Government Contracting and Wage Compliance

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Abstract

Research Question: This study investigates the relationship between government contracting and wage compliance in the United States.

Research Findings: Firms which are awarded government contracts experience a significant improvement in wage compliance, evidenced by a reduction in wage theft. This relationship is at least partly driven by enhancements in contractors' internal control environment. Cross-sectional analysis suggests that this relation is more pronounced when there is greater scope for government monitoring of its suppliers.

Academic Implications: This research contributes to the literature on corporate governance and corporate misconduct by highlighting the role of government as a unique stakeholder that can effectively influence contractor behaviour through regulatory oversight embedded in contractual obligations. It highlights how FAR-driven governance mechanisms lead to improved labour outcomes, such as wage compliance.

Policy Implications: For policymakers, the findings emphasize the value of public procurement as a tool for advancing corporate accountability. Formalized oversight embedded in government–supplier relationships offer a distinct avenue for strengthening external governance and mitigating labour-related violations such as wage theft.

Keywords: governance, government procurement, wage compliance, wage theft, employee wellbeing, accountability

JEL classification: G18, G38, G39, J31, J83, M14, M41

1. Introduction

Corporate misconduct and scandals have raised questions about the effectiveness of regulations and internal corporate governance mechanisms. This has drawn attention to the role of stakeholder engagement in corporate governance and its consequences (Aguilera et al. 2016). In this study we examine a novel question on stakeholder governance by exploring how government engagement through the contracting process affects corporate compliance with wage regulations, as proxied by wage theft.

Wage theft represents a particularly concerning form of corporate misconduct, involving practices such as unpaid overtime and the underreporting of hours worked. In the United States, it is estimated to cost workers over $15 billion annually (EPI 2017), making it the largest category of theft by dollar value. Wage theft is so pervasive that in 2019, District Attorney Larry Krasner created a unit specifically tasked with investigating crimes against workers (GQ 2019).

Yet, unlike other forms of corporate misconduct, such as environmental violations or financial fraud, individual cases of wage theft receive less public attention. Wage theft is dispersed across firms, difficult to detect, and typically affects low-wage employees, hence largely invisible at a firm level to external observers (Raghunandan 2019). Nonetheless, cases of these violations occasionally surface. For example, Amazon was charged a $61.7 million fine to settle wage theft violations related to the non-payment of tips to employees over two years (FTC 2021). Other large firms, like Bank of America, Wells Fargo, and FedEx, were also fined for wage related misconduct (GJF 2018).

Despite numerous legislative and executive steps to control wage theft, a comprehensive solution to eliminating wage theft remains elusive. The dispersed and inconspicuous nature of wage theft, combined with the imbalance between employee

vulnerability and firms' financial incentives, underscores the need for more robust mechanisms to mitigate it more effectively.

In this study, we focus on the effect of government contracting on wage compliance. The government is an important customer for at least two reasons. First, government spending represents about 20% of the U.S. GDP (Cohen and Li 2020; Dhaliwal et al. 2016) and hence, its procurement process affects many firms. Second, the governance role of the government is much more extensive and thorough than those of private sector customers, potentially enhancing compliance with labour standards.

In this study, we draw on several organisational behaviour theories to examine how an arms-length approach to stakeholder management, where government-contractor interaction is primarily driven by regulations intended to mitigate government procurement risks, influences governmental contractors' relationships with a third-party stakeholder, i.e. employees. Firms are a nexus of relationships among its primary stakeholders (Freeman 1984; Freeman et al. 2010; Jones 1995; Parmar et al. 2010), in which management occupies a privileged position. Management is in the centre of the nexus of these relationships and makes decisions that shape these relationships (Freeman 1984; Hill and Jones 1992; Jones 1995). Adopting an arms-length approach to interactions with stakeholders suggests that these relationships are a function of stakeholder bargaining power (Bridoux and Stoelhorst 2014). Given the government is a major customer, it represents an important and influential stakeholder for the firm. Drawing on the agency and resource dependence theories, contractors' dependence on government contracting elicits contractor behavioural changes that reduce the incidence of wage theft. As the arms-length approach to stakeholder management is consistent with Milton Friedman's argument that "the social responsibility of business is to increase its profits…without deception or fraud" (Friedman 1970, 124), in government contracting, government expects supplier firms to

contract in good faith. This includes the expectation that suppliers treat its other stakeholders, including employees, according to government regulations (Jones et al. 2018).

In case of government suppliers, FARs specify the rules that govern the relationship between the government and its contractors. Specifically, it includes detailed specifications of controls and audits to be performed by the government. To ensure that it is not a wasteful spender (Liebman and Mahoney 2017), the government must verify any documents, accounting procedures, and other records such as payroll sheets and registers that it deems necessary to ascertain that the contractor is able to fulfil the requirements of the contract while acting ethically and with integrity (Samuels 2021). Hence, on one hand we conjecture that in complying with FARs, government contracting should improve contractors' processes and procedures ultimately reducing the incidence of employee wage theft in contracting firms. However, on the other hand, wage theft is different from other forms of misconduct due to often being less visible. Employees might be unaware of legal rights or employers might use intimidation tactics that discourage workers from reporting wage theft. Therefore, firms might use it as a cost-saving strategy when operating on tight margins. Given this, government contracting, might increase the occurrence of wage theft.

To test these research questions, we use data on wage theft from the Wage and Hour Division of the Labor Department's WHISARD database, which provides start and end dates for each violation. This is important for our research design as it allows us to accurately identify when wage theft occurs. We merge these data with a dataset of government contracts awarded between 2000 and 2020 available through the US Government Spending Open Data initiative.[i] This enables us to assess how the government, acting as a customer, influences its contractors regardless of the size of the contract.[ii] This approach offers a unique, comprehensive, and powerful setting to study how government contracting affects employee wellbeing.

We find that government contracting is negatively related to the number of wage theft violations and the magnitude of penalties levied by regulators for wage theft violations. In cross-sectional analysis, we find that the negative relation between government contracting, and wage theft is stronger in settings where there is greater scope for government monitoring of its contractors such as when contractors have weaker internal control environment, face more severe ESG-related problems or the type of government contract exposes the government to greater financial risk. A channel through which government contracting reduces wage theft is improvement in contractors' internal processes and systems, as captured by a decline in financial restatements.

Further to mitigate endogeneity concerns inherent in our baseline specification, we undertake two tests. First, to ensure that our results are not driven by endogeneity in our explanatory variable we undertake an instrumental variable analysis. Specifically, given that external instrumental variables in our setting tend to be weak, we adopt the approach proposed by Lewbel (2012) where we create internal instruments using heteroskedasticity in our data. Second, to ensure that our results are not driven by self-selection bias where contractors self-select to supply the government, we focus on contractors that receive their first government contract during our sample period. Results for these tests support our baseline results and suggest that the reduction in wage theft is driven by government contracting.

Finally, we subject our results to several robustness tests. First, to ensure that our results are not driven by contractors' interactions with the government other than through government contracting, we control for government subsidies received by the contractor. Second, to ensure that lobbying does not influence the relation between government contracting and wage theft, we run the baseline model including controls for contractor lobbying of governmental agencies. Third, we use alternative measures for the number of violations and magnitude of penalties to ensure that our results are not driven by research design choices in the calculation of these

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variables. Fourth, we use the value of government contracts awarded to a contractor scaled by the value of total government contracts in the period as an alternative measure of government contracting that captures the importance of the contract to the government. Fifth, given that by construction the dependent variables are left-truncated (both dependent variables are greater or equal to zero), and right-skewed, we perform our analysis using Poisson regressions. Further, to ensure that zero-inflation in the wage theft data do not bias our results, we run our analysis using zero-inflated negative binomial models. Sixth, to ensure that our results are not driven by industry or state-specific shocks we run our baseline model with a tighter fixed effect structure where we include interactions between industry and year-quarter fixed effects, and state and year-quarter fixed effects. Results for these robustness tests support our baseline results.

Our paper contributes to several strands of literature. First, we add to the literature examining the role of stakeholders' engagement on a firm's policies. Specifically, building on the stakeholder theory we show how power differentials between the parties to a transaction, result in the contracting parties' changing behaviour towards a third-party stakeholder. External stakeholders affect firms' corporate governance and policies through demand for financial information, direct monitoring, bargaining power, or liquidation threat.[iii] Government, being the largest customer in an economy represents a powerful contracting party that requires contractor compliance with FARs. To ensure contractors transact in good faith, government monitors contractors such that it influences contractors' relations with other stakeholders.[iv] For example, He and Kohlbeck (2021) claim that government contractors experience improvements in financial reporting quality while Samuels (2021) claims that the government can also alter its suppliers' external reporting due to improvements in internal information process requirements. We contribute to this literature by showing that government contracting, benefits contractors' employees by improving wage compliance.

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Second, we contribute to the literature on corporate misconduct. Extant literature documents that firms are more likely to engage in corporate misconduct such as employee mistreatment and workplace misconduct if they are under pressure (Caskey and Ozel 2017; Raghunandan 2021; Chircop, Tarsalewska, and Trzeciakiewicz 2025). However, enhanced monitoring by management or institutional investors results in a reduction of workplace violations (Heese and Pérez-Cavazos 2020; Li and Raghunandan 2021). We add to this literature by showing that governments, through contracting and associated enforced accountability, influences the contractor relations with its employees by reducing wage theft.

Third, we contribute to the nascent literature examining the effectiveness of corporate governance mechanisms and external monitors in disciplining firms to deter and remedy misconduct (e.g., Flammer, 2018; Berger and Lee 2022; Call et al. 2018; Christensen et al. 2017; Correia 2014; Dey, Heese, and Pérez-Cavazos 2021; Duro, Heese, and Ormazabal 2019; Kavadis and Thomsen 2022; Kleymenova and Tomy 2022; McLaren 2004; Nguyen 2021; Silvers 2016; Soltes 2020; Hope, Jiang, and Vyas 2021; Huang et al. 2023; Gantchev et al., 2024; Even-Tov et al., 2025). Prior literature shows that ESG factors influence government procurement. Flammer (2018) shows that firms with higher CSR receive more government procurement contracts and Gantchev et al. (2024) and Huang et al. (2023) add that Environmental and Social factors influence contract terms. Another strand of research shows that government can shape corporate behaviour. For example, Even-Tov et al. (2025) claim that exposure to government procurement affects climate disclosure and firms winning the contracts take real actions by reducing toxic emissions and increasing green investments. We add to this literature by showing that at the time of government contract award, contractors improve internal controls to comply with FARs since non-compliance might result in future penalties, early-termination, or not being awarded future government contracts. We complement this literature by showing that winning government contracts also has implications

for employees. This government disciplining action serves as an external corporate governance mechanism that results in a reduction of wage theft.

