Shareholder Power and the Decline of Labor*

Antonio Falato†

Hyunseob Kim‡

Till von Wachter§

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Abstract

Using confidential establishment-level data from the U.S. Census Bureau's Longitudinal Business Database from 1982-2015, this paper examines how shareholder power affects firm employment and payroll decisions. Consistent with theory of the firm based on conflicts of interests between shareholders and stakeholders, we find that establishments of firms owned by larger and more concentrated institutional shareholders have lower employment and payroll. These results are not driven by unobserved heterogeneity across establishments or differences in exposure to industry and local shocks. The results are more pronounced for dedicated and activist institutional shareholders and in industries where a smaller fraction of labor is unionized. Our findings suggest a possible role for employment policies that aim at reforming shareholder capitalism.

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

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† Federal Reserve Board; Email: antonio.falato@frb.gov; Phone: (212) 662-1185.

‡ Johnson School of Management, Cornell University; Email: hk722@cornell.edu; Phone: (607) 255-8335.

§ Department of Economics, UCLA; Email: tvwachter@econ.ucla.edu; Phone: (310) 825-5665.

1. Introduction

The decline of labor, amid stagnant wages and falling employment, is a well-documented stylized fact of U.S. labor markets over the last decades (see, e.g., Pierce and Schott, 2016, and Autor, Dorn, Katz, Patterson, and Van Reenen, 2020). At the same time, public corporations, which account for a large share of private employment, underwent radical changes in their ownership structure with the rising importance of large institutional shareholders. Figure 1 plots the average block institutional ownership (defined as more than 5% holdings) shares for U.S. public firms from 1980 to 2014, collected from 13F filings. It shows that the measure of large institutional ownership increased almost threefold over the period. These concurrent trends suggest that there may be a link between the ownership structure of public corporations and their employment decisions. In fact, prominent commentators in the popular press and even CEOs of large corporations have expressed concerns that the so-called "shareholder capitalism" – i.e., the North American style of governance that since the 1980s has centered around the maximization of shareholder value as the main objective of the firm – may have hurt workers.[1] Yet, there is a dearth of systematic evidence on the role of large institutional shareholders in the governance of labor.

In an attempt to fill the gap, this paper uses confidential micro data from the U.S. Census Bureau's Longitudinal Business Database (LBD). Specifically, we assemble a rich establishment-level dataset that spans the 1982 to 2015 period and contains annual information on employment, payroll, and ownership structure for over seven million establishment-year observations. Using this dataset, we show a robust negative within-establishment relation between shareholder power, measured by ownership of large institutional shareholders, and firm employment and payroll.

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

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

with large and concentrated ownership hurt workers through two distinct but related channels, both stemming from the fact that they have more control over the firm relative to more dispersed owners: first, they can more easily renege ex post on implicit contracts not to fire workers or cut payroll by exposing underperforming managers to hostile takeovers, as in the "breach of trust" hypothesis of Shleifer and Summers (1988); second, they can more easily monitor managers and force them to fire workers or cut payroll against their will, as per the "quiet life" hypothesis of Bertrand and Mullainathan (2003). In both cases, by reducing managerial entrenchment, shareholder power hurts labor.

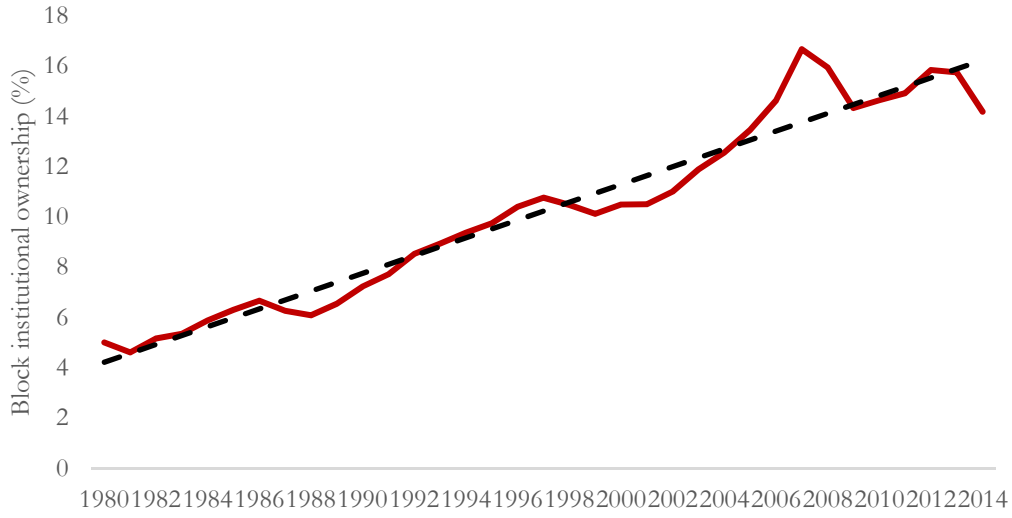


Figure 1: Trends in Average Block Institutional Ownership of US Public Firms, 1980–2014. This figure plots the average block institutional ownership for U.S. public firms for the period 1980–2014 collected from Thomson Reuter 13F filings data. Block institutional ownership is the percentage owned by blockholders, defined as the institutional investors with more than 5% holdings as filed through 13D, 13F, or 13G filings. We exclude firms in the agriculture, financial, utility, and public administration industries. The dotted line is linear time trend.

Consistent with this agency theory, we find that establishments of firms owned by powerful institutional shareholders have significantly lower employment and payroll within establishments (i.e., using establishment fixed effects). The relation holds robustly for several proxies for shareholder power, including the percentage ownership of the largest one or five institutional shareholders, blockholders (defined as the institutional shareholders with at least a 5% stake), and the Herfindahl-Hirschman Index (HHI) of institutional investors' ownership. Across the measures of shareholder power, the relation is economically significant: a 10-

percentage point increase in large shareholder ownership is associated with up to a 2.5% reduction in a given establishment's employment and payroll. In addition, the negative association between shareholder power and employment holds after controlling for other confounding influences due to time-varying industry and local market conditions.

