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Revenge of the Private Sector: Union Decline, Privatization, and the Restructuring of the American Economy

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REVENGE OF THE PRIVATE SECTOR: UNION DECLINE, PRIVATIZATION, AND THE
RESTRUCTURING OF THE AMERICAN ECONOMY

A

Dissertation Presented

By

NATHAN P. MEYERS

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

September 2025

Sociology

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ACKNOWLEDGEMENTS

I would like to thank my friends, family, mentors, colleagues, and committee members who made this dissertation possible. I am grateful to my dissertation co-chairs, Don Tomaskovic-Devey and Jasmine Kerrissey, for shaping my development as a sociologist, and to Joya Misra for encouraging me to reach higher. Most of all, I thank Julia for being a supportive and insightful partner throughout this process. I am also grateful to many others who are too numerous to name but too important to forget.

ABSTRACT

REVENGE OF THE PRIVATE SECTOR: UNION DECLINE, PRIVATIZATION, AND THE
RESTRUCTURING OF THE AMERICAN ECONOMY

September 2025

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My dissertation explores the ascendancy of the U.S. private sector since the 1980s. Business interests and political ideology had fused into a political movement seeking to restore the bygone liberal economics of the pre-New Deal era by the 1970s, quickly finding success in undermining both organized labor and the state. In three essays, I focus on the effects of business interests organizing against organized labor and the state in a two-pronged front. By doing so, I am engaging in expansive literatures on private-sector union decline and the privatization of government services, two well-worn areas of research that I believe are lacking some theoretical depth due to methodological approaches that do not make full use of temporal information. To obtain new insights, I apply innovative time-series approaches to creating variables, employing econometric models, and using semiparametric techniques to identify nonlinear temporal dynamics. Chapter 1 studies the causes of U.S. union decline in 1973-2008, using locally-weighted error correction models to estimate not only the prominent explanations in existing literature, but also to unravel individual causes to find the time periods when each was most prominent. Chapter 2 establishes for the first time that privatization has reshaped employment in the U.S. before using unconditional quantile regression to identify the 2000-2018 negative effects of privatization on earnings across various points in the earnings distribution resulting from privatization. Chapter 3 establishes for the first time that privatization reshaped the U.S. government since the 1970s before using autoregressive distributed lag models to find that increased government contracting to private-sector industries has reshaped private-sector resource distribution, which includes increased corporate profits and dividends paid to shareholders. This dissertation makes literature advancements while also

offering new operationalizations for future scholars. Overall, the findings demonstrate a profound shift in power and resource distribution within American society.

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INTRODUCTION

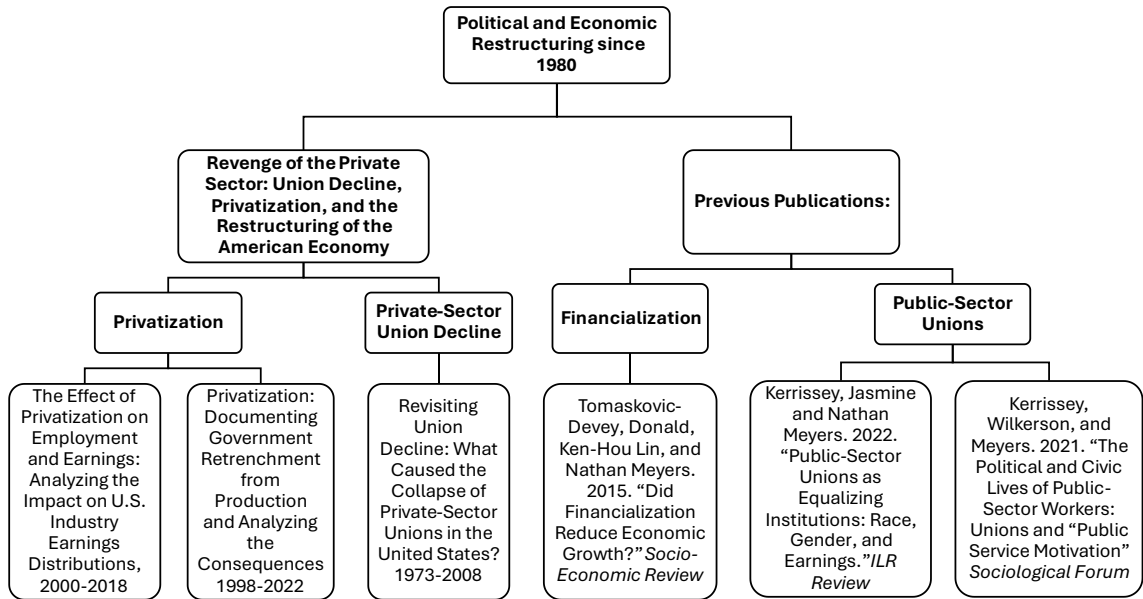
The years after 1980 represent a radical departure from the New Deal era politics that emerged from the Great Depression and World War II. While the 1940s to 1970s have become known as an era of strong private-sector unions, welfare state expansion, and government intervention in the economy, business interests and a political ideology merged into a political movement seeking to restore the liberal economics of a bygone era. The transition has become widely known as neoliberalism, a political project which is fundamentally oriented towards expanding the power of the private sector in pursuit of profit. To bring lost power back to the private sector, this movement had to confront both organized labor and the state. This dissertation seeks to better understand the economic transformations underpinning the neoliberal transition.

In three essays, this dissertation focuses on the effects of business interests organizing against organized labor and the state in a two-pronged front. By doing so, I am engaging in expansive literatures on private-sector union decline and the privatization of government services, two well-worn areas of research that I believe are lacking some theoretical depth due to methodological approaches that do not make full use of temporal information. To obtain new insights, I apply innovative time-series approaches to creating variables, employing econometric models, and using semiparametric techniques. Chapter 1 first establishes the privatization of the U.S. government before analyzing the effect of increased government contracts on private-sector resource distribution. Chapter 2 first establishes that privatization has reshaped employment in the U.S. before studying the effects on earnings at points across the earnings distribution resulting from privatization. Chapter 3 studies the causes of U.S. union decline in 1973-2008, estimating not only the prominent explanations in existing literature, but also unravelling individual causes to find the time periods when each was most prominent—here, I do not investigate the distributional consequences, which are already well-known.

This dissertation extends my ongoing research agenda on the political and economic restructuring of the American economy, displayed in Figure 1. In my first publication, we studied the impact of the financialization of non-finance corporations on economic growth, finding that increased investment in finance reduces economic output (Tomaskovic-Devey, Lin, and Meyers 2015). In my public-sector work, we found that public-sector unions a) have a race-gender equalizing effect for women and racial minorities in the public sector (Kerrissey and Meyers

2022) and b) increase civic participation for their members (Kerrissey, Wilkerson, and Meyers 2021). While these projects are not directly related to private-sector business interests attacking the state, they are aspects of the transformation of the economy which have become important sources of wealth accumulation and sites of contentious politics. Overall, this broader agenda encompasses the transformation of the American economy after 1980.

Figure 1. Diagram of My Sociological Research Agenda.



Privatization, in whatever form, fundamentally shifts relationships from the public to private domains. This can have profound implications. Instead of having a direct voice in shaping the administration of public services or petitioning the government for a redress of grievances, citizens must dispute contracts with private firms. Rather than pay employees directly, governments contract work with varying degrees of oversight. These are only a few aspects of a multifaceted issue, but the sociological implications of shifting social relationships caused by privatization are still not well understood.

Although privatization has been widely discussed by scholars, the term often remains nebulous. For this reason, the concept can appear ethereal. I attempt to identify privatization as a concrete, measurable institutional process transforming the workplace and resource distribution, similar to financialization (Lin

and Tomaskovic-Devey 2013; Tomaskovic-Devey, Lin, and Meyers 2015), computerization (Kristal 2013; Kristal 2019), deindustrialization (Bluestone and Harrison 1982), or union decline (Meyers 2016). Each of these processes have been linked to growing inequality.

Chapter 1, on the privatization of U.S. government and the economy, provides the first-ever national level mapping of privatization in the United States and uses autoregressive distributed lag models (ARDL) to provide evidence that privatization through government contracting rewards private-sector business interests rather than other stakeholders such as labor. The research questions I ask are: 1) Has government receded from economic production? and 2) Which private-sector stakeholders benefit as a result of increased revenue from government contracting? This research is almost entirely original within the privatization literature, in that nobody has ever studied the total dollar value of government contracts within the U.S. economy. I use Bureau of Economic Analysis Input-Output and National Income and Product Account data by industry to map privatization during 1970-2023. The ARDL models can be considered as industry-level, modified Cobb-Douglas functions with fixed effects for industry and year for 1998-2022, where the dependent variable is a first-differenced output that controls for lagged production inputs as well as a lagged control of the dependent variable. Descriptive results show a) long-term government shrinkage in consumption and expenditures as well as b) increases in the share of government expenditures from contracting. Regression findings demonstrate that increased government contracting as a proportion of total revenue in one year is associated with increased gross operating surplus, net operating surplus, corporate profits, and dividends paid to shareholders in the following year. Importantly, no effect on employee compensation or corporate income taxes was found to be significant, suggesting that only business interests benefit from increased government purchases.

Chapter 2, on the privatization of employment, provides the first-ever mapping of employment privatization across the U.S. economy and uses unconditional quantile regression (UQR) to provide evidence of employment privatization negatively impacting earnings for several groups of wage and salary workers. Current Population Survey (CPS) data for 1983-2018 traces public-private sector employment trends by industry. Income quantiles at different points in the earnings distribution for years 2000-2018 are created for workers for each public-private sector, industry, and year before estimating the effects of privatization on each. After determining industry-level employment privatization trends, UQR models estimate the effect of this employment privatization on individual worker

earnings at each of those quantiles. Results highlight the widespread negative impact of employment privatization for workers in privatizing industries with a substantial public-sector employment presence.

Privatization scholarship in the U.S. has tended to focus on the decisions of public administrators (see Hefetz, Warner, and Vigoda-Gadot 2012) and the effect on the public (see Lobao, Adua, and Hooks 2014). Chapter 2 recenters privatization around workers by conceptualizing privatization as an employment phenomenon, operationalizing employment privatization as the marginal percentage-point change in the private-sector share of U.S. industry employment compositions. While I demonstrate that U.S. employment clearly privatized in 1983-2018, I also find that these industry-level shifts negatively impacted workers in 2000-2018 across the earnings distribution, public-private sectors, and industries. For example, K-12 public school workers at the median and 75th percentile were estimated to have lost over 5% of their yearly earnings per year on average due to employment privatization. While the effects also vary, this paper finds that the uneven impact of privatization on earnings is the result of institutional dynamics.

Chapter 3, “Revisiting Union Decline: What Caused the Collapse of Private-Sector Organized Labor in the United States, 1973-2008” explores the decline of organized labor in the private sector from a historical and holistic perspective. This paper analyzes the causes of U.S. private sector union decline using error correction models (ECMs) to determine which of the prominent causes in the literature best explain union decline, also using local-weighting to highlight when in time certain causes were more or less prominent. Results support the narrative that structural changes to the economy and the failure of unions to organize more broadly left the labor movement vulnerable to a business political mobilization and offensive, which was further enabled by weakening protections from existing labor laws.

Union decline has been linked to the generation of economic inequalities pertaining to earnings and employment (Rosenfeld 2011). While other scholars of U.S. union decline have empirically studied one cause at a time, this chapter focuses on the complexity of all plausible causes in the literature. A refocus on cross-national research in the 2010s stemming from Western (1997) focuses on the role of labor law as an institutional explanation for union decline, although the national-level units of analysis in this research does not explain specific causes within countries. In the U.S. this post-1980 union decline has been observed as the “dis-regulated period” (Stepan-Norris and Kerrissey 2023). I use combined industry-level data from six different economic datasets to estimate the causes of

union decline, estimating the total membership losses from each cause. While not all significant causes produced consistent negative effects, some of the early causes, like political mobilization of business in the 1970s or the increasing reliance of non-finance firms on financial assets in the early 1980s, caused a Jenga-like effect as the post-World War II labor movement came crashing down. This research is theoretically and methodologically distinct from prior research, offering insight into the temporal complexities of the decline of organized labor.

Many changes to the U.S. economy and the workplace since the 1980s have been studied extensively for decades. However, more recent changes to data accessibility and computing ability mean that more sophisticated analyses can be performed. However, conventional wisdoms had already been established, leaving important and, perhaps, otherwise glaringly obvious topics unresearched. A tendency of political sociology and political economy has been erroneously to find causality by observing the location of transformations, such as nation-states, while ignoring the sites where the social action occurs—organizations. Sometimes these organizations are firms and industries, other times they are governmental entities. A tendency of many economists and economic sociologists, perhaps alternatively, has been to study these organizations without further considering how the unequal distribution of resources and power in society has produced and reinforced these transformations. This dissertation attempts to explain what others have called neoliberalism while abandoning the term, focusing instead on fully operationalized measurements of union strength, financialization, and the privatization of the economy.