Finally, we contribute to the literature examining the effect of government-contractor relations on contractor outcomes. Firms sensitive to government procurement pay higher political costs (Mills, Nutter, and Schwab 2013), have lower long-term CEO wealth performance sensitivity (Hadley 2019), higher profitability (Cohen and Li 2020) and more capital investment (Hebous and Zimmermann 2021). We contribute to this literature by showing that government contracting influences contractor relations with its employees.

2. Government Procurement and Hypothesis Development

2.1 Institutional background

U.S. government procurement is subject to Federal Acquisition Regulations (FARs) that codify the procedures and govern the processes of acquisition by executive agencies. FARs define contracting methods and acquisition planning, contract types, contracting requirements, and its management. Typically, the agency's "Contracting Officer" (CO) is responsible for the contract on behalf of the government. COs are responsible for ensuring that the contractor complies with the contract terms and its subsequent monitoring requirements. Federal procurement opportunities are typically published on the Federal Business Opportunities website, and agencies allow at least 30 days for contractors to submit their bids in line with the Competition in Contracting Act (CICA 1984).

FARs require the U.S. government and its agencies to only contract with "*responsible*" contractors. The responsibility criteria defined by FARs are related to the availability of financial resources, satisfactory performance records, integrity and business ethics, organisation, experience, accounting and operational controls, technical skills, and capacity to perform the contract. It is the CO responsibility to obtain sufficient information to ensure that the contractor satisfies FARs (FAR 2019; Feldman 2016). Before agreeing on a contract type

other than fixed price, the CO ensures that the contractor's accounting system permits timely preparation of all necessary cost data in the form required by the proposed contract type (FAR 16.104 i). After awarding the contract, the CO needs to monitor the supplier and run risk assessments to ensure continued compliance with FARs (Samuels 2021).

FARs define two broad categories of contracts based on compensation paid to the supplier: fixed price, and cost reimbursement (also called cost-plus) contracts. Fixed price contracts deliver the goods or services at a fixed price. They are less uncertain for the government as the ultimate price is relatively well estimated and the risk of any changes in the cost rests with the supplier. Fixed price contracts are appropriate for the acquisition of commercially available products with well-defined specifications. Cost reimbursement contracts are used when the anticipated costs cannot be precisely estimated. In cost-plus contracts, the price for the government is the contractor's cost of fulfilling the contract plus a profit margin. For cost reimbursement contracts the agency must ensure that the contractor's accounting systems are adequate, and that the government is able to monitor the project costs. These types of contracts are appropriate in preliminary explorations, development, and test acquisitions where the level of effort is unknown (Feldman 2016).

There are many factors that influence the selection of contract type (FAR 16.104). Contracts resulting from sealed bidding are typically fixed-price contracts (FAR 16.102 a) whereas negotiated contracts might be of any type (FAR 16.102 b). Put differently, fixed-price contracts typically require effective price competition and price comparisons that permit realistic pricing (FAR 16.104, FAR 16.202-2). Conversely, cost-plus contracts, where pricing risk is carried by the government, typically result from government contracting that includes complex requirements; requirements unique to the Government (FAR 16.104 d); is urgent (FAR 16.104 e) or is acquired for the first time. In the case of cost-plus contracts, the CO needs to ensure that efficient methods and effective cost controls are used to monitor contract costs

(FAR 16.301-3). Over the duration of the contract, costs are reviewed by the government before payments are issued to ensure that they are accurate, relate to the contract, and in compliance with accounting principles mandated by the government Cost Accounting Standards (Samuels 2021; Pownall 1986).

Government contractors are also subject to detailed product quality and performance audits. FARs specify the rules for government inspections and mandate that the government carry out inspections "at all times and places." The audit of cost records is undertaken by multiple agencies responsible for overseeing government contractors (FAR 2019). Non-compliance with FARs results in both formal and informal penalties. For example, Heese and Pérez-Cavazos (2019) show that following fraud investigations, government reduces the contract dollar volume by around 15% even for cases that result in a settlement.

2.2. Governance mechanisms

FAR-driven governance mechanisms differ from typical corporate governance tools such as board oversight and institutional investor monitoring. FARs encompass legal rules and regulations established by the government to ensure that contractors uphold the highest corporate governance standards. As a form of "hard law" model of governance, FARs impose strict legal obligations, and associated penalties in case of non-compliance. FARs ensure that government contractors operate under strict legal scrutiny, facing not only monetary fines but also severe penalties such as contract reduction, termination, and the appointment of corporate monitors, among other measures (Pérez-Cavazos 2019; Files et al. 2022). The degree of scrutiny of federal contractors goes beyond standard contracting and is consistent with Aguilera et al.'s (2008) "open systems" perspective. In this view, contracting as a corporate governance mechanism, is evaluated based on how well it aligns with the broader legal and institutional setting. Due to its public accountability role, FARs require federal agencies to, among others, contract with "responsible sources" that have "a satisfactory record of integrity and business

ethics". The governance environment surrounding FAR-regulated firms is therefore institutionally distinct, shaped by externally enforced legal obligations that distinguishes government contractors from other firms that are not subject to the same level of scrutiny and legal consequences.

By contrast, other forms of corporate governance such as board oversight, and investor monitoring, function primarily as "soft law" mechanisms relying to a lesser degree on legal enforcement (Aguilera et al. 2009). Specifically, board oversight ensures that management is accountable, responsible, and aligned with its objectives to maximise shareholder value. It includes internal mechanisms that ensure the board of directors monitors and guides the management of the firm, but its mandate and effectiveness are conditional on board characteristics, such as composition and independence. Similarly, the role of institutional investor monitoring is to ensure that businesses operate in the best interest of shareholders while enhancing the value of their investments. While Cunat et al. (2012) show that good internal corporate governance creates value for shareholders, such mechanisms often remain narrowly focused on firm-level practices and shareholders' wealth maximisation. Aguilera et al. (2008) defines those internal governance mechanisms as "closed systems" that often overlook the broader environmental context. In this respect, boards and institutional investors might exert undue pressure on management to focus on cost-cutting and short-term profitability, which, although unintended, may come at the expense of employees' welfare (Chircop et al. 2025). While both mechanisms are designed for firms to operate responsibly, neither board nor institutional investor oversight can comprehensively protect workers' rights, and make firm's management fully accountable for broader consequences like misconduct. Hence, the protection of employees and other stakeholders at least partly depend on external detection mechanisms and audits by regulators. Regulatory penalties are often less costly that penalties arising from FARs. Specifically, detected misconduct by regulators typically result

in monetary penalties, that often do not outweigh the benefits of the misconduct (Chircop et al. 2025). Yet, under a FAR-driven governance system, the costs of corporate misconduct are significantly higher, as contractors risk losing future government contracts and sales, which can have a direct and substantial impact on their profitability. From this perspective, FAR-driven governance complements existing forms of governance by strengthening accountability, where other governance systems may be insufficient.

2.3 Wage theft

The Fair Labor Standards Act (FLSA) establishes minimum wage, overtime pay, recordkeeping, and youth employment standards while the Department of Labor, Wage and Hour Division (WHD) is responsible for enforcing the requirements of the FLSA. WHD inspects firms to check if they comply with required standards. These inspections are either a response to worker's complaints or unannounced random audits. There is a relatively high frequency of WHD investigations, with an average of more than 20,000 investigations per year (Raghunandan 2021). Typical examples of violations that constitute wage theft include the failure to pay overtime, the failure to pay minimum wages, the failure to keep accurate records, and the failure to meet certificate terms and pay commensurate rates for workers with disabilities, among others.

WHD issues penalties if they find any violations of FLSA standards. The penalties typically constitute the equivalent of the back pay due to employees and fines levied by WHD. Given penalties are publicly disclosed, violations of FLSA standards also lead to reputational costs. For example, Johnson (2020) shows that penalties issued by the Occupational Safety and Health Administration (OSHA) to publicly name-and-shame violators lead to a drop in the number of violations.

2.4 Government contracting and wage theft

Compliance with FARs ensures that contractor employees are paid at least the minimum wage, are compensated for overtime, and work in safe and healthy environments. Government contractors are also obliged to retain records of accounting procedures and practices (FAR 4.703 a) as well as administration records such as payroll sheets, salary registers and clock cards (FAR 4.705-2). These requirements ensure that government contractors can provide detailed information on cost estimates such as billing information, accounts payable details and labour timekeeping that accurately reflect the underlying transactions (Samuels 2021). Government contractors are subject to detailed audits of these costs so that any inconsistencies in reporting that result in wage theft can be detected. Therefore, any violations resulting in wage theft can put the contractor at risk of government penalties. These might include (i) termination and charges for the cost of re-procurement, (ii) debarment from future (up to 3 years) government contracts, and (iii) penalties including the cost of unpaid wages (FAR 2019; Feldman 2016).

While there exist several approaches to stakeholder management (e.g. participatory, collaborative and empowerment approaches) we posit that the government-contractor relationship is grounded in an arm's length-transactional approach to stakeholder management. An arm's length-transactional approach entails low engagement level between the two parties and limited relational embeddedness, in that the level of government intervention in its contractors' operations is limited to the contractual obligations between the two parties. In this respect, government's intervention is limited to ensuring that the contractor fulfils the contractual obligations in full by following the requirements of FARs. Given the government monitoring and sanctioning capability, a power differential between the government and its contractors emerges.

This power differential is grounded in the agency and resource dependence theories. Specifically, drawing on the agency theory (Jensen and Meckling, 1976), the government, as the principal, has formal authority to demand performance, monitor behaviour and impose sanctions on the agent, the contractor. Further, from a resource dependence theory perspective (Provan and Skinner, 1989), the government controls critical resources, such as funding and future contract opportunities, on which contractors depend for survival. Contractor dependence on government resources incentivizes contractors to align their behaviour with government requirements. These theoretical foundations suggest that even in an arm's length approach where direct involvement is minimal, the government retains a credible threat of detection and sanctioning that makes the government a powerful external monitor.[v] Ultimately, this power-differential between the contracting parties shape contractors' incentives and explains why the government can deter wage theft.

