Bushee (1998) or "activist" institutions.[5] We also explore heterogeneity by worker power and by the level of institutional ownership concentration and find larger impacts in industries where a smaller fraction of workers is unionized and for firms with high levels of concentration.

Second, we inspect the mechanism to understand how institutions affect labor. We document a positive and economically large association between ownership concentration and the main governance mechanisms that powerful institutions have at their disposal to influence the firm: public engagement of management via activism campaigns and appointment of new directors and CEOs aligned with institutions' interests. More directly connected to labor, there is a positive association between ownership concentration and the likelihood of the firm appointing a new CEO who is less "labor-friendly"—as measured by the count of forced layoffs in his previous job. Consistent with anecdotal evidence that activist campaigns often directly target restructuring and downsizing as cost cutting measures to reduce operating expenses, there is a strong negative association between ownership concentration and the number of firm establishments. While both establishment creation via birth or purchases and destruction via death or sales are impacted, the estimates are larger for

[4] We also find a negative relation between industry sector-level institutional ownership concentration and the labor share of income, defined as the ratio of payroll to revenues.

[5] Other types of institutions that do not have control motives, such as passive or short-term investors, are classified as "quasi-indexer" and "transient."

births and purchases, indicating that slowing down establishment creation is a relatively stronger force behind the extensive margin impacts.[6]

Third, to gauge whether the labor impacts can be attributed to stronger monitoring, such as curbing managerial preferences for the "quiet life" in labor relations (Bertrand and Mullainathan, 2003) or wealth transfer due to the increase in shareholders' bargaining power vis a vis workers,[7] we directly estimate the impacts on labor productivity and shareholder wealth. We find that the labor losses are accompanied by higher shareholder returns but lower labor productivity within one year and no apparent impacts on productivity over longer horizons. The short-run productivity loss is hard to reconcile with a monitoring channel which would predict efficiency gains. Rather, the increased shareholder returns are in line with a wealth transfer from workers to shareholders. 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 productivity.

This paper makes several key contributions to the literature. We contribute a new quasi-experimental design and a new finding on institutional ownership concentration to the literature on corporate governance and labor. Our finding that there are employment and wage losses due to institutional ownership concentration is complementary to the earlier evidence that managerial entrenchment, such as state-level anti-takeover statutes and dual-class shares, is associated with higher wages (Bertrand and Mullainathan, 2003; and Cronqvist et al., 2009). The finding is also complementary to existing studies of ownership, which have examined the employment effects of individual acquisitions of ownership stakes by specific institutions, such as activist hedge funds (Brav, Jiang, and Kim, 2015) by comparing affected firms to similar unaffected firms and found small to insignificant job losses. A practical explanation for the different findings is that activist hedge funds are a relatively small fraction (2.2%) of the broader set of institutions in our sample.[8] More substantively, the acquisitions of individual ownership stakes by hedge funds are typically small while, as we show, it takes high levels of ownership concentration to trigger negative labor effects. For example, the interquartile range of the initial ownership stakes in Brav, Jiang, and Kim (2009) is from 5.4% to 8.8%, while in our sample the interquartile range of total blockholder ownership involves

[6] These significant extensive margin impacts help to explain the larger magnitude estimates at the firm level (which include both the intensive and extensive margins, as well as any reallocation of workers across establishments within the firm) relative to those at the establishment level.

[7] A related channel is that firms more easily renege ex post on implicit contracts not to fire workers or cut payroll via restructurings or even hostile takeovers, as in the "breach of trust" hypothesis of Shleifer and Summers (1988).

[8] We show that our findings hold for the other institutions after controlling for hedge fund activists (Tables 1 and 2).

stakes from 8% to 25%. The novel insight is that from the standpoint of labor, the trouble is not whether an institution takes an individual ownership stake but whether institutions collectively become powerful with highly concentrated ownership stakes. An important implication is that policies aimed at reducing ownership concentration by promoting stock market participation of retail investors can be potentially beneficial for workers.[9]

A related contribution is to take a step toward understanding the broader consequences of rising shareholder power for the productivity and stock market valuations of US firms. By doing so, we join a recent literature that uses microdata to understand the determinants of value added and the declining labor share (see, for example, Kehrig and Vincent, 2021), which had not yet examined the role of institutional ownership concentration. These results also contribute to the broader literature on the consequences of institutional shareholders for US firms. For example, Aghion, Van Reenen, and Zingales (2013) study the role of institutional ownership in the governance of innovation. This literature has thus far focused on the overall level of institutional ownership. Our contribution is to highlight that the concentration of institutional ownership, not just its overall level, matters for US firms. Consistent with the previous literature, we find that overall institutional ownership is positively correlated with productivity. We then show that at least in the short run the relation with ownership concentration is negative and discuss an agency rationale for it.

Another primary contribution is to the literature that has sought to understand the factors behind the sluggish employment and earnings growth and declining labor share in the US. The analyses so far have focused on technology (Acemoglu, 2002) and competition in product markets (Autor et al., 2020; Autor, Dorn, and Hanson, 2013; Acemoglu, Autor, Dorn, Hanson, and Price, 2016; and Pierce and Schott, 2016) or labor markets (Benmelech, Bergman, and Kim, 2022). Our finding that the rise in institutional ownership concentration has helped depress employment, wages, and the labor share complements these studies by providing a novel explanation for the secular trends in US labor markets based on changes in the ownership structure of firms. A related recent literature also examines the role of firms in wage-setting (see, for example, Card, Heining, and Kline, 2013; and Song, Price, Guvenen, Bloom, and von Wachter, 2019). Our results reinforce these findings by providing a novel rationale for the role of firms in employment and wage setting decisions.

[9] While our sample of publicly-traded corporations does not include private equity buyouts, which comprise either public-to-private or private-to-private transactions, our findings are also complementary to recent evidence of large employment losses for public-to-private buyouts that involve firms most comparable to those in our sample (Davis et al. 2024; see Lichtenberg and Siegel, 1990, and Davis et al., 2014, for earlier work). Davis et al. (2024) discuss the differences in the nature of the governance and agency problems between publicly-traded and privately-held firms (see also Shleifer and Vishny, 1997).

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

2. Data and sample construction

Matched firm-establishment data: Census LBD. Our data source for annual establishment-level information on employment and payroll is the Longitudinal Business Database (LBD) from the US Census Bureau. The LBD coverage begins in 1977 and is comprehensive of all private business establishments with at least one employee in the United States (Jarmin and Miranda, 2002; and Chow et al., 2021).[10] For each establishment in the LBD, we retrieve matching information on firm institutional ownership from Thomson Reuters 13F SEC filings, which provide comprehensive coverage of all institutional investment managers with greater than $100 million in equity assets under discretionary management.[11] Throughout the paper, an institutional investor is defined as an institution that files a 13F.

We require that each establishment observation from the LBD have non-missing, positive values for employment and payroll, as well as their one-year lags, which are used in the analysis of

[10] The LBD employment, measured as of March 12 of a given year, includes full-time and part-time workers. In addition, we use a set of control variables standard among research analyzing establishment-level data employing Census micro datasets (see, for example, Schoar 2002; and Benmelech, Bergman, and Kim, 2022). Specifically, firm size is measured by the log number 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.

[11] All common stock holdings of 10,000 or more shares or having a value of $200,000 or more must be reported. Qualified securities include stocks listed for trading in the US. The quarterly holdings reported in the Form 13F represent the aggregate holdings of an institution (e.g., the Vanguard family of funds), rather than the holdings of any individual portfolio (e.g., the Contra fund in the Fidelity family of funds).

employment or payroll growth rates. To match establishments with firm-level institutional ownership variables from Thomson Reuters as of the first quarter of the previous year, we use the Census Bureau's bridge file between the firm identifiers in the LBD and Compustat.[12] We require that establishments have non-missing values of the matched institutional ownership variables. We exclude agriculture (SIC 0100-0900), utilities (SIC 4900-4999), financials (SIC 6000-6999), and public administration (SIC 9000-9999) industries. This sample selection procedure yields approximately 7,340,000 establishment-year observations from 1982–2015.[13]

Institutional ownership concentration. The main ownership variables for the fixed-effects analysis are defined as the holdings in a given firm's equity shares by a given type of institutional investors as a percentage of shares outstanding. *Overall institutional ownership* is the percentage owned by all institutional investors. *Top 1 ownership*, *Top 5 ownership*, *Total block ownership* are the percentages owned by the largest one and five institutional investors, and by all blockholding institutions, respectively. Blockholders are the institutional investors with more than 5% holdings as filed through Form 13F. To better distinguish between ownership types among institutional shareholders, we consider three additional variables: *Quasi-indexer ownership*, *Dedicated ownership*, and *Transient ownership*, which are the percentages owned by quasi-indexer, dedicated, and transient institutional investors as classified by Bushee (1998),[14] all scaled by *Overall institutional ownership*. Transient institutions in this classification have high portfolio turnover and diversified portfolios, while dedicated institutions have low turnover and more concentrated portfolio holdings. Quasi-indexer institutions have low turnover but diversified holdings. *Activist ownership* is the percentage owned by activist institutional investors as classified by Grennan (2019) based on institutional investors that have engaged in shareholder activism campaigns, scaled by *Overall institutional ownership*.[15]

DD analysis samples. We draw the analysis samples for the two DD designs from the matched firm-establishment sample. For the first DD design that exploits "large" increases in institutional ownership,

[12] 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 approximately by a year.
[13] The Thomson Reuters data are available from 1980 but we require up to two-year lagged institutional ownership variables for part of the analysis. The numbers of observations are rounded to follow the Census Bureau's disclosure rules.
[14] This approach begins with a large number of variables that have been used to describe institutional investor trading behavior and portfolio characteristics. To account for the high degree of multi-collinearity among these variables, principal factor analysis is used to generate a small number of common factors that explain the shared variance among the original variables. Institutions are then classified into groups using k-means cluster analysis on the factor scores.
[15] Grennan's list of activist institutions includes both hedge fund (the majority) and non-hedge fund institutions.

we draw a sample of establishments that experience an increase in total block institutional ownership from zero by 5 percentage points 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 total block institutional ownership.[16] We follow a similar approach to draw the samples for large increases in Top 1 and Top5 ownership. We retain five years of data before and after the event year, which yields approximately 9,251,000 establishment-year observations.

For the second DD design that exploits quasi-random increases in institutional ownership concentration, we compile a list of the top 20 mega-mergers involving institutional investors from Thomson Reuter's SDC Platinum, which includes deal values ranging between $3-13 billions. We require that the institutions involved in the merger be dedicated institutions, which leaves the mega-merger deal of about $4 billion value between Alliance Capital (AXA) and Sanford C. Bernstein in June 2000. After the death of its founder, Sanford C. Bernstein was left as one of the last large privately-held money managers in New York and its acquisitions reflected broader consolidation patterns in the industry. Shortly after the deal in August 2000 AXA divested its investment banking subsidiary, Donaldson, Lufkin & Jenrette, Inc. (DLJ), and thus we exclude holdings by DLJ from the sample.[17] We retain five years of data before and after the merger year, which yields approximately 1,291,000 establishment-year observations.

Additional data sources. When necessary, we supplement the main data with additional sources that include information on firm revenues from the revenue-enhanced (RE) LBD and Compustat. The firm-level revenue variables are available from 1997 in the RE LBD and throughout the sample period in Compustat. The RE LBD is a recent development by the Census Bureau and provides firm-level (but not establishment-level) revenues beginning in 1997 (see Haltiwanger et al., 2019). We construct data on collective bargaining coverage by following the approach in Hirsch and Macpherson (2003) and Benmelech, Bergman, and Kim (2022), to which we refer for details.[18] Finally, we retrieve from

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

[17] Ownership stakes below 0.02% are trimmed to zero. Finally, for both DD designs to be able to track the impacts on establishments before and after, we exclude establishments that are owned by multiple firms over the sample period.

[18] We compute the fraction of workers covered by labor unions at the industry level using the Current Population Survey (CPS) Outgoing Rotation Groups (ORG) data. The resulting data provide union coverage rate estimates, defined as the number of employees covered by labor unions divided by total employment, by Census Industry Code (CIC). Because our establishment-level data use SIC codes, we match the union coverage data with Census establishment-level data at the industry level using the Census Bureau's concordances between CIC codes and SIC codes. 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

standard sources information on CEO turnover (hand-collected from newswires and ExecuComp, see Falato, Li, and Milbourn (2015) for details), board turnover (from IRRC), and shareholder activism (from CapitalIQ's Key Development database).[19]

Summary statistics. Table A1 shows descriptive statistics for institutional ownership and establishment characteristics for the fixed-effects analysis sample (Panel A). The average overall institutional ownership is 59.7%, consistent with rising "institutionalization" of public firm ownership in the past decades. Panel B shows similar mean values of institutional ownership variables for manufacturing establishments. The high level of ownership by institutions in the US motivates our focus on concentrated ownership by these institutions, as the rest of the shares are held by more diffused investors, such as retail investors and insiders who hold smaller stakes.[20] The average ownership stakes by the largest five institutional investors and by blockholders, defined as institutional investors with at least 5% ownership, are 23.7% and 14.7%, respectively, and exhibit considerable variation with standard deviations of 12% and 14.5%. Ownership by "quasi-indexers" 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 monitoring institutions hold considerable ownership stakes in US public corporations.[21]

3. Empirical analysis

This section introduces our research designs and provides a detailed analysis of the relation between institutional ownership concentration and establishment employment and payroll.