After establishing the negative relation, we attempt to determine which powerful shareholders have the biggest impact on labor and when. We find that only institutional shareholders with long-term investment horizons and control motives – i.e., "dedicated" institutions according to Bushee's (1998) classification or "activist" institutions – have a strong negative association with employment and payroll. Other types of non-controlling shareholders, such as "quasi-index" or "transient" institutions, have a weaker and if anything, positive relation with employment and payroll. Further corroborating the agency story, the relation also varies predictably with labor bargaining power, and is more negative in sectors where a smaller fraction of workers is unionized. Finally, the negative relation holds up to several additional batteries of specification and robustness checks, which include limiting the sample to just manufacturing establishments and using symmetric employment or payroll growth as the outcome variable.

While there is an active literature on the determinants of the decline of labor, the role of corporate governance and ownership has received limited attention. There are a number of explanations that have been set forth in the literature, including technology (Acemoglu, 2002), import penetration (Autor, Dorn, and Hanson, 2013; Acemoglu, Autor, Dorn, Hanson, and Price, 2016; and Pierce and Schott, 2016), industry concentration and superstar firms (Autor, Dorn, Katz, Patterson, and Van Reenen, 2020), and labor market concentration (Benmelech, Bergman, and Kim, 2020). A related recent literature also examines the role of firms in wage-setting (see, for example, Card, Heining, and Kline, 2013; and Song, Price, Guvenen, Bloom, and von Wachter, 2019). Our findings are complementary to existing explanations, and suggest a role for employment policies aimed at reforming shareholder capitalism and broadening the objective of the firm beyond the narrow maximization of shareholder value, such as, for example, increasing labor representation on boards or allowing for labor participation in firm governance.

We also contribute to the literature on corporate governance and labor by exploring the link between corporate ownership structure and its labor decisions. This literature shows that measures of managerial entrenchment, such as state-level anti-takeover statues and dual-class shares, are associated with higher employee wages (Bertrand and Mullainathan, 2003; and Cronqvist et al., 2009). Another strand of this literature examines the impact on labor of specific types of institutions, such as private equities (Lichtenberg and Siegel, 1990; and Davis et al., 2014) and activist hedge funds (Brav, Jiang, and Kim, 2015). Our contribution is to provide to the best of our knowledge the first evidence on the labor impact of shareholder power for the universe of large institutional shareholders. Our findings indicate that, while there are interesting differences depending on institution type, concentrated institutional ownership matters for labor across a broad spectrum of institutions and in the broad representative sample of establishments owned by US corporations.

The rest of this paper is organized as follows. Section 2 describes the data and variables used, and provides summary statistics. Section 3 details the main empirical specification and our main establishment-level results. Section 4 covers several specification and robustness checks, including more saturated specifications that control for common regional shocks. Section 5 concludes.

2. Data and descriptive statistics

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

2.1. Data sources and sample construction

Our main data source for establishment observations is the Longitudinal Business Database (LBD) from the US Census Bureau. The LBD is a comprehensive dataset of establishments in the United States, covering all private business establishments with at least one employee (Jarmin and Miranda, 2002). The dataset provides annual establishment-level information on employment, payroll, industry classification, and geographic location (e.g., counties and states) as of March 12.[2] We use the log of establishment-level employment and

[2] The LBD employment includes full-time and part-time workers.

inflation-adjusted payroll (in 2005 constant dollars) as main outcome variables in our empirical analysis.

In addition, we use a set of control variables standard among research analyzing establishment-level data employing Census micro datasets (see, for example, Schoar 2002 and Benmelech, Bergman, and Kim, 2020). Specifically, firm size is measured by the log number of establishments of a given firm, while firm segment size, defined at the firm-industry level, is measured by the log number of establishments belonging to the firm in a given three-digit standard industry code (SIC) industry. Establishment age is defined as the number of years since an establishment's inception—identified by the flag for establishment's inception in the LBD—or its first appearance in the LBD, whichever is the earliest. The starting year is censored in 1977 when the coverage of the LBD begins.

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

The main ownership variables of interest are defined as the holdings in a stock by a given type of institutional investor as a percentage of shares outstanding. First, "Overall IO" is the percentage owned by all institutional investors. "Top 1 ownership" and "Top 5 ownership" are the percentages owned by the largest one and five institutional investors, respectively. "Total block ownership" is the percentage owned by all blockholders, which are defined as the institutional investors with more than 5% holdings as filed through 13D, 13F, or 13G. To better distinguish between ownership types among institutional shareholders, we also consider three additional variables: "Quasi-index IO," "Dedicated IO," and "Transient IO," which are the percentages owned by quasi-index, dedicated, and transient institutional

investors as classified by Bushee (1998), all scaled by Overall IO. "Activist IO" is the percentage owned by activist institutional investors as classified by Grennan (2019) based on institutional investors that have engaged in shareholder activism campaigns, scaled by Overall IO.

We require that each establishment observation from the LBD have non-missing, positive values for employment and payroll, as well as the one-year lagged observation, which is used in part of our analysis that uses growth rates of employment or payroll as an outcome. We then match establishments with institutional ownership variables from Thomson Reuters as of the fourth quarter of the previous year using the Census Bureau's bridge file between the firm identifiers in the LBD and Compustat.[3] We require that establishments have the matched institutional ownership variables. We exclude the agriculture (SIC 0100-0900), utilities (SIC 4900-4999), financials (SIC 6000-6999), and public administration (SIC 9000-9999) industries from our sample. This sample selection procedure yields approximately 7,340,000 establishment-year observations from 1982–2015 (the Thomson Reuters data are available from 1981–2014). A subsample for the manufacturing sector (SIC 2000-3999), which is used in part of our analysis, includes approximately 533,000 establishment-year observations. The numbers of observations are rounded to the nearest thousand to follow the Census Bureau's disclosure rules.