Moreover, government is a special type of customer. Apart from being a customer, it is also a regulator. Government as a regulator needs to ensure that employees are well paid for their efforts. For example, on April 21st, 2021, the Biden-Harris Administration raised the minimum wage for federal contractors to $15.[vi] The main goal was to "promote economy and efficiency in federal contracting, providing value for taxpayers by enhancing worker productivity and generating higher-quality work by boosting workers' health, morale, and effort." Thus, government as a customer aims to ensure that workers are paid appropriately for their efforts and the number of hours worked. Fairly treating workers leads to more productive workers that deliver better quality end products for the benefit of the customer, i.e., the government. This argumentation suggests that government contracting reduces contractors' wage theft.

However, wage theft is different from other forms of misconduct, such as environmental violations that are typically highly significant and are likely to receive

immediate public attention. Wage theft is often less visible to the public or government, hence more difficult to detect. Also, the full scope of wage theft may be underreported due to several factors that hinder detection, such as difficulties in pursuing legal claims or employer intimidation tactics that discourage workers from reporting wage theft. The poor visibility of wage theft and the low probability of wage theft detection might make wage theft an effective cost-saving strategy for government contractors to remain competitive. This is particularly pertinent if the contractor has tight profit margins, as is typical with government contracts. Therefore, government contracting might result in no change or an increase in contractors' wage theft.

3. Data

3.1 Wage theft data

Data on wage and hour violations (generally classified as wage theft) are collected directly from the Wage and Hour Division of the Labor Department's WHISARD database [vii]. The database contains information on the violations, corresponding penalties, number of employees affected as well as start and end dates for each violation. Detailed information on the period over which the violation occurred allows for the aggregation of violations by period. We aggregate the data on wage theft at the quarterly level to match the quarterly government contracting data. Like Raghunandan (2021), we compute wage theft penalties for each firm-quarter by first evenly allocating penalty amounts and violation counts for multiperiod violations across the period of offence for each violation and then aggregating to firm-quarter level. To do so we use the total dollar value of backwages related to wage theft (WHISARD item *bw_atp_amt*) and case violation count (WHISARD item *case_violtn_cnt*).

3.2. Government contracting data

We obtain information on government contracting from the USAspending.gov[viii] website. This website contains information on entities that receive federal awards (including

contracts, grants, and loans), exceeding a transaction value of $3,000, for which disclosure is required by the Federal Funding Accountability and Transparency Act (FFATA) of 2006. Details provided include the plant level company name, address, and DUNS number (plant-level company identifier that is used by government agencies). To match the federal contracting data with financial quarter data, like prior literature (e.g., Hebous and Zimmermann 2021, Hesse and Pérez-Cavazos 2019), we aggregate contract awards by quarter-year and collapse it at the parent DUNS number.

3.3. Sample selection

We construct our sample in the following way. We start with the universe of US listed firms on Compustat and merge these firms with data on wage theft sourced directly from the Wage and Hour Division of the Labor Department's WHISARD database, by using parent-subsidiary matching provided by Violation Tracker of Good Jobs First. In this way, our sample consists of firms which have been investigated at least once by the Wage and Hour Division of the Labor Department in our sample period.[ix] Next, we add government contracting data sourced from the Federal Procurement Data System–Next Generation using company DUNS. Any firms which feature in the wage theft violations (WHISARD) database but do not feature in the Federal Procurement Data System–Next Generation database are assumed to have zero government contracts for that quarter.

We concentrate on publicly listed firms by merging the resultant dataset with Compustat, from which we source data for the control variables. Like previous studies exploring government procurement, we exclude financial firms (Mills, Nutter, and Schwab 2013, Goldman 2020), utility firms (Mills, Nutter, and Schwab 2013), and health service firms (Heese and Pérez-Cavazos 2019; Goldman 2020). Further, we drop all observations with negative sales values (Goldman 2020). To align financial data with the data on wage theft and government contracting, which are measured over calendar years, we limit the sample to firms

that have December fiscal year ends. Our sample contains 23,089 observations for 346 unique firms spanning from 2001Q1 to 2020Q1.

3.4 Distribution of wage theft violations and government contracts by industry

As shown in Panel A, Table 1, there is variation in the number of wage theft violations across industries. Industry category "Wholesale, Retail and Some Services" has the highest number of violations with 42,830 violations corresponding to over $15.8 million in penalties. This is followed by industry category "Other" consisting of Mining, Construction, Building Materials, Transport, Hotels, Business Services and Entertainment that has 40,034 violations corresponding to over $24.9 million in penalties. The industry category with the lowest number of wage theft violations is the "Healthcare, Medical Equipment and Drugs" category with 586 violations corresponding to $439,303 in penalties.

There is also variation in the aggregate value of government contracting across industries. As shown in Panel B, Table 1, the "Manufacturing" industry category with aggregate government contracting of $113 billion has the largest share of government contracting over the sample period. This is followed by the "Business Equipment" industry category with aggregate government contracting of $107 billion. The distribution of violations and government contracting across industries indicates that violations and government contracting are not randomly assigned to industries, but industry specific characteristics likely influence the number of violations and the amount of government contracting.

[Insert Table 1 here]

4. Research design and results

4.1 Government contracting and wage theft

We examine the effect of government contracting on wage theft by estimating the following OLS regression model:

$$WageTheft_{i,q} = \alpha_0 + \alpha_1 \frac{Contract_{i,q}}{Sales_{i,q}} + \alpha_2 \, Controls_{i,q} + FEs + \varepsilon_{i,q} \qquad (1)$$

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where *WageTheft* is measured as either (1) *Violations,* the natural logarithm of one plus the total number of wage theft violations attributable to firm i during quarter q, or (2) *Penalties,* the natural logarithm of one plus the total value of penalties in US dollars (\$) for wage theft attributable to firm i during quarter q. While *Violations* captures the incidence of wage theft violations, *Penalties* captures the severity of wage theft violations. We measure government contracting using *Contract/Sales,* that is the total value of contracts obligated to firm i in quarter q scaled by firm sales transformed into scaled quintiles ranging from 0 to 1. Like Samuels (2021) we transform this variable into quintiles to ensure that outliers do not unduly bias our analysis. Further, this variable allows us to measure not only the amount of government contracting with the firm but also indicates the importance of government contracting to the firm. The dependent variables and the independent variable of interest are measured contemporaneously since we assume that government oversight from government contracting is immediately captured in wage theft violations.[x]

Following Hesse and Pérez-Cavazos (2020) we include several firm controls including *Size* measured as the natural logarithm of total assets measured at the prior fiscal quarter end, *Leverage* measured as the ratio of total liabilities to total equity measured at the prior fiscal quarter-end and *ROA* defined as return on assets for the fiscal quarter. We include S*ales_growth* measured as the end of fiscal quarter sales minus beginning of fiscal quarter sales, divided by beginning of fiscal quarter sales. We also include industry, state, and year-quarter fixed effects to capture unobservable time-invariant industry and state determinants of wage theft, and time-variant determinants of wage theft, respectively. Further, we cluster standard errors by firm to ensure that our results are not biased from having multiple observations for the same firm. All continuous variables are winsorized at the top and the bottom percentile.

4.2 Summary statistics

Panel A, Table 2 shows descriptive statistics for the variables in Eq. 1. As evident from the descriptive statistics, the distributions of both *Violations* and *Penalties* are right-skewed. Specifically, *Violations (Penalties)* has a mean of 0.407 (1.911) and a standard deviation of 1.03 (3.53). The independent variable of interest, *Contract/Sales* is standardized so that it ranges from 0 to 1 and has a mean of 0.487. The average firm in our sample has $10.90 billion in total assets (log 8.194), leverage of 28.4%, return on assets of 1.2% and sales growth of 2.7%.

Panel B, Table 2 shows the Pearson correlation matrix for the variables in Eq.1. As expected, it shows a high positive correlation of 80.5% between *Violations* and *Penalties.* Contrary to our expectations, the correlation between *Contract/Sales* and both *Violations* and *Penalties* is positive and significant suggesting that government contracting is positively related to the magnitude and severity of violations. A caveat of this analysis is that it doesn't control for other possible determinants of violations.

Results for control variables suggest that larger firms have higher violations and penalties while firms with higher leverage have lower violations and penalties. Further, the positive correlation between *Contract/Sales* and both *Size* and *ROA* suggest that larger firms and better performing firms get a greater share of government contracting. Finally, the negative correlation between *Contract/Sales* and both *Leverage* and *Sales_growth* suggests that firms with higher leverage and sales growth get a lower share of government contracting.

[Insert Table 2 here]

4.3 Main Results

In Table 3 we test for the relationship between government contracting and wage theft. Column 1 shows the results when *Penalties* is the dependent variable while Column 2 shows the results when *Violations* is the dependent variable. The negative coefficients on

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Contract/Sales for both *Penalties* and *Violations* suggest that government contracting is negatively related to both the magnitude and severity of wage theft. The coefficient for *Contract/Sales* when *Penalties* (*Violations*) is the dependent variable is -0.449 (-0.163) and significant at the 1% level. These results are not only statistically but also economically significant. Specifically, an increase in *Contract/Sales* of one quintile corresponds to an increase of 4.7% in *Penalties* and 8.1% in *Violations*.[xi]

Results for the control variables are largely insignificant except for *Size,* which is positive and significant at the 1% level suggesting that larger firms are related to higher violations and penalties. In line with Eq.1 and prior literature (e.g., Cohen and Li 2020) this analysis includes industry and state fixed effects to control for time invariant industry-and state-level differences, and year-quarter fixed effects to control for time-variant factors such as political cycles, elections, changes in the regulatory environment and economic conditions.