3.1. Institutional ownership concentration and employment

Evidence from fixed-effects design. Our first design estimates the impact of institutional ownership concentration using the following fixed-effects specification:

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is used. Given that our industry-level database on union coverage begins in 1983 whereas our sample period starts in 1982, we impute the rate of collective bargaining coverage using the 1983 information for years 1981 and 1982.

[19] The Capital IQ Key Developments database 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, and company websites.

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

[21] The average establishment in the full sample employs 62 workers and pays about $2.5 million with average annual pay of $29,500 per worker, all shown under "Main dependent variables." Manufacturing establishments exhibit larger employment and payroll per establishment on average (296 and $13.7 million), with average annual pay of $42,700 per worker. The average establishment's (public) parent firm owns more than 2,000 establishments, and the average age of establishments is 10.8 years.

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

where y_{ijkt} denotes the outcome for establishment i of firm j in industry k and year t; a_i is establishment fixed effects; a_{kt} is three-digit SIC industry-by-year fixed effects. *Institutional ownership concentration*$_{jt-1}$ is a one-year lagged measure of institutional shareholders' ownership concentration. We include controls for *Overall institutional ownership*$_{jt-1}$, which is one-year lagged overall institutional ownership, to isolate variation in the concentration of institutional ownership over and above the level of institutional ownership.[22] A high level of institutional ownership may simply capture the presence of many different institutions with small individual stakes, while our aim is to isolate the impacts of concentrated ownership stakes by a handful of top holders. The other controls, X_{it-1}, include firm size and firm-segment size. Standard errors are clustered at the firm level. To examine firm-level effects we modify the specification by replacing the establishment fixed effects with firm fixed effects.

The coefficient of interest is β_1. The primary identification challenge is firm selection. The assignment of institutional ownership to firms is not random because institutional shareholders choose which firms to invest in. Spurious correlation with labor outcomes may arise if institutional shareholders target firms with characteristics that are correlated with labor outcomes. An instance of this standard selection (or reverse causality) concern is the so called "return chasing" whereby institutions target firm with high past stock returns. Our fixed-effects design addresses selection by controlling for time-invariant unobserved differences across establishments that may drive institutions' investment decisions. For example, the fixed-effects design controls for selection due to institutions targeting firms with leaner or more bloated payroll or any other time-invariant factors that are correlated with it. Controlling for *Overall institutional ownership* also helps to mitigate selection because any time varying firm characteristics that is correlated with the presence of institutional investors is controlled for. The approach has power because all measures of ownership concentration display considerable variation over time within firms.[23]

Table 1, Panel A shows that the point estimates for log employment are statistically significant for all the measures of ownership concentration and range between -0.103 (*t*-stat -4.55) and -0.233 (*t*-

[22] In robustness, we address multicollinearity concerns by dropping the control for *Overall institutional ownership* and scaling the *Institutional ownership concentration* measures by the former.

[23] The within-firm standard deviations are 0.038, 0.074, 0.095, and 0.094 for *Top 1*, *Top 5*, *Total block*, and *HHI*, respectively, which represent a substantial fraction of the total standard deviation and mean reported in Table A1.

stat -6.00) at the establishment level and -0.209 (*t*-stat -7.90) and -0.741 (*t*-stat -8.39) at the firm level. The implied economic magnitudes of employment impacts are large. For example, the estimates for *Total blockholder* ownership imply that a one-standard deviation increase in institutional ownership concentration is associated with 1.4% (= exp(-0.150 × 0.096) – 1)) and 4.3% (= exp(-0.466 × 0.094) – 1)) declines in employment at the establishment and firm levels, respectively. While the establishment-level specification controls for more granular fixed effects, the firm-level specification captures both intensive and extensive margins, which include the death or sale of existing establishments ("establishment destruction") and birth or purchase of new establishments ("establishment creation").[24] The larger magnitude of the firm-level estimates relative to their establishment-level counterparts indicates that both intensive and extensive margins are at play, an issue we examine more in depth in the analysis of the mechanism below.

Columns 1-4 in Appendix Table A2 report results of sensitivity checks on the establishment-level fixed-effects estimates.[25] The estimates are robust to: i) dropping establishment fixed effects (Row A.1);[26] ii) restricting the sample to manufacturing (Row A.3); iii) adding county-by-year or industry-by-commuting zone-by-year fixed effects to control for selection due to institutional shareholders targeting specific local labor markets (e.g., Moretti, 2011, Rows A.4-A.5); iv) instrumenting for institutional ownership concentration with the inclusion of a firm in the S&P 500 index, following Aghion, Van Reenen, and Zingales (2013, Row A.6);[27] v) using a moving average of two lags of institutional ownership to allow for delayed response (Row B.1); vi) scaling the institutional ownership concentration variables by overall institutional ownership, instead of including it as a control, or just dropping it as a control (Rows B.2-B.3); vii) using a specification in changes instead of levels with establishment fixed effects (Rows C.1-C.2); viii) excluding bankruptcies and acquisitions to ensure that the labor impacts are not just driven by these other corporate events (Row

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

[25] Row A.2 reports the coefficient estimate on *Overall institutional ownership*, which is positive and generally smaller than that on *Institutional ownership concentration*. This can be the case either because diffused institutional shareholders do not have the ability to influence firm decisions or because their objectives differ from those of concentrated institutional shareholders, as it may be the case for passive buy-and-hold institutions. We explore this possibility in more detail in Section 4.

[26] The estimates in the specification without establishment fixed effects are outsized, consistent with selection on time-invariant unobservables leading to upward bias.

[27] In line with the previous literature, there is a negative relation between S&P 500 inclusion and institutional ownership concentration, which likely owes to a relative increase in ownership by index funds that track the S&P 500 (i.e., the denominator) after inclusion. The 2SLS-IV estimates are negative for all institutional ownership concentration variables. However, the Kleibergen-Paap rk Wald *F* statistics suggest that S&P 500 inclusion is a weak instrument in our setting. This is to be expected since the relation with the instrument is driven primarily by index funds rather than active institutions.

D);[28] ix) using indicators for forced layoffs from Falato and Liang (2016) to confirm that the labor impacts are not due to voluntary separations (Rows E.1-E.2).

DD design: large increases in institutional ownership concentration. Our second design addresses selection on time-varying unobservables by netting them out between a "treatment" group that experiences large increases in institutional ownership concentration and a "control" group that does not experience an increase in concentration but a similarly-sized increase in dispersed institutional ownership.[29] The idea is that both groups are targeted by institutions and potential selection is plausibly driven by the same time-varying factors. For example, if institutions target firms with either declining growth opportunities or higher stock returns, then the DD design differences out these time-varying factors that are common across the two groups.

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

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

where $a_{i\times Treat}$ is establishment-by-treatment status fixed effects and $d[t+\tau]_{it}$ is an indicator variable equal to one if year t is $|\tau|$ years ($-5 \leq \tau \leq 5$) before or after treatment or inclusion in the control group for establishment i, and zero otherwise. Year *t-1* is the baseline year and thus $d[t-1]$ is equal to zero by construction. To help ensure that the large increases in institutional ownership continue after year t, we keep establishment observations from years *t+1* through *t+5* only if they are owned by the same firm as in year t. $Treat_i$ is an indicator variable equal to one if establishment i is in the treatment group and zero if it is in the control group. All other variables are defined as in Eq. (1).

Appendix Table A1, Panel B shows treatments are evenly distributed over the sample period. In Panel A of Figure 2 we examine covariate balance between treated and control establishments one year before the event. The identifying assumption for the DD design is that trends in outcome are parallel in the absence of treatment, but not that the characteristics of treated and control firms do not differ. Still, given that differences in covariates may lead to a violation of parallel trends, we assess covariate balance (Abadie, 2005). The two groups do not differ in terms of employment, firm and

[28] For example, Greenwood and Schor (2009) find that activist investor-targeted firms are more likely to be acquired.

[29] Specifically, we define the treatment group as establishments that experience an increase from zero by at least 5 percentage points in *Total block ownership* and the control group as establishments for which *Overall institutional ownership* increases by the same at least 5 percentage points but the change in *Total block ownership* is less than 5 percentage points. We use a similar approach for the other ownership concentration measures we examine below.

segment size, and age, suggesting no differential selection on these observables. However, the two groups differ in terms of the level of overall institutional ownership and concentration, which we address in robustness analysis.

Table 1, Panel B shows the point estimates for the effect of large increases in total block ownership on log employment in the long run (year $t+5$, δ_5). The estimates for $d[t+5] \times Treat$ at the establishment and firm levels are -0.022 (*t*-stat -1.68) and -0.067 (*t*-stat -2.87), respectively (Columns 1 and 7), with both having comparable magnitude to their counterparts in the fixed-effects design (Columns 1 and 5 in Panel A).[30] The long-run impacts little change when we use the Sun and Abraham (2021) estimator in Columns 2 and 8 to address the concern that standard two-way fixed effects DD estimates do not aggregate the treatment effects with appropriate weights (see also Borusyak, Jaravel, and Spiess, 2024).[31] The DD estimates are stable across several other sensitivity checks, presented in Appendix Table A3: i) dropping follow-on events (Panel A.1, Column 7); ii) either dropping the filter of zero total block ownership for treated or adding it for the control to make the two groups more comparable along pre-event levels of ownership (Panel A.2, Columns 1 and 3); iii) adding controls for hedge fund activism events to ensure that the impacts are not just coming from institutions that have been previously examined in the literature (Brav, Jiang, and Kim, 2015, Column 5);[32] iv) adding controls for pre-event overall institutional ownership and total block ownership and their respective interactions with the event-time indicators as an approach to addressing the residual pre-event differences (Panel A.1, Column 5, Angrist, 1998); and v) adding county-by-year fixed effects to address selection on local labor market conditions (Panel A.3, Columns 1 and 3).

Panel A of Figure 3 plots estimates for the full dynamics. 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. The coefficients on $d[t+\tau] \times Treat$ for the post-event period are all negative. The first significant estimate is for $\tau = 2$ (at the 10% level), suggesting that the impact starts in the short run. The contour for both the pre and post periods is stable across all the sensitivity checks (Appendix Table A3). Finally, we confirm the negative employment impacts for large increases in the other measures of ownership concentration (Appendix Table A3, Panel A.4).

[30] For example, relative to the control group, the treated group increases *Total block ownership* by 13.2 percentage points (= 0.111 – (-0.021)) on average, which using the fixed effects estimate in Column 1 in Panel A implies a 0.02 (= exp(-0.150 × 0.132) –1) decline in employment.

[31] In our setting, the concern is mitigated by two facts: i) we have never-treated observations in the control group; and ii) our treatment is not staggered.

[32] We thanks Alon Brav for sharing the hedge fund activism data.

Alternative DD design: quasi-random increases in institutional ownership concentration due to merger. Our final take on selection on time-varying unobservables is geared more directly toward generating a quasi-random assignment between treated and control firms. We exploit plausibly exogenous variation in ownership concentration from a mega-merger between institutions (see Section 2 for details). The idea is that because of the large size of investment portfolios of the merging institutions, any given individual portfolio firm represents a relatively small fraction of the overall portfolio and, thus, the merger decision is plausibly unrelated to it. Yet, firms that happened to be owned by both merging institutions before the merger experience an increase in ownership concentration and thus constitute our "treatment" group. By contrast, firms that happened to be owned by only one of the merging institutions do not experience an increase in ownership concentration and thus constitute our "control" group. Selection concerns stemming from institutions optimally changing ownership stakes are not present in this design because the increases in ownership concentration are not due the institutions' decision to acquire ownership stakes in individual firms.

Panel B of Figure 2 shows covariate balancing. There are differences in pre-merger levels between the treatment and control groups along overall institutional ownership, size, and age, which we address in robustness tests. Table 1, Panel C reports the long-run ($t+5$, δ_5) point estimates for re-estimating Eq. (2) using these alternative treatment and control groups and log employment as the outcome. The estimate for $d[t+5] \times Treat$ at the establishment level is -0.099 (t-stat -3.51, Column 1), which is a plausible magnitude in light of the sizable increase in institutional ownership concentration,[33] as well as the large standard deviation of employment growth for establishments (0.356). In addition, the larger magnitude relative to the other design points to dedicated institutions having larger impacts, which we confirm to be the case in additional heterogeneity analysis below.