We construct data on collective bargaining coverage by following the approach in Hirsch and Macpherson (2003).[4] Below we provide a detailed account of the data source and construction that are relevant for our empirical analysis. We compute the fraction of workers covered by labor unions at the industry level using the Current Population Survey (CPS) Outgoing Rotation Groups (ORG) data.[5] The resulting dataset provides union coverage rate estimates, defined as the number of employees covered by labor unions divided by total employment, by Census Industry Code (CIC) beginning in 1983. Because our establishment-level data use SIC codes, we match the union coverage data with Census establishment-level

[3] LBD information is as of March of a given year. Thus, institutional ownership as of the fourth quarter of the previous year represents the latest predetermined ownership information.
[4] For the data used in Hirsch and Macpherson (2003) see www.unionstats.com.
[5] The database is available at http://www.nber.org/data/morg.html.

data at the industry level as follows.[6] For the years 1983–2002, we use the 1980 and 1990 Census Bureau's concordances between CIC codes and SIC codes. For 2003–2015, during which the CIC is based on NAICS codes, we first match 2000 CIC codes to 1990 CIC codes using the Census Bureau's concordance and then use the Census Bureau's concordance between 1990 CIC and SIC codes to match with the Census establishment-level data.[7] Given that our industry-level database on union coverage begins in 1983 whereas our sample period starts in 1982, we impute the rate of collective bargaining coverage using 1983 information for years 1981 and 1982.[8]

2.2. Descriptive statistics

Table 1 shows descriptive statistics for institutional ownership and establishment characteristics for establishments in the full sample (Panel A) and in the manufacturing sample (Panel B) from 1982-2015. Focusing on the full sample, the average overall institutional ownership is 59.7%, consistent with rising institutionalization of public firm ownership in the past decades. The average ownership by blockholders, defined as institutional investors with at least 5% ownership, is 14.7% and exhibits considerable variation with a standard deviation of 14.5%. Ownership by "dedicated" institutions, which are likely active monitors, accounts for 13.1% of all institutional ownerships. These statistics suggest that a bulk of institutional shareholding is across dispersed, less active owners.

[Insert Table 1 here.]

Turning to establishment characteristics, the average establishment in the full sample employs about 62 workers and pays about $29,500 per worker (in 2005 constant dollars). The (public) parent firm of the average establishment owns more than 2,000 establishments, and the average age of establishments is 10.8 years. Panel B shows similar mean values of

[6] The CPS ORG data employs the 1980 CIC classification (based on SIC codes) from 1983 to 1991, the 1990 CIC classification from 1992 to 2002 (based on SIC codes), and the 2000 CIC (based on NAICS codes) from 2000 and on.

[7] For the majority of CIC industries used in the CPS, this matching procedure results in direct linkages to three-digit SIC industries. In a minority of cases, the procedure results in a match to a two- or four-digit SIC industry, in which case the finer industry classification is used.

[8] The Census establishment-level datasets use different vintages of SIC and NAICS codes across years (see for example, Table 1 in Fort and Klimek, 2018). Thus, we use the appropriate vintage of the industry codes for each year (for example, SIC1997 for 1997).

institutional ownership variables for manufacturing establishments. They however exhibit larger employment and payroll on average, relative to the establishments in the full sample. The average annual pay is about $42,700 per worker.

3. Empirical analysis

This section provides baseline estimates for the within-establishment relation between large shareholder ownership and employment or payroll, explores mechanisms behind the baseline results, and examines robustness.

3.1. Baseline results – ownership by top institutional shareholders, blockholders, and ownership concentration

We estimate the effect of ownership by large institutional shareholders, which presumably increases shareholder power, on establishment-level employment and payroll using the following regression:

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

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

The coefficient of interest is β_1, which represents the within-establishment semi-elasticity of establishment-level employment or payroll to a measure of large institutional ownership, after controlling for overall institutional ownership, establishment-level covariates, and time-varying industry conditions. We first employ ownership by top institutional investors as a measure of large shareholder ownership, and then employ total institutional blockholder ownership and concentration of ownership across institutions. The premise is that institutional investors would have strong incentives to maximize shareholder value, potentially at the expense of employees, when they have large fractional ownership (Shleifer and Vishny, 1986) or when ownership is concentrated in the hands of few institutional investors, which indicates increased shareholder power. The control for overall institutional ownership (represented by

the coefficient β_2) helps address alternative interpretations due to omitted factors not related to institutions' incentives to monitor the firm. If our main estimates were due to omitted factors that drive institutions' decisions to buy or sell shares in a given firm for reasons unrelated to monitoring, then we would expect our *Large IO* variables have no incremental explanatory power after controlling for overall institutional ownership.

Table 2, Panel A shows estimation results for Eq. (1) using the top one and five institutional ownership variables on the full industry sample. Columns 1 and 2 (columns 3 and 4) present the baseline within-establishment relation between ownership of the largest institutional shareholder and log employment (payroll). The coefficient on "Top 1 ownership" in column 1 is -0.217 and significant at a less than 1% level. This estimate shows that for a given business establishment, a ten-percentage point increase in the largest institution's ownership is associated with a 2.2% decline in employment (relative to the mean of 8.7%), controlling for time-varying industry conditions and establishment characteristics. The coefficient in column 3 shows a similar magnitude of a within-establishment decline in payroll (2.1%, *t*-stat = 5.22) in response to a ten-percentage point increase in the largest institution's ownership. These significantly negative relations are consistent with the idea that when the firm's largest institutional shareholder increases ownership and thus incentives to monitor (Shleifer and Vishny, 1986) or "power," it reduces employment and payroll at the establishments in an attempt to maximize shareholder value.

Similarly, columns 2 and 4 show that the collective ownership of top five institutional shareholders is negatively associated with establishment-level employment and payroll (significant at a less than 1% level). A ten-percentage point increase in top five ownership is associated with 2.3% and 2.5% declines in number of employees and wage bill, indicating a similar magnitude of the association with that for top one ownership.

Across the columns, the coefficients on control variables have expected signs – the log number of establishments per firm, a measure of the owner firm's scope, is significantly positively correlated with both establishment-level employment and payroll. Importantly, the coefficient on the overall institutional ownership measure is positive and generally smaller in magnitude relative to that of our main variables of interest. The positive relation between general institutional ownership and employment and payroll indicates that, unless they are

powerful, the presence of institutional shareholders does not in and of itself harm workers. This can be the case either because diffused institutional shareholders do not have the ability to influence firm decisions on labor or because their objectives (or incentives) differ from those of large institutional shareholders, as it may be the case for passive buy-and-hold investors. We explore this possibility in more detail in the analysis by institution type below.

[Insert Table 2 here.]