[Insert Table 3 here]

4.4 The mechanism underlying the relation between government contracting and contractors' wage theft

Having identified a negative relation between government contracting and wage theft we attempt to identify the channel through which government contracting influences wage violations. We claim that the reduction in wage theft is the result of improved reporting quality. The U.S. government and its agencies often require changes to contractors' reporting systems and practices and contractors typically undertake customer-specific investments to address the requirements of FARs (Samuels 2021). Specifically, contractors are obliged to make available to the government and retain for a specific period data relating to accounting procedures and practices (FAR 4.703 a) as well as keep administration records such as payroll sheets, salary registers and clock cards (FAR 4.705-2). Further, Files et al. (2022) show that government

agencies might hire corporate monitors if they recognise any inconsistencies in firm behaviour and that the improvements after their appointment are in financial reporting credibility.

Cost and management accounting systems mandated by government requirements to satisfy external needs are often also implemented for internal reporting purposes (Geiger and Ittner 1996). To ensure that improvements in the contractors' internal control environment are not only undertaken but are also maintained through the contracting period, government agencies undertake periodic audits of contractors. The scope of such audits is broader; they are more detailed and more frequent than financial audits (Samuels 2021). Through such audits the contracting agency gains "…knowledge of the contractor's control environment, information and communication methods, processes for assessing risk, monitoring processes, and control activities relevant to the assertion or the subject matter" (DCAA Guidebook 2021). Improvements in internal monitoring results in better internal and external reporting and affects the firm's operations and accounting transparency (Samuels 2021). For example, Cohen and Li (2020) and Cheng et al. (2020) find that government contracting increases supplier asset turnover, lowers operational uncertainty and improves management earnings forecasts.

Thus, we conjecture that government contracting influences contractors' wage theft through its effect on contractors' reporting processes and systems. Firms also adjust their management accounting systems to comply with FARs, and the government ensures suppliers conform with FARs through monitoring. Also, the existence of the credible threat that the government agencies can appoint corporate monitors if they detect inconsistencies further strengthens this channel. Since we cannot directly observe the quality of the contractors' reporting processes and systems, we undertake a series of tests to corroborate these channels.

First, we examine whether the observed effect is conditional on the contractors' internal control environment. Specifically, we conjecture that the effect of government contracting on wage theft will be stronger for firms with a weaker internal control environment, since these

are the firms that will benefit most from government oversight. Put differently, these firms have greatest scope to benefit from government contracting.

Given direct measures for the quality of contractors' wage reporting practices are unavailable, we proxy for the quality of contractors' internal control environment using measures of material weaknesses. As shown in Eq.2 we add two additional variables to Eq.1. We add *Material_weaknesses,* an indicator variable that takes the value of one for firms that have at least one Section 404 or Section 302 material weakness reported in Audit Analytics and an interaction between *Material_weaknesses* and *Contract/Sales.* If in line with our conjecture, firms with weaker internal control environments benefit most from government contracting, we expect α_2 to be negative and significant. The vector of controls in Eq.2 are defined as in our baseline specification.

$$WageTheft_{i,q} = \alpha_0 + \alpha_1 Material\ weaknesses_i + \alpha_2 Material\ weaknesses_i * \frac{Contract_{i,q}}{Sales_{i,q}} + \alpha_3 \frac{Contract_{i,q}}{Sales_{i,q}} + \alpha_4\ Controls_{i,q} + FEs + \varepsilon_{i,q} \qquad (2)$$

Panel A, Table 4 presents the results for this analysis. In line with expectations the coefficient on *Material_weaknesses* is positive suggesting that a weaker control environment is related to greater wage theft. Further, the coefficient on interaction term *Material_weaknesses*Contract/Sales* is negative and significant at the 5% level irrespective of whether *Penalties* or *Violations* is the dependent variable. Interestingly, the coefficient on *Contract/Sales* while negative is insignificant, suggesting that government contracting is especially beneficial to contractors with weaker internal control environments since these contractors experience the greatest reduction in wage theft.

We complement the above analysis by undertaking cross-sectional analysis where we test whether the relationship between government contracting and wage theft is conditional on the severity of ESG related problems. We posit that firms facing more severe ESG related problems have weaker internal control environments and higher risk of wage violations, hence

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we expect these firms to benefit most from government oversight arising from government contracting. Specifically, we expect the negative relationship between government contracting and wage theft to be stronger for firms with more severe ESG related problems.

To empirically test whether the relationship between government contracting and wage theft is conditional on the severity of ESG related problems we use data from RepRisk that unlike news feed aggregator services such as Factiva, capture ESG controversy and reputational risk exposure intensity relating to business conduct. To do so, daily RepRisk screens over 150,000 public sources including print and online media, blogs, regulators, government bodies and newsletters. Importantly, it filters, weights and deduplicates news from data sources, such that it provides a cleaner measure of public scrutiny of the firms' activities (RepRisk, 2021). Using data from RepRisk, in Eq. 3 we include indicator variable *HIGH_RR* that takes the value of one for observations with a RepRisk Index above the median for the firm, and zero otherwise, and interact this variable with our measure for government contracting. If in line with our conjecture the negative relationship between government contracting and wage theft is stronger in the presence of severe ESG related problems, than the interaction coefficient α_2 should load negative and significant.

$$WageTheft_{i,q} = \alpha_0 + \alpha_1 HIGH\_RR_i + \alpha_2 HIGH\_RR_i * \frac{Contract_{i,q}}{Sales_{i,q}} + \alpha_3 \frac{Contract_{i,q}}{Sales_{i,q}} + \alpha_4\ Controls_{i,q} + FEs + \varepsilon_{i,q} \tag{3}$$

Panel B, Table 4 presents the results for this analysis. In line with our expectations, the coefficient on the interaction term, α_2, is negative and significant irrespective of whether *Penalties* or *Violations* is the dependent variable, hence suggesting that the relationship between government contracting and wage theft is conditional on the severity of ESG related problems. The greater the risk of wage violations as captured by ESG related problems, the stronger the relationship between government contracting and wage theft. This result supports

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our conjecture that the reduction in wage theft from government oversight is conditional on the risk of wage theft.

Further, we examine whether the strength of the relation between government contracting, and wage theft is a function of government monitoring and contractors' incentives to commit wage theft. Specifically, we expect that in case of cost-plus contracts the negative relation between government contracting, and wage theft to be more pronounced.

Cost-plus contracts are riskier for the government as the price cannot be precisely estimated and the total cost of the contract will only be determined once all the conditions of the contract are fulfilled by the contractor. For cost plus contracts the agency must ensure that the contractor's accounting systems are adequate, and that the government is able to monitor costs. These types of contracts are appropriate in preliminary, development and test acquisitions where the level of effort is unknown (Feldman 2016). Given cost-plus contracts require enhanced government monitoring, we expect a stronger negative relation between government contracting and wage theft for these contracts rather than for other contracts.

To test this conjecture, as shown in Eq.4 we add two additional variables to Eq.1. Specifically, *Cost-plus,* is an indicator variable that takes the value of 1 if firm *i* was awarded a cost-plus government contract in quarter *q;* and *Contract/Sales* * *Cost-plus* is an interaction capturing the incremental effect of governmental monitoring arising from cost-plus contracts on wage theft. The vector of controls is defined as in Eq.1.

$$WageTheft_{i,q} = \alpha_0 + \alpha_1 CostPlus_{i,q} + \alpha_2 CostPlus_{i,q} * \frac{Contract_{i,q}}{Sales_{i,q}} + \alpha_3 \frac{Contract_{i,q}}{Sales_{i,q}} +$$
$$\alpha_4 \, Controls_{i,q} + FEs + \varepsilon_{i,q} \tag{4}$$

Panel C, Table 4 shows the results of this analysis. The coefficient on *Contract/Sales* is negative and significant suggesting that government contracting is negatively related to wage theft irrespective of the type of contract.[xii] While we do not have an *ex-ante* expectation for the sign of the coefficient on *Cost Plus* care should be taken in interpreting this coefficient. In

regressions with interactions, the coefficients on constituent effects are evaluated at zero of the interacting variables, and interpretations must rely on marginal effects rather than standalone coefficients (Burks et al., 2019). Further in line, with our conjecture that cost-plus contracts attract greater government monitoring, the coefficient on *Contract/Sales*Cost-plus* is negative and significant. This suggests that the negative relation between government contracting and wage theft is stronger when government contracting takes the form of cost-plus contracts.

[Insert Table 4 here]

Second, drawing on Chen, Cheng, and Lo (2014) and Desai, Krishnamurthy, and Venkataraman (2006) we use restatements to proxy for improvements in contractors' reporting processes and systems. As financial statement quality is a direct product of internal reporting processes and systems, we expect government contracting to improve financial statement quality, hence reducing restatements. To test this conjecture, we use Eq. 5 where the dependent variable is *Restatement,* an indicator variable that takes the value of one for firm-quarters where financial statements have been restated, and zero otherwise.

$$Restatement_{i,q} = \alpha_0 + \alpha_1 \frac{Contract_{i,q}}{Sales_{i,q}} + \alpha_2\, Controls_{i,q} + FEs + \varepsilon_{i,q} \qquad (5)$$

For this analysis, we source information on *Restatement* from Audit Analytics, and we consider all types of restatements (i.e., both material and immaterial) since high-quality reporting processes and systems should reduce all types of restatements. To ensure that each firm in our sample is covered by Audit Analytics, for this analysis we only include in the sample, firms that feature in Audit Analytics at any point in time during our sample period. This requirement reduces the sample for this analysis to 13,286 observations. Financial statements for firm-quarter observations that do not feature in this database are assumed not to be restated, and the variable *Restatement* takes the value of zero for these observations. The independent variable of interest is *Contract/Sales* which captures government contracting. As

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government contracting improves internal processes and systems, hence reducing restatements, we expect α_1 to be negative. All other variables are defined as in Eq.1.

Panel A, Table 5, shows the results of this analysis. In line with expectations, α_1 is negative and statistically significant suggesting that government contracting reduces restatements. To further examine whether improvement in internal processes and systems is the channel through which government contracting reduces wage theft, we next run Eq.1 including *Restatement* as one of the independent variables. Specifically, we expect both *Restatement* and *Contract/Sales* to be statistically significant where, the coefficient on *Restatement* is positive suggesting a positive relation between restatements and wage theft, and the coefficient on *Contract/Sales* is negative suggesting a negative relation between government contracting and wage theft.