The estimates are again stable across several sensitivity checks: i) adding county-by-year fixed effects to address selection on local labor market conditions (Panel B of Appendix Table A3, Column 3); ii) adding controls for pre-event overall institutional ownership, log employment and age and their respective interactions with the event-time indicators to address pre-event differences in these characteristics (Column 5); iii) adding controls for a "trim" indicator for the right tail of treated firms whose exclusion would make the difference in size between the two groups statistically insignificant on average, and its interaction with the event-time indicators as an alternative approach to addressing

[33] Relative to the control group, the treated group increases *Total block* and *Top one institutional ownership* by 5.4 and 5 percentage points, on average, respectively.

pre-event differences in characteristics (Column 7). The full dynamics in Figure 3, Panel B show that there is no differential trends between the treatment and control groups in the pre-merger period, supporting the identifying assumption. The coefficients on $d[t+\tau] \times Treat$ for the post-event period are all negative. The first significant estimate is for $\tau = 2$ (at the 1% level), confirming that there is also a short-run impact. The contour for both the pre and post periods is stable across the sensitivity checks.

3.2. Institutional ownership concentration and payroll

Table 2 shows the estimates for the payroll effects. The point estimates for log payroll in the fixed-effects design (Panel A) are statistically significant for all the measures of concentration and range between -0.085 (*t*-stat -2.78) and -0.253 (*t*-stat -6.48) at the establishment level and -0.216 (*t*-stat -8.15) and -0.714 (*t*-stat -7.47) at the firm level.[34] The long-run point estimates ($t+5$, δ_5) for the DD design with large increases in block institutional ownership (Panel B) at the establishment and firm levels are -0.021 (*t*-stat -1.97) and -0.067 (*t*-stat -2.83), respectively (Columns 1 and 7). The long-run impacts are stable across the sensitivity checks. The estimates on $d[t+\tau] \times Treat$ for the pre-event period (i.e., $\tau = -5$ through -2) in Figure 3, Panel A2 are statistically insignificant and economically small, pointing to no differential pre-trends. As for the timing of the payroll impacts, the coefficients on $d[t+\tau] \times Treat$ for the post-event period are all negative and the first significant estimate is for $\tau = 1$ (at the 10% level).[35] Finally, the long run ($t+5$, δ_5) point estimate for the DD design with quasi-random increases in ownership concentration (Panel C) at the establishment level is -0.05 (*t*-stat -1.89, Column 1), which is stable across sensitivity checks. Also for this DD design there is no differential trend between the treatment and control groups in the pre-merger period (Figure 3, Panel B2) and the coefficients on $d[t+\tau] \times Treat$ for the post-event period are all negative with the first significant estimate for $\tau = 3$ (at the 1% level).

[34] Columns 5-8 in Appendix Table A2 show that the estimates are robust to the same sensitivity checks we consider for log employment.

[35] We confirm the negative payroll impacts for large increases in the other measures of concentration in Appendix Table A3, Panel A.4.

4. Mechanism: What explains the labor impact of institutional ownership concentration?

This section explores the mechanisms underlying the negative labor impacts of institutional ownership concentration.

4.1. Which institutions matter for labor and why?

Which institutions impact labor. Dispersed ownership stakes limit equity holders' scope to influence the firm due to coordination costs (Grossman and Hart, 1980). Thus, by reducing coordination costs, an increase in ownership concentration gives power or "voice" to institutional shareholders—i.e., greater ability to influence firm decisions. As a first step toward understanding the mechanism, we examine whether the labor impacts are indeed attributable to institutions with such motives to influence the firm.

Panel A of Table 3 reports estimates of the employment (Columns 1-4) and payroll (Columns 5-8) effects from the fixed-effects design using measures of the relative importance of specific institution types among all institutional investors' ownership for a given firm (Eq. (1)).[36] Both for employment and payroll, the estimates are negative and significant only for dedicated institutions, which have long-term investment horizons and stronger incentives to engage management due to their concentrated holdings, and activist institutions, which are primarily hedge funds that engage in activist campaigns. Panel B reports the estimated impacts by ownership type for our DD design with large changes in ownership concentration (Eq. (2)).[37] Again, the effects are negative and large in magnitude only for dedicated or activist investors.

How institutions impact labor. In 2023, about a quarter of Russell 3000 firms in the US disclosed shareholder activism as a key risk in their annual reports to the SEC. Powerful institutions can influence the firm's labor decisions by engaging management publicly via such activism campaigns, which are often aimed at changing firm governance and management via appointment of new directors or CEOs aligned with their interests. Panels D-G of Appendix Table A5 examine these governance mechanisms using our fixed-effects design (Eq. (1)). Robust across measures of ownership concentration, we find increases in the likelihood of activism campaign (Panel D), forced CEO turnover (Panel E), and board turnover (Panel G). The magnitudes are economically large—in

[36] We drop the control for *Overall institutional ownership* from this specification because it is used as the scaling variable.
[37] For each institution type, we require that the respective ownership stake increases by 5 percentage points or more.

response to a one-standard deviation increase in total block ownership, these likelihoods increase by six, one, and two percentage points, respectively.

More directly related to labor, we find a positive relation between ownership concentration and the likelihood of appointing a new CEO who is less "labor-friendly," which we measure using the count of forced layoffs in his previous job (Panel F). Anecdotal evidence shows that activist campaigns often directly target job cuts as important cost cutting measures to reduce operating expenses and boost shareholder value. For example, see "Canadian Pacific To Cut 4,500 Jobs," *The Wall Street Journal*, December 12, 2012. After activist investor Bill Ackman won a proxy battle at Canadian Pacific, the railroad company decided to cut 23% of their workforce under its new chief executive Hunter Harrison who was appointed by Ackman.

Consistent with this anecdotal evidence on restructuring and downsizing, we find a strong negative association between the measures of ownership concentration and the number of firm establishments (Appendix Table A5, Panel D). Panel B and C show that, while both establishment creation (negatively) and establishment destruction (positively) are impacted, the estimates are larger for the former, indicating that slowing down establishment creation is a relatively stronger force behind the extensive margin impacts. These significant extensive margin impacts help explain the larger magnitude estimates at the firm level than establishment level in Tables 1 and 2—the former includes both the intensive margin effect within establishments and the extensive margin effect (as well as any potential reallocation of workers across establishments within the firm).

Which establishments are impacted. Stronger union presence should limit the scope for powerful shareholders to influence firm employment decisions (e.g., Stansbury and Summers, 2020; and Farber et al., 2021). To examine this possibility, we estimate the labor impacts in a specification that allows for heterogeneity by union coverage. Panel A of Appendix Table A4 reports the estimates for the fixed-effects design. The estimates on the interaction term with industry union coverage are significantly negative for both employment and payroll across all measures of ownership concentration.[38] Similarly, the estimates for the DD design with large increases in institutional ownership concentration in Panel B.1 indicate that unions mitigate the negative effect of powerful institutions on labor. Both the employment and payroll impacts are large and significant in the sub-

[38] The estimates in Column 2 imply that in industries where union coverage is zero, a ten-percentage point increase in *Top one ownership* is associated with a 4.1% reduction in employment. In industries where collective bargaining coverage is one-standard deviation above its mean (= 18.4%), the same magnitude increase in *Top one ownership* is related with a much smaller 0.7% reduction in employment.

sample of establishments with below-the-median union coverage but are muted for establishments with above-the-median union coverage. A related interpretation is that the (positive) effect of labor unions on employment and payroll (e.g., Freeman and Medoff, 1984) is reinforced by powerful institutional shareholders.

Further reinforcing the interpretation that the impacts are due to shareholder power stemming from ownership concentration, we examine heterogeneity of the effects by the level of institutional ownership concentration—either by adding a squared term or using two splines for below vs. above median values. Appendix Table A4, Panel C shows that the employment impacts are outsized for high levels of ownership concentration. These results point to a potential reason why previous studies that focus on the acquisition of ownership stakes by individual institutions (such as hedge fund activists) may have found weaker to mixed labor impacts—these individual stakes tend to be relatively small and thus do not always lead to large increases in ownership concentration. As such, the results highlight that the negative labor impacts do not necessarily emanate from individual institutions' ownership changes but rather from the handful of top institutional holders acquiring large stakes that make them as a whole powerful vis a vis labor.

4.2. Impacts on labor productivity and shareholder value

Who gains from the labor losses that we document? If powerful shareholders curb managers' preference for pursuing unproductive projects such as avoiding layoffs for personal benefit or "quiet life," then there would be improvements in labor efficiency. By contrast, pure bargaining and rent extraction imply either no effect on productivity—if shareholder power simply reallocates rents away from workers—or even a loss—if there is a loss of employee human capital or trust and morale (Shleifer and Summers, 1988). To explore these alternative predictions, we repeat our firm-level analysis with log of revenues per employee as the outcome in Eq. (1). Panel A of Table 4 shows a negative relation between labor productivity and all four measures of ownership concentration in the fixed-effects design (Columns 1-4). The estimate in Column 1 implies that labor productivity declines by 2.3% within one year for a one-standard deviation increase in total block institutional ownership. Panel B confirms the negative short-run impact on labor productivity in the DD design with large increases in ownership concentration. However, the labor productivity impact is not significant in the

medium (e.g., *t+2*) to long run (*t+5*).[39] The long-run insignificant change in productivity is more consistent with bargaining and rent-sharing than monitoring.

To further explore bargaining, we repeat the firm-level analysis with measures of shareholder value as outcomes. We find a strong positive relation between shareholder value as measured by the change in log market value of equity ("shareholder returns") per employee from Compustat and the four measures of ownership concentration in the fixed-effects design (Panel A of Table 4, Columns 5-8). For example, the estimate in Column 5 implies that shareholder returns increase by 5.9% for a one-standard deviation increase in total block institutional ownership. Large increases in ownership concentration in the DD design also lead to short-run increases in shareholder value as measured by stock returns from CRSP (Panel B of Table 4).

5. Aggregate implications

How much of the time-series decline in aggregate labor income (e.g., see Figure 1) can rising shareholder power explain? We examine the aggregate implications by performing a back-of-the-envelope counterfactual exercise building upon our micro evidence. Using the main estimates for payroll from Table 2 (Panel A, Column 1), we calculate the implied aggregate effect given the change in average total block institutional ownership from 1980 to 2014. The results in Figure 5 indicate that the rise in shareholder power explains about a 1.5-percentage point decline, which is approximately one-quarter of the overall decline in total wages and salaries relative to GDI.

Of course, this analysis is illustrative in that it extrapolates the micro estimates to the aggregate, which may not be valid in the presence of general or industry equilibrium effects. Hence, we perform the analysis of the effects of institutional ownership concentration on employment and payroll at the industry sector level as well. Following Autor et al. (2020), we examine the following industry sectors: manufacturing, retail trade, wholesale trade, and services.[40] In addition to (the log of) sector-level

[39] We confirm the insignificant long-run effect on labor productivity in the fixed-effects design—Panel A of Appendix Table A5 shows that across measures of ownership concentration, the estimates become economically small within two years and largely insignificant within three years.

[40] Given the importance of consistent industry classifications over time in this sector-level analysis, we employ the Fort and Klimet (2018) vintage-consistent North American industry classification system (NAICS) code, which is available in the LBD (no vintage-consistent SIC code is available in the LBD). We first assign each firm-year in the LBD a modal six-digit vintage-consistent NAICS code based on establishments' employment shares within firms. We then aggregate employment, payroll, revenues, and institutional ownership variables of firm-years in the manufacturing (NAICS codes 31-33), retail trade (44-45), wholesale trade (42), and services (54-81) sectors based on their modal NAICS codes. We use firm-level modal NAICS instead of establishment-level NAICS codes because the revenue and institutional ownership variables are available only at the firm level. We exclude the industries that Autor et al. (2020) exclude, such as schools, religious and political organizations, and labor unions. Relative to Autor et al. (2020), we further exclude utilities & transportation and financial sectors, given that our baseline establishment sample excludes the utilities and financial sectors.

employment and payroll, we examine the labor share of income, defined as the ratio of payroll to revenues at the sector level.[41] To preserve the full time-series, we retrieve firm-level revenues from Compustat.[42] The sector-level analysis spans 1981-2015 (instead of 1982-2015) because it does not require an extra lag of institutional ownership data.

Table 5 shows sector-level results using the total block institutional ownership as well as top one and five variables. Columns 1-3 and 4-6 present the within-sector relations between institutional ownership concentration and log employment and payroll, respectively, while Columns 7-9 examine the labor share of income. In line with the establishment-level estimates, the sector-level coefficient estimates are all negative and highly statistically significant in the majority of cases. To compare economic magnitudes, we calculate the implied change in the outcome for a one-standard deviation change in the ownership concentration variable. For example, the coefficient on *Total block ownership* in column 4 implies that a one-standard deviation increase in total block ownership within a given sector (2.8%) is associated with a 10.9% (= exp(-4.107 × 0.028) – 1) decline in the sector's payroll. The corresponding coefficients at the establishment and firm levels in Columns 1 and 5 in Table 2, Panel A imply similarly sizeable though smaller economic magnitudes. In response to a one-standard deviation increase in *Total block ownership*, the establishment's payroll declines by 1.6% (= exp(-0.166 × 0.096 – 1) and the firm's payroll declines by 4.4% (= exp(-0.474 × 0.094) – 1). Thus, the aggregate analysis further strengthens the overall evidence for material labor impact of rising shareholder power.