CHAPTER 1

PRIVATIZATION: DOCUMENTING GOVERNMENT RETRENCHMENT FROM PRODUCTION AND IDENTIFYING THE DISTRIBUTIONAL CONSEQUENCES 1998-2022

Nathan Meyers

Abstract:

This paper presents the first-ever macroeconomic evidence of the privatization of the U.S. economy. As a social phenomenon, privatization has been widely studied and debated since the 1970s. However, because few studies have attempted to operationalize the concept, systematic attempts to quantify the overall level of privatization in the U.S. are absent from the literature. I begin by theorizing privatization as a process that occurs through both acts of commission and acts of omission. I then remedy this shortcoming in the literature by identifying how to operationalize privatization within economic indicators from the Bureau of Economic Analysis and analyzing the resulting impact among industry stakeholders. My findings are that the U.S. productive economy has privatized substantially since 1970, while government has simultaneously been privatized from within by contracting work out to the private sector. Autoregressive distributed lag (ARDL) regression models provide evidence that government contracting increases private-sector surplus measures, including gross operating surplus, net operating surplus, corporate profits, and shareholder dividends, but does not raise employee compensation, capital investment, or corporate income taxes paid to the federal government. To conclude, I discuss the implications for the retrenchment of government from the U.S. productive economy.

Introduction

Over five decades, no systematic research has established the existence of U.S. privatization through macroeconomic trends. This absence of empirical evidence is alarming, particularly now, as the Trump Administration accelerates efforts to reduce the federal workforce and privatize public services. Under the auspices of the Department of Government Efficiency (DOGE), led by Elon Musk, this effort represents a profound transformation in the allocation of public resources and the role of government in society. The redirection of government functions

toward private-sector control raises urgent questions about the evolving relationship between government and the private sector. This study addresses these gaps by providing the first comprehensive mapping of privatization in the U.S. economy over time, also examining how government contracting has shaped the private sector's resource distribution.

I conceptualize privatization as a transformative process involving the retrenchment of government economic presence, encompassing all measurable national economic activity. This can be measured through changes in various types of government expenditures. Government's *realized* regulatory presence is encapsulated in this as well. This conceptualization might at first seem intuitive, but my operationalization fundamentally diverges from previous empirical research on U.S. privatization. I systematically operationalize privatization as a macroeconomic process, addressing a critical gap in the literature.

Unlike many other countries, U.S. privatization has primarily been observed as an increase in government contracting rather than as government asset divestitures (Sclar 2000; Warner and Hefetz 2020)¹, although the U.S. Postal Service is a privatization target (Ecker 2018). While this phenomenon is well-documented, no systematic analyses exist to measure the full extent of government contracting in U.S. economic data.

Theoretically, I advance a new framework for understanding the privatization of government and the economy. I argue that privatization happens through *acts of commission*— such as government contracting and asset divestitures— and *acts of omission*— such as austerity and drift in public policy effects away from their intended usefulness. Using Relational Inequality Theory, I then advance the case that privatization through government contracting may increase inequality by reshaping private-sector resource distribution.

This paper has two primary empirical aims. First, I establish that the U.S. economy has privatized. Second, I determine which private-sector stakeholders have benefitted from this privatization via the contracting pathway. My research questions are: 1) Has government receded from economic production? and 2) Which private-sector stakeholders benefit as a result of increased revenue from

¹ As of February 21, 2025, the Washington Post reports that the Trump Administration will attempt to dismantle the U.S. Postal Service: <https://www.washingtonpost.com/business/2025/02/20/trump-usps-takeover-dejoy/>.

government contracting? By “economic production,” I refer to measurable economic activity.

My descriptive findings critically advance privatization research, offering a process-based perspective. I first find that overall government spending relative to the private sector on production has decreased consistently since 1970 as indicated by declining consumption expenditures and private-sector investments. Second, government has also lost productive capacity, shrinking both public employment and capital stock in this period. Third, within this shrinking pool of government spending on production, since at least 1977 government has increasingly spent money contracting out production rather than producing goods and services in-house. Together, these findings are strong evidence that the government and the U.S. economy have privatized.

I use autoregressive distributive lag (ARDL) models to analyze how government contracting revenue affects private-sector resource distribution. My findings indicate that government contracting increases private-sector surpluses, including gross operating surplus, net operating surplus, corporate profits, and shareholder dividends, but does not raise employee compensation, capital investment, or corporate income taxes paid to the federal government.

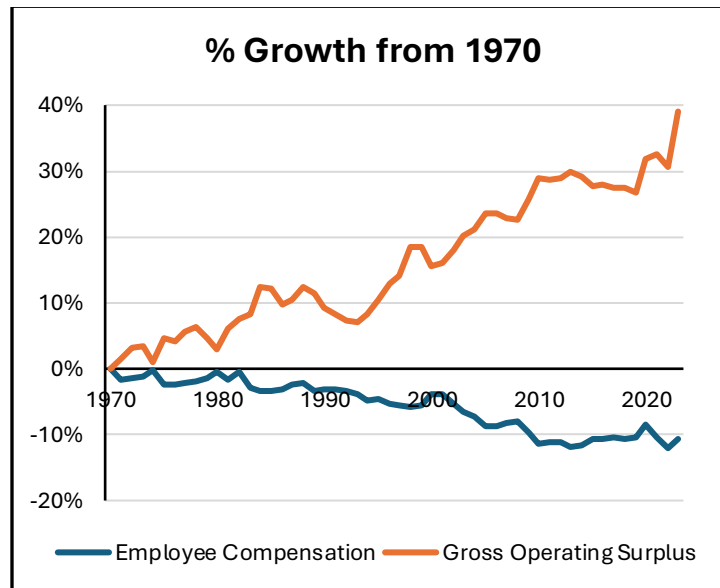
These findings establish the existence of privatization in macroeconomic data and demonstrate that government contracting disproportionately benefits corporate actors while leaving labor and corporate income taxes unchanged.

The Historical Context of Privatization and Resource Distribution

Over the past half century, the distribution of resources in the U.S. has changed significantly, importantly setting the context for identifying any links between this transformation and the privatization of the economy. In the first few decades after World War II, workers’ lives steadily improved. U.S. corporations dominated the global economy in the 1950s and 60s, then struggled to maintain profitability as global competition increased (Bluestone and Harrison 1982; Franko 1989). Since the 1970s, private-sector power has increased at labor’s expense in a profound relational shift. Figure 1 highlights that, as a share of the economy, *employee compensation*—wages, salaries, and supplements—grew 11.6% from 1947 to 1970 (53% → 59% of GDP) before falling 10.6% from 1970 to 2023 (59% → 53% of GDP). Conversely, the *gross operating surplus*—total earnings after subtracting labor and raw commodity costs—for all U.S. firms decreased by 18.3%

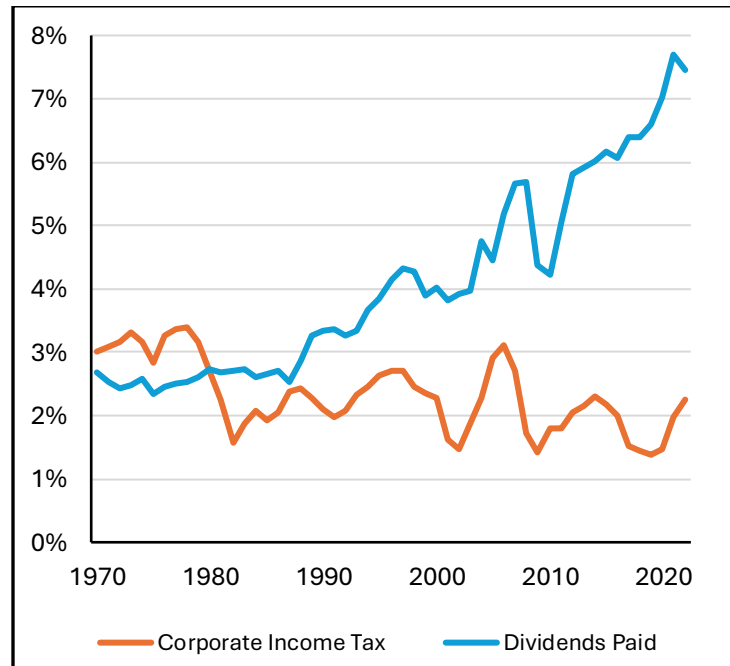
in 1947-1970 (39% → 32% of GDP) before rising 39.0% from 1970 to 2023 (32% → 44% of GDP). Meanwhile, Figure 2 reveals the changing composition of corporate profits, with shareholder dividends soaring from 2.5% of GDP in 1987 to 7.5% of economic output by 2022, while corporate income taxes remained below 3.0% of GDP beginning in the 1980s after plummeting to a nadir from previous decades. Taken together, the private sector has reclaimed society's resources.

Figure 1. Cumulative Percentage Growth in Employee Compensation and Gross Operating Surplus 1970-2023.



Source: Bureau of Economic Analysis National Income and Product Accounts

Figure 2. Select Components of Corporate Profits as a Percentage of GDP, 1970-2022.



Source: Bureau of Economic Analysis National Income and Product Accounts

This transformation did not occur in isolation. By the early 1970s, corporate leaders and business associations began mobilizing to expand private-sector power and profit. The 1971 Powell Memo was instrumental in mobilizing business leaders, warning that government posed a direct threat to free enterprise, urging business leaders to take a more active role in shaping policy (Mizruchi 2013; Gross et al. 2013). In response, conservative think tanks, lobbying groups, and media networks proliferated throughout the decade, with the Business Roundtable playing a particularly influential role (Walker and Rea 2014). Within the decade, corporate political action committees (PACs) went from being outspent by labor unions to outspending labor PACs 5:1 in the 1980 elections, effectively reshaping the dynamics of electoral politics (Hacker and Pierson 2010: 121). The election of Ronald Reagan marked the culmination of these efforts, solidifying privatization as a major policy agenda.

Ideological academic arguments favoring privatization undergirded the Powell Memo. Neoliberal economists, particularly Milton Friedman, popularized concerns of government inefficiency, framing state intervention as inferior to market mechanisms (Henig 1989). Friedman's *Capitalism and Freedom* (1962) introduced the term "government monopolies," portraying public institutions as rigid obstacles to the private sector's market dynamism. Public choice theory (Buchanan and

Tullock 1962) extended this logic by portraying government decision-making as driven by self-interest rather than public good. These ideas attracted support from business leaders, particularly industrialist Charles Koch, who funded public choice theorists to advance libertarian economic policies (McLean 2017) and launched libertarian political organizations, including the American Legislative Exchange Council and Americans for Prosperity (Lafer 2017).

By the late 1980s, privatization was a defining feature of economic policy, culminating in the Reagan Administration's 1988 Commission on Privatization Report which recommended broad privatization for cost savings. While framed as a strategy for improving efficiency, these reforms reflected broader shifts in how power and resources were distributed, setting the stage for persisting debates within and between both major U.S. political parties.

Conceptualizing Privatization: Acts of Commission and Omission

Privatization in the United States has primarily been studied as an intentional policy shift, often framed as a government strategy to enhance efficiency or reduce fiscal burdens (see Sclar 2000). However, privatization transpires through state inaction as well as deliberate policy actions (Hacker 2004). To systematically capture the different pathways of privatization, I distinguish between privatization as an act of commission and privatization as an act of omission.

Acts of Commission: Contracting Out and Asset Divestiture

Beyond policy changes, privatization is a transformation in economic production, shifting resource control from the public to the private sector. Acts of commission involve government either abandoning goods and services production or introducing market dynamics, transferring economic power to the private sector. Two such acts of commission include government entities actively restructuring the provision of goods and services, including through contracting out or asset divestiture.²

First, *contracting out* refers to the process by which government functions are transferred to private firms through contractual agreements, rather than being performed by public employees (Donahue 1989; Megginson and Netter 2001; Megginson 2017). This form of privatization has been the dominant model in the United States and a topic of extensive research, with public administration scholars

² As of this writing, President Trump is attempting to unilaterally incorporate the Postal Service into the executive branch.

frequently documenting the extent of contracting out by counting the number and percentage of services that municipalities contract (Warner and Hefetz 2020; Warner, Aldag, and Kim 2021; Warner and Bel 2008). Contracting out is often justified on efficiency grounds, with proponents arguing that private-sector competition drives cost reductions and service improvements (Savas 1987). However, research suggests that these efficiency gains are often overstated, as privatization frequently leads to mixed outcomes, including reduced service quality, lower wages for workers, and weakened accountability mechanisms (Warner and Hefetz 2004, 2012; Sclar 2000).