Panel B, Table 5, shows the results of this analysis. In line with expectations, the coefficient on *Restatement* is positive when either *Penalties* or *Violations* is the dependent variable, and significant at the 10% level when *Violations* is the dependent variable. Further, the coefficient on *Contract/Sales* remains negative and significant irrespective of whether *Penalties* or *Violations* is the dependent variable. To further test for the mediating effect of improved financial reporting practices and systems, as proxied by *Restatements* on the relation between government contracting and *Violations*, we run a Sobel test[xiii].

Panel C, Table 5, presents the results for the Sobel test. In line with the regression results (Panel B) the direct effect between *Contract/Sales* and *Violations* is negative and significant, suggesting that government contracting is associated with lower restatement. The coefficient on *Contract/Sales* in the regression predicting *Restatements* (path a) is negative, suggesting that government contracting is associated with improved internal financial reporting. The coefficient on *Restatements* in the regression predicting *Violations*, controlling for *Contract/Sales* (path b), is 0.191 (0.110), indicating a positive association between

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restatements and wage theft. The resulting Sobel test yields a test statistic of -2.075 with a p-value of 0.038, indicating that the indirect effect is statistically significant at the 5% level. Overall, the results shown in Table 5 provide support for the conjecture that government contracting improves contractors' internal reporting processes and systems, and this improvement in contractors' internal operations reduces wage theft.

[Insert Table 5 here]

4.5 Tests addressing endogeneity concerns

Given that our results are driven by firms that self-select to participate in government contracting and that choose (not) to undertake wage theft, our research setting is subject to endogeneity concerns. In this section we report tests undertaken to address such concerns. While the use of a tight fixed effect structure alleviates endogeneity concerns arising from potentially correlated omitted variables driving the results, it does not completely address such concerns since there might be time variable firm specific characteristics which are associated with both government contracting and wage theft. To address this concern, we undertake an instrumental variable analysis, where we instrumented the explanatory variable of interest *Contract/Sales*. Given that in this setting, potential external instruments are at best weak since they do not satisfy the relevance and exclusion criteria, we adopt the approach proposed by Lewbel (2012). The Lewbel (2012) relies on heteroskedasticity of the error terms in the data to generate internal instruments. These internal instruments are the product of the exogenous variables in the model, which we deem to be all control variables*,* and the residuals from a first stage regression are correlated with the endogenous variable, *Contract/Sales,* but uncorrelated with the structural error term.

Panel A, Table 6 shows the result of the baseline model, when we use the instrumented *Contract/Sales* as our explanatory variable. The coefficient on the instrumented *Contract/Sales* is negative and significant at least at the 5% level of significance irrespective of whether

Penalties or *Violations* is the dependent variable. To ensure the validity of this analysis, we undertake tests to ensure the quality of our instruments. Results for these tests suggest that the instruments are relevant since they are correlated with *Contract/Sales* (significant Kleibergen-Paap rk LM statistic test) and valid since they are not correlated with the error term (insignificant Hansen J statistic).

To further attenuate the concern that endogeneity arising from the fact that contractors self-select to contract with the government we draw on Samuels (2021) and narrow our focus on those firms that receive their first government contract during our sample period and examine whether such firms reduce wage theft relative to a matched sample of serial government contractors. Firms that first begin contracting with the government likely experience the strongest effects from government requirements and monitoring, thus these contractors should experience the greatest improvement in their internal processes and systems. These changes in processes and systems are intended to ensure that the firm complies with FARs. Exploiting this time-series variation allows us to link government contracting to a reduction in wage theft, hence addressing the concern that the results are driven by self-selection bias.

We identify firms that receive their first government contract during our sample period as first-time contractors. To ensure that such firms have not received government contracts prior to our sample period, following Samuels (2021), we require firms identified as first-time contractors to have at least twelve quarters before the contract award without any obligated federal dollar. We refer to these firms as the treatment group. The control group consists of firms that have received multiple government contracts throughout the sample period, hence are seasoned government contractors. We examine the 24 quarters surrounding the quarter in which first-time contractors receive their first government contract.[xiv]

We form a matched sample in the following way. First, we form one-to-one matched pairs by estimating the propensity score in the year prior to which first time contractors receive their first contract, as a function of the control variables in Eq.1. Then we match each first-time contractor to a corresponding control firm, with replacement, on the propensity score and state group[xv]. Untabulated tests for differences in means of covariates between treatment and control firms are statistically insignificant suggesting no significant differences in firm characteristics between the two groups of firms. We then estimate Eq.6.

$$WageTheft_{i,q} = \alpha_0 + \alpha_1 Treated * Post_{i,q} + \alpha_2 Post_{i,q} + \alpha_3\ Controls_{i,q} + FEs +\ \varepsilon_q$$

(6)

where *Treated* is an indicator variable that takes the value of one for first time contractors, and zero for matched control contractors, and *Post* is an indicator variable that takes the value of one for the 12 quarters following the first government contract and zero otherwise. Other independent variables are defined as in Eq.1. Further, like Eq.1, in this specification we include firm and year-quarter fixed effects to test for within-firm effects.

Panel B, Table 6 shows the results for this analysis. In line with expectations, the coefficient on interaction term *Treated*Post* is negative irrespective of whether *Penalties* or *Violations* is the dependent variable, albeit only significant when *Violations* [coeff.: -0.274; t-stat.: -2.26] is the dependent variable. This result suggests that government contracting has an incrementally negative effect on wage theft for first time government contractors relative to seasoned government contractors.[xvi]

[Insert Table 6 here]

5. Robustness tests

We submit our results to several robustness tests. Specifically, we validate the robustness of the results to (1) controlling for government subsidies, (2) controlling for government lobbying (3) alternative measures of wage theft, (4) alternative measures of

government contracting, (5) alternative estimation methods, and (6) alternative fixed effect structure. We discuss these tests in detail in the following sections.

5.1 Controlling for government subsidies

To ensure that our results are driven by government contracting, we control for government subsidies in our empirical model. Subsidies are typically awarded by state governments to stimulate economic growth in the region and can take various forms such as reimbursements, direct cash payments or discounted access to resources (De Simone, Lester and Raghunandan 2021; Raghunandan 2024). As subsidies are typically granted on certain conditions, the companies benefiting from subsidies have obligations to fulfil. To ensure that subsidies do not represent a correlated omitted variable, we run our baseline model including government subsidies in our vector of control variables.

Like Raghunandan (2024) we make use of Subsidy Tracker, maintained by Good Jobs First that provides data on over 600,000 economic development subsidies. We successfully merge this data with our sample for 11,691 observations. These are observations for which subsidy data features in Subsidy Tracker. We run Eq.1 including *Subsidy,* an indicator variable that takes the value of 1, if the firm received government subsidies in that quarter, and 0 otherwise.

Panel A, Table 7, shows the results for this analysis. The coefficient on *Contract/Sales* is negative and significant irrespective of whether *Penalties* or *Violations* is the dependent variable. Conversely, the coefficients on *Subsidy* are positive, and significant only when *Penalties* is the dependent variable. Together, these results suggest that our baseline results are robust to controlling for government subsidies.

5.2 Controlling for firm government lobbying

To ensure that the observed results are driven by government contracting as opposed to other interactions between firms and government entities, we examine whether our results are

robust to controlling for lobbying. Lobbying refers to activities undertaken by companies intended to influence government activities. We merge data on lobbying from the OpenSecrets.org[xvii] lobbying database with our dataset and create an indicator variable *Lobbying* which takes the value of one for the quarters in the year in which the firm appears in the lobbying database and zero otherwise.

Panel B, Table 7, shows the results for this analysis. The coefficient on *Contract/Sales* is negative and significant irrespective of whether *Penalties* or *Violations* is the dependent variable. Conversely, the coefficients on *Lobbying* are negative but insignificant. Together, these results suggest that our baseline results are robust to controlling for lobbying activities.

5.3 Alternative measures of wage theft violations

Notwithstanding that we control for size in our baseline model, since the incidence of wage theft and penalties for wage theft violations are a function of the size of the organisation, in this robustness test we use alternative measures of our dependent variables that are arguably less sensitive to firm size. Specifically, we scale the size of penalties and the number of wage theft violations by the number of firm employees affected by the violation, where *Penalties_per_ee* is penalties per employee and *Violations_per_ee* is number of violations per employee. We substitute these measures for penalties and violations with the dependent variables used in our baseline models.

Panel C, Table 7 shows the results for this analysis. The coefficient on *Contract/Sales* is -0.029 (-0.266) when *Penalties_per_ee (Violations_per_ee)* is the dependent variable and significant at the 10% (5%) level. These results suggest that firm size does not drive our baseline results and our results are robust to alternative measures of wage theft violations.

5.4 Alternative measures of government contracting

To measure the importance of government contracting to the firm, we use *Contract/Sales* as our independent variable of interest. While scaling the value of government

contracts by sales captures the importance of government contracting to the firm, scaling the value of government contracts by total government contracts granted in a quarter, *Total_awards*, captures the importance of the contract for the governmental agency. Both measures capture the importance of government contracting, hence both measures should be negatively related to wage theft. To test this conjecture, we substitute *Contract/Sales* in our baseline model with *Contract/Total_awards*. Like for *Contract/Sales* we expect a negative and significant coefficient on *Contract/Total_awards*.

Panel D, Table 7 shows the results for this analysis. In line with expectations, the coefficient on *Contract/Total_awards* is -0.440 (-0.159) when *Penalties (Violations)* is the dependent variable and significant at the 1% level. This result suggests that our baseline results are robust to alternative measures of government contracting.

5.5 Alternative estimation models

To ensure that our results are not driven by the specific estimation models we use in our analysis, we run the baseline specification using other estimation models. Specifically, as *Violations* is a count variable, to ensure that our baseline results are not driven by the choice of estimation method (O'Hara and Kotze 2010, Cohn, Liu and Wardlaw 2022), we run our baseline model using two alternative estimation methods, i.e., Poisson regression and negative binomial regression. Further, to address potential bias arising from zero-inflation in wage theft violations, we run our baseline model using a zero-inflated negative binominal regression. Instead of using the logarithmic transformations of violations and penalties as our dependent variables, in this section we use the number of violations and transform the raw distribution of penalties into quintiles. Hence, *Penalties (Q)* refers to the value of penalties expressed in quintiles and *Violations* refers to the number of violations.