We now turn to the implications for the labor share. Between 1981 and 2015, the average sector-level labor share declined by 6.8 percentage points, which is comparable to the aggregate time-series decline in Figure 4. Over the same period, the sector-level total block institutional ownership increased by 8.9 percentage points, on average. Thus, the coefficient estimate in Column 7 in Table 5 (-0.215) implies that a 1.9-percentage point decline (= -0.215 × 0.089) in the sector-level labor share can be attributed to the increase in total block institutional ownership. This magnitude is comparable to the back-of-the-envelope estimate in Figure 4 (1.5 p.p.), corresponding to over one-quarter of the average decline of the labor share in the sector-level sample. These results suggest that shareholder power can explain a considerable portion of the aggregate decline in payroll relative to output.

[41] 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 estimates may understate the decline of the labor share. Another caveat is that our measure of the labor share uses revenues, which do not adjusted for intermediate input costs and thus are a coarse proxy for value added.

[42] While revenues from Compustat have the advantage of fuller time-series coverage relative to revenues from the RE LBD, which is available from 1997, one drawback is that they include foreign operations and, as such, are a less precise measure of domestic output.

Appendix Table A6 presents additional results that help clarify the sector-level estimates for the labor share. First, the labor share and productivity are inversely related, holding average wages per worker constant.[43] Thus, the negative sector-level relation between institutional ownership concentration and the labor share may appear inconsistent with the negative or flat relation with labor productivity at the firm level (see Table 4). However, when we run the analysis of the firm-level labor share by weighting the observations using firm revenues (Panel A), the relation with institutional ownership concentration becomes negative (albeit insignificant), qualitatively consistent with the sector-level results. Thus, the difference between the results for the labor share and productivity is due, at least in part, to how firms of different size respond to shareholder power. Second, the negative relation between institutional ownership concentration and the sector-level labor share is consistent with our finding of a significantly negative relation with wage growth rates in employment-weighted regressions (Appendix Table A2, Rows C.1-2). This finding suggests that cuts in per-worker wage are an important effect of ownership concentration for larger firms. Because these large firms represent a disproportionate share of aggregate revenues, they also drive the negative relation with the labor share in the aggregate.

Lastly, to further corroborate the idea that aggregation drives the sector-level result, we decompose the overall effect on the labor share by margin using the decomposition approach of Melitz and Polanec (2015) and Autor et al. (2020). We first confirm the sector-level results for the labor share in first differences (Panel B of Appendix Table A6), instead of levels with sector fixed effects. We then find that the "reallocation" components of changes in both the labor share (Panel C) and ownership concentration (Panel D)—which capture changes in weights of underlying firms across years—account for a bulk of negative relations between ownership concentration and the labor share at the sector level. The magnitude is as large as or larger than the "unweighted" component, depending on measures of ownership concentration.

6. Conclusion

Labor markets in the US have experienced a pronounced transformation over the last decades, with labor income stagnating despite strong productivity and profit growth. This paper sets forth an explanation based on the changing ownership structure of public firms. Motivated by the classical agency theory of the firm based on conflicts of interests between shareholders and stakeholders, we

[43] The labor share of income = [1/labor productivity] × wages per worker, where labor productivity = output/number of workers.

conjecture that increases in the concentration of institutional ownership should reduce employment and labor income—ownership concentration gives shareholders power to influence firm decisions which, in turn, allows shareholders to appropriate a greater share of firm resources at the expenses of workers. Using confidential establishment-level data from the US Census Bureau's Longitudinal Business Database from 1982-2015, we provide comprehensive evidence that supports this explanation. Increases in concentration of institutional ownership lower employment and payroll, while raising shareholder value without apparent increases in productivity. We also provide supportive evidence for the mechanism. Overall, these findings suggest policies aimed at reforming shareholder capitalism by broadening the objective of the firm beyond shareholder value maximization—such as increasing employee representation on boards or allowing for worker participation in firm governance—may help raise employment and wages. Future research should examine the impact of institutional ownership concentration on the outcomes of different type of workers.

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Table 1: The Effect of Institutional Ownership Concentration on Employment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Fixed Effects								
	Establishment-Level				Firm-Level			
	Total block	Top 1	Top 5	HHI	Total block	Top 1	Top 5	HHI
Inst. Ownership Concentration	-0.150 [-5.14]	-0.217 [-4.55]	-0.233 [-6.00]	-0.103 [-4.55]	-0.466 [-12.54]	-0.741 [-8.39]	-0.593 [-10.13]	-0.209 [-7.90]
N	7,340,000	7,340,000	7,340,000	7,340,000	45,000	45,000	45,000	45,000
R^2	0.917	0.917	0.917	0.917	0.979	0.979	0.979	0.979
Impact of 1SD RHS	-0.015	-0.010	-0.018	-0.008	-0.043	-0.028	-0.043	-0.026
Panel B: Difference-in-Differences, Large Changes in Ownership Concentration								
	Establishment-Level						Firm-Level	
	DD	Sun and Abraham	Drop Follow-on Events	Drop Treat Filter	Add Control Filter	Add Controls for HFAs	DD	Sun and Abraham
Treat × d[t+5]	-0.022 [-1.68]	-0.024 [-1.73]	-0.027 [-1.81]	-0.021 [-2.24]	-0.037 [-1.93]	-0.022 [-1.65]	-0.067 [-2.87]	-0.104 [-3.37]
N	9,251,000	9,251,000	7,980,000	17,680,000	4,368,000	9,346,000	39,000	39,000
R^2	0.918	0.929	0.918	0.914	0.924	0.913	0.976	0.980
Panel C: Difference-in-Differences, Quasi-Random Changes in Ownership Concentration								
	Establishment		County-Year FEs		Add Controls		Add Controls and Trim	
Treat × d[t+5]	-0.099 [-3.51]		-0.097 [-3.50]		-0.094 [-2.95]		-0.087 [-2.69]	
N	1,291,000		1,291,000		1,291,000		1,291,000	
R^2	0.930		0.932		0.931		0.931	

Note: This table presents the effect of institutional ownership concentration on employment. The dependent variable is the log of employment as defined in Table A1. Variables for institutional ownership are lagged by one year in Panel A. Panel A presents fixed-effects estimates. Panel B presents DD estimates for large changes in ownership concentration. Panel C presents DD estimates for quasi-random changes in ownership concentration. The numbers of observations are rounded to follow the Census Bureau's disclosure rules. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates in square brackets.

Table 2: The Effect of Institutional Ownership Concentration on Payroll

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Fixed Effects								
	Establishment-Level				Firm-Level			
	Total block	Top 1	Top 5	HHI	Total block	Top 1	Top 5	HHI
Inst. Ownership Concentration	-0.166	-0.205	-0.253	-0.085	-0.474	-0.714	-0.624	-0.216
	[-5.69]	[-5.22]	[-6.48]	[-2.78]	[-10.41]	[-7.47]	[-9.29]	[-8.15]
N	7,340,000	7,340,000	7,340,000	7,340,000	45,000	45,000	45,000	45,000
R^2	0.923	0.923	0.923	0.923	0.973	0.973	0.973	0.973
Impact of 1SD RHS	-0.016	-0.009	-0.019	-0.007	-0.043	-0.027	-0.045	-0.027
Panel B: Difference-in-Differences, Large Changes in Ownership Concentration								
	Establishment-Level						Firm-Level	
	DD	Sun and Abraham	Drop Follow-on Events	Drop Treat Filter	Add Control Filter	Add Controls for HFAs	DD	Sun and Abraham
Treat × d[t+5]	-0.021	-0.026	-0.024	-0.020	-0.034	-0.021	-0.067	-0.091
	[-1.97]	[-1.86]	[-1.88]	[-2.33]	[-1.82]	[-1.98]	[-2.83]	[-2.79]
N	9,251,000	9,251,000	7,980,000	17,680,000	4,368,000	9,346,000	39,000	39,000
R^2	0.932	0.941	0.932	0.930	0.936	0.924	0.970	0.980
Panel C: Difference-in-Differences, Quasi-Random Changes in Ownership Concentration								
	Establishment		County-Year FEs		Add Controls		Add Controls and Trim	
Treat × d[t+5]	-0.050		-0.051		-0.045		-0.037	
	[-1.89]		[-1.91]		[-1.68]		[-1.65]	
N	1,291,000		1,291,000		1,291,000		1,291,000	
R^2	0.944		0.945		0.944		0.944	

Note: This table presents the effect of institutional ownership concentration on payroll. The dependent variable is the log of payroll as defined in Table A1. Variables for institutional ownership are lagged by one year in Panel A. Panel A presents fixed-effects estimates. Panel B presents DD estimates for large changes in ownership concentration. Panel C presents DD estimates for quasi-random changes in ownership concentration. The numbers of observations are rounded to follow the Census Bureau's disclosure rules. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates in square brackets.

Table 3: Mechanism – Heterogeneity by Institutional Investor Type

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Fixed Effects								
	Employment				Payroll			
	Quasi-Index	Transient	Dedicated	Activist	Quasi-Index	Transient	Dedicated	Activist
Inst. Ownership	0.046	0.010	-0.065	-0.697	0.036	0.036	-0.065	-0.718
Share by Inst. Type	[2.81]	[0.58]	[-3.60]	[-3.16]	[2.30]	[2.09]	[-3.41]	[-3.70]
N	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000
R^2	0.917	0.917	0.917	0.917	0.923	0.923	0.923	0.923
Panel B: Difference-in-Differences, Large Changes in Ownership Concentration								
	Employment				Payroll			
	Quasi-Index	Transient	Dedicated or Activist		Quasi-Index	Transient	Dedicated or Activist	
Treat × d[t+5]	0.009	-0.023	-0.037		0.012	-0.025	-0.026	
	[0.34]	[-1.13]	[-1.90]		[0.60]	[-1.30]	[-1.53]	
N	7,154,000	6,698,000	7,066,000		7,154,000	6,698,000	7,066,000	
R^2	0.918	0.918	0.919		0.935	0.934	0.933	

Note: This table presents the effect of institutional ownership concentration on employment and payroll across different types of institutions. The dependent variable is the log of employment (Columns 1 through 4 in Panel A and Columns 1 through 3 in Panel B) and the log of payroll (Columns 5 through 8 in Panel A and Columns 4 through 3 in Panel B) as defined in Table A1. Variables for institutional ownership are lagged by one year in Panel A. Panel A presents fixed-effects estimates. Panel B presents DD estimates for large changes in ownership concentration. The numbers of observations are rounded to follow the Census Bureau's disclosure rules. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates in square brackets.

Table 4: Mechanism – The Effect of Institutional Ownership Concentration on Labor Productivity and Shareholder Value

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Fixed Effects								
	Labor Productivity [t+1]				Δ Shareholder Value			
	Total block	Top 1	Top 5	HHI	Total block	Top 1	Top 5	HHI
Inst. Ownership Concentration	-0.247	-0.422	-0.379	-0.0120	0.626	0.744	0.702	0.244
	[-5.53]	[-4.10]	[-5.61]	[-0.36]	[23.87]	[14.13]	[18.80]	[13.44]
N	45,000	45,000	45,000	45,000	75,474	75,474	75,474	75,474
R^2	0.829	0.829	0.829	0.829	0.368	0.365	0.366	0.366
Panel B: Difference-in-Differences, Large Changes in Ownership Concentration								
	Labor Productivity				Stock Returns			
`	DD		Sun and Abraham		DD		Sun and Abraham	
Treat × d[t+1]	-0.037		-0.073		0.075		0.081	
	[-1.78]		[-2.70]		[1.89]		[1.27]	
Treat × d[t+2]	-0.018		-0.025		0.118		0.096	
	[-0.80]		[-0.81]		[1.89]		[1.74]	
Treat × d[t+5]	-0.003		0.002		0.041		0.043	
	[-0.11]		[0.06]		[1.12]		[0.74]	
N	39,000		39,000		152,554		152,554	
R^2	0.836		0.850		0.413		0.562	

Note: This table presents the effect of institutional ownership concentration on labor productivity and shareholder value. The dependent variable is the log of labor productivity, which is measured as firm-level revenue per employee from the revenue-enhanced LBD (Columns 1 through 4 in Panel A and Columns 1 and 2 in Panel B) and the log of stock market value per employee, measured as the ratio of stock market capitalization to number of employees from Compustat (Columns 5 through 8 in Panel A) and stock returns (Columns 3-4 in Panel B, weighted by market capitalization). Variables for institutional ownership are lagged by one year in Panel A. Panel A presents fixed-effects estimates. Panel B presents DD estimates for large changes in ownership concentration. The numbers of observations are rounded to follow the Census Bureau's disclosure rules. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates in square brackets.

Table 5: Aggregate Implications

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

Note: This table repeats the analysis of the effect of institutional ownership concentration on employment and payroll at the aggregate industry sector level from 1981-2015. The level of aggregation is at the following sectors: manufacturing, retail trade, wholesale trade, and services. The dependent variable is the log of employment (Columns 1 through 3), and the log of payroll (Columns 4 through 6) as defined in Table A1, and the labor share of income, defined as the ratio of payroll to revenues (Columns 7 through 9). To preserve the full time-series, we retrieve firm-level revenues from Compustat. Variables for institutional ownership are lagged by one year. The *t*-statistics based on standard errors adjusted for sample clustering at the sector level are reported below the coefficient estimates in square brackets.