Panel B presents estimates of Eq. (1) for a subsample of manufacturing establishments. Similar to the full sample results in Panel A, the coefficients on top one and five ownership variables are consistently negative and significant at a less than 1% level. The economic magnitude of the effect is somewhat larger in manufacturing than across all industries – for example, estimates in columns 2 and 4 indicate that a ten-percentage point increase in top five institutional ownership is associated with 2.9% and 3.3% within-establishment reductions in employment and payroll. This larger magnitude of decline in employment and payroll in manufacturing is consistent with existing work documenting that the decline in the labor share of income in the past several decades is most pronounced in manufacturing (e.g., Autor et al., 2020).

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

[Insert Table 3 here.]

Table 3 shows estimation results using the total institutional blockholder ownership and HHI variables. The coefficients on "Total block ownership" in columns 1 and 3 in Panel A show that, when a given establishment experiences a ten-percentage point increase in block institutional ownership, its employment and payroll decline by 1.5% and 1.7%. The coefficients are significant at a less than 1% level. Similarly, the significantly negative coefficients on "HHI (institutional ownership)" in columns 2 and 4 show that when institutional ownership becomes more concentrated, the establishment exhibits smaller employment and wage bills. A one-standard deviation (SD) increase in the HHI (0.110) would lead to an about 1% reduction in establishment employment and payroll within establishments.

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

3.2. Mechanisms for the effects

The analysis so far shows consistently negative associations between powerful institutional ownership and quantity of labor within establishments. This section explores the mechanisms that underlie the baseline relations.

3.2.1. Types of institutional shareholders

We first examine what types of institutional investors drive the relation between shareholder power and establishment-level labor outcomes. Specifically, we follow Bushee's (1998) classification of institutional ownership into "quasi-index," "dedicated," and "transient" types and calculate the percentage of shares owned by these types of institutional investors scaled by overall institutional percentage ownership. In addition, we define "activist" institutional investors following Grennan (2019), who bases a classification on whether a given institution has engaged in shareholder activism campaigns. We then calculate the percentage owned by the identified activist institutional investors and scale it by overall institutional percentage ownership. Thus, these measures capture the relative importance of specific types of institutions among all institutional investors' ownership. We employ the measures of large shareholder ownership in a variant of Eq. (1) in which the control for overall institutional ownership is dropped, given that the overall ownership is already controlled for by scaling the larger shareholder ownership variables by it.

Table 4 presents estimation results for the full sample. Columns 1 and 5 show that an increase in quasi-index ownership share among overall institutional ownership is associated with increases in employment and payroll. A plausible interpretation of the positive relations is that quasi-index funds are more "lenient" monitors relative to other types of institutions, under which firms expand their workforce and payroll. Similarly, an increase in the share of

transient institutional ownership is significantly associated with higher payroll (column 6), although its association with employment is insignificant (column 2).

[Insert Table 4 here.]

In contrast, we find that the association between the relative ownership share of dedicated institutions, which have long-term investment horizons and monitoring incentives (due to their concentrated holdings), and employment or payroll is significantly negative at the 1% level. The coefficients on "Dedicated IO/Overall IO" in columns 3 and 7 show that a ten-percentage point increase in the relative share of dedicated institutional ownership is associated with 0.7% and 0.8% reductions in employment and payroll, respectively. The largest magnitude of the negative effect on labor comes from activist institutional investors. The coefficients on "Activist IO/Overall IO" in columns 4 (-0.725) and 8 (-0.761) are and significant at the 1% level and approximately ten times greater than those on "Dedicated IO/Overall IO." The estimates suggest that a ten-percentage point increase in activist institutional ownership shares among general institutional ownership would result in 7.3% to 7.6% reductions in establishment employment and payroll within establishments. This large, negative association between activist shareholders and employment and wage bills is consistent with evidence in Brav, Jiang, and Kim (2015), who focus on hedge fund activism events and manufacturing plants from 1994 to 2008.

Therefore, the results in this section are consistent with dedicated (who hold their concentrated ownership over a relatively long horizon) and activist institutions (who engage in shareholder activism campaigns) pushing for a reduction in labor in the interest of shareholder value. The most direct mechanism for activist investors to affect firms' labor through intervention and monitoring.[9] In addition, another plausible mechanism for dedicated institutions (and activists) to influence firms' employment and payroll decisions is through high-powered incentives for executives – for example, Hartzell and Starks (2003) show that concentrated institutional ownership is positively associated with executives' pay-for-

[9] Activist investors often directly target cutting jobs as part of their effort to lower costs. 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.

performance sensitivity. Executives with high-powered compensation package would have strong incentives to cut labor, in an attempt to boost shareholder value and their pay.

3.2.2. Bargaining with employees – labor union

A plausible mechanism for powerful shareholders to affect the firm's labor force is through bilateral bargaining. To the extent that the firm and labor jointly create rents that are to be shared, an increase in relative bargaining power of shareholders vis-à-vis employees would lead to smaller employment and payroll, as we show. Following the literature on the bargaining power of workers (e.g., Matsa, 2010; and Benmelech, Bergman, and Kim, 2020), we measure employees' bargaining power relative to shareholders using industry-level unionization rates. We estimate the following regression that interacts large institutional ownership with the unionization rates:

$$y_{ijkt} = \alpha_i + \alpha_{kt} + \beta_1 Large\ IO_{jt-1} + \beta_2 Large\ IO_{jt-1} \times Union_{kt-1} + \beta_3 Union_{kt-1} + \beta_4 Overall\ IO_{jt-1} + \gamma' X_{it-1} + \varepsilon_{ijkt}, \quad (2)$$

where $Union_{kt-1}$ is the one-year lagged fraction of workers covered by collective bargaining in industry k, and all other variables are defined as in Eq. (1). The coefficient of interest is β_2, which represents the interaction effect of large, powerful institutional ownership with labor unionization rates on establishment-level employment and payroll.

[Insert Table 5 here.]