Second, *asset divestiture*, occurs when the government sells state-owned enterprises (SOEs) or physical infrastructure to private entities (Radić, Ravasi, and Munir 2021; Megginson 2017; Mercille and Murphy 2017). Unlike contracting out employment, which preserves an administrative role for government, asset divestiture directly transfers government functions and productive capacity to the private sector. This form of privatization has been more common in other countries, particularly during periods of market liberalization in Europe, Latin America, and post-Soviet economies (Megginson and Netter 2001; Son and Zohlnhöfer 2019; Bortolotti and Milella 2008). In the United States, asset divestiture has mostly been limited to instances of asset sales in the U.S. primarily involving municipal utilities, public housing, and toll roads, rather than large-scale national industries (Sclar 2000).

The one major U.S. asset divestiture, the federal freight railroad enterprise Conrail, comes with an asterisk.³ Consolidated Rail Corporation (Conrail) was formed as a government enterprise through federal legislation through the dissolution of the Penn Central and other bankrupt railroads in 1976. The explicit goal from inception was to provide the federal funding necessary to return the freight lines to profitability so the private sector could once again afford to manage them. That is, the rail lines were recognized as vital public services. Following the Conrail Privatization Act of 1986, Conrail was sold to investors as a joint stock company.

While changes in profitability can be measured in cases where SOEs transition to private ownership, no equivalent measure exists for the profitability of contracting out. However, this does not mean that private-sector firms fail to benefit from contracting. The expansion of government contracting creates new revenue streams for private companies, which is then distributed to fund worker pay and

³<https://conrail.com/about-conrail/history>

organizational surplus, key concerns explored in later sections of this paper. Worth noting, *publicization*— a potential re-expansion of government production—is also possible, whether through contracting back in (Clifton et al. 2021) or the expansion of assets.

Acts of Omission: Austerity and Policy Drift

Privatization can also occur through inaction, when the state gradually cedes economic functions to private actors by failing to maintain its role in production. This process is best understood through the concepts of austerity and policy drift.

Austerity refers to the deliberate reduction of government spending, typically justified as a means of reducing deficits and ensuring fiscal discipline. However, austerity policies often result in diminished state capacity, forcing public agencies to rely on private firms to fill service gaps (Lafer 2017; Lobao et al. 2018). Unlike contracting out, which is framed as an active policy decision, austerity-driven privatization is often presented as an unavoidable budgetary necessity (Konzelmann 2014). Beyond balancing budgets, austerity is an ideological goal unto itself, motivating the Tea Party movement of the 2010s (Skocpol and Williamson 2012) as well as the conservative movement in general (Medvetz 2006), whose influential Wednesday meeting leader, Grover Norquist, infamously described himself in 2001 as a revolutionary who wanted government to be small enough for him to “drown it in the bathtub.”⁴ The 2025 analog to this violent imagery is Elon Musk waving a chainsaw on stage at the Conservative Political Action Conference, claiming, “This is the chainsaw for bureaucracy.”⁵ Austerity is a policy choice to reduce the presence of government in the economy.

Policy drift, by contrast, refers to a subtler form of privatization that occurs when government policies fail to adapt to changing economic and social conditions (Hacker 2004; Hacker and Pierson 2010). Unlike direct cuts to government spending, policy drift can either be a conscious or unconscious policy choice to avoid maintenance of existing public policy to the point of ineffectiveness. For example, instead of directly eliminating the U.S. Postal Service, Congress imposed financial constraints through the 2006 Postal Accountability and Enhancement Act, forcing the USPS to pre-fund retiree benefits 75 years in advance, causing a financial crisis that necessitated service cuts, facility closures, and increased reliance on private carriers like FedEx and UPS (Ecker 2018). Congress remained idle for years

⁴ <https://www.npr.org/2001/05/25/1123439/conservative-advocate>

⁵ <https://apnews.com/article/musk-chainsaw-trump-doge-6568e9e0cfc42ad6cdcf58a409eb312>

as the USPS shed 200,000 jobs after 2006.⁶ When public-sector employment declines due to hiring freezes or budget constraints, thereby creating *de facto* markets, private firms increasingly provide services that were once delivered by government employees.

Both austerity and policy drift facilitate privatization through omission, enabling private-sector expansion without explicit legislative or executive action. These forms of privatization are often less transparent than acts of commission, as they occur incrementally and silently rather than through high-profile policy reforms. Yet their long-term impact can be equally profound, fundamentally reshaping labor markets, corporate profitability, and the role of the state in economic governance.

By framing privatization as both an act of commission and an act of omission, I broaden the conceptual lens through which privatization is understood. This framework enables a more comprehensive analysis of privatization's economic consequences, which are further explored in subsequent sections.

Identifying Privatization in the U.S. Economy

The existence of national-level privatization of the U.S. economy has yet to be established. Similar attempts have been made elsewhere in the world (Mercille and Murphy 2017; Megginson 2017; Son and Zohlnhöfer 2019; Bortolotti and Milella 2008) and can be derived from the Organisation for Economic Cooperation and Development's (OECD) *Governments at a Glance* publication (2023) or the International Monetary Fund's (IMF) Public Finances in Modern History Database⁷, both of which measure government spending. However, contracting out is only one mechanism driving privatization. The totality of privatization in the U.S. productive economy is the combined product of all acts of commission and omission—both direct policy actions and the passive withdrawal of government involvement in economic production.

While acts of commission such as contracting out and asset divestiture can be identified through administrative records and policy decisions, acts of omission—such as austerity and policy drift—require a broader macroeconomic perspective. These forms of privatization occur when the state reduces its investment in public goods, infrastructure, and employment, allowing private-sector firms to fill the gaps left behind (Lobao et al. 2018). Structural shifts in economic

⁶ <https://about.usps.com/who-we-are/postal-history/employees-since-1926.pdf>

⁷ <https://www.imf.org/external/datamapper/datasets/FPP>

power can still happen in the absence of privatization policies, in cases where the private sector assumes functions previously performed by the government.

I advance the argument that privatization should be measured through its cumulative effects—including direct policy decisions (contracting out, asset sales) and structural economic shifts (austerity, policy drift)—rather than through isolated policy actions alone. Adopting this broader perspective enables the assessment how privatization has reconfigured the U.S. economy over time, laying the foundation for the empirical analysis that follows.

To fully conceptualize privatization in the U.S. context, the cumulative effects of privatization must be measured at the macroeconomic level. One key indicator is the declining share of government consumption and investment as a percentage of GDP. Government consumption and investment—used to measure the government’s direct participation in economic production—captures the extent to which the public sector contributes to economic output through public employment, infrastructure development, administration, and service provision. Establishing change over time is critical to answering whether the U.S. privatized.

To empirically establish that privatization of production is observable at the national level, I expect that:

Hypothesis 1. *Cumulative government productive activity has decreased as a proportion of total U.S. economic activity.*

The emphasis on economic production is central to this analysis. In economic terms, productive activity refers to the generation of goods and services that contribute to overall economic output (Cobb and Douglas 1928). The traditional Cobb Douglas production function observes economic outputs as a function of labor and capital inputs. In this sense, privatization may involve the reallocation of control over the economy’s productive capacity.

Even if government retrenchment from the productive economy has occurred, the productive capacity of government must still be considered.

Hypothesis 2. *Government employment as a share of total employment has decreased.*

Hypothesis 3. *Government fixed assets as a share of total nonresidential fixed assets has decreased.*

Privatization has often been operationalized as the increase in government contracts awarded to private firms (Warner 2024). Scholars have measured privatization through public administration surveys (Warner and Hefetz 2012; Lobao, Adua, and Hooks 2014), tracking the extent to which services are contracted out. However, these studies have not had access to data capturing the full extent of reductions in government economic activity, even if they have provided useful analyses of contracting out. These studies suggest that privatization through contracting out often fails to reduce government spending, as contract management costs and reduced service quality prompt reintegration into public systems (Hefetz and Warner 2004; Bel, Hebdon, and Warner 2018; Bel and Gradus 2018).

As privatization occurs through both direct policy choices and structural shifts in government involvement, a more comprehensive approach to measuring privatization is needed to fully understand the phenomenon. Rather than focusing solely on contracts, privatization can also be identified through indicators that capture government's evolving role in economic production and resource allocation. Understanding these broader economic transformations provides a stronger foundation for assessing privatization's long-term impact on economic inequality, labor markets, and corporate profitability.

Even if government participation in economic production and capacity to produce are both decreasing, government production can either be produced in-house or contracted out.

Hypothesis 4. *Contracting out to the private sector has increased as a share of total government production.*

While contracting out remains a key mechanism, a broader understanding of privatization requires examining how government activity in the economy has changed over time. Privatization through contracting out fundamentally alters resource distribution, transferring money from public administrators to private-sector firms in the form of revenue. This is likely to reshape and upset any established patterns of resource distribution among stakeholders within firms receiving contracting revenue. The reallocation of production away from government involves spending decisions that allow the private sector to assume greater control over economic production.

Government Contracting as a Mechanism for Private-Sector Redistribution

Privatization may have contributed to widening income inequality, paralleling trends in union decline (Western and Rosenfeld 2011), financialization (Lin and Tomaskovic-Devey 2013), automation (Kristal 2013), and corporate buyer power (Wilmers 2018). Privatization may be a major yet underexplored driver of inequality by facilitating the transfer of government funds to private industry without equitable distribution within the private sector (Tomaskovic-Devey and Avent-Holt 2019). Additionally, scholars have noted that public-sector employment has historically provided greater wage equality, meaning that shifting work to private firms exacerbates labor force disparities (Kerrissey and Meyers 2022; Wilson, Roscigno, and Huffman 2015).

I now make the case for how government contracting, an act of commission, can cause a redistribution of resources in the private sector, including growing inequality (see Dube and Kaplan 2010). Privatization of the economy inherently draws resources from the public sector, but, perhaps less intuitively, privatization may lead to growing inequality in the private sector as well. This paper broadly conceptualizes contracting out as all procurements of goods and services. When the government contracts out to the private sector, money flows from the public to the private sector in the form of revenue. Before discussing the literature linking privatization to profits, I first use Relational Inequality Theory to explain the potential distributional impacts within the private sector.

Relational Inequality and Distributional Impacts

Relational Inequality Theory (RIT, Tomaskovic-Devey and Avent-Holt 2019) can be applied to explain why some private-sector organizational stakeholders may benefit more from government contracting revenue than others. In RIT, organizations are understood to extract resources from their environment. These resources are then pooled within the organization, where organizational stakeholders engage in a claims-making process. Based on existing institutionalized inequalities that contribute to power dynamics, stakeholders may either make claims or not, potentially generating and institutionalizing new inequalities if their claims are successful.

Applying RIT to government contracting, the revenue from contracts represents a new pool of resources. Firms are the organizations drawing on that pool of resources. Firms bring the new business into their companies, subsequently growing revenue. While business interests have strong claims over revenue, different classes of employees have varying degrees of power to make claims over

their share. Shareholders and the government also can make claims over their share of profits, respectively as dividends and income taxes. There are reasons to suspect that, in practice, that contracting boosts profits rather than worker earnings.

Privatization and Profitability

The goal of private-sector firms is to make a profit (Burt 1983). While seemingly intuitive, the clarification is important in the context of government contracting, where privatization advocates have claimed that private contractors can produce public goods and services at lower costs and with greater efficiency than the government (e.g. Savas 1987). Government contracts are often large and require specialized work, meaning that contracts can produce monopoly-like market conditions without competition (Girth et al. 2012). Given this information, the frequent failure of contracting out to save costs is unsurprising, although the potential for profit should not be.

Some existing privatization research supports my argument that privatization redistributes private-sector resources. A few studies focus on the performance of private-sector firms rather than distributional dynamics (Boardman and Vining 1989; Boycko, Shleifer, and Vishny 1996). Vickers and Yarrow (1988) discuss the potential for differential impacts among stakeholders, treating potential outcomes as contingent on competition and regulatory possibilities. Starr (1988) and Donahue (1989) also argued that privatization could produce different distributional outcomes but saw growing inequality as a likely outcome since the public sector had more equality than the private sector. Sclar (2000) saw the potential for private contractors to reap the benefits of privatization by taking advantage of the terms of contracts. Still, these arguments lack systematic evidence.