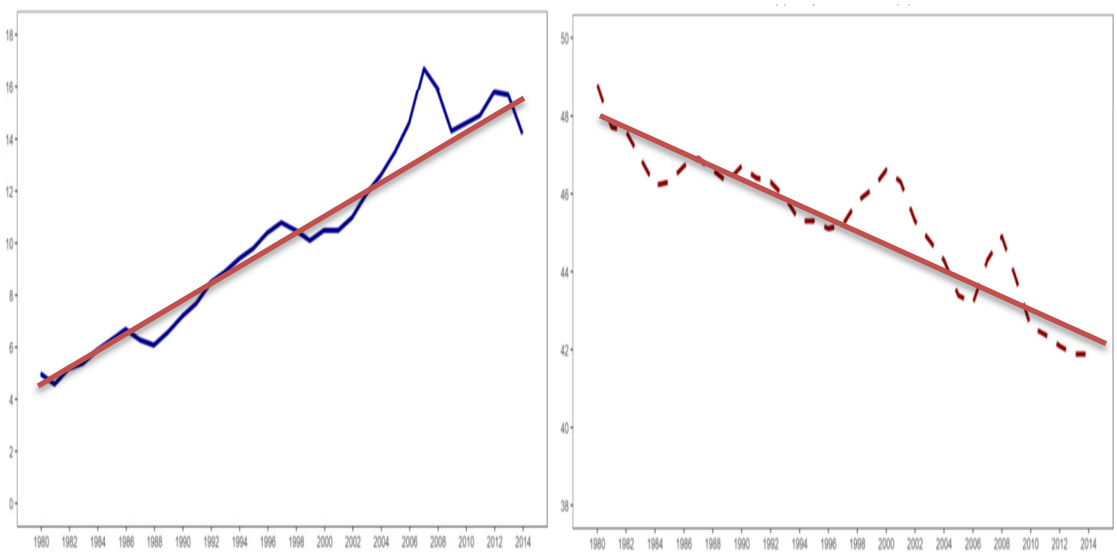
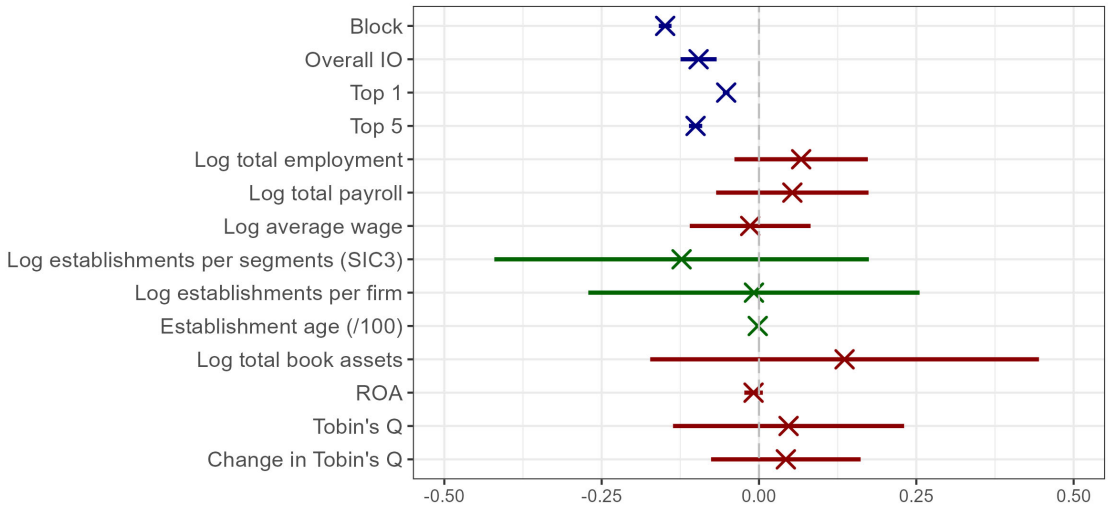


Figure 1: Trends in Institutional Ownership Concentration of Public Firms and Employee Compensation-to-GDI Ratio in the US, 1980–2014. This figure plots the average block institutional ownership for public firms (blue solid line; left panel) and the ratio of total wage and salary accruals to domestic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

Panel A – DD, Large changes in Ownership Concentration



Panel B – DD, Quasi-random Changes in Ownership Concentration

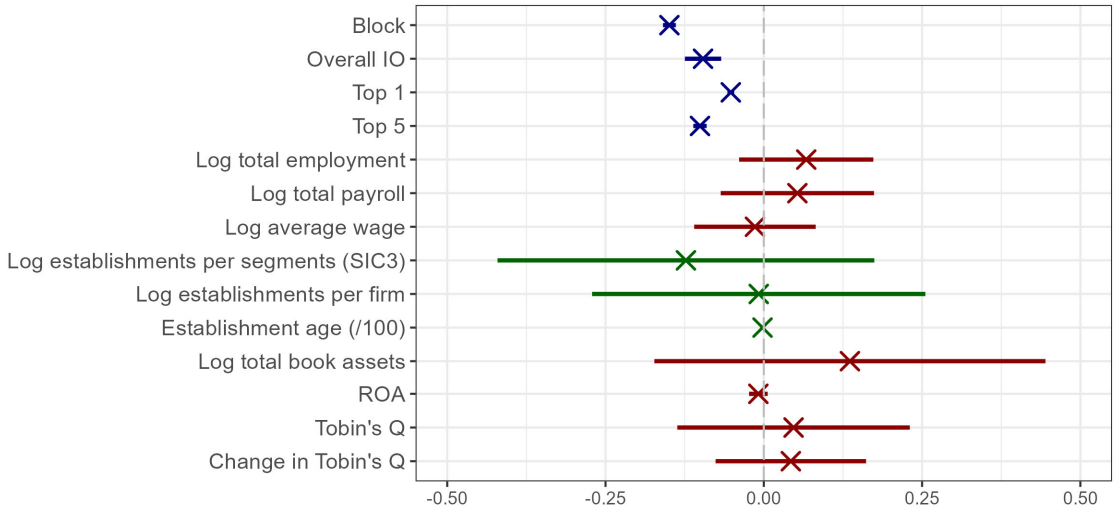
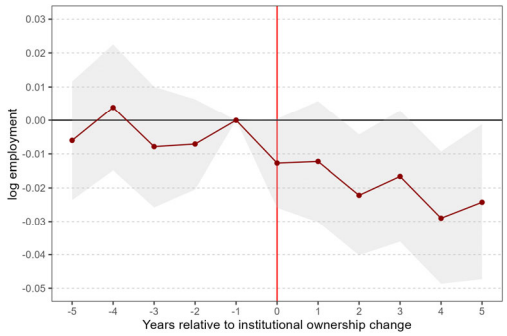
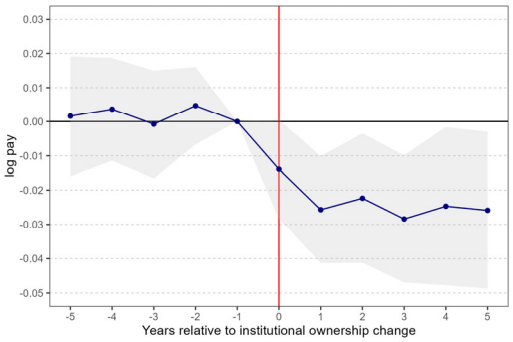


Figure 2: Difference-in-differences Analysis. This figure presents diagnostic tests of the difference-in-differences analysis of the effect of large changes in ownership concentration (Panel A) and of quasi-random changes in ownership concentration (Panel B). The diagnostic tests examine covariate balancing between the treated and control groups. All variables are defined in Table A1. The numbers of observations are rounded to follow the Census Bureau's disclosure rules. The 90% confidence intervals for the pre-event mean difference between Treated and Control based on standard errors adjusted for sample clustering at the firm level are reported.

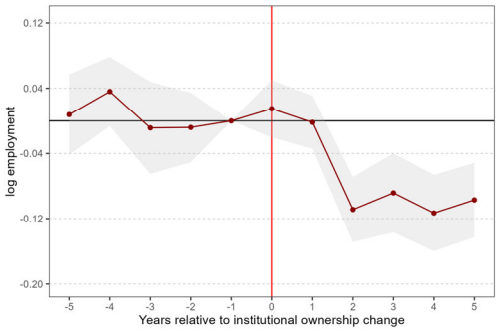
Panel A1 – Effect on log employment



Panel A2 – Effect on log payroll



Panel B1 – Effect on log employment



Panel B2 – Effect on log payroll

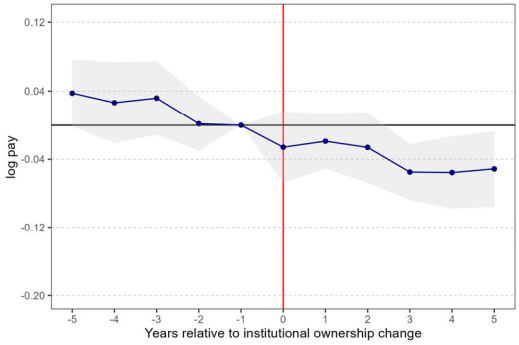


Figure 3: Difference-in-differences Analysis. This figure plots the dynamic difference-in-differences (DD) estimates of the effect of large changes in ownership concentration (Panel A) and of quasi-random changes in ownership concentration (Panel B) on employment and payroll. The dependent variables are defined in Table A1 and the sample is as in Tables 1 and 2. Detailed estimates are reported in Appendix Table A3. The estimates reported in Panel A are for the specification of Sun and Abraham (2021), which is robust to treatment effects heterogeneity. The estimates reported in Panel B include county-by-year fixed effects, as well as other fixed effects in Eq. (2). The 90% confidence intervals are based on standard errors adjusted for sample clustering at the firm level.

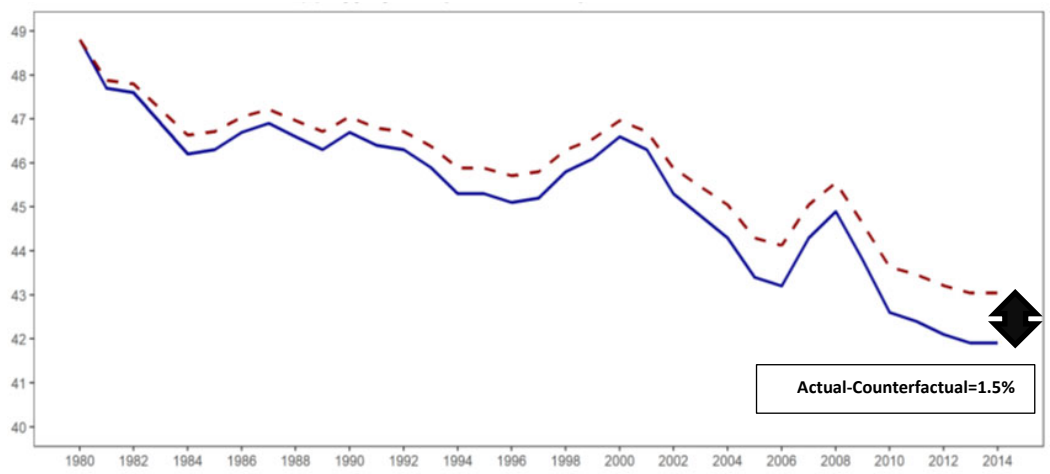


Figure 4: Aggregate Implications, 1980–2014. This figure plots the ratio of total wage and salary accruals to domestic gross income (GDI, blue solid line) and the counterfactual ratio of total wage and salary accruals to GDI (red dotted line) in the US for the period 1980–2014. The counterfactual ratio is constructed as the actual ratio minus the product of the estimated coefficient on block institutional ownership for payroll from Table 2, Panel A, column 1 (-0.166) and the change in average blockholder ownership in a given year relative to 1980. The compensation-to-GDI ratio is from the Federal Reserve Economic Data. Block institutional ownership is the percentage owned by institutional blockholders, defined as the institutional investors with more than 5% holdings as filed through Form 13F. The average block ownership is calculated excluding firms in the agriculture, financial, utilities, and public administration sectors.