Table 5 presents estimation results for Eq. (2) using the full sample. Column 1 confirms the baseline result that within-establishment, an increase in the largest institutional ownership is associated with a significant decrease in employment. Importantly, the positive and significant (at the 1% level) coefficient on "Top 1 ownership × Union" in the column shows that high union coverage, which increases bargaining power of employees, mitigates the negative effect of powerful institutional owners on employment. The estimates indicate that in industries where the unionization rate is zero, a ten-percentage point increase in the largest institution's ownership is associated with a 4.1% reduction in employment. However, in industries where collective bargaining coverage is one SD above its mean (= 18.4%), the same magnitude increase in top institutional ownership is related with a much smaller -0.5% reduction in employment. The estimates in column 5 show a very similar magnitude of the

mitigating effect of labor unions on payroll. Thus, the results in these columns are consistent with higher collective bargaining coverage improving labor's bargaining power against shareholders, thereby mitigating the negative effect of large, powerful shareholders on employment and payroll.[10]

In addition, estimates in columns 2-3 and 6-7 show that the negative effects of top five institutional shareholders and total blockholder ownership are similarly mitigated when labor unions provide stronger bargaining power to employees. Across the columns, the interaction effects of large shareholders' ownership and unionization rates are significant at the 1% to 5% levels. Columns 4 and 8 show that labor unions might also mitigate the effect of concentrated institutional ownership, although the estimated coefficients on "HHI (IO) × Union" is statistically insignificant at a conventional level.

4. Alternative Explanations and Robustness

This section examines the plausibility of leading alternative explanations and robustness of the baseline results using alternative empirical approaches.

4.1. Time-varying local labor market conditions

A potential concern for our baseline results is that ownership of large institutional investors is correlated with local labor market conditions, which would affect labor market outcomes such as employment and wages. For example, spurious correlation may arise if large institutional investors target firms operating in smaller labor markets, in which employment and wages tend to be lower (e.g., Moretti, 2011). To mitigate this type of concern, we reestimate the baseline regression in Eq. (1) with county-by-year fixed effects, and present estimation results in Panel A of Table 6.

[Insert Table 6 here.]

Across the columns, the panel shows that the estimated effect of top one or five, block, or concentrated institutional ownership is generally more pronounced once the time-varying local labor market conditions are controlled for. For example, relative to the comparable

[10] A mutually-non-exclusive explanation is that the (positive) effect of labor unions on employment and payroll is more pronounced in the presence of powerful institutional shareholders.

estimate in Table 2, Panel A, column 1 (-0.217), the coefficient on "Top 1 ownership" in Table 6, Panel A, column 1 (-0.286) indicates an employment effect that is about one-third larger. Similarly, the estimated semi-elasticity of payroll to top one ownership in column 5 is about one-third larger than the comparable estimate in Table 2, Panel A, column 3 (-0.274 vs. -0.205). Overall, the results in Table 6 show that omitted time-varying local market conditions are unlikely to explain the baseline results.

4.2. Moving average of large institutional investors' ownership

We also check for robustness of the baseline results to using a moving average of institutional ownership, which includes two recent lags, to allow for potential dynamic effects due to a delayed response of employment and payroll to ownership. Estimates in Table 6, Panel B show that the effect of powerful institutional ownership, measured using moving averaged ownership, is consistently negative and highly statistically significant (largely at a less than 1% level). Interestingly, the economic magnitude of the effect is generally larger than those of the baseline results in Tables 2 and 3, indicating that further lagged changes in large institutional ownership has a greater effect on labor, relative to more recent changes in large institutional ownership. For example, the coefficient on "Top 5 IO (MA)" in column 2 (-0.321) is almost 40% larger than that on "Top 5 IO" in column 2 in Table 2, Panel A (-0.233).

4.3. Top and block institutional ownership scaled by overall institutional ownership

In our main empirical analysis, we control for overall institutional ownership. Including this control is important to ensure that the main estimates capture the effect of shareholder power due to large and concentrated ownership by institutional shareholders. Intuitively, overall institutional ownership may not necessarily capture shareholder power, as firms with high levels of institutional ownership may still be widely held by many institutions, each with a small ownership share and thus limited power and incentives to monitor.

In this section, we examine the robustness of our baseline results by employing an alternative specification that scales the measures of top and blockholder ownership by overall institutional ownership, instead of including it as a control variable. This alternative measure gauges the relative importance of large or powerful institutional ownership among the overall

institutional ownership. The estimation results shown in Panel C of Table 6 are largely consistent with our baseline results in Tables 2 and 3. As the fraction of shares owned by top one or five institutions, or institutional blockholders among all institutional ownership increases, the employment and payroll of establishments decrease significantly (all coefficients are significant at the 1% level). For example, the coefficients on "Top 5 IO/overall IO" in columns 2 (-0.134) and 5 (-0.142) show that when the relative importance of top five institutional ownership among all institutional ownership increases by 10 percentage points, the establishment's employment and payroll would decline by 1.3% and 1.4%. Thus, the results in Panel C of Table 6 confirm that the negative within-establishment relation between large institutional ownership and employees' outcomes is robust to how we control for overall institutional ownership.

4.4. Shareholder power and growth rates of employment and payroll

In Table 7, Panel A, we employ an alternative specification that uses growth rates of establishment-level employment and payroll, instead of their log's, as dependent variables. Specifically, we estimate the following regression:

$$growth_{ijkt} = \alpha_{kt} + \beta_1 Large\ IO_{jt-1} + \beta_2 Overall\ IO_{jt-1} + \gamma' X_{it-1} + \varepsilon_{ijkt}, \quad (3)$$

where $growth_{ijkt}$ is the symmetric growth rate of total employment or payroll, defined as $(y_{ijkt} - y_{ijkt-1})/(y_{ijkt}+y_{ijkt-1})/2$, i indexes establishment, j firm, k industry, and t year; and all other variables are defined as in Eq. (1). We use a symmetric measure of employment and payroll growth following Davis, Haltiwanger, and Schuh (1996) to ensure that the result is not driven by the very largest employment increases and cuts. We do not include establishment fixed effects in Eq. (3), given that calculating the growth rates within establishments is akin to differencing out the level in the outcome variables.

[Insert Table 7 here.]