Panel E, Table 7 shows the results for the analysis using Poisson regressions in models (1) and (2); negative binomial in models (3) and (4); and zero-inflated negative binomial in

models (5) and (6). The coefficients on *Contract/Sales* are negative and significant irrespective of the estimation model used. These results suggest that our baseline results are robust to alternative estimation methods. Given that count data models give rise to inferences similar to our baseline analysis, we do not believe our results are driven by model choice.

5.6 Fixed effects

While in our baseline analysis we include industry, state, and year-quarter fixed effects to control for industry and state time-invariant characteristics, and time trends respectively, there is the possibility that industry or state-level time-variant shocks might bias our analysis. Specifically, while year-quarter fixed effects capture shocks, which are common to all firms in our sample, there might be industry-level or state-level shocks that only impact a subset of firms in our sample. To address this concern, we run our baseline model including *Industry FE *Year-quarter FE* and *State FE*Year-quarter FE.*

Panel F, Table 7 shows the results for this analysis. Columns (1) and (2) show the results when we include *Industry FE *Year-quarter FE* and columns (3) and (4) show the results when we include *State FE*Year-quarter FE* in our baseline model. In all specifications, the coefficient on *Contract/Sales* is negative, supporting our baseline results.

[Insert Table 7 here]

6. Conclusion

Notwithstanding that wage theft is one of the most common types of corporate misconduct in the U.S. (EPI 2017), there is a paucity of studies that examine the determinants of such misconduct. The U.S. government is one of the largest customers in the U.S. undertaking billions of dollars in transactions each year. Further, the U.S. government is often regarded as an employer of choice that adopts best practices in employee relations. It is in the interest of the government to ensure that it contracts with firms that uphold good employee relations. In this respect, the U.S. government requires its contractors to follow FARs that set

out requirements relating to billing information, accounts payable, labour timekeeping and pay. Failure to follow FARs might lead to the termination of the contract,charges for the cost of repurchasing, debarment from participation in future contracts and penalties.

Using a sample of U.S. listed firms and data from the Department of Labour Wage and Hour division we find that government contracting is negatively related to wage theft and that improvement in internal systems and practices is the channel that drives this relation. Further, we find that this relation is stronger in the case of cost-plus government contracts, as they require increased government monitoring. We undertake tests to mitigate endogeneity concerns. First, we run an instrument variable analysis with internally generated instruments based on the Lewbel (2012) approach. Second, we focus on first-time government contractors since these are likely the ones on which government contracting has most effect.

Results for these analyses suggest that it is unlikely that endogeneity drives our results. We submit our results to several robustness tests such as the use of alternative measures of wage theft and government contracting, different econometric specifications and different fixed effect structures. Results for these tests suggest that our results are not sensitive to research design choices.

While our tests are designed to help us mitigate causality problems it is important to note that causality tests may not fully address endogeneity issues. Therefore, caution should be exercised when drawing conclusions about causal relationships. Further, our results might not be readily generalizable to international settings since FARs are US specific and contractors in other countries might be subject to different regulations when bidding for government contracts. Notwithstanding this, the identified mechanisms may extend to other countries provided their governance mechanisms have similar features to the US. Such features include a codified set of procurement rules, credible sanctioning mechanisms, ability and willingness to monitor contractor behaviour and contractor dependence on government contracting. Future

research could therefore examine how different government contracting environments shape

contractor behaviour towards wage theft.

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ii From 2006, U.S. government agencies were obliged to disclose their transactions with contractors receiving public funds. These data are now available in the Federal Procurement Data System–Next Generation database (FPDS–NG) at www.USAspending.gov.

ii The literature examining customer-supplier relationships (for e.g., Chen et al. 2022, Liu et al. 2021) generally focuses exclusively on major customers, without considering that other customers besides major customers might influence supplier policy choices.

iii Hui, Klasa, and Yeung (2012) find that powerful suppliers and customers use their bargaining power to demand more conservative accounting. Banerjee, Dasgupta, and Kim (2008) show that liquidation threat affects supplier-customer relationships and firms with large principal customers having lower leverage. Further, Raman and Shahrur (2008) find that earnings management by the firm correlates positively with the investments by suppliers and customers. Costello (2013) shows that if financial statements are more reliable, customers and suppliers are less likely to rely on financial covenants to reduce moral hazard. Bowen, Ducharme, and Shores (1995) show that implicit claims between firms and stakeholders affect long-term accounting methods. Dhaliwal et al. (2020) show that supply chain relationships are associated with auditor assessments, while Dou, Hope, and Thomas (2013) find that supply chain relationships are important in an international context. They show that firms smooth reported income more if they operate in a weak contract environment and in industries with relationship-specific investments. Chod, Lyandres, and Yang (2019) show that competition between suppliers affects supplier financing to the retailers.

iv Government has a stabilising effect on firms during crisis (Goldman 2020). This stabilising effect improves the quality of supplier management forecasts (Cheng, Huang, and Zhang 2020). Further, extant literature suggests that government monitoring also has an effect on contracting with debtholders. Cohen et al. (2021) show that firms where the government is a major customer have fewer covenants and are less likely to have performance pricing provisions in their loan contracts. Firms sensitive to government procurement pay higher political costs (Mills, Nutter, and Schwab 2013), have lower long-term CEO wealth performance sensitivity (Hadley 2019), higher profitability (Cohen and Li 2020) and more capital investment (Hebous and Zimmermann 2021).

v Prior literature suggests that external monitors and regulatory changes influence misconduct in general. For example, Call et al. (2018) and Dey, Heese, and Pérez-Cavazos (2021) show that whistle-blowers are a valuable source of information for regulators. Also, changes in disclosure requirements influence misconduct (Christensen et al. 2017; Kleymenova and Tomy, 2022). Direct interventions in the firm's behaviour by appointing external monitors result in a decrease of violations in general (Gallo, Lynch, Tomy 2022).

vi https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/27/fact-sheet-biden-harris-administration-issues-an-executive-order-to-raise-the-minimum-wage-to-15-for-federal-contractors/

vii The data is available at https://enforcedata.dol.gov/views/data_summary.php

viii The data is available at: https://files.usaspending.gov/database_download/

ix Like Raghunandan (2021) we avoid mislabelling unmatched firms as non-violators.

x As discussed in Section 3.1 our measures for wage theft capture the period over which wage theft violations occurred and not the time when wage theft was identified.

xi One quintile of *Contract/Sales* has a value of 0.20. An increase of one quintile in *Contract/Sales* is related to a reduction of -0.090 (-0.449*0.20) in *Penalties* and -0.033 (-0.163*0.20) in *Violations* that corresponds to a reduction of 4.71% from mean *Penalties* and 8.11% from mean *Violations.*

xii While it is possible that after fraud detection government agencies instead of decreasing the volume or cancelling the contract changes the type of contract from to cost-plus from fixed-contract (Heese and Perez-Cavazos, 2019). This does not predetermine the outcome of our analysis. We analyse what happens at the time when the wage theft is occurring as opposed to being detected and penalised. We analyse what happens from the firm operational perspective after receiving the contract. In fact, for our sample of firms with positive government contracts, firms with cost-plus contracts have more violations as compared to fixed-price.

xiii Given that the relationship is significant only for *Violations*, we limit the Sobel test to that specification.

xiv In this analysis, the pre- and post- periods consist of 12 quarters each.

xv We define state groups in accordance with Galvin (2016), who examines state-level public policies protecting workers from wage theft.

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APPENDIX 1 – Variable description

Variable name	Definition [source of data]

Wage and Hour Violations Measures

Variable name	Definition [source of data]
Penalties	Total value of penalties in US dollars ($) for wage theft attributable to firm i during quarter q. [WHISARD]
Violations	Total number of violations for wage theft attributable to firm i during quarter q. [WHISARD]
Penalties_per_ee	Total value of penalties for wage theft attributable to firm i during quarter q per employee affected by the wage theft. [WHISARD]
Violations_per_ee	Total number of violations for wage theft attributable to firm i during quarter q per employee affected by the wage theft. [WHISARD]

Government Procurement Measures

Variable name	Definition [source of data]
Contract/Sales	Total value of contracts obligated to a firm i in quarter q scaled by firm sales transformed into quintile ranks scaled to range from 0 to 1. [USAspending.gov, Compustat]
Contract/Total_awards	Total value of contracts obligated to a firm i in quarter q scaled by total value of contracts awarded by federal agencies to all firms in quarter q transformed into quintile ranks scaled to range from 0 to 1. [USAspending.gov, Compustat]
Cost-plus	Dummy variable equal 1 if the company was awarded a cost-plus type of contract as defined by FAR (i.e., cost sharing, cost-plus award fee, cost-plus incentive fee, cost no fee, or cost-plus fixed fee), and 0 otherwise. [USAspending.gov]

Financial controls

Variable name	Definition [source of data]
Size	Natural logarithm of total assets measured at the prior fiscal quarter-end. [Compustat]
Leverage	The ratio of total liabilities to total equity measured at the prior fiscal quarter-end. [Compustat]
ROA	Net income scaled by total assets. [Compustat]
Sales_growth	End of fiscal quarter sales minus beginning of fiscal quarter sales, divided by beginning of fiscal quarter sales. [Compustat]

Other

Subsidies	Binary indicator variable for whether the firm received any subsidies from the government. [Subsidy Tracker]
Lobbying	Binary indicator variable which takes the value of 1 for the quarters in the year in which the firm appears in the lobbying database of Opensecrets.org and 0 otherwise. [opensecrets.org]
High_RR	Binary indicator that takes the value of one for observations with a RepRisk Index above the median for the firm, and zero otherwise. [RepRisk]
Restatements	Binary indicator for whether the firm issued any restatements including both material and immaterial restatements related to an accounting rule (GAAP/FASB) application failure, financial fraud, irregularities and misrepresentations, or errors in accounting and clerical applications. [Audit Analytics]

TABLE 1 – Distribution of variables of interest

Panel A: Distribution of wage theft violations by industry

Fama-French industry classification (type 12)*	Total violations	Total penalties (US$)
Consumer Nondurables	1,446	1,759,661
Consumer Durables	1,791	1,156,736
Manufacturing	13,921	14,400,000
Oil, Gas, and Coal Extraction and Products	4,681	6,801,783
Chemicals and Allied Products	1,305	663,128
Business Equipment	8,513	11,600,000
Telephone and Television Transmission	29,819	9,512,551
Wholesale, Retail, and Some Services	42,830	15,800,000
Healthcare, Medical Equipment, and Drugs	586	439,303
Other	40,034	24,900,000
Total	144,927	87,000,000

Panel B: Distribution of government contracts by industry

Fama-French Industry classification (type 12)*	Aggregate value of contracts (US$ millions)
Consumer Nondurables	5,240
Consumer Durables	9,260
Manufacturing	113,000
Oil, Gas, and Coal Extraction and Products	15,200
Chemicals and Allied Products	1,610
Business Equipment	107,000
Telephone and Television Transmission	14,600
Wholesale, Retail, and Some Services	8,990
Healthcare, Medical Equipment, and Drugs	14,500
Other	84,600
Total	375,000

Table 1: The table presents a distribution of wage theft violations (in Panel A) and government contracts (in Panel B) by industry defined by Fama-French type 12 classification. The industry classification description is available at Kenneth R. French website at https://mba.tuck.dartmouth.edu/.