Online Appendix for: Shareholder Power and the Decline of Labor

Antonio Falato, Hyunseob Kim, Till von Wachter

Table A1: Summary Statistics on Analysis Sample of Establishments of Publicly Traded Firms from the Longitudinal Business Database, 1982–2015

Panel A: Summary statistics for the sample used in the fixed effects analysis

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

Panel B: Summary statistics for the sample used in the DD analysis of large changes in ownership concentration

	Treatment		Control	
Year	Number of Events	Percentage of Events	Number of Events	Percentage of Events
1981	97	1.15	110	0.89
1982	102	1.21	124	1.00
1983	166	1.97	224	1.81
1984	160	1.90	272	2.20
1985	211	2.51	222	1.80
1986	244	2.90	335	2.71
1987	294	3.49	362	2.93
1988	227	2.70	245	1.99
1989	218	2.59	239	1.94
1990	245	2.91	296	2.40
1991	236	2.80	248	2.01
1992	237	2.81	318	2.58
1993	261	3.10	314	2.54
1994	328	3.89	373	3.02
1995	275	3.27	323	2.62
1996	378	4.49	381	3.09
1997	407	4.83	444	3.60
1998	415	4.93	520	4.21
1999	374	4.44	455	3.69
2000	345	4.10	442	3.58
2001	317	3.76	456	3.69
2002	307	3.65	587	4.76
2003	270	3.21	479	3.88
2004	289	3.43	677	5.49
2005	309	3.67	672	5.44
2006	314	3.73	479	3.88
2007	244	2.90	572	4.63
2008	250	2.97	559	4.53
2009	153	1.82	176	1.43
2010	144	1.71	351	2.84
2011	161	1.91	341	2.76
2012	164	1.95	215	1.74
2013	140	1.66	246	1.99
2014	140	1.66	285	2.31
Total	8,422	100.00	12,342	100.00

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. Panel A presents for the sample used int eh fixed effects analysis. We require each observation in the sample to be present at least two consecutive years. "Total employment" is the number of total employees; "Total payroll" is the total payroll in thousand dollars; "Average wage" is computed as total payroll divided by total employment (in thousand dollars); "Establishments per segment" is the number of establishments in a given three-digit SIC industry segment of a given firm; "Establishments per firm" is the total number of establishments of a given firm; "Establishments age" is the number of years since a plant's birth, which is proxied either by the flag for establishments birth in the LBD or by its first appearance in the LBD, whichever is earliest; "Employment (payroll) growth rate" is the change in employment (payroll) scaled by sum of current and lagged employment (payroll). The institutional holdings data are obtained from Thomson-Reuters 13F SEC filings. The ownership variables are defined as the percentage of shares outstanding owned by a given type of institutional investors: "Overall institutional ownership" is the percentage owned by all institutional investors; "Top 1 ownership" and "Top 5 ownership" are the percentage owned by the largest and largest five institutional investors, respectively; "Total block ownership" is the percentage owned by blockholders, which are defined as the institutional investors with more than 5% holdings as filed through Form 13F; "HHI institutional ownership" is the ownership concentration Herfindahl-Hirschman Index, which approaches zero when the firm is owned by a large number of institutional investors of relatively equal size and reaches its maximum of one when it is controlled by a single large institutional investor; "Quasi-index ownership/overall inst. ownership," "Transient ownership/overall inst. ownership," and "Dedicated ownership/overall inst. ownership" are the percentage owned by quasi-index, transient, and dedicated institutional investors as classified by Bushee (1998), scaled by overall institutional ownership; "Activist ownership/overall inst. ownership" is the percentages owned by activist institutional investors as classified by Grennan (2019) based on institutions who have engaged in shareholder activism campaigns, scaled by overall institutional ownership. "Union coverage" is the industry-level percentage of the workforce covered by collective bargaining collected from the CPS. The numbers of observations are rounded to follow the Census Bureau's disclosure rules. Panel B reports the annual number and frequency of events for the treatment and control groups in the DD analysis of large changes in ownership concentration.

Table A2: Robustness of Fixed Effects Estimates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Var.:	Log employment				Log payroll			
Main Indep. Var.:	Total block ownership	Top 1 ownership	Top 5 ownership	HHI inst. ownership	Total block ownership	Top 1 ownership	Top 5 ownership	HHI inst. ownership
[A.0] Baseline	-0.150	-0.217	-0.233	-0.103	-0.166	-0.205	-0.253	-0.085
	[-5.14]	[-4.55]	[-6.00]	[-4.55]	[-5.69]	[-5.22]	[-6.48]	[-2.78]
[A.1] OLS w/o establishment	-0.900	-1.097	-1.184	-0.573	-1.001	-1.038	-1.316	-0.558
fixed effects	[-7.95]	[-5.70]	[-7.36]	[-6.36]	[-7.96]	[-5.02]	[-7.21]	[-5.49]
[A.2] Estimates for Overall	0.086	0.069	0.123	0.016	0.110	0.084	0.149	0.035
Institutional Ownership	[3.69]	[2.75]	[4.85]	[0.68]	[4.28]	[3.35]	[5.84]	[1.38]
[A.3] Manufacturing	-0.171	-0.295	-0.290	-0.157	-0.195	-0.320	-0.322	-0.173
	[-6.37]	[-5.13]	[-6.76]	[-7.02]	[-6.83]	[-5.35]	[-7.39]	[-7.20]
[A.4] Control for local	-0.156	-0.286	-0.256	-0.108	-0.173	-0.274	-0.285	-0.091
labor market conditions	[-5.45]	[-4.98]	[-5.95]	[-4.50]	[-6.27]	[-5.06]	[-6.98]	[-3.43]
[A.5] Control for local	-0.165	-0.313	-0.269	-0.093	-0.196	-0.320	-0.315	-0.086
industry-labor market conditions	[-5.13]	[-4.64]	[-5.48]	[-3.32]	[-6.70]	[-5.40]	[-7.09]	[-3.85]
[A.6] Instrument for inst. own.	-0.533	-0.383	-0.255		-0.421	-0.303	-0.202	
with S&P500 Inclusion	[-1.59]	[-1.68]	[-1.80]		[-1.07]	[-1.11]	[-1.17]	
F-stat (Kleibergen-Paap rk Wald)	6.41	9.81	16.52		6.41	9.81	16.52	
[B.1] Use moving average of	-0.202	-0.335	-0.321	-0.120	-0.221	-0.303	-0.348	-0.086
institutional ownership	[-5.55]	[-4.34]	[-5.82]	[-3.88]	[-5.78]	[-4.04]	[-6.34]	[-2.32]
[B.2] Use top and block owner-	-0.056	-0.110	-0.134		-0.052	-0.096	-0.142	
ship scaled by overall inst. own.	[-3.71]	[-4.81]	[-6.59]		[-3.17]	[-3.43]	[-6.46]	
[B.3] Drop control for overall	-0.081	-0.181	-0.095	-0.090	-0.079	-0.146	-0.088	-0.075
institutional ownership	[-2.84]	[-3.20]	[-2.46]	[-4.47]	[-2.57]	[-2.29]	[-2.02]	[-2.55]
[C.1] Growth rates instead of	-0.026	-0.030	-0.036	0.002	-0.061	-0.080	-0.079	-0.025
establishment fixed effects	[-3.01]	[-1.96]	[-3.13]	[0.19]	[-5.07]	[-3.05]	[-4.81]	[-1.39]
[C.2] Growth rates, weighted	-0.020	-0.010	-0.026	0.005	-0.055	-0.059	-0.075	-0.016
	[-1.68]	[-0.36]	[-1.40]	[0.33]	[-4.49]	[-2.36]	[-4.34]	[-1.20]
[D] Excluding bankruptcies and	-0.188	-0.401	-0.333	-0.117	-0.236	-0.443	-0.403	-0.121
acquisitions	[-4.81]	[-3.69]	[-4.93]	[-3.05]	[-5.52]	[-3.76]	[-5.29]	[-2.63]
[E.1] Layoffs and cost-cutting	0.311	0.270	0.311	0.016	0.084	0.150	0.143	0.006
layoffs	[13.23]	[7.97]	[13.23]	[3.36]	[8.37]	[7.36]	[9.97]	[2.00]
[E.2] Downsizing and wages	0.224.	0.366	0.365	0.024	-0.036	-0.046	-0.047	-0.021
	[9.94]	[7.29]	[11.07]	[3.34]	[-4.87]	[-3.50]	[-5.02]	[-2.07]

Note: This table examines the robustness of the baseline fixed-effects estimates of the effect of institutional ownership concentration on employment and payroll. 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 A1. Row A.0 repeats the baseline estimates in Panel A of Tables 1 and 2, respectively. Row A.1 repeats

the baseline analysis without the inclusion of establishment fixed effects. Row A.2 reports the coefficient estimates for *Overall institutional ownership*. Row A.3 repeats the analysis for the sub-sample of establishments in manufacturing sectors. Row A.4 includes county-by-year fixed effects. Row A.5 includes industry-by-commuting zone-by-year fixed effects. Row A.6 presents results of instrumental-variables (IV) analysis 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 institutional ownership concentration, scaled by overall institutional ownership. First-stage diagnostic tests of instrument validity are also reported. Row B.1 uses the two-year moving average of institutional ownership measures. Row B.2 scales top and block institutional ownership measures by overall institutional ownership, as defined in Table 1. In Row B.3, we do not include *Overall institutional ownership* as control. In Row C.1, the dependent variable is the symmetric growth rate of employment and payroll. In Row C.2, we estimate weighted regressions using the employment of establishments as the weight, and the dependent variable is the symmetric growth rate. In Row D, we repeat the baseline analysis after excluding firms that eventually undergo bankruptcy or are involved in acquisitions. The information on bankruptcies and acquisitions is from the Compustat delisting reason variable ("DLRSN"). The specification and variable definitions are otherwise the same as in the baseline. In Row E.1, we repeat the analysis using a firm-level layoff indicator as the dependent variable (Columns 1 to 4). The information on layoffs announcements is from two data sources: the press, which we hand-collect from the Wall Street Journal and other major news sources using Factiva and Lexis-Nexis news searches, and Capital IQ's Key Development database (see Falato and Liang (2016) for additional details). Combining these two sources leads to an incidence of layoff announcements of about 8.5% of the firm-year observations. We also perform textual analysis of the news releases to gather more granular information on whether the layoff is motivated by cost-cutting reasons, whose incidence is about 2.6% of the firm-year observations (Columns 5 to 8). Finally, in Row E.2 we use downsizing announcements from Capital IQ's Key Development database, whose incidence is about 12% of the firm-year observations (Columns 1 to 4). We also report estimates of weighted regressions using the employment of establishments as the weight, and the dependent variable is the symmetric growth rate of wages, which are defined as the ratio of payroll to employment (Columns 5 to 8). Variables for institutional ownership are lagged by one year. The numbers of observations are rounded to follow the Census Bureau's disclosure rules. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates in square brackets.

Table A3: Detailed DD Estimates and Robustness

Panel A.1: DD, Large Changes in Ownership Concentration

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Baseline		Sun and Abraham		Control for pre- event diff. in IO		Drop follow on events	
Dep. Var.:	Log emp.	Log pay	Log emp.	Log pay	Log emp.	Log pay	Log emp.	Log pay
Treat × d[t-5]	-0.016	-0.006	-0.006	0.002	-0.014	-0.004	-0.020	-0.003
	[-1.32]	[-0.58]	[-0.56]	[0.15]	[-1.10]	[-0.39]	[-1.44]	[-0.24]
Treat × d[t-4]	-0.005	0.001	0.004	0.004	-0.001	-0.003	-0.009	0.002
	[-0.37]	[0.06]	[0.34]	[0.40]	[-0.11]	[-0.31]	[-0.65]	[0.18]
Treat × d[t-3]	-0.010	-0.002	-0.008	-0.001	-0.010	-0.004	-0.014	-0.003
	[-1.05]	[-0.23]	[-0.72]	[-0.08]	[-0.91]	[-0.48]	[-1.54]	[-0.33]
Treat × d[t-2]	-0.007	0.000	-0.007	0.005	-0.010	-0.005	-0.010	0.001
	[-1.09]	[-0.03]	[-0.87]	[0.68]	[-1.19]	[-0.52]	[-1.42]	[0.13]
Treat × d[t-1]	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	-	-	-	-	-	-	-	-
Treat × d[t]	-0.007	-0.012	-0.013	-0.014	-0.013	-0.016	-0.008	-0.013
	[-0.89]	[-1.43]	[-1.59]	[-1.59]	[-1.28]	[-1.74]	[-1.03]	[-1.53]
Treat × d[t+1]	-0.010	-0.025	-0.012	-0.026	-0.023	-0.023	-0.016	-0.027
	[-1.02]	[-2.72]	[-1.12]	[-2.71]	[-1.94]	[-2.35]	[-1.45]	[-2.70]
Treat × d[t+2]	-0.022	-0.021	-0.022	-0.022	-0.033	-0.035	-0.028	-0.022
	[-2.11]	[-2.29]	[-2.03]	[-1.95]	[-2.56]	[-2.55]	[-2.43]	[-2.23]
Treat × d[t+3]	-0.014	-0.022	-0.017	-0.028	-0.019	-0.031	-0.021	-0.023
	[-1.22]	[-2.1]	[-1.4]	[-2.52]	[-1.29]	[-2.60]	[-1.63]	[-2.14]
Treat × d[t+4]	-0.020	-0.019	-0.029	-0.025	-0.020	-0.025	-0.026	-0.022
	[-1.82]	[-1.68]	[-2.42]	[-1.76]	[-1.30]	[-1.75]	[-2.15]	[-1.82]
Treat × d[t+5]	-0.022	-0.021	-0.024	-0.026	-0.024	-0.024	-0.027	-0.024
	[-1.68]	[-1.97]	[-1.73]	[-1.86]	[-1.37]	[-1.77]	[-1.81]	[-1.88]
Establishment-level controls	Y	Y	Y	Y	Y	Y	Y	Y
Establishment-treat 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								
Control for overall and block IO (t-1 or earlier) × event indicators					Y	Y		
Control for HFA × event time dummies								
N	9,251,000	9,251,000	9,251,000	9,251,000	9,251,000	9,251,000	7,980,000	7,980,000
R^2	0.918	0.932	0.929	0.941	0.918	0.932	0.918	0.932