Rather than observing government contracting and distributional effects, many economists conceive of privatization as the sale of state-owned enterprises (e.g. Megginson, Nash, and Van Randenborgh 1994). Some research has observed rising executive pay (Wolfram 1998) and wage declines (Galiani and Sturzenegger 2008; Arnold 2020; Haskel and Szymanski 1993) following sales of state-owned enterprises, although these do not provide evidence for already-private firms bringing in new sources of revenue through government contracts.

When new resources flow into private-sector industries, some organizational stakeholders are likely to benefit more than others, potentially creating new inequalities (Tomaskovic-Devey and Avent-Holt 2019). Privatization advocates (Savas 1982; Savas 1987) and the Reagan Administration's 1988 Commission on

Privatization report noted that contracting out was a method of cutting labor costs, while also broadly claiming that the contracting government work to the private sector offered cost savings and efficiency. Public administration research indicates that privatization frequently results in unsatisfactory outcomes for administrators and the public, including reduced service quality, loss of accountability, and failure to achieve the promise of cost savings (Sclar 2000; Lobao, Adua, and Hooks 2014; Warner 2024; Warner, Aldag, and Kim 2021; Bel and Fageda 2007; Bel and Warner 2008; Hefetz and Warner 2004; Warner and Hefetz 2002). Some research has explored the adverse economic outcomes for public-sector workers, without developing a systematic privatization measure (Wilson, Roscigno, and Huffman 2015; Peoples, Talley, and Wang 2008).

Where the debate around privatization has developed around government decisions and consequences, little is known about who benefits when private firms receive government contracting funds. Oftentimes, the public and government do not. Yet, taken together, this body of research highlights the potential for new inequalities in private-sector firms following privatization. Contracting out to the private sector inherently reshapes resource distribution by sending public funds to the private sector, creating new resource pools for organizational actors to distribute.

***Hypothesis 5.** Privatization through government contracting disproportionately benefits business interests (i.e. organizational surplus and profits) relative to other stakeholders (i.e. employees, government, productive investments).*

Data

This analysis relies on Bureau of Economic Analysis (BEA) Input-Output (I-O) and National Income & Product Account (NIPA) industry-year and nation-year data. I present descriptive statistics from 1970-2023 for nation-year data, with the exception of intermediate input data that begins in 1977. For my industry-year analysis, I use 1998-2022 data that begins as the U.S. Census Bureau switched from classifying industries based on the Standard Industrial Classification (SIC) system to the North American Industrial Classification (NAICS) system to better reflect the modern economy. Overall, my industry-year data spans 58 private-sector industries across 25 years. The analysis includes all industries in the private sector. The panel data structure allows me to introduce time-series operators into my analysis, enabling me to move beyond contemporaneous associations towards time-

dynamic, cause-effect relationships that can be observed in changes in addition to levels. For this reason, I analyze how privatization in one year impacts industry resource distributions in subsequent years. Descriptive statistics for 1998-2022 are presented in Table 1.

Table 1. Descriptive Statistics

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Government Contracting (prop.)	1,450	0.05	0.05	0.00	0.26
Government Investments (prop.)	1,450	0.01	0.03	0.00	0.28
Full-Time Equivalent Employees (ln)	1,450	6.82	1.22	3.58	9.54
Total Fixed Assets (ln)	1,450	12.45	1.08	9.98	15.09
Total Use of Products (ln)	1,450	12.72	1.46	6.43	15.31
Taxes on Imports and Production less Subsidies (prop.)	1,450	0.04	0.04	0.00	0.30
Employee Compensation (prop.)	1,450	0.30	0.13	0.02	0.64
Gross Operating Surplus (prop.)	1,450	0.20	0.12	-0.24	0.64
Corporate Capital Consumption Allowance (prop.)	1,392	0.07	0.05	0.00	0.34
Net Operating Surplus (prop.)	1,450	0.11	0.09	-0.36	0.47
Corporate Profits before Tax (prop.)	1,450	0.05	0.06	-0.24	0.46
Corporate Income Tax (prop.)	1,450	0.01	0.02	-0.01	0.14
Dividends Paid to Shareholders (prop.)	1,450	0.03	0.05	-0.27	1.62
Undistributed Corporate Profits (prop.)	1,450	0.02	0.06	-1.59	0.36

Table 2 displays the macroeconomic components of economic output, which are essential for understanding the logic of the regression analysis. In the BEA I-O framework, all of the inputs that go into the production process add up to industry output, which can be thought of as all of an industry’s economic activity, or a macroeconomic equivalent to firm-level total revenue. Components of industry output include intermediate inputs and value added. Of these, intermediate inputs are commodities purchased as a production expense, either as a raw material or to facilitate production. One firm’s or industry’s intermediate input is another’s *intermediate output*, which is an industry’s product which is not sold for consumer final-use. Value added is an industry’s contribution to the gross domestic product (GDP), consisting of all other production costs and surplus, including all 1) taxes on imports and production less subsidies, 2) employee compensation, and 3) gross operating surplus (GOS). *Taxes on imports and production less subsidies* refers to all additional taxes and fees pertaining to the purchase of goods and services.

Employee compensation consists of both wages & salaries and their supplements such as employee benefits. *GOS* comprises the initial surplus an industry receives in revenue after labor and raw materials are accounted, consisting of net operating surplus and fixed capital consumption. *Fixed capital consumption* consists of investments in capital equipment, structures, and intellectual property. *Net operating surplus* consists of industry surplus after subtracting fixed investments, leaving all business income and business current transfer payments (e.g. fines, fees, insurance expenses, reimbursements). Business income consists of corporate profits and proprietors' income (i.e. small businesses). *Corporate profits* are comprised of corporate income taxes, inventory valuation adjustments, *dividends paid* to shareholders, and undistributed corporate profits. *Undistributed corporate profits* includes any leftover surplus that corporations can use towards future: 1) capital or 2) financial investments, 3) production costs, 4) shareholder buybacks, and 5) cash reserves. Overall, the stream of surplus narrows as follows: GOS → net operating surplus → business income → corporate profits → dividends paid to shareholders and undistributed profits retained by corporations.

My privatization variable, *government contracting*, is the independent variable of interest in this analysis. Government contracting captures the amount of an industry's products that are purchased by government actors. I measure government contracting as industry intermediate outputs from government purchases as a proportion of total industry use. This results in an output-side measure of industry reliance on revenue from sales to federal, state, and local governments in the production of value.

The dependent variables in this analysis include first-differenced variables of possible industry outputs across multiple levels of granularity. First, I analyze the components of value added—taxes on production and imports less subsidies, employee compensation, and GOS—to determine how value added has been impacted by privatization. Next, I analyze components of GOS to observe whether fixed capital investments or net operating surplus changed from privatization. I then observe corporate profits and components of corporate profits to understand whether privatization ultimately benefits shareholders through dividends paid, corporations through undistributed corporate profits, or the government through corporate income taxes paid.

Table 2. Macroeconomic Components of Economic Output.

Industry Output = Value Added + Intermediate Inputs	Intermediate Inputs						
	Value Added = GOS + Employee Compensation + Taxes on Imports and Production less Subsidies	Taxes on Imports and Production less Subsidies					Taxes on Imports
							Taxes on Production
							Less Subsidies
	Employee Compensation = Wages & Salaries + Supplements					Wages & Salaries	
						Supplements to Wages & Salaries	
	Gross Operating Surplus = Consumption of Fixed Capital + Net Operating Surplus	Consumption of Fixed Capital					
		Net Operating Surplus = Business Income + Business Current Transfer Payments	Business Current Transfer Payments				
			Business Income = Corporate Profits + Proprietors Income	Proprietors Income			
		Corporate Profits = Corporate Income Taxes + Inventory Valuation Adjustments + Dividends Paid + Undistributed Corporate Profits		Corporate Income Taxes			
Inventory Valuation Adjustments							
Dividends Paid to Shareholders							
Undistributed Corporate Profits (Cash + Future Investments + Future Production Costs)		Fixed Investments _{t+1}					
		Shareholder Buybacks _{t+1}					
	Financial Investments _{t+1}						
	Production Costs _{t+1}						
	Cash Reserves _{t+1}						

The control variables in the regression analysis are framed around a standard Cobb Douglas production function, with production outputs treated as a function of inputs from labor and capital. Labor is measured as logged full-time equivalent employees per industry. Capital is measured as logged total fixed asset values per industry. To account for other demand side confounders, I control for government investment per industry as a proportion of total use of products as well as logged total use of products. Finally, I control for the previous year’s level of each dependent variable to isolate the change captured in the first-differenced variable from the overall level of government contracting’s effect on industry outputs.

Methods for Analyzing Private-Sector Privatization Outcomes

To analyze the effect of government contracting on economic outputs, I employ autoregressive distributed lag (ARDL) models with fixed effects for industry and year using a modified Cobb Douglas production function. This is an appropriate method of analyzing this panel data given that I expect that increases in government contracting in one year will affect the distribution of economic outputs in subsequent years. Standard errors are clustered by year. This modelling strategy opts to control for industry demand rather than to use a weighting strategy, which is mathematically sensible given that outputs are standardized as proportions rather than measured in dollar values, keeping each year weighted proportionately.

My estimation strategy matches what DeBoef and Keele (2008) refer to as Dead Start error correction models (ECM), a restricted dynamic specification where contemporaneous effects of government contracting are excluded. This model structure, where the dependent variable is the first difference of private-sector output measures and the independent variables are lagged, aligns with theoretical expectations of delayed resource reallocation in the privatization process.

The logic of using ARDL models is to observe privatization as a process of change rather than an association of contemporaneous levels. The model can be specified as:

$$\Delta Y_{i,t} = \alpha_0 + \alpha_1 + \alpha_2 + \beta_0 Y_{i,t-1} + \beta_1 X_{i,t-1} + \varepsilon_{i,t}$$

where $\Delta Y_{i,t}$ predicts economic outcomes from each dependent variable, α_0 represents the grand mean, α_1 represents the fixed effects for industry, α_2 represents the fixed effects for year, β_0 represents the adjustment rate of lagged dependent variable $Y_{i,t-1}$, β_1 represents the effect of a one-unit increase in the lagged independent variable and industry-year controls $X_{i,t-1}$ on ΔY_t . Conditional on other covariates, a unit increase in Y_{t-1} leads to a β_1 proportion decrease in ΔY_t and therefore $1 - \beta_0$ percent increase in Y_t .

This model is theoretically driven by the general understanding that cause and effect are not contemporaneous, but, rather, are time dynamic. In this case, whatever happens at one point in time ($t-1$) will only affect outcomes at subsequent points in time (t). Levels of government contracting from the prior year are expected to have an effect on the change in economic outputs in the current year, net of the prior year's output levels. For that reason, long-term output trends are removed from both sides of the equation, creating an error-correction mechanism. More complex lag structures are unnecessary for making the fundamental insight that

higher levels of revenue from government contracting may later affect industry outputs. By employing this time-dynamic variable structure, this analysis avoids the potential endogeneity concerns of simultaneity and reverse causality while also addressing serial correlation.

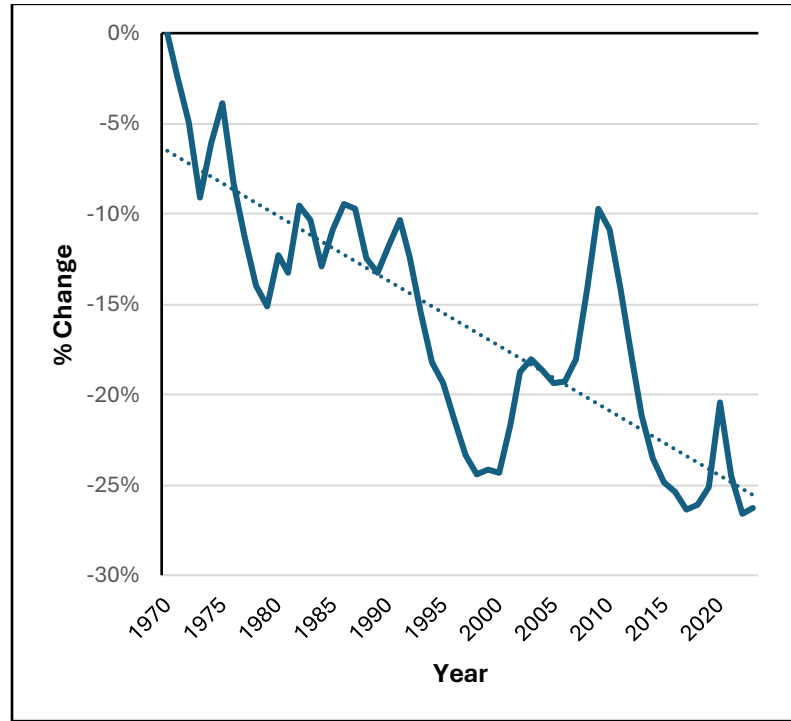
With this estimation strategy, the models are organized in descending order from components of value added to the economy, gross operating surplus (GOS), and corporate profits. However, I first turn to descriptive findings to establish whether privatization of the economy has occurred.