TABLE 2 – Summary statistics

Panel A: Descriptive statistics

	Mean	Std. dev.	10th	Median	90th
Penalties	1.911	3.530	0.000	0.000	8.400
Violations	0.407	1.025	0.000	0.000	1.629
Contract/Sales	0.487	0.496	0.000	0.000	1.000
Size	8.194	1.651	6.052	8.192	10.525
Leverage	0.284	0.271	0.005	0.248	0.553
ROA	0.012	0.034	-0.006	0.013	0.035
Sales_growth	0.027	0.190	-0.134	0.016	0.175

Panel B: Correlation matrix

	Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1)	*Penalties*	1						
(2)	*Violations*	0.805*	1					
(3)	*Contract/Sales*	0.051*	0.030*	1				
(4)	*Size*	0.096*	0.063*	0.250*	1			
(5)	*Leverage*	-0.036*	-0.037*	-0.089*	0.118*	1		
(6)	*ROA*	0.028*	0.020*	-0.000	0.001	-0.062*	1	
(7)	*Sales_growth*	0.008	0.011	-0.024*	-0.045*	-0.002	0.092*	1

Table 2: The table presents statistics for the sample including 23,089 quarterly observations covering 346 unique firms spanning from 2001Q1 to 2020Q1. Panel A presents summary statistics. Panel B presents the matrix of Pearson correlation coefficients. The definitions of all variables are provided in the Appendix 1. * indicates significance of the correlation coefficient at 10% level.

TABLE 3 – Government contracting and wage and hour violations

Variable	(1) Penalties	(2) Violations
Contract/Sales	-0.449***	-0.163***
	(-2.88)	(-3.78)
Size	0.347***	0.073***
	(5.00)	(3.52)
Leverage	-0.166	-0.084
	(-0.68)	(-1.24)
ROA	1.906*	0.449
	(1.91)	(1.59)
Sales_growth	0.073	0.035
	(0.66)	(1.11)
Constant	Yes	Yes
Industry FE	Yes	Yes
State FE	Yes	Yes
Year-quarter FE	Yes	Yes
R^2	0.198	0.176
N	23,089	23,089

Table 3: This table reports the coefficients of OLS regressions. The dependent variable in model (1) is the natural logarithm of the total value of penalties plus one. The dependent variable in model (2) is the natural logarithm of the total number of violations plus one. *Leverage* and *Size* are lagged one quarter, while *ROA* and *Sales_growth* are measured contemporaneously. The sample spans the period from 2001Q1 to 2020Q1. All variables are defined in Appendix 1. The values reported in parentheses below coefficients represent t-statistics. Standard errors are clustered at firm level. *, **, *** represent significance at 1%, 5%, and 10% respectively.

TABLE 4 – Examining how context influences the relationship between government contracting and wage theft

Panel A: The moderating effect of internal control environment quality

	(1) Penalties	(2) Violations
Material_weaknesses	0.397	0.158*
	(1.43)	(1.94)
*Contract/Sales * Material_weaknesses*	-0.601**	-0.191**
	(-1.99)	(-2.05)
Contract/Sales	-0.055	-0.044
	(-0.25)	(-0.68)
Size	0.366***	0.082***
	(4.98)	(3.58)
Leverage	-0.460	-0.144
	(-1.48)	(-1.48)
ROA	2.605**	0.554
	(2.08)	(1.59)
Sales_growth	0.026	0.017
	(0.20)	(0.48)
Constant	Yes	Yes
Industry FE	Yes	Yes
State FE	Yes	Yes
Year-quarter FE	Yes	Yes
R^2	0.117	0.101
N	20000	20000

Panel B: The moderating effect of ESG-related problems

	(1) Penalties	(2) Violations
HIGH_RR	0.017	0.079
	(0.40)	(0.55)
Contract/Sales * HIGH_RR	-0.093*	-0.366**
	(-1.68)	(-2.01)
Contract/Sales	-0.122**	-0.289*
	(-2.47)	(-1.66)
Size	0.075***	0.352***
	(3.57)	(5.04)
Leverage	-0.082	-0.157
	(-1.21)	(-0.64)
ROA	0.443	1.880*
	(1.57)	(1.88)
Sales_growth	0.033	0.065
	(1.04)	(0.59)
Constant	Yes	Yes
Industry FE	Yes	Yes
State FE	Yes	Yes
Year-quarter FE	Yes	Yes
R^2	0.176	0.199
N	23089	23089

Panel C: The moderating effect of cost-plus contracts

Variable	(1) Penalties	(2) Violations
Cost-plus	3.342***	0.866***
	(7.95)	(3.42)
Contract/Sales*Cost-plus	-2.973***	-0.769**
	(-6.26)	(-2.58)
Contract/Sales	-0.476***	-0.170***
	(-3.02)	(-3.87)
Size	0.340***	0.071***
	(4.91)	(3.44)
Leverage	-0.175	-0.087
	(-0.72)	(-1.27)
ROA	1.899*	0.447
	(1.90)	(1.59)
Sales growth	0.082	0.037
	(0.74)	(1.18)
Constant	Yes	Yes
Industry FE	Yes	Yes
State FE	Yes	Yes
Year-quarter FE	Yes	Yes
R^2	0.199	0.176
N	23,089	23,089

Table 4: This table reports the coefficients of OLS regressions. Panel A reports the results for analysis examining the moderating effect of contractors' internal control environment quality; Panel B reports the results for the moderating effect of public scrutiny. and Panel C reports the results for the moderating effect of government contract type In all panels, the dependent variable in model (1) is the natural logarithm of the total value of penalties plus one and the dependent variable in model (2) is the natural logarithm of the total number of violations plus one. In Panel A *Material_weaknesses* is an indicator variable which takes the value of one for firms that have at least one Section 404 or Section 302 material weakness reported in Audit Analytics, zero otherwise and *Contract/Sales*Material_weaknesses* is an interaction term of *Contract/Sales* ratio and the *Material_weaknesses* indicator. In Panel B *HIGH_RR* is an indicator variable which takes the value of one for firms with a RepRisk Index above the median for the firm, and zero otherwise and *Contract/Sales*HIGH_RR* is an interaction term of *Contract/Sales* ratio and the *HIGH_RR* indicator. In Panel C *Cost-plus* is an indicator variable which takes the value of one if the contract is a cost-plus contract, zero otherwise and *Contract/Sales*Cost-plus* is an interaction term of *Contract/Sales* ratio and *Cost-plus* contract indicator. *Leverage* and *Size* are lagged one quarter, while *ROA* and *Sales_growth* are measured contemporaneously. The sample spans the period from 2001Q1 to 2020Q1. All variables are defined in Appendix 1. The values reported in parentheses below coefficients represent t-statistics. Standard errors are clustered at firm level. *, **, *** represent significance at 1%, 5%, and 10% respectively.

TABLE 5 – Government contracting, restatements and wage and hour violations

Panel A: Government contracting and restatements

Variable	Restatement
Contract/Sales	-0.023*
	(-1.71)
Size	0.008
	(1.23)
Leverage	-0.004
	(-0.09)
ROA	-0.125
	(-1.46)
Sales_growth	-0.001
	(-0.12)
Constant	Yes
Industry FE	Yes
State FE	Yes
Year-quarter FE	Yes
R^2	0.117
N	13,286

Panel B: Government contracting, restatements and wage and hour violations

Variable	(1) Penalties	(2) Violations
Restatement	0.326	0.191*
	(0.99)	(1.74)
Contract/Sales	-0.570***	-0.241***
	(-2.66)	(-3.92)
Size	0.558***	0.164***
	(5.25)	(4.90)
Leverage	-0.185	-0.029
	(-0.32)	(-0.19)
ROA	3.455**	1.016***
	(2.54)	(3.00)
Sales_growth	-0.085	0.017
	(-0.65)	(0.46)
Constant	Yes	Yes
Industry FE	Yes	Yes
State FE	Yes	Yes
Year-quarter FE	Yes	Yes
R^2	0.224	0.226
N	13,286	13,286

Panel C: Sobel test for the mediating role of financial restatements in the relationship between government contracting and wage theft violations. Sobel Test Statistic (z): -2.075, p-value: 0.038.
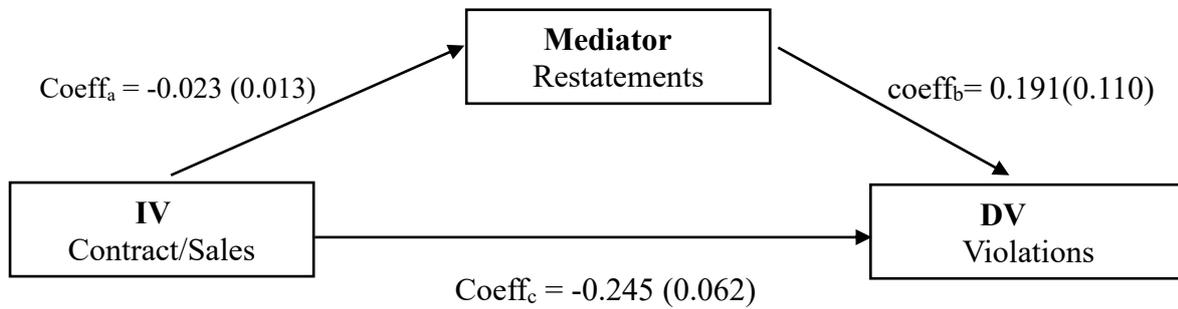

Table 5: This table reports the coefficients of OLS regressions. In Panel A the dependent variable is *Restatement,* an indicator variable for whether the firm issued any restatements, including both material and immaterial restatements. In Panel B the dependent variable in model (1) is the natural logarithm of the total value of penalties plus one. Panel C report sobel tests for the mediating role of financial restatements in the relationship between government contracting and wage theft proxied by violations. The dependent variable in model (2) is the natural logarithm of the total number of violations plus one. *Leverage* and *Size* are lagged one quarter, while *ROA* and *Sales_growth* are measured contemporaneously. The sample spans the period from 2001Q1 to 2020Q1. All variables are defined in Appendix 1. The values reported in parentheses below coefficients represent t-statistics. Standard errors are clustered at firm level. *, **, *** represent significance at 1%, 5%, and 10% respectively.