Panel A.2: DD, Large Changes in Ownership Concentration

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Drop Treat Filter		Add Control Filter		Control for HFA Events		Firm Level	
Dep. Var.:	Log emp.	Log pay	Log emp.	Log pay	Log emp.	Log pay	Log emp.	Log pay
Treat × d[t-5]	-0.006	-0.005	-0.008	0.001	-0.015	-0.006	0.004	0.009
	[-0.59]	[-0.56]	[-0.57]	[0.07]	[-1.23]	[-0.59]	[0.15]	[0.35]
Treat × d[t-4]	-0.010	-0.001	0.000	-0.014	0.005	0.001	-0.012	0.007
	[-0.81]	[-0.14]	[0.03]	[-1.11]	[-0.35]	[-0.07]	[-0.63]	[0.35]
Treat × d[t-3]	-0.005	-0.002	-0.031	-0.012	0.010	-0.002	0.013	0.010
	[-0.66]	[-0.34]	[-2.46]	[-1.25]	[-1.02]	[-0.24]	[0.79]	[0.58]
Treat × d[t-2]	0.003	0.000	-0.012	0.001	-0.007	0.000	0.007	0.009
	[0.51]	[0.07]	[-1.34]	[-0.10]	[-1.01]	[0.00]	[-0.58]	[0.68]
Treat × d[t-1]	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	-	-	-	-	-	-	-	-
Treat × d[t]	-0.006	-0.003	-0.008	-0.015	0.006	-0.011	-0.013	-0.042
	[-0.92]	[-0.45]	[-0.77]	[-1.24]	[-0.83]	[-1.36]	[-1.09]	[-3.60]
Treat × d[t+1]	-0.014	-0.013	-0.021	-0.024	0.009	-0.025	-0.049	-0.057
	[-1.63]	[-1.67]	[-1.81]	[-2.60]	[-0.94]	[-2.66]	[-3.22]	[-3.88]
Treat × d[t+2]	-0.020	-0.008	-0.021	-0.022	-0.022	-0.021	-0.063	-0.078
	[-2.63]	[-1.03]	[-1.58]	[-1.78]	[-2.06]	[-2.30]	[-3.61]	[-4.51]
Treat × d[t+3]	-0.009	-0.018	-0.018	-0.018	-0.013	-0.022	-0.062	-0.062
	[-1.03]	[-2.20]	[-1.09]	[-1.31]	[-1.15]	[-2.10]	[-3.08]	[-3.19]
Treat × d[t+4]	-0.015	-0.013	-0.031	-0.034	-0.019	-0.019	-0.050	-0.064
	[-1.96]	[-1.33]	[-1.57]	[-1.90]	[-1.73]	[-1.65]	[-2.40]	[-3.10]
Treat × d[t+5]	-0.021	-0.020	-0.037	-0.034	-0.022	-0.021	-0.067	-0.067
	[-2.24]	[-2.33]	[-1.93]	[-1.82]	[-1.65]	[-1.98]	[-2.87]	[-2.83]
Establishment-level controls	Y	Y	Y	Y	Y	Y	Y	Y
Establishment-treat 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		
Control for overall and block IO (t-1 or earlier) × event indicators								
Control for HFA × event time dummies					Y	Y		
N	17,680,000	17,680,000	4,368,000	4,368,000	9,251,000	9,251,000	39,000	39,000
R^2	0.914	0.930	0.924	0.936	0.929	0.941	0.976	0.970

Panel A.3: DD, Large Changes in Ownership Concentration

	(1)	(2)	(3)	(4)
	Control for county-year fixed effects			
	DD		Sun and Abraham	
Dep. Var.:	Log emp.	Log pay	Log emp.	Log pay
Treat × d[t-5]	-0.019	-0.007	-0.011	0.000
	[-1.57]	[-0.78]	[-1.01]	[0.03]
Treat × d[t-4]	-0.006	-0.001	0.001	0.001
	[-0.48]	[-0.09]	[0.05]	[0.11]
Treat × d[t-3]	-0.011	-0.003	-0.011	-0.004
	[-1.23]	[-0.41]	[-1.01]	[-0.38]
Treat × d[t-2]	-0.008	-0.001	-0.009	0.004
	[-1.26]	[-0.22]	[-1.09]	[0.64]
Treat × d[t-1]	0.000	0.000	0.000	0.000
	-	-	-	-
Treat × d[t]	-0.007	-0.012	-0.014	-0.015
	[-0.92]	[-1.47]	[-1.78]	[-1.73]
Treat × d[t+1]	-0.010	-0.025	-0.014	-0.026
	[-1.03]	[-2.75]	[-1.28]	[-2.81]
Treat × d[t+2]	-0.022	-0.021	-0.027	-0.027
	[-2.19]	[-2.30]	[-2.53]	[-2.43]
Treat × d[t+3]	-0.014	-0.022	-0.024	-0.033
	[-1.29]	[-2.18]	[-2.14]	[-3.06]
Treat × d[t+4]	-0.020	-0.019	-0.037	-0.032
	[-1.89]	[-1.75]	[-3.15]	[-2.46]
Treat × d[t+5]	-0.021	-0.021	-0.029	-0.030
	[-1.67]	[-2.00]	[-2.09]	[-2.14]
Establishment-level controls	Y	Y	Y	Y
Establishment-treat fixed effects	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y
County-year fixed effects	Y	Y	Y	Y
Control for overall and block IO (t-1 or earlier) × event indicators			Y	Y
Control for HFA × event time dummies				
N	9,251,000	9,251,000	9,251,000	9,251,000
R^2	0.918	0.932	0.918	0.932

Panel A.4: DD, Large Changes in Ownership Concentration

	(1)	(2)	(3)	(4)	(5)	(6)
	Top1		Top5		HHI	
Dep. Var.:	Log emp.	Log pay	Log emp.	Log pay	Log emp.	Log pay
Treat × After	-0.011	-0.007	-0.018	-0.019	-0.006	-0.015
	[-3.02]	[-1.97]	[-3.04]	[-3.80]	[-1.27]	[-4.69]
Establishment-treat fixed effects	Y	Y	Y	Y	Y	Y
Establishment-level controls	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y
N	27,050,000	27,050,000	21,200,000	21,200,000	44,110,000	44,110,000
R^2	0.911	0.926	0.914	0.929	0.910	0.923

Panel B: DD, Quasi-Random Changes in Concentrated Ownership

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Establishment		County-Year FEs		Add Controls		Add Controls and Trim	
Dep. Var.:	Log emp.	Log pay	Log emp.	Log pay	Log emp.	Log pay	Log emp.	Log pay
Treat × d[t-5]	0.005	0.035	0.008	0.038	-0.017	0.023	0.008	0.032
	[0.18]	[1.51]	[0.26]	[1.58]	[-0.53]	[0.97]	[-0.24]	[1.38]
Treat × d[t-4]	0.035	0.028	0.036	0.026	0.035	0.014	0.044	0.021
	[1.34]	[0.98]	[1.40]	[0.92]	[1.26]	[0.49]	[1.54]	[0.74]
Treat × d[t-3]	-0.013	0.029	0.009	0.032	-0.037	0.008	-0.033	0.012
	[-0.37]	[1.09]	[-0.25]	[1.22]	[-0.98]	[0.29]	[-0.86]	[0.42]
Treat × d[t-2]	-0.010	0.000	0.008	0.002	-0.029	-0.011	-0.027	0.009
	[-0.37]	[0.00]	[-0.31]	[0.09]	[-0.97]	[-0.45]	[-0.88]	[-0.36]
Treat × d[t-1]	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	-	-	-	-	-	-	-	-
Treat × d[t]	0.016	-0.025	0.015	-0.026	0.029	-0.019	0.030	-0.018
	[0.74]	[-0.97]	[0.70]	[-1.02]	[1.39]	[-0.85]	[1.43]	[-0.80]
Treat × d[t+1]	0.003	-0.020	0.002	-0.019	0.023	-0.015	0.026	-0.012
	[-0.13]	[-1.01]	[-0.09]	[-0.96]	[1.05]	[-0.76]	[1.17]	[-0.60]
Treat × d[t+2]	-0.110	-0.028	-0.109	-0.026	-0.102	-0.039	-0.099	-0.035
	[-4.59]	[-1.10]	[-4.48]	[-1.04]	[-3.91]	[-1.48]	[-3.78]	[-1.33]
Treat × d[t+3]	-0.091	-0.057	-0.088	-0.055	-0.094	-0.064	-0.089	-0.058
	[-3.09]	[-2.86]	[-3.00]	[-2.77]	[-2.89]	[-3.10]	[-2.71]	[-2.81]
Treat × d[t+4]	-0.111	-0.055	-0.113	-0.056	-0.109	-0.059	-0.104	-0.053
	[-3.94]	[-2.15]	[-3.97]	[-2.16]	[-3.46]	[-2.19]	[-3.28]	[-1.93]
Treat × d[t+5]	-0.099	-0.050	-0.097	-0.051	-0.094	-0.045	-0.087	-0.037
	[-3.51]	[-1.89]	[-3.50]	[-1.91]	[-2.95]	[-1.68]	[-2.69]	[-1.35]
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
County-year fixed effects			Y	Y				
Control for overall and block IO (t-1 or earlier) × event indicators					Y	Y	Y	Y
Control for Trim × event-time indicators							Y	Y
N	1,291,000	1,291,000	1,291,000	1,291,000	1,291,000	1,291,000	1,291,000	1,291,000
R^2	0.930	0.944	0.932	0.945	0.931	0.944	0.931	0.944

Note: This table reports detailed estimates and robustness to alternative specifications for the difference-in-differences (DD) analysis of the effect of institutional ownership concentration on employment and payroll of establishments. The dependent variables are defined in Table A1. Detailed estimates for all the specifications of the DD design involving large changes in ownership concentration are in Panel A. We report the following robustness of the DD design involving large changes in ownership concentration: 1) adding controls for pre-event (at t-1 or earlier) *Overall IO* and *Block IO* as well as their respective interactions with the event-time indicators (Columns 5 and 6 in Panel A.1), 2) adding county-by-year fixed effects to control for local labor market conditions (Columns 1 to 4 in Panel A.3), and 3) using the alternative measures of institutional ownership concentration (Panel A.4). Detailed estimates for all the specifications of the DD design involving quasi-random changes in ownership concentration are in Panel B. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates. The numbers of observations are rounded to follow the Census Bureau's disclosure rules.

Table A4: Mechanism – Heterogeneity by Unionized Labor, Institution Type, and Ownership Concentration

Panel A: Fixed Effects, Heterogeneity by unionized labor

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

Panel B.1: DD Large Changes in Concentrated Ownership, Heterogeneity by unionized labor

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Var.:	Log employment				Log payroll			
Sample:	High Union		Low Union		High Union		Low Union	
Treat × d[t-5]	-0.002		-0.038		-0.001		-0.008	
	[-0.15]		[-1.69]		[-0.05]		[-0.60]	
Treat × d[t-4]	-0.005		0.001		0.003		-0.001	
	[-0.42]		[0.03]		[0.30]		[-0.08]	
Treat × d[t-3]	-0.005		-0.016		-0.003		-0.005	
	[-0.52]		[-0.98]		[-0.29]		[-0.39]	
Treat × d[t-2]	-0.004		-0.011		0.006		-0.006	
	[-0.60]		[-0.96]		[0.69]		[-0.58]	
Treat × d[t-1]	0.000		0.000		0.000		0.000	
	-		-		-		-	
Treat × d[t]	0.006		-0.017		0.006		-0.027	
	[0.86]		[-1.24]		[0.68]		[-2.14]	
Treat × d[t+1]	-0.003		-0.014		-0.017		-0.031	
	[-0.30]		[-0.83]		[-1.97]		[-1.90]	
Treat × d[t+2]	-0.006		-0.037		0.000		-0.042	
	[-0.71]		[-1.96]		[-0.01]		[-3.22]	
Treat × d[t+3]	0.001		-0.028		0.002		-0.047	
	[0.08]		[-1.46]		[0.19]		[-3.09]	
Treat × d[t+4]	-0.019		-0.022		0.001		-0.042	
	[-1.49]		[-1.28]		[0.08]		[-2.86]	
Treat × d[t+5]	-0.009		-0.035		0.000		-0.044	
	[-0.69]		[-1.55]		[-0.03]		[-3.05]	
Establishment-level controls	Y		Y		Y		Y	
Establishment-treat fixed effects	Y		Y		Y		Y	
Industry-year fixed effects	Y		Y		Y		Y	
N	4,604,000		4,647,000		4,604,000		4,647,000	

Panel B.2: DD Large Changes in Concentrated Ownership, Heterogeneity by institution type