Trends in the Privatization of Government

No systematic evidence is available to establish the privatization of the U.S. economy as an economic fact. The task in this section is to use well-established economic measures to explore whether privatization has happened and is observable in economic accounts data.

I begin by observing the total amount of money government in the United States spends per year. Figure 3 observes the percentage change in total government consumption expenditures and investments as a share of the U.S. gross domestic product (GDP) since 1970. Consumption expenditures from BEA-NIPA Table 3.9 constitute all government spending on production, including employee compensation and contracting, while government investment captures the government contributions to private-sector fixed asset investments. This graph captures the totality of government's direct contribution to gross domestic product through economic inputs. Figure 3 demonstrates that government as a share of the productive economy had shrunk by 26.3% of 1970 levels by 2023. Whereas these government expenditures on production constituted 23.5% of total GDP in 1970, this figure dropped to 17.3% of GDP by 2023. This information demonstrates that government has indeed receded from the productive economy, meaning that a privatization of production has occurred in terms of economic activity.

Figure 3. Percentage Change in Government Consumption and Investment as Share of GDP since 1970, 1970-2023.

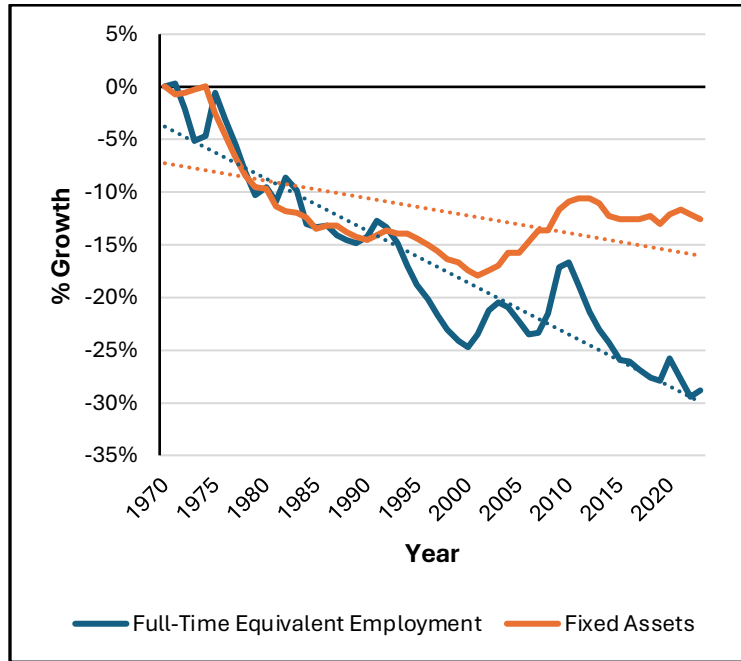


Although the government now spends far less on production relative to 1970, the ability of government to engage in production also matters. Productive capacity is a function of both labor and capital. For labor, Figure 4 uses BEA-NIPA Table 6.5 to show changes to full-time equivalent employment, a measure of how many full-time jobs all government work equals when summed. Between 1970 and 2023, full-time equivalent employment as a percentage of total U.S. employment dropped 28.8%. Public-sector employment fell from 20.6% in 1970 to 14.7% in 2023.

For capital, Figure 4 also uses BEA Fixed Assets Accounts Table 1.1 to observe the of government fixed assets as a percentage of the net stock of all nonresidential fixed assets in the U.S. Between 1970 and 2023, the government relative share of fixed assets dropped 12.6%, reaching a nadir in 2001 at -17.9% of 1970 levels before recovering slightly and levelling off after the Great Recession. Government fixed assets accounted for 42.8% of nonresidential fixed assets in 1970, 35.1% in 2001, and 37.4% in 2023. The trajectories of government labor and capital were intertwined from 1970 to 1993, before overall shares of fixed assets levelled off while public-sector employment continued to plummet. This implies that governments in the U.S. have increasingly owned capital that was either a) unused or b) was being used by workers who were not government employees. Another unlikely alternative would be that government became much more

technologically efficient at production relative to the private sector. Regardless, this overall decline in government productive capacity provides a second indicator of privatization.

Figure 4. Percentage Change in the Government Share of Employment and Fixed Assets since 1970, 1970-2023.



Since government in the U.S. receded from the economy after 1970 and lost productive capacity, but not as much in capital stock relative to labor, there is reason to suspect that government contracting might be the driver. Figure 5 displays government contracting as a percentage of GDP. Government contracting is measured as government intermediate inputs in BEA I-O data.⁸ While not a linear trajectory, government contracting as a share of U.S. GDP grew 33.2% between 1977 and 2023. Government contracting out represented 5.6% of GDP in 1977, eventually growing to 7.4% in 2023. Contracting reached a peak in 1987 at 36.4% of 1977 relative levels before falling to 6.4% in 1998, then rising to 46.0% in 2010, falling to 17.8% of 1977 levels by 2017, then rising again to 33.2% in 2023. This wave-like pattern highlights the political and cyclical nature of decisions to contract out.

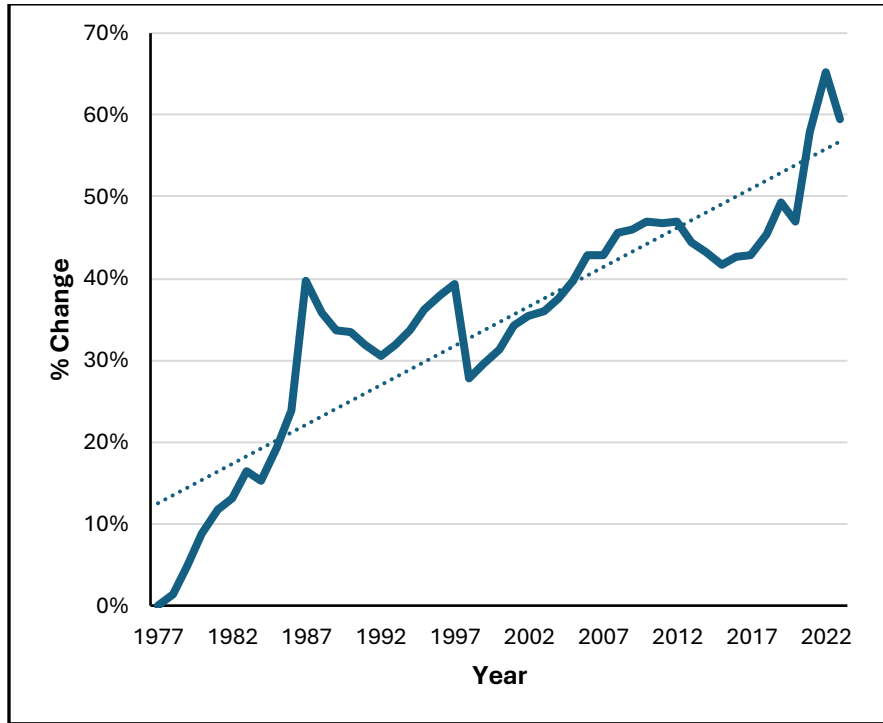
⁸ For data on intermediate outputs prior to 1997, data must be obtained in the Historical Industry Accounts data: <https://www.bea.gov/industry/io-histannual>. Intermediate inputs collected here are not available for years prior to 1977.

Figure 5. Percentage Change in Government Contracting as a Share of GDP since 1977, 1977-2023.



At this point, the data has established that the economy privatized, but nothing has directly established that the government itself became privatized from within. However, the growth of government contracting as a share of GDP implies that this might be the case. Figure 6 displays the increase in government contracting as a share of government consumption expenditure since 1977. Government consumption expenditures include employee compensation, fixed capital investments, and government contracting. The results show that the share of consumption expenditures attributable to government contracting increased 59.5% by 2023. This large compositional shift in how government in the U.S. approaches production is a reflection of a steady increase from contracting out increasing from 33.3% of the money spent on government production in 1977 to 53.1% in 2023. The magnitude of this shift demonstrates a fundamental change to the administration of government in the U.S.

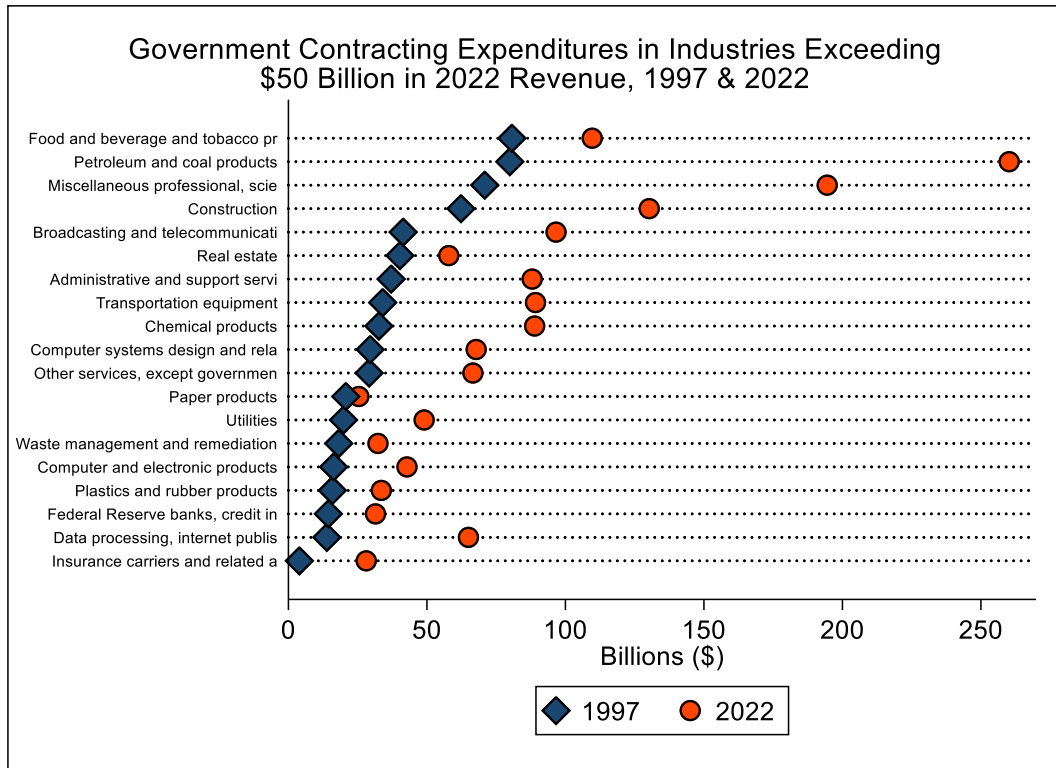
Figure 6. Percentage Change in Government Contracting as a Share of Government Consumption Expenditures since 1977, 1977-2023



To understand how contracting has reshaped government, I next use BEA I-O data to highlight industries whose intermediate outputs constitute these government inputs. Figure 7 presents the industries exceeding \$50 billion in government contracting revenue in 2022 dollars. Petroleum and Coal Products is by far the largest government contractor, supplying the government with \$260 billion in product in 2022, up from under \$100 billion in 1997 after inflation adjustment. Other top goods-producing industries include Food, Beverage, and Tobacco Products (\$109.7 billion in 2022), which was the largest contractor in 1997, along with Construction (\$130 billion) and Transportation Equipment (\$89 billion). Top service industry contractors include Miscellaneous Professional, Scientific, and Technical Services (\$194 billion), Broadcasting and Communications (\$97 billion), Administrative & Support Services (\$88 billion), and Computer Systems Design & Related Services (\$68 billion). Some industries more widely known for providing public services are either less lucrative or smaller, falling lower on the list of 2022 contracting revenue: Utilities (\$49 billion), Waste Management & Remediation Services (\$32 billion), Transit & Ground Passenger Transportation (\$21 billion), and Educational Services (\$11 billion). Increased government contracting from 1997 to 2022 confirms the