TABLE 6 – Addressing endogeneity concerns

Panel A: Addressing endogeneity using the Lewbel (2012) approach

	(1) Penalties	(2) Violations
Contract/Sales (Lewbel instrument)	*-0.187***	*-0.063****
	(-2.48)	*(-2.96)*
Size	0.355***	0.105***
	-7.66	-8.48
Leverage	0.026	-0.077**
	-0.2	(-2.15)
ROA	2.154***	0.531***
	-3.83	-3.51
Sales_growth	-0.008	0.018
	(-0.07)	-0.54
Constant	Yes	Yes
Industry FE	Yes	Yes
State FE	Yes	Yes
Year-quarter FE	Yes	Yes
R2	0.057	0.039
N	23089	23089
Kleibergen-Paap rk LM statistic	4473.971	4473.971
(p-value)	0	0
Cragg-Donald Wald F statistic	1252.667	1252.667
Kleibergen-Paap rk Wald F statistic	2491.381	2491.381
Hansen J statistic	3.175	1.008
(p-value)	0.3655	0.7993

Panel B: First time contractors

	(1) Penalties	(2) Violations
Treatment*Post	-0.357	-0.274**
	(-0.82)	(-2.26)
Post	-0.043	0.059
	(-0.14)	(0.70)
Size	-0.530	-0.137
	(-1.28)	(-1.33)
Leverage	0.309	0.067
	(0.33)	(0.29)
ROA	1.940	0.430
	(1.25)	(1.14)
Sales_growth	0.242	0.068
	(1.12)	(1.18)
Constant	Yes	Yes
Firm FE	Yes	Yes
Year-quarter FE	Yes	Yes
R^2	0.406	0.488
N	4,549	4,549

Table 6: This table shows tests addressing endogeneity concerns in the baseline model. Panel A shows the results for a test intended to address endogeneity concerns in our baseline analysis, where internal instruments are created using the Lewbel (2012) approach; and Panel B reports a difference-in-differences analysis examining the relation between government procurement and wage and hour violations. In the analysis, we employ a sample of firms that receive first government contracts (Treatment firms) and their propensity-score matched counterparts noncontractors (Control Firms). The details of the matching procedure are described in Section 4.5.1. The analysis spans a window of 24 year-quarters. The Post period begins with a quarter of the initial contract award and ends eleven quarters after. The dependent variable in model (1) is the natural logarithm of the total value of penalties plus one. The dependent variable in model (2) is the natural logarithm of the total number of violations plus one. All control variables are defined in Appendix 1. The values reported in parentheses below coefficients represent t-statistics. Standard errors are clustered at firm level. *, **, *** represent significance at 1%, 5%, and 10% respectively.

TABLE 7 – Robustness tests

Panel A: Government subsidies

	(1) *Penalties*	(2) *Violations*
Subsidy	0.392*	0.107
	(1.80)	(1.54)
Contract/Sales	-0.500**	-0.167***
	(-2.20)	(-2.71)
Size	0.363***	0.073**
	(3.54)	(2.37)
Leverage	-0.009	-0.009
	(-0.02)	(-0.09)
ROA	0.992	0.388
	(0.63)	(0.95)
Sales_growth	0.099	0.034
	(0.61)	(0.70)
Constant	Yes	Yes
Industry FE	Yes	Yes
State FE	Yes	Yes
Year-quarter FE	Yes	Yes
R^2	0.280	0.244
N	11,691	11,691

Panel B: Lobbying

	(1)	(2)
	Penalties	*Violations*
Lobbying	-0.012	-0.016
	(-0.07)	(-0.30)
Contract/Sales	-0.448***	-0.162***
	(-2.89)	(-3.77)
Size	0.348***	0.074***
	(4.99)	(3.48)
Leverage	-0.166	-0.084
	(-0.68)	(-1.23)
ROA	1.908*	0.452
	(1.91)	(1.60)
Sales_growth	0.073	0.035
	(0.66)	(1.11)
Constant	Yes	Yes
Industry FE	Yes	Yes
State FE	Yes	Yes
Year-quarter FE	Yes	Yes
R^2	0.198	0.176
N	23,089	23,089

Panel C: Alternative measures of wage and hour violations

	(1) Penalties_per_ee	(2) Violations_per_ee
Contract/Sales	-0.029*	-0.266**
	(-1.93)	(-2.02)
Size	0.031***	0.310***
	(4.68)	(5.41)
Leverage	-0.009	-0.062
	(-0.33)	(-0.25)
ROA	0.205**	1.583*
	(2.15)	(1.90)
Sales_growth	-0.001	0.031
	(-0.06)	(0.34)
Constant	Yes	Yes
Industry FE	Yes	Yes
State FE	Yes	Yes
Year-quarter FE	Yes	Yes
R2	0.176	0.181
N	23,089	23,089

Panel D: Alternative measure for government contracting

	(1) Penalties	(2) Violations
Contract/Total_awards	-0.440***	-0.159***
	(-2.87)	(-3.75)
Size	0.348***	0.074***
	(5.02)	(3.54)
Leverage	-0.165	-0.084
	(-0.68)	(-1.23)
ROA	1.912*	0.452
	(1.91)	(1.60)
Sales_growth	0.074	0.035
	(0.66)	(1.12)
Constant	Yes	Yes
Industry FE	Yes	Yes
State FE	Yes	Yes
Year-quarter FE	Yes	Yes
R^2	0.198	0.176
N	23,089	23,089

Panel E: Alternative estimation methods

	(1) Penalties (Q)	(2) Violations (count)	(3) Penalties (Q)	(4) Violation (count)	(5) Penalties (Q)	(6) Violations (count)
Contract/Sales	-0.079**	-0.537***	-0.160**	-0.638***	-0.256***	-0.037*
	(-2.16)	(-2.90)	(-2.10)	(-4.01)	(-2.73)	(-1.96)
Size	0.092***	0.658***	0.196***	0.304***	0.555***	0.095***
	-5.68	-3.65	(5.78)	(3.06)	(7.92)	(8.54)
Leverage	-0.04	-2.125**	-0.095	-0.311	-0.357	0.014
	(-0.54)	(-2.04)	(-0.54)	(-1.11)	(-1.58)	(0.36)
ROA	0.705**	4.701	2.073**	3.003**	3.300***	0.800***
	-2.12	-1.59	(2.05)	(1.99)	(3.03)	(4.07)
Sales_growth	0.013	0.201	0.021	0.293***	0.109	-0.010
	-0.51	-0.98	(0.38)	(3.16)	(0.87)	(-0.34)
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
N	23,089	23,089	23,089	23,089	23,089	23,089
Model	Poisson	Poisson	Negative binomial	Negative binomial	Zero-inflated negative binomial	Zero-inflated negative binomial

Panel F: Different fixed effect structure

	(1) Penalties	(2) Violations	(3) Penalties	(4) Violations
Contract/Sales	-0.627**	-0.213***	-0.437**	-0.164***
	(-2.27)	(-2.81)	(-2.54)	(-3.43)
Size	0.320***	0.072**	0.336***	0.067***
	(3.06)	(2.21)	(4.42)	(3.06)
Leverage	-0.163	-0.066	-0.234	-0.097
	(-0.42)	(-0.60)	(-0.89)	(-1.29)
ROA	0.226	-0.074	1.815*	0.418
	(0.13)	(-0.15)	(1.75)	(1.44)
Sales_growth	0.263	0.085	0.095	0.038
	(1.07)	(1.21)	(0.81)	(1.15)
Constant	Yes	Yes	Yes	Yes
Industry FE	No	No	Yes	Yes
State FE	Yes	Yes	No	No
Industry *x* Year-quarter FE	Yes	Yes	No	No
State *x* Year-quarter FE	No	No	Yes	Yes
R^2	0.589	0.560	0.292	0.289
N	23,089	23,089	23,089	23,089

Table 7: This table reports several robustness tests. Panel A includes *Subsidy*, an indicator variable that takes the value of one, if the firm received government subsidies in that quarter, and zero otherwise. Panel B includes *Lobbying,* an indicator variable that takes the value of one if the firm appears in the lobbying database and zero otherwise. Panel C uses alternative dependent variables, i.e., in model (1) penalties per employee in model (2) a number of violations per employee. Panel D employs an alternative measure of government contracting, i.e. total value of contracts obligated to a firm *i* in quarter *q* scaled by total value of contracts awarded by federal agencies to all firms in quarter q transformed into quintile ranks scaled to range from 0 to 1. Panel E reports coefficients of Poisson regressions in models (1) and (2), reports the coefficients of negative binomial regressions in models (3) and (4); and reports the coefficients of zero-inflated negative binomial regressions in models (5) and (6). Panel F reports coefficients of OLS regressions with year-quarter fixed effects interacted with industry and year-quarter fixed effects interacted with state fixed effects. *Leverage* and *Size* are lagged one quarter, while *ROA* and *Sales_growth* are measured contemporaneously. All control variables are defined in Appendix 1. The values reported in parentheses below coefficients represent t-statistics. Standard errors are clustered at firm level. *, **, *** represent significance at 1%, 5%, and 10% respectively.