	(1)	(2)	(3)	(4)	(5)	(6)
	Quasi-Index		Transient		Dedicated or Activist	
Dep. Var.:	Log emp.	Log pay	Log emp.	Log pay	Log emp.	Log pay
Treat × d[t-5]	0.009	0.005	0.004	0.015	-0.010	0.009
	[0.49]	[0.33]	[0.20]	[0.95]	[-0.58]	[0.63]
Treat × d[t-4]	0.002	0.003	0.018	0.021	0.006	0.020
	[0.10]	[0.23]	[0.71]	[1.32]	[0.38]	[1.57]
Treat × d[t-3]	-0.013	0.003	0.005	0.001	0.003	0.003
	[-0.95]	[0.29]	[0.24]	[0.09]	[0.26]	[0.28]
Treat × d[t-2]	-0.003	0.002	-0.014	-0.002	-0.013	0.000
	[-0.25]	[0.29]	[-0.96]	[-0.19]	[-1.37]	[-0.04]
Treat × d[t-1]	0.000	0.000	0.000	0.000	0.000	0.000
	-	-	-	-	-	-
Treat × d[t]	0.003	-0.001	-0.002	-0.005	-0.021	-0.022
	[0.25]	[-0.11]	[-0.16]	[-0.47]	[-2.16]	[-2.09]
Treat × d[t+1]	0.012	-0.006	-0.007	-0.007	-0.027	-0.041
	[0.89]	[-0.56]	[-0.49]	[-0.46]	[-2.06]	[-2.93]
Treat × d[t+2]	-0.013	-0.012	0.003	-0.006	-0.034	-0.024
	[-0.68]	[-0.81]	[0.19]	[-0.37]	[-2.23]	[-1.50]
Treat × d[t+3]	0.000	-0.015	0.000	-0.007	-0.028	-0.018
	[-0.02]	[-0.98]	[-0.03]	[-0.43]	[-1.75]	[-1.20]
Treat × d[t+4]	0.011	-0.007	-0.014	-0.024	-0.035	-0.024
	[0.57]	[-0.34]	[-0.77]	[-1.16]	[-2.05]	[-1.44]
Treat × d[t+5]	0.009	0.012	-0.023	-0.025	-0.037	-0.026
	[0.34]	[0.60]	[-1.13]	[-1.30]	[-1.90]	[-1.53]
Establishment-level controls	Y	Y	Y	Y	Y	Y
Establishment-treat fixed effects	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y
N	7,154,000	7,154,000	6,698,000	6,698,000	7,066,000	7,066,000
R^2	0.918	0.935	0.917	0.934	0.919	0.933

Panel C: Fixed effects, Heterogeneity by ownership concentration

	Employment		
	Total block	Top 1	Top 5
Inst. Ownership Concentration	-0.040	-0.080	-0.389
	[-1.18]	[-1.74]	[-7.23]
Inst. Ownership Concentration^2	-0.350	-0.266	-0.373
	[-10.68]	[-7.01]	[-9.41]
Firm fixed effects	Y	Y	Y
Year fixed effects	Y	Y	Y
N	71,586	71,586	71,586
R^2	0.958	0.960	0.961
Inst. Ownership Concentration,	-0.121	0.002	-0.140
Below-Median Spline	[-7.03]	[0.14]	[-0.86]
Inst. Ownership Concentration,	-0.701	-0.486	-0.841
Above-Median Spline	[-30.01]	[-22.94]	[-33.14]
Firm fixed effects	Y	Y	Y
Year fixed effects	Y	Y	Y
N	71,586	71,586	71,586
R^2	0.957	0.960	0.961

Note: This table examines heterogeneity of the effect of institutional ownership concentration on employment and payroll. Panels A and B.1 report results for heterogeneity by unionization for the fixed effects and the DD involving large changes in institutional ownership concentration, respectively. The dependent variable is the log of employment (Columns 1 through 4) and the log of payroll (Columns 5 through 8) as defined in Table A1. The standalone variable for "Union" (Panel A) is included in regressions but omitted in the table. Panel B.2 report detailed estimates for heterogeneity by institution type for the DD involving large changes in institutional ownership concentration. Panel C reports results for heterogeneity by institutional ownership concentration for the fixed effects design. The numbers of observations are rounded to follow the Census Bureau's disclosure rules in Panels A and B. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates in square brackets.

Table A5: Mechanism – Detailed Estimates and Additional Analysis of the Effect on Labor Productivity, Shareholder Value, and Governance Outcomes

Panel A: Additional analysis of the impact on labor productivity								
	Log labor productivity [t+1]				Log labor productivity [t+2]			
	Top 1	Top 5	Total block	HHI	Top 1	Top 5	Total block	HHI
Inst. Ownership	-0.151	-0.150	-0.070	0.042	-0.121	-0.075	-0.025	-0.001
Concentration	[-1.43]	[-2.10]	[-1.44]	[1.09]	[-1.14]	[-1.04]	[-0.52]	[-0.03]
N	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000
Panel B: Additional analysis of the impact on establishment birth and death								
	Establishment birth rate				Establishment death rate			
	Top 1	Top 5	Total block	HHI	Top 1	Top 5	Total block	HHI
Inst. Ownership	-0.050	-0.029	-0.034	-0.019	0.022	0.021	0.016	0.002
Concentration	[-1.27]	[-1.09]	[-1.90]	[-1.81]	[1.28]	[1.83]	[2.01]	[0.49]
N	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000
Panel C: Additional analysis of the impact on establishment purchases and sales								
	Establishment purchase rate				Establishment sale rate			
	Top 1	Top 5	Total block	HHI	Top 1	Top 5	Total block	HHI
Inst. Ownership	-0.033	-0.025	-0.017	-0.002	0.013	0.011	0.006	0.001
Concentration	[-1.45]	[-1.69]	[-1.69]	[-0.42]	[2.11]	[2.80]	[2.15]	[0.65]
N	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000
Panel D: Additional analysis of the impact on the number of establishments and activism								
	Log number of establishments				1(Activism)			
	Top 1	Top 5	Total block	HHI	Top 1	Top 5	Total block	HHI
Inst. Ownership	-0.407	-0.375	-0.259	-0.071	0.543	0.679	0.619	0.037
Concentration	[-3.86]	[-5.25]	[-5.61]	[-3.38]	[1.95]	[3.53]	[3.42]	[1.44]
N	45,000	45,000	45,000	45,000	38,444	38,444	38,444	38,444
Panel E: Additional analysis of the impact on CEO turnover								
	1(CEO turnover)				1(Forced CEO turnover)			
	Top 1	Top 5	Total block	HHI	Top 1	Top 5	Total block	HHI
Inst. Ownership	0.022	0.036	0.026	0.024	0.065	0.110	0.091	0.083
Concentration	[1.89]	[2.43]	[2.08]	[2.05]	[2.11]	[2.77]	[2.65]	[2.67]
N	4,811	4,811	4,811	4,811	4,811	4,811	4,811	4,811
Panel F: Additional analysis of the impact on labor-unfriendly CEO appointments and director appointments								
	1(Labor-unfriendly CEO appointment)				Director appointments			
	Top 1	Top 5	Total block	HHI	Top 1	Top 5	Total block	HHI
Inst. Ownership	0.755	1.127	0.867	0.913	0.055	0.160	0.092	0.069
Concentration	[2.41]	[3.13]	[2.36]	[3.23]	[1.31]	[2.98]	[2.05]	[1.71]
N	387	387	387	387	11,435	11,435	11,435	11,435
Panel G: Additional analysis of the impact on director departures and board turnover								
	Director departures				Board turnover			

	Top 1	Top 5	Total block	HHI	Top 1	Top 5	Total block	HHI
Inst. Ownership	0.209	0.304	0.135	0.235	0.263	0.464	0.227	0.305
Concentration	[3.02]	[3.42]	[1.84]	[3.50]	[3.27]	[4.49]	[2.65]	[3.89]
N	11,435	11,435	11,435	11,435	11,435	11,435	11,435	11,435

Panel H: Detailed DD estimates of the effect on labor productivity and shareholder value

	(1)	(2)	(3)	(4)
Dep. Var.:	Labor productivity		Stock returns	
	DD	Sun and Abraham	DD	Sun and Abraham
Treat × d[t-5]	0.015	-0.035	0.019	0.029
	[0.51]	[-0.81]	[0.42]	[0.47]
Treat × d[t-4]	0.004	-0.021	0.031	0.005
	[0.14]	[-0.62]	[0.37]	[0.05]
Treat × d[t-3]	0.011	0.010	0.042	0.042
	[0.43]	[0.31]	[1.08]	[0.61]
Treat × d[t-2]	0.017	0.015	0.037	0.012
	[0.89]	[0.58]	[0.80]	[0.17]
Treat × d[t-1]	0.000	0.000	0.000	0.000
	-	-	-	-
Treat × d[t]	-0.053	-0.079	0.098	0.108
	[-2.97]	[-3.50]	[2.31]	[1.84]
Treat × d[t+1]	-0.037	-0.073	0.075	0.081
	[-1.78]	[-2.70]	[1.89]	[1.27]
Treat × d[t+2]	-0.018	-0.025	0.118	0.096
	[-0.80]	[-0.81]	[3.16]	[1.74]
Treat × d[t+3]	-0.018	-0.034	0.104	0.098
	[-0.79]	[-1.08]	[2.81]	[1.71]
Treat × d[t+4]	-0.035	-0.050	0.108	0.109
	[-1.31]	[-1.35]	[2.70]	[1.89]
Treat × d[t+5]	-0.003	0.002	0.041	0.043
	[-0.11]	[0.06]	[1.12]	[0.74]
Firm-level controls	Y	Y		
Firm-treat fixed effects	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y
N	39,000	39,000	152,554	152,554
R^2	0.836	0.850	0.413	0.562

Note: This tables reports detailed estimates and additional analysis of the effect on labor productivity, shareholder value, and governance outcomes. Panel A reports additional fixed effects estimates of the effect on labor productivity. The dependent variable is the log of labor productivity. Panels B and C report fixed effects estimates of the effect on establishment birth and death and establishment purchases and sales, respectively. Panel D reports fixed effects estimates of the effect on the number of establishment and shareholder activism,

which is an indicator that equals one for years when a firm becomes the target of an announced shareholder activism campaign. Data on announcements of shareholder activism campaigns is from Capital IQ's Key Developments database for 2000-2010. Panel E reports fixed effects estimates of the effect on CEO turnovers and forced CEO turnovers. Panel F reports fixed effects estimates of the effect on the appointment of labor-unfriendly new CEOs and of new directors. Panel F reports fixed effects estimates of the effect on director departures and board turnover. Panel H reports detailed DD estimates for the effect of large changes in institutional ownership on labor productivity and shareholder value. The numbers of observations in Panels A to D and Panel H are rounded to follow the Census Bureau's disclosure rules. The *t*-statistics based on standard errors adjusted for sample clustering at the firm level are reported below the coefficient estimates.

Table A6: Aggregate Implications – Additional Analysis

Panel A: Firm-level analysis of the labor share

	Labor share, revenue-weighted		
	Top 1	Top 5	Total block
Inst. Ownership	-0.038	-0.024	-0.021
Concentration	[-0.56]	[-0.59]	[-0.68]
N	66,500	66,500	66,500

Panel B: Sector-level analysis of employment, payroll, and the labor share

	ΔLog emp.			ΔLog pay			ΔLabor share		
	Top 1	Top 5	Total block	Top 1	Top 5	Total block	Top 1	Top 5	Total block
Inst. Own.	-4.854	-5.336	-4.502	-0.637	-4.364	-3.086	-0.423	-0.219	-0.020
Concentration	[-1.33]	[-3.11]	[-2.37]	[-0.17]	[-2.40]	[-1.65]	[-2.05]	[-2.00]	[-0.19]
N	100	100	100	100	100	100	100	100	100

Panel C: Sector-level decomposition of Δlabor share by margins

	ΔLabor share, Unweighted			ΔLabor share, Reallocation			ΔLabor share, Entry+Exit		
	Top 1	Top 5	Total block	Top 1	Top 5	Total block	Top 1	Top 5	Total block
Inst. Own.	-0.450	-0.207	-0.233	-0.406	-0.415	-0.079	0.433	0.403	0.292
Concentration	[-1.99]	[-1.70]	[-2.33]	[-0.99]	[-2.09]	[-0.49]	[1.41]	[2.80]	[2.65]
N	100	100	100	100	100	100	100	100	100

Panel D: Sector-level decomposition of Δownership concentration by margins

Dep. Var.:	ΔLabor share								
	ΔOwnership concentration, Unweighted			ΔOwnership concentration, Reallocation			ΔOwnership concentration, Entry+Exit		
	Top 1	Top 5	Total blockf	Top 1	Top 5	Total block	Top 1	Top 5	Total block
Inst. Own.	-0.090	-0.208	-0.047	-0.316	-0.266	-0.109	0.230	0.131	-0.006
Concentration	[-0.37]	[-1.21]	[-0.34]	[-3.60]	[-4.72]	[-1.21]	[1.46]	[1.10]	[-0.06]
N	100	100	100	100	100	100	100	100	100

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