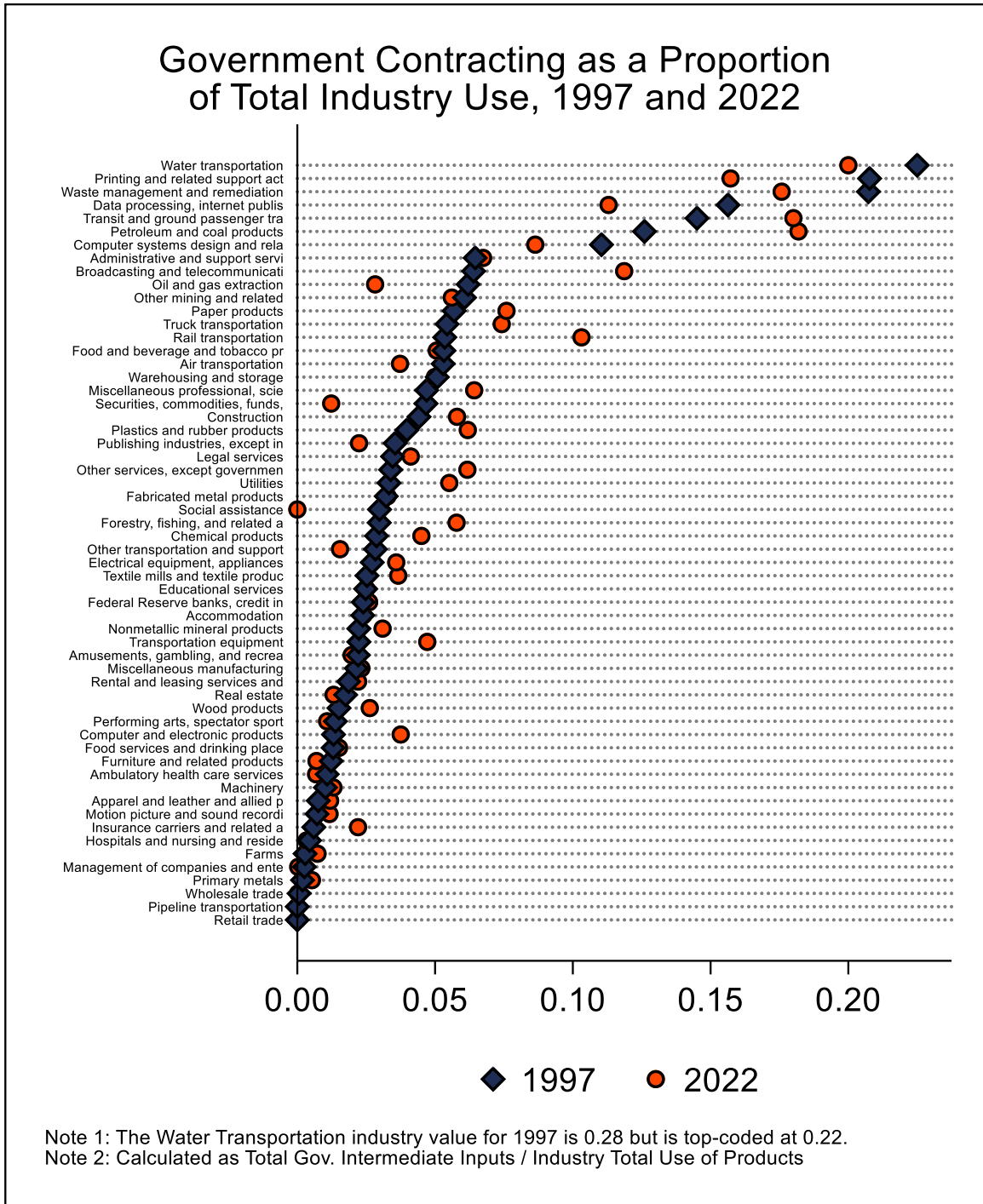
higher contracting levels in Figure 4 are the result of increased government contracting in the numerator of the measure rather than simply a shrinking denominator.

Figure 7. Government Contracting Expenditures in Industries Exceeding \$50 Billion in 2022 Revenue, 1997 & 2022.



Privatization represents a shift in private industry revenue sources. Figure 8 shows that, while government contracting has reshaped government involvement in the productive economy, industries have actively secured government contracts, even as the government has become a less prominent actor in the productive economy overall. Nine industries obtain 10% or more of their revenue from government contracts. Thirteen of the top 20 industries with the highest levels of government consumption show higher levels of revenue from government contracting in 2022 than in 1997.

Figure 8. Government Contracting as a Proportion of Total Industry Use, 1997 and 2022.



Effects of Government Contracting on Organizational Resource Distribution

Table 2 shows the predicted effects of government contracting revenue on the components of private-sector value added, an industry-level equivalent to gross

domestic product. The results show that a one percentage-point increase in government contracting revenue as a share of private-sector total industry use in one year is associated with a 16% proportional increase in the change in gross operating surplus share the following year. The effects of contracting revenue on employee compensation and other production expenses were not significant, indicating that firms use increased revenue from the government on surplus rather than labor and production costs.

Table 2. Predicted Effects of Government Contracting Revenue on Components of Value Added.

	Taxes on Imports and Production less Subsidies	Employee Compensation	Gross Operating Surplus
	Coef/SE	Coef/SE	Coef/SE
Government Contracting _{t-1} (prop.)	0.02 (0.02)	-0.06 (0.05)	0.16* (0.07)
Gov. Investments _{t-1} (prop.)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)
Full-time Equivalent Employees _{t-1} (ln)	0.00 (0.00)	0.02 (0.01)	-0.03** (0.01)
Total Fixed Assets _{t-1} (ln)	0.01 (0.00)	-0.00 (0.01)	0.03* (0.02)
Total Industry Use (ln)	-0.01* (0.01)	-0.02* (0.01)	-0.01 (0.01)
Dependent Variable _{t-1} (prop.)	-0.44*** (0.08)	-0.17*** (0.04)	-0.32*** (0.03)
Constant	0.06 (0.05)	0.18 (0.09)	-0.04 (0.10)
<i>R</i> ²	0.499	0.254	0.214
Degrees of Freedom	57	57	57
No. of Obs.	1,392	1,392	1,392

Note: .001 - ***; .01 - **; .05 - *

Table 3 shows the predicted effects of government contracting revenue on the components of private-sector gross operating surplus. The results show that a one percentage-point increase in government contracting revenue as a share of private-sector total industry use in one year is associated with a 21% proportional

increase in the change in net operating surplus share the following year. No significant effect on the consumption of capital was found. Increases in gross operating surplus due to contracting revenue are retained by firms as surplus rather than spent on investments in productive capital.

Table 3. Predicted Effects of Government Contracting Revenue on Components of Gross Operating Surplus.

	Capital Consumption Allowance	Net Operating Surplus
	coef/se	coef/se
Government Contracting t_{-1} (prop.)	-0.01 (0.02)	0.21* (0.08)
Gov. Investments t_{-1} (prop.)	-0.02 (0.05)	-0.00 (0.00)
Full-time Equivalent Employees t_{-1} (ln)	-0.00 (0.01)	-0.03 (0.02)
Total Fixed Assets t_{-1} (ln)	0.01 (0.01)	-0.00 (0.03)
Total Industry Use (ln)	-0.01* (0.00)	0.02 (0.03)
Dependent Variable t_{-1} (prop.)	-0.21*** (0.06)	-0.36*** (0.05)
Constant	0.07 (0.06)	-0.04 (0.15)
R^2	0.286	0.221
Degrees of Freedom	57	57
No. of Obs.	1,334	1,392

Note: .001 - ***; .01 - **; .05 - *

Table 4 shows the predicted effects of government contracting revenue corporate profits and its components. Along with transfer payments and proprietors' income, corporate profits is a component of net operating surplus. The results show that a one percentage-point increase in government contracting revenue as a share of private-sector total industry use in one year is associated with a 13% proportional increase in the change in corporate profits before taxes the following year. Within components of corporate profits, dividends paid to shareholders similarly increase by 11%. No significant effects were found for corporate income taxes paid to the government. Results for undistributed corporate profits were positive but not

significant, although this output varies depending on decisions to pay dividends as well as other components of value added. These findings suggest that much of the organizational surplus generated from government contracts is held as corporate profits to be distributed as dividends to shareholders.

Table 4. Predicted Effects of Government Contracting Revenue on Corporate Profits and Components of Corporate Profits.

	Corporate Profit before Tax Coef/SE	Corporate Income Tax Coef/SE	Dividends Paid to Shareholders Coef/SE	Undistributed Corporate Profits Coef/SE
Government Contracting t_{-1} (prop.)	0.13** (0.04)	0.00 (0.01)	0.11* (0.05)	0.09 (0.06)
Gov. Investments t_{-1} (prop.)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)
Full-time Equivalent Employees t_{-1} (ln)	-0.03** (0.01)	-0.00 (0.00)	-0.00 (0.01)	-0.03* (0.01)
Total Fixed Assets t_{-1} (ln)	-0.01 (0.01)	-0.00 (0.00)	-0.02* (0.01)	0.00 (0.02)
Total Industry Use (ln)	0.02* (0.01)	0.00 (0.00)	0.00 (0.00)	0.03* (0.01)
Dependent Variable t_{-1} (prop.)	-0.47*** (0.05)	-0.33*** (0.06)	-0.85*** (0.03)	-0.79*** (0.05)
Constant	-0.02 (0.10)	0.00 (0.01)	0.21* (0.10)	-0.21 (0.14)
R^2	0.427	0.355	0.430	0.416
Degrees of Freedom	57	57	57	57
No. of Obs.	1,392	1,392	1,392	1,392

Note: .001 - ***; .01 - **; .05 - *

Cumulatively, these results demonstrate that private business interests and shareholders are rewarded by government contracting at every stage of resource distribution, while labor, government, and productive investments in capital are not. This is the core finding linking the privatization of government to private-sector outcomes.

Discussion

The findings presented in this paper confirm a significant and systematic transformation in the allocation of economic resources, reinforcing the argument that privatization is a structural shift in the U.S. economy as well as a policy choice. As previous research has documented, privatization has often been conceptualized as the outsourcing of government services or the divestment of state assets (Megginson and Netter 2001; Sclar 2000). Contracting out, a dominant form of privatization in the United States, involves shifting service provision from public agencies to private firms through formal agreements, often with the expectation of cost savings and efficiency gains (Warner and Hefetz 2004; Warner and Bel 2008; Hefetz and Warner 2012). This study expands upon that literature by demonstrating that privatization also occurs through a gradual retreat of government from production, reflected in declining public employment, shrinking government investment, and the reallocation of public expenditures toward private-sector firms. The increasing reliance on government contracts, rather than in-house service provision, underscores the extent to which public resources have been redirected toward private profit-making enterprises, an outcome that has yet to be systematically measured in prior work.

The five hypotheses in this paper are generally supported. Hypothesis 1 predicted that cumulative government productive activity decreased relative to total U.S. economic activity, which was supported by the Figure 3 demonstration that the U.S. government consumption expenditures and investment share of GDP decreased 26% in 1970-2023. Hypothesis 2 predicted that government employment has decreased as a share of total employment, which was supported by the Figure 4 evidence that public-sector employment as a share of total U.S. employment decreased nearly 29% in 1970-2023. Hypothesis 3 predicted that government fixed assets had decreased as a share of total U.S. nonresidential fixed assets, which was supported by Figure 4's evidence that the government share of productive assets had decreased by nearly 13% in 1970-2023. Hypothesis 4 predicted that contracting out has increased as a share of government production, which was supported by the Figure 6 evidence that contracting as a share of cumulative government expenditures increased nearly 60% in 1977-2023, to more than half of government production costs and 7.4% of the U.S. economy by 2023. Hypothesis 5 predicted that privatization through government contracting disproportionately benefitted business interests relative to other private-sector stakeholders, which was strongly supported by regression findings the higher levels

of private-sector revenue from government contracting are linked to higher levels of surplus value and corporate profits but no significant effect on employee compensation, capital investments, or corporate income taxes paid.

The empirical findings support the theoretical framework distinguishing between privatization by commission and privatization by omission. Privatization through commission, the intentional transfer of government functions to private firms, has manifested as an expansion of government contracting across industries that historically provided public services, including as healthcare, education, and transportation. Meanwhile, privatization through omission, the failure to sustain public-sector production and employment, has reinforced these trends by passively reducing government's role in production. These mechanisms align with previous studies on privatization by means of policy drift and austerity (Hacker and Pierson 2010; Konzelmann 2014; Lafer 2017; Warner 2024), demonstrating that the state's retreat from economic production often emerges through policy neglect and the imposition of fiscal constraints.