Table 7, Panel A shows estimation results of Eq. (3). The coefficients on top and block institutional ownership variables show a negative within-establishment relation between shareholder power and employment and pay growth rates, consistent with our baseline results for level changes. Interestingly, the negative relation is more pronounced for the growth rate of payroll relative to that of employment. For example, estimates in columns 1 and 5 show

that a ten-percentage point increase in top institutional ownership is associated with a 0.3-percentage point slowdown in employment growth but with a 0.8-percentage point slowdown in payroll growth rate, more than a twice bigger magnitude. This finding indirectly suggests that greater ownership by large institutional investors is associated with lower per-employee wage growth. Columns 2-3 and 6-7 show that top five and total block institutional ownership variables are also associated with slower employment and wage growth, while columns 4 and 8 indicate a muted effect of the HHI of institutional ownership on the growth of labor. Overall, we find qualitatively consistent results using growth rates of the employee outcomes as dependent variable in place of the levels along with establishment fixed effects.

4.5. Weighting observations by establishment-level employment

An important question relevant for macro implications of our results is how powerful institutional investors "allocate" cuts in employment and wage bills across establishments of different sizes. One possibility is that institutions would prefer cutting both employment and payroll at relatively large establishments within firms in an attempt to cut overall labor costs, which could benefit shareholders. This would imply a considerable aggregate effect of increased power of institutional investors both on employment and wages. Alternatively, powerful institutions with strong incentives to monitor may want to keep employment of larger establishments (which are likely more productive) but to lower their wages exploiting their bargaining power in an attempt to maximize shareholder value. This alternative scenario would imply that the negative effect of powerful shareholders on aggregate labor may be concentrated in wages rather than employment. We explore these possibilities by reestimating Eq. (3) with establishment observations weighted by their log employment.[11]

Panel B of Table 7 shows estimation results. We find that when establishments are weighted by their size, the estimated relation between ownership of large institutions and employment growth is statistically insignificant and economically close to zero (columns 1 through 4). In contrast, columns 5 through 8 show that the presence of powerful institutional shareholders with strong incentives to monitor leads to a significant reduction in

[11] We prefer estimating Eq. (3) instead of Eq. (1) in weighting observations by establishment employment because (log) employment itself is one of the outcome variables in Eq. (1).

establishment-level payroll growth. For example, the coefficient on "Top 5 IO" in column 6 is -0.073 and significant at a less than 1% level, comparable with an unweighted estimate in column 6 in Panel A (-0.079). A simple back-of-the-envelope calculation using estimates in columns 2 (employment) and 6 (payroll) suggests that, when top five institutional ownership increases by 10 percentage points, the growth rate of per-employee wages would decrease by 0.56% (= (-0.073 – (-0.017)) × 0.10).

These results, combined with the baseline unweighted results, describe how large institutional investors cut employment and wage bills across establishments. For larger establishments (which are likely more productive hence require smaller cuts in employment), they would push for a cut in per-employee wages but not overall employment. For smaller establishments (which are likely less productive), they appear to push for reductions both in head counts and wages, representing an overall reduction in the scale of operations. Importantly, the employment-weighted estimates in Panel B of Table 7 suggest that the aggregate impact of large institutions' monitoring could be more on pay rather than employment, which is consistent with stagnation in wages over the past couple of decades (e.g., Acemoglu and Autor, 2011) along with the rise of institutional block ownership.

5. Conclusion

Labor markets in the U.S. have experienced a pronounced transformation over the last decades, with labor income stagnating despite strong profit growth. This paper sets forth an explanation based on the ownership structure of public firms. Motivated by the classical theory of the firm based on conflicts of interests between shareholders and stakeholders, we conjecture that employment and labor income should be lower at firms owned by more influential and highly concentrated institutional shareholders, because the objectives and interests of the shareholders more likely conflict with those of the workers. Using confidential micro-level data from the U.S. Census Bureau's Longitudinal Business Database from 1982-2015, we provide comprehensive evidence that supports this explanation, namely that establishments of firms owned by large and highly concentrated institutional shareholders have considerably lower employment and payroll. Overall, our findings suggest that there is scope for employment policies aimed at reforming shareholder capitalism to broaden the

objective of the firm beyond the narrow maximization of shareholder value, such as, for example, increasing labor representation on boards or allowing for labor participation in firm governance..

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

Panel A: All industries

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

Panel B: Manufacturing

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

Emp growth rate	-0.017	0.316
Pay growth rate	0.006	0.437
Quasi index IO	0.597	0.209
Dedicated IO	0.158	0.170
Transient IO	0.193	0.141
Activist IO	0.005	0.018
Unionization rate	0.185	0.117
Observations	533,000	-

Note: This table presents descriptive statistics on establishment-year observations used in the analysis from the Longitudinal Business Database (LBD) for the period 1982–2015. We require each observation in the sample to have the lagged observation. "Total wage" is the total payroll in thousand dollars; "Total employment" is the number of total employees; "Average wage" is computed as total wage divided by total employment (in thousand dollars); "Establishments per segment" is the number of establishments in a given three-digit SIC industry segment of a given firm; "Establishments per firm" is the total number of establishments of a given firm; "Establishments age" is the number of years since a plant's birth, which is proxied either by the flag for establishments birth in the LBD or by its first appearance in the LBD, whichever is earliest; "Emp (pay) growth rate" is the change in employment (payroll) scaled by sum of current and lagged employment (payroll); and "Unionization rate" is the industry-level percentage of the workforce covered by collective bargaining collected from the CPS. The institutional holdings data are obtained from Thomson-Reuters 13F SEC filings. The ownership variables are defined as the percentage of shares outstanding owned by a given type of institutional investors: "Overall IO" is the percentage owned by all institutional investors, "Top 1 ownership," "Top 5 ownership," and "Top 10 ownership," are the percentage owned by the largest, the largest 5, and the largest 10 institutional investors, respectively. "Top block ownership" is the percentage owned by blockholders, which are defined as the institutional investors with more than 5% holdings as filed through 13D, 13F, or 13G filings. "Quasi index IO," "Dedicated IO,' and "Transient IO" are the percentage owned by quasi-index, dedicated, and transient institutional investors as classified by Bushee (1998), scaled by overall institutional ownership. "Activist IO" is the percentage owned by activist institutional investors as classified by Grennan (2019) based on institutions who have engaged in shareholder activism campaigns, scaled by overall institutional ownership. "HHI of ownership" is the ownership concentration Herfindahl-Hirschman Index, which approaches zero when the firm is owned by a large number of institutional investors of relatively equal size and reaches its maximum of one when it is controlled by a single large institutional investor. The number of observations is rounded to the nearest thousand to follow the Census Bureau's disclosure rules.

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

Panel A: Full sample

	(1)	(2)	(3)	(4)
Dep. Var.:	Log emp.		Log pay	
Top 1 ownership	-0.217	-	-0.205	-
	-4.55	**-**	**-5.22**	**-**
Top 5 ownership	-	-0.233	-	-0.253
	-	**-6.00**	-	**-6.48**
Overall IO	0.069	0.123	0.084	0.149
	2.75	**4.85**	**3.35**	**5.84**
log(est's per segment)	-0.004	-0.004	0.003	0.003
	-0.76	**-0.81**	**0.56**	**0.50**
log(est's per firm)	0.028	0.026	0.032	0.029
	2.84	**2.62**	**2.59**	**2.40**
Establishment fixed effects	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y
Observations	7,340,000	7,340,000	7,340,000	7,340,000
R^2	0.9170	0.9170	0.9233	0.9233

Panel B: Manufacturing

	(1)	(2)	(3)	(4)
Dep. Var.:	Log emp.		Log pay	
Top 1 ownership	-0.295	-	-0.320	-
	-5.13	**-**	**-5.35**	**-**
Top 5 ownership	-	-0.290	-	-0.322
	-	**-6.76**	-	**-7.39**
Overall IO	0.194	0.261	0.228	0.304
	8.78	**9.73**	**9.43**	**10.55**
log(est's per segment)	0.005	0.004	0.007	0.006
	0.96	**0.84**	**1.26**	**1.12**
log(est's per firm)	0.022	0.019	0.018	0.014
	5.19	**4.44**	**3.72**	**3.02**
Establishment fixed effects	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y
Observations	533,000	533,000	533,000	533,000
R^2	0.9260	0.9260	0.9231	0.9231

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

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

Panel A: Full sample

	(1)	(2)	(3)	(4)
Dep. Var.:	Log emp.		Log pay	
Total block ownership	-0.150	-	-0.166	-
	-5.14	**-**	**-5.69**	**-**
HHI (institutional ownership)	-	-0.103	-	-0.085
	-	**-4.55**	-	**-2.78**
Overall IO	0.086	0.016	0.110	0.035
	3.69	**0.68**	**4.28**	**1.38**
log(est's per segment)	-0.004	-0.004	0.003	0.003
	-0.76	**-0.70**	**0.55**	**0.60**
log(est's per firm)	0.027	0.029	0.030	0.033
	2.72	**2.92**	**2.47**	**2.67**
Establishment fixed effects	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y
Observations	7,340,000	7,340,000	7,340,000	7,340,000
R^2	0.9170	0.9170	0.9233	0.9233

Panel B: Manufacturing

	(1)	(2)	(3)	(4)
Dep. Var.:	Log emp.		Log pay	
Total block ownership	-0.171	-	-0.195	-
	-6.37	**-**	**-6.83**	**-**
HHI (institutional ownership)	-	-0.157	-	-0.173
	-	**-7.02**	-	**-7.20**
Overall IO	0.215	0.129	0.255	0.157
	9.82	**6.42**	**10.57**	**7.43**
log(est's per segment)	0.005	0.005	0.006	0.007
	0.92	**1.02**	**1.21**	**1.32**
log(est's per firm)	0.020	0.022	0.016	0.018
	4.82	**5.36**	**3.33**	**3.83**
Establishment fixed effects	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y
Observations	533,000	533,000	533,000	533,000
R^2	0.9260	0.9260	0.9231	0.9231

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

Table 4: Effect of institutional ownership across different types of institutional investors

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log emp.				Log pay			
Quasi index IO	0.051	-	-	-	0.044	-	-	-
	3.37	-	**-**	**-**	**3.06**	-	-	-
Transient IO	-	0.009		-	-	0.034		-
	-	**0.51**		-	-	**1.99**		-
Dedicated IO	-		-0.072	-	-		-0.075	-
	-		**-4.21**	-	-		**-4.23**	-
Activist IO	-	-	-	-0.725	-	-	-	-0.761
	-	-	-	**-3.28**	-	-	-	**-3.84**
Overall IO	0.035	0.028	0.037	0.034	0.052	0.045	0.055	0.051
	1.56	**1.18**	**1.65**	**1.47**	**2.11**	**1.77**	**2.27**	**2.03**
Establishment-level controls	Y	Y	Y	Y	Y	Y	Y	Y
Establishment fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000
R^2	0.9170	0.9170	0.9170	0.9170	0.9233	0.9233	0.9233	0.9233

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

Table 5: Mechanism – Unionized Labor

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log emp.				Log pay			
Top 1 ownership	-0.414	-	-	-	-0.398	-	-	-
	-5.00	-	**-**	-	**-4.77**	-	**-**	-
Top 1 ownership × Union	1.843	-	-	-	1.826	-	-	-
	3.2	-	-	-	**2.46**	-	-	-
Top 5 ownership	-	-0.330	-	-	-	-0.346	-	-
	-	**-5.97**	-	-	-	**-5.9**	-	-
Top 5 ownership × Union	-	1.107	-	-	-	0.939	-	-
	-	**3.07**	-	-	-	**2.08**	-	-
Total block ownership	-	-	-0.202	-	-	-	-0.224	-
	-	-	**-5.24**	-	-	-	**-5.66**	-
Total block ownership × Union	-	-	0.819	-	-	-	0.886	-
	-	-	**2.86**	-	-	-	**2.56**	-
HHI (IO)	-	-	-	-0.111	-	-	-	-0.116
	-	-	-	**-3.06**	-	-	-	**-4.09**
HHI (IO) × Union	-	-	-	0.093	-	-	-	0.350
	-	-	-	**0.37**	-	-	-	**0.94**
Overall IO	0.073	0.125	0.085	0.016	0.088	0.153	0.109	0.036
	3.13	**5.10**	**3.73**	**0.68**	**3.70**	**5.97**	**4.29**	**1.40**
Establishment-level controls	Y	Y	Y	Y	Y	Y	Y	Y
Establishment fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000
R^2	0.9170	0.9170	0.9170	0.9170	0.9233	0.9233	0.9233	0.9233

Note: This table examines unionized labor as a mechanism behind the effect of institutional ownership on employment and payroll of establishments. The dependent variable is the log of employment (Columns 1 through 4) and the log of payroll (Columns 5 through 8) as defined in Table 1. Variables for institutional ownership and industry-level unionization rates ("Union") are lagged by one year. The standalone "Union" variable is included in all regressions but omitted in the table. The *t*-statistics based on standard errors adjusted for sample clustering at the firm are reported below the coefficient estimates. The numbers of observations are rounded to the nearest thousand to follow the Census Bureau's disclosure rules.