The consequences of this privatization shift are vast, particularly in the redistribution of economic resources. As I demonstrated, industries receiving government contracts exhibit rising gross operating surplus, net operating surplus, corporate profits, and shareholder dividends, while failing to increase employee compensation. This finding aligns with prior work on rising inequality and the erosion of labor's share of economic gains (Lin and Tomaskovic-Devey 2013; Kristal 2013; Wilmers 2018). This finding also confirms that government outsourcing benefits private-sector business interests at the expense of workers, as contract-based employment arrangements often result in lower wages, weaker labor protections, and diminished bargaining power (Hefetz and Warner 2004; Wilson, Roscigno, and Huffman 2015). Importantly, this analysis reveals that industries benefitting the most from privatization exhibit a redistribution of resources toward profits, dividends, and organizational surplus rather than higher pay for workers, capital investment, or federal income taxes, reinforcing broader patterns of inequality within the economy.

Beyond these structural consequences, the findings take on heightened urgency given the current, massive acceleration of privatization. The Trump Administration's 2025 executive actions to dramatically reduce the federal workforce and expand contracting under the Department of Government Efficiency (DOGE) signal an acceleration of these half-century privatization trends. Although qualitatively distinct, the DOGE mass firings of federal workers are reminiscent of

Reagan's firing of over 11,000 air traffic controllers during a strike in 1981. While prior administrations implemented privatization incrementally, often through bipartisan fiscal strategies, the current administration's approach represents an overt and aggressive campaign to dismantle the public sector. This shift highlights the centrality of political institutions in transforming the economy and society, reinforcing the argument that privatization is not merely an economic phenomenon but a politically mediated process (Hacker and Pierson 2010; Skocpol and Williamson 2012). The political landscape of 2025, therefore, provides an urgent real-world case study of how government retrenchment is being actively leveraged to further entrench private-sector dominance.

In *The Great Transformation*, Karl Polanyi (1944) elaborated on how economy becoming disembedded from society creates social ills, such as pauperism, eventually creating countervailing forces that cause the economy to become embedded in society once again. In practice, that means policymakers are compelled to expand the welfare state. However, in the current political atmosphere, countervailing forces have yet to make themselves visible. Although potentially undesirable, social unrest seems to be logical outcome of such a drastic privatization effort at a time when government is already highly privatized, although perhaps that will be the countervailing force necessary to reverse the pendulum's swing.

While the findings were robust, this research also had limitations. First, while the autoregressive distributed lag models capture time-dynamic relationships, the bounded nature of resource shares means that long-run projections may overstate possible changes as distributional shifts run into asymptotic limitations. Second, the BEA data reflects industry-level aggregates, limiting the ability to observe firm-level contracting behavior. Third, government contracting is measured through intermediate outputs, which may not capture subcontracting or other outsourcing. Fourth, although multiple controls are included, omitted variables such as the strength of public-sector unions (Kerrissey and Meyers 2022), technological change (Kristal 2013), or financialization (Tomaskovic-Devey, Lin, and Meyers 2015) could partially confound results. Finally, contracting decisions may be politically endogenous, with industries lobbying for contracts while benefiting from regulatory policy changes. Still, the findings demonstrate that privatization through acts of commission has shifted private-sector resource distribution towards business interests such as surplus accumulation.

Future research can borrow from the operationalizations in this work to further analyze potential labor market outcomes, including those related to labor union membership, race, and gender.

Taken together, these findings call for a reassessment of how privatization is measured, theorized, and debated in public discourse. Previous research has tended to focus on privatization's impact on government efficiency, service quality, and fiscal outcomes, often neglecting its broader economic and distributional consequences. This study provides a more comprehensive framework by capturing the macroeconomic dimensions of privatization, demonstrating its cumulative effects on labor markets, corporate profitability, and economic inequality. As privatization continues to reshape the relationship between the public and private sectors, future research must further examine its implications for governance, regulatory oversight, and democratic accountability. The political moment of 2025 suggests that privatization is no longer a gradual or implicit process. Instead, privatization has become an explicit and drastic restructuring of state-market relations with profound consequences for economic power and resource distribution in the coming years. With this in mind, the pendulum will only have so far to swing.

CHAPTER 2
**THE EFFECT OF PRIVATIZATION ON EMPLOYMENT AND EARNINGS: ANALYZING
THE IMPACT ON U.S. INDUSTRY EARNINGS DISTRIBUTIONS, 2000-2018**

Nathan Meyers

Abstract:

This research investigates the privatization of employment within the U.S. economy and the resulting impact on worker earnings across the earnings distribution from 2000 to 2018. Using Current Population Survey data, my first contribution is to systematically identify employment privatization by mapping industry-level shifts in the public-private employment composition. I then employ unconditional quantile regression analysis to examine how these shifts affect worker earnings at various points across the earnings distribution. The analysis identifies the nine industries with the highest levels of public-sector employment, documenting the dynamics of employment privatization in each and estimating the total earnings effects across earnings quantiles for each sector. The findings reveal substantial privatization of employment in many industries, leading to negative effects on earnings growth for many groups of workers. However, considerable variation of effects by industry, public-private sector, and earnings level highlights the importance of institutional context in shaping both employment and earnings dynamics.

Introduction

The structure of work in the 21st century U.S. has been reshaped alongside multiple social transformations in recent decades. Among these transformations is privatization, a term used to describe the transfer of public ownership and/or production to the private sector. Privatization is the shrinkage of government from public life. Simultaneously, earnings growth has stagnated for many groups of American workers. This paper looks for a linkage between both trends.

Despite privatization being a hotly-debated policy issue for nearly half a century, astonishingly little is known about the systemic impact on the U.S. workplace and economic structure. Many studies focus on how privatization affects government administration and the public while overlooking the effect on workers (Lobao, Adua, and Hooks 2014; Warner 2024; Warner, Aldag, and Kim 2021; Sclar 2000; Bel and Fageda 2007; Bel and Warner 2008; Hodge and Coghill 2007; Hefetz and Warner 2004; Warner and Hefetz 2002; Bel and Gradus 2018; Bel 2020; Hefetz, Warner, and Vigoda-Gadot 2012). This focus does not account for how the

redistribution of resources from the public sector to the private sector impacts the workers who provide services to the public. With the well-documented stagnation of earnings growth for lower- and middle-income workers in the 21st century (Bernstein 2016), privatization has yet to be empirically tested as a potential cause.

This article fills the void by 1) creating an employment privatization measure to map the industry-level shifts in the U.S. public-private sector employment composition, 2) analyzing the effect of employment privatization on worker earnings, and 3) explaining variation in the context of industry, public-private sector, and earnings distributions.

To accomplish this task, I use individual-level Current Population Survey (CPS) data for years 1983 and 2000-2018, where individuals are all embedded within industries. The industry data structure allows for the estimation of average systemic effects felt across each entire industry, although the effects of privatization are likely more localized. Still, these findings are valuable in more fully understanding the industry-level privatization trends and the impact of privatization on worker earnings.

This article proceeds by surveying the field, making a case for analyzing employment privatization at the industry level and for how the effects of privatization may be experienced differentially across industries and at different points in the earnings distribution. The privatization measure is constructed using industry-level employment trends. I then use unconditional quantile regression, a recentered influence function regression application where the effects of each privatization measure can be captured at various points in the earnings distribution without being unduly influenced by outliers or nonlinear effects on earnings. The results support an institutionalist narrative— that employment privatization generally reduces earnings for at least some groups of workers in industries that privatized in 2000-2018— although the impacts vary depending on industry characteristics and other institutional contexts.

Mapping Employment Privatization by Industry

Privatization is difficult to measure in the United States and conceptualizations vary. This is partly because there has never been a mass selloff of nationalized industries as there has been elsewhere in the world (Donahue 1989). An expansive literature focuses on the government divestment of state-owned enterprises (SOEs) as a hallmark feature of privatization (Megginson and Netter

2001; Megginson 2017). In the U.S., active privatization has frequently taken the form of contracting employment rather than through the sale of government assets (Radić, Ravasi, and Munir 2021; Sclar 2000). Contracting entails government officials deciding to purchase goods or services rather than produce them. In practice, this means workers making goods and performing services become more concentrated in the private sector, so evidence of privatization can be found in employment trends. Many of these government contracting decisions involve 1) hiring contract employees or contracting work to outside firms, also known as outsourcing (Dube and Kaplan 2010). In other instances, employment privatization may happen through 2) government austerity measures— such as layoffs or hiring freezes in response to tightening fiscal policies— or through 3) private-sector growth relative to the public-sector, especially in developing areas of the economy.

“Policy drift”, policy changes that happen through the failure of policymakers to update or enact policies (Hacker and Pierson 2010), is a useful concept for understanding how privatization can occur outside of contracting. Beyond contracting decisions, privatization through policy implementation or drift is part of a broader political agenda based on the ideological beliefs that a) government is inferior to private enterprise and b) imposing fiscal discipline on governments is preferable to raising revenues (Henig 1989). To fully capture the effects of contracting as well as other policy choices, I broaden the concept of privatization to encompass the cumulative transformation of work towards the private sector.

Much of the sociological scholarship on privatization focuses on the effect of privatization on the welfare state and services provision while ignoring workers, following Jill Quadagno’s (1999) 1998 American Sociological Association presidential address warning of welfare state retrenchment. For example, Marwell (2004) focuses on community-based organizations (CBOs) and service provision. Levine (2016) and Walker (2009) focus on the role of these organizations in political representation. Reich (2014) and Parker (2024) used a case studies to study healthcare. Reese, Giedraitis, and Vega (2005) study social movements against welfare privatization.

A few sociological studies have operationalized U.S. privatization as a variable. In one study, Lobao, Adua, and Hooks (2014) conceptualized privatization in two ways based on the county-level contracting-out of government services in International City/County Management Association (ICMA) survey data of U.S. counties. One measure was the proportion of government services that are contracted-out. The second measure was a binary variable indicating whether the

county had privatized any services within the past five years. In another study, Wilson, Roscigno, and Huffman (2015) identify a period of “New Governance” in the first two decades of the 21st century, which they treat as synonymous with public-sector employment privatization. In this theoretical framework, new governance refers to changes to work that have made the public sector more closely resemble the private sector, including reduced job stability and workplace protections.

Public administration scholars have studied privatization extensively, frequently measuring the number of local government services that have been contracted out using the International City/County Management Association (ICMA) Alternative Service Delivery Survey (Warner and Hefetz 2020; Warner, Aldag, and Kim 2021; Warner and Bel 2008; Warner and Hefetz 2002). This line of research focuses mostly on local governments rather than states and the U.S. federal government. These scholars have found that, while usually pursued for cost savings, privatization frequently results in mixed outcomes, including reduced service quality, loss of accountability, and failure to achieve cost savings. While invaluable research, the authors do not attempt to estimate the total share of privatized services or the change in privatization levels, which could be useful for better understanding the extent of the phenomenon in lieu of richer data including the monetary value of contracts. Due to the focus on public administration and service provision, the effect of privatization on workers tends to be overlooked. Some exceptions study of unions as stakeholders (Lu, Chen, and Hung 2024; Warner and Hefetz 2020), although none analyze earnings.

In economics, Peoples, Tally, and Wang (2008) studied public transit privatization in U.S. municipalities. They combined 1999 Census of Governments data with Current Population Survey (CPS) Merged Outgoing Rotation Group data to estimate the level of municipal contracting in metropolitan areas. They found that contracting out levels from 1999 are associated with the erosion of the public transit union premium. The use of municipal contracting data was innovative, although small sample sizes and the lack of time dimensionality in their privatization measure prevented insights into the full extent of privatization or change (“-ization”).

Outside of the U.S., Mercille and Murphy (2017) offer several compelling operationalizations of different aspects of privatization in addition to tracking the wholesale divestiture of state assets. First, they track the growth in the creation of state-owned enterprises in Europe, which they argue segments government services into a separate corporate body. Second, they consider government outsourcing to the private sector, as measured by the national-level percentage of

government production costs from non-governmental entities. Third, they count the total number of European public-private partnership (PPP) agreements, which are contractual relationships between public- and private-sector entities to jointly perform work on a project. These operationalizations present compelling evidence for future research, although some work is needed to apply them to the U.S. context.

Privatization should be recognized as a workplace transformation. Early proponents often argued for privatization on the basis of labor savings (e.g. Savas 1982; Savas 1987). The promise of cost savings relies on the premise that private-sector workers can be paid less than public-sector workers. The Reagan Administration's 1988 Commission on Privatization, for example, advocated for contracting-out as a method of cutting labor costs without lengthy reform efforts, circumventing "self-interested government workers [seeking] to maximize their pay and other benefits, while reducing their work load (243)." The report also advocated for selling the U.S. Postal Service assets to the private sector, admitting that the private sector "would be unlikely to be able to remunerate its workers at the current level (108)." The question of employment and earnings are fundamental to privatization arguments.