Table 6: Robustness of baseline results

Panel A: Controlling for time-varying local market conditions

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log emp.				Log pay			
Top 1 ownership	-0.286	-	-	-	-0.274	-	-	-
	-4.98	**-**	-	-	**-5.06**	**-**	-	-
Top 5 ownership	-	-0.256	-	-	-	-0.285	-	-
	-	**-5.95**	-	-	-	**-6.98**	-	-
Total block IO	-	-	-0.156	-	-	-	-0.173	-
	-	-	**-5.45**	-	-	-	**-6.27**	-
HHI (IO)	-	-	-	-0.108	-	-	-	-0.091
	-	-	-	**-4.50**	-	-	-	**-3.43**
Overall IO	0.072	0.126	0.086	0.013	0.087	0.154	0.110	0.032
	3.21	**5.31**	**4.03**	**0.63**	**4.04**	**6.61**	**4.84**	**1.41**
Establishment-level controls	Y	Y	Y	Y	Y	Y	Y	Y
Establishment fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
County-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000
R^2	0.9186	0.9186	0.9186	0.9186	0.9248	0.9248	0.9248	0.9247

Panel B: Moving average of institutional ownership measures

Dep. Var.:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log emp.				Log pay			
Top 1 IO (MA)	-0.335	-	-	-	-0.303	-	-	-
	-4.34	**-**	-	-	**-4.04**	**-**	-	-
Top 5 IO (MA)	-	-0.321	-	-	-	-0.348	-	-
	-	**-5.82**	-	-	-	**-6.34**	-	-
Total block IO (MA)	-	-	-0.202	-	-	-	-0.221	-
	-	-	**-5.55**	-	-	-	**-5.78**	-

HHI (IO) (MA)	-	-	-	-0.120	-	-	-	-0.086
	-	-	-	**-3.88**	-	-	-	**-2.32**
Overall IO (MA)	0.089	0.160	0.114	0.022	0.099	0.185	0.137	0.042
	2.97	**5.02**	**3.82**	**0.75**	**3.29**	**5.85**	**4.22**	**1.25**
Establishment-level controls	Y	Y	Y	Y	Y	Y	Y	Y
Establishment fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000
R^2	0.9170	0.9170	0.9170	0.9170	0.9233	0.9233	0.9233	0.9233

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

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:		Log emp.			Log pay	
Top 1 IO/overall IO	-0.110	-	-	-0.096	-	-
	-4.81	**-**	-	**-3.43**	**-**	-
Top 5 IO/overall IO	-	-0.134	-	-	-0.142	-
	-	**-6.59**	-	-	**-6.46**	-
Total block IO/overall IO	-	-	-0.056	-	-	-0.052
	-	-	**-3.71**	-	-	**-3.17**
Establishment-level controls	Y	Y	Y	Y	Y	Y
Establishment fixed effects	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y
Observations	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000
R^2	0.9170	0.9170	0.9170	0.9233	0.9233	0.9233

Note: This table examines the robustness of the baseline effect of institutional ownership on employment and payroll of establishments. In Panels A and B, the dependent variable is the log of employment (Columns 1 through 4) and the log of payroll (Columns 5 through 8) as defined in Table 1. In Panel C, the dependent variable is the log of employment (Columns 1 through 3) and the log of payroll (Columns 4 through 6). Panel A includes county-by-year fixed effects, Panel B uses the two-year moving average of institutional ownership measures, and Panel C scales top and block institutional ownership measures by overall institutional ownership, as defined in Table 1. Variables for institutional ownership are lagged by one year. The *t*-statistics based on standard errors adjusted for sample clustering at the firm are reported below the coefficient estimates. The numbers of observations are rounded to the nearest thousand to follow the Census Bureau's disclosure rules.

Table 7: Alternative specifications – growth rates of employment and payroll

Panel A: Employment and payroll growth

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

Panel B: Weighted by establishment employment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Var.:	Growth rate (emp.)				Growth rate (pay)			
Top 1 IO	-0.006	-	-	-	-0.068	-	-	-
	-0.29	**-**	-	-	**-2.54**	**-**	-	-
Top 5 IO	-	-0.017	-	-	-	-0.073	-	-
	-	**-1.35**	-	-	-	**-4.50**	-	-
Total block IO	-	-	-0.013	-	-	-	-0.055	-
	-	-	**-1.59**	-	-	-	**-4.83**	-
HHI of block ownership	-	-	-	0.011	-	-	-	-0.025

	-	-	-	**0.75**	-	-	-	**-1.49**
Overall IO	-0.005	0.000	-0.002	-0.004	0.017	0.033	0.026	0.005
	-0.83	**-0.02**	**-0.25**	**-0.81**	**3.43**	**5.36**	**4.91**	**0.78**
Establishment-level controls	Y	Y	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000	7,340,000
R^2	0.0418	0.0418	0.0418	0.0418	0.3644	0.3645	0.3645	0.3644

Note: This table examines the effect of institutional ownership on employment and payroll growth rates of establishments. The dependent variable is the symmetric growth rate of employment (Columns 1 through 4) and payroll (Columns 5 through 8) as defined in Table 1. Panel B estimates weighted regressions using the log employment of establishments as the weight. Variables for institutional ownership are lagged by one year. The *t*-statistics based on standard errors adjusted for sample clustering at the firm are reported below the coefficient estimates. The numbers of observations are rounded to the nearest thousand to follow the Census Bureau's disclosure rules.