My research offers a unique approach to privatization in the U.S. Previous work, while informative and oftentimes innovative, has typically neglected to offer 1) a meaningful method of mapping the full extent of privatization throughout the U.S. economy and 2) an explanation for how privatization affects workers. Although some notable attempts to operationalize the concept of privatization are cited above, none have a method of satisfyingly answer the question, "*How privatized is the U.S. economy?*" To do so, I suggest capturing privatization by observing changes in public/private sectoral employment. Measuring changes to the public-sector employment composition has already been established by labor economics (Kerrissey and Meyers 2022; Farber 2005) and by the Organisation for Economic Cooperation and Development (OECD) *Government at a Glance* (2023) publication. Given downward trends in public-sector work as a total share of the U.S. economy, this could be used as evidence of a privatizing economy.

Substantial industry variation in industry privatization may occur since government policies vary by industry and contracts with the private sector are for specific services. For example, the proliferation of charter schools in the U.S. in the 21st century (Berends 2015) implies that Primary and Secondary Education employment may have grown in the private sector relative to the public sector. Alternatively, there is no reason to suspect that the public-private sectoral

employment composition has changed for automotive manufacturing, hardware stores, or pickle factories, which would be odd locations for Americans to encounter public-sector employees performing production tasks.

Given the preceding evidence, I hypothesize:

Hypothesis 1—The composition of employment in the U.S. has shifted from the public sector towards the private sector, although this privatization will be concentrated in select industries.

With growing inequality coinciding with privatization, there is reason to suspect that employment privatization may affect worker earnings.

How Privatization Impacts the Earnings Distribution

With rising inequality being a hallmark feature of the early 21st century, much research has studied changes to the U.S. earnings distribution. The rise in inequality can be attributed to stagnant wages for low- and middle-income workers relative to the earnings growth for high earners since 1980 (Bernstein 2016). The late 1990s until the Great Recession of 2007 represents a brief exception to this trend (2016), where earnings differentials between top and bottom earners shrank temporarily while middle earners lost relative to both (Aeppli and Wilmers 2022). Meanwhile, the top 5% of earners experienced steady growth without exception (Bernstein 2016). Overall earnings inequality had levelled off in the 2010s (Aeppli and Wilmers 2022) before an unexpected wage compression and labor market tightening during the Covid-19 pandemic (Autor, Dube, and McGrew 2023). While some wage dynamics have changed, the lingering effects of pre-pandemic wage stagnation likely persist. The question remains as to whether privatization contributed to these earnings dynamics.

The explanations for distributional changes to earnings are numerous. Union decline has lowered wages by eroding bargaining power for workers within their workplaces (Western and Rosenfeld 2011). The financialization of the U.S. economy reduced workers' earnings (Lin and Tomaskovic-Devey 2013) and employment (Tomaskovic-Devey, Lin, and Meyers 2015). Technological change in the workplace reduced labor's share of earnings by reducing worker bargaining power (Kristal 2013). Market restructuring has slowed wage growth by exposing workers to rising buyer power (Wilmers 2018). Education premiums for college-educated workers have declined (Mishel, Gould, and Biven 2015), coinciding with a growing correlation between occupational pay premiums and workplace pay premiums (Wilmers and Aeppli 2022). Importantly, institutional contexts such as wage and labor laws shape

inequality outcomes (Zwysen 2023; Tomaskovic-Devey et al. 2020), meaning that politics and policy drives inequality (Hacker and Pierson 2010).

Surprisingly, no research has systematically studied the link between privatization and earnings dynamics in the U.S. However, there are strong reasons to believe that privatization is linked to inequality and wage stagnation.

First, the public-sector demand for cost savings and the private-sector profit motive both create a downward pressure on wages. When governments contract out, potential contractors bid against each other to win the contract, with lower offers providing more cost savings for the government, in competitive markets. This encourages private contractors to be more efficient or cut expenses. In practice, cost-savings comes at the expense of labor, as low-road strategies such as cutting labor costs offers a quicker fix for contractors than gaining efficiencies (Sclar 2000). Since these decision-makers are most often top earners, lower- and middle-income workers are likely the most exposed to the risks of privatization.

In some cases, especially with federal government contracts, wage stagnation may occur when a government contracts out. Wilmers (2018) discusses how the growth of dominant suppliers creates wage stagnation for producers. A somewhat similar dynamic could be at work with privatization. As private-sector firms compete for government contracts, employee compensation may be squeezed in the firms eventually fulfilling contracts. Additionally, the transfer of work from the public to the private sector creates profit motive for the firms winning contract bids, potentially creating another squeeze on workers that does not exist in the public sector. These factors may contribute to wage stagnation.

There are several organizational strategies for cost savings, which increase the precarity of work (Kalleberg 2013). Foremost, workers likely have no control of the terms of the contract when it is first signed. Sometimes that might be because they are subcontractors or treated as independent contractors rather than employees, as contractors themselves engage in outsourcing (Dube and Kaplan 2010). When organized employees do exist, private companies have an incentive to engage in union busting to cut costs. Another way to prevent workers from organizing is by “fissuring” a firm, physically separating tasks into different workplaces to manage labor costs and worker dissatisfaction (Weil 2014).

While private sector work pays less than public sector work on average, prior research has found that the reverse is true when only considering comparable jobs (Lewin, Keefe, and Kochan 2012). This is because public-sector jobs are

disproportionately professional jobs occupied by college-educated workers. Additionally, the widespread unionization of public-sector work not only boosts earnings for workers in that sector, but public-sector unions also create spillover effects that boost earnings for their private-sector counterparts (Rosenfeld and Denice 2019). The movement of work from the public to the private sector may alter these dynamics by undermining organized labor, as unionized public-sector workplaces are disfavored versus non-unionized private-sector workplaces.

Second, research suggests that privatization consequences are class-biased (Reese, Giedraitis, and Vega 2006). New inequalities can also emerge in the public sector when governments privatize. Budget cuts and fiscal constraints have undermined governments' abilities to fund public-sector work (Bel, Hebdon, and Warner 2007). For public-sector workers, the resulting cost-savings strategies can eliminate their jobs and threaten and reduce their collective bargaining power. For instance, at the county level, the presence of unionized workers also increases the likelihood of privatization (Warner and Hefetz 2020; Lu, Chen, and Hung 2024). The presence of stronger administrative decisionmakers increases privatization likelihood as well (Lobao et al. 2014). While the top earners in the public sector are frequently the administrators making employment and contracting decisions, those workers most at-risk of earnings loss are further down in the earnings distribution—e.g. teachers rather than principals, municipal workers rather than city managers.

Third, case studies have provided evidence of the direct impact of privatization on earnings. In one report published by In the Public Interest (2014), K-12 food service workers in New Jersey were forced to take a \$4-6/hour pay cut and lost benefits following the public-school outsourcing to a private firm. The same report describes how Michigan public-sector nursing assistants earning \$15-20/hour had their jobs outsourced to a private firm that paid \$8.50/hour with no benefits. The report also highlights how privatization preceded a 23% decrease in compensation for custodians in Nashville public schools in 2010 and a decrease in average hourly earnings from \$19 to less than \$9 for custodians in Chelmsford, MA in 2011.

Outside the U.S., scholars have found evidence of negative impacts of privatization on earnings, particularly privatizations through asset transfers. One study of 14 United Kingdom public companies sold to the private sector in 1972-1988 found that privatization caused employment losses and earnings losses,

particularly if the firm lost market power (Haskel and Szymanski 1993).⁹ Executives in the British electrical industry experienced a threefold salary increase following privatization of the industry in 1990 (Wolfram 1998). A study of the privatization of a large oil company in Argentina found that displaced workers lost 40% in earnings (Galiani and Sturzenegger 2008). A study of Brazil's privatization in the 1990s found that workers in formerly state-owned enterprises experienced large wage declines following privatization, with additional market-driven negative earnings effects for other private-sector workers (Arnold 2020). Taken together, these studies are informative, but also represent the complete sale of state-owned enterprises to the private sector, meaning that they do not map directly onto the U.S. context.

Fourth, some systematic research alludes to the presence of an observable macroeconomic effect from privatization on worker earnings. Wilson et al. (2015) use several nationally-representative datasets to find that 21st-century “new governance” policies that have restructured public-sector employment to be more like the private sector have eroded pay equity practices. Kerrissey and Meyers (2022) find that public-sector unions provide not only a class earnings boost, but they also produce an additional race-gender earnings boost that the private sector does not provide. This premium may be eliminated as work transfers to the private sector. Together, these studies suggest that a compositional shift in employment from the public to the private sector may reduce sectoral differences in earnings and exacerbate existing inequalities.

Given the preceding evidence, I hypothesize:

Hypothesis 2) Employment privatization reduced earnings for wage & salary workers.

Since privatization occurs within specific industry contexts, I further hypothesize:

Hypothesis 2A) The negative earnings effect from employment privatization varied by industry.

Given that rising inequality and wage stagnation have varied across the earnings distribution, I further hypothesize:

Hypothesis 2B) The negative earnings effect from employment privatization varied across the earnings distribution.

⁹ Later research challenged whether these effects were from privatization or market factors (Pendleton 1997), highlighting conceptual rather than empirical disagreements.

Given that the public and private sectors each contain distinct institutional mechanisms setting wages, each of which may be impacted differently by privatization, I lastly hypothesize:

Hypothesis 2C) The negative earnings effect from employment privatization varied across public/private sectors.

Data

I study the impact of employment privatization on earnings using pooled time series data of individual workers from the Current Population Survey (CPS) for years 2000-2018, as well as 1983 for use in industry comparisons.^{10,11} This includes a multilevel data structure, linking industry-level trends to an individual-level units of analysis. Observations are grouped at the industry level using the 2000 Census coding, creating 62 industries. The analysis includes all wage and salary workers, with special attention paid to select industries which notably provide public services and have privatized. By leveraging the panel data structure made possible by industry groupings, I am able to introduce industry-level first-differenced variables to models, meaning that the effect of changes in privatization from one year to the next can be analyzed in addition to total levels of privatization. This enables measurement of the effect of yearly changes in privatization on income, providing an operational and conceptual basis of privatization as a dynamic process. All wage and salary workers over the age of 16 are included. The data series was not extended beyond 2018 because U.S. earnings inequality stalled in the 2010s before an unexpected pandemic-era wage compression, coupled with the absence of an assumption of linear earnings effects. Descriptive statistics for 2000-2018 are presented in Table 1.

The dependent variable for the regression analysis is yearly earnings in dollars, importantly providing information on the earnings distribution for quantile estimates. Dollar values are adjusted for inflation to make earnings comparable across time. Because logging the dependent variable assumes multiplicative effects of independent variables across the distribution, and that the quantile regression models used in this analysis highlight these effects, dollar values are used instead of logged values. CPS has top coded weekly earnings of more than \$2,884.61 per week since 1998, which represents approximately 5% of workers in 2018. Since this analysis does not use mean-based regression, this does not alter my results for workers at the 95th percentile of the income distribution or lower. The

¹⁰ Prior to 2000, the CPS classified industries according to the Standard Industrial Classification (SIC) rather than the contemporary North American Industrial Classification System (NAICS) framework, resulting in challenges directly comparing data in some industries.

¹¹ This historical period of 2000-2018 is encapsulated by high earnings growth low earners prior to 2000 (Bernstein 2016) and wage compression in the Covid-19 era after 2018 (Autor et al. 2023), which both upset the expectations of linear earnings dynamics across time periods.

Table 1. Descriptive Statistics for 2000-2018.

	Units	Mean	Std. Dev.	Min	Max
<i>Dependent Variable</i>					
Yearly Earnings	Dollars	48807.21	36167.70	0.52	219144
<i>Industry-Level Variables</i>					
Δ Privatization	Proportion*100	0.12	1.07	-10.24	25.32
Lag Privatization	Proportion*100	83.62	29.20	0.00	100.00
Ln total public sector employment	Logged Total	11.74	2.24	4.63	16.38
<i>Demographic Controls</i>					
Union member	Binary (0-1)	0.12	0.33	0	1
College	Binary (0-1)	0.33	0.47	0	1
Female	Binary (0-1)	0.48	0.50	0	1
Black	Binary (0-1)	0.12	0.32	0	1
Latino	Binary (0-1)	0.15	0.35	0	1
Other Race	Binary (0-1)	0.08	0.27	0	1
<i>Occupation Controls</i>					
Potential	Years	21.33	13.54	0	79
Potential, squared	Years ²	638.36	664.81	0	6241
Usual Weekly Hours	Continuous	38.65	10.25	1	99
Management	Binary (0-1)	0.09	0.29	0	1
Support	Binary (0-1)	0.09	0.29	0	1
<i>Geographic Controls</i>					
Metro Area	Binary (0-1)	0.82	0.38	0	1
Division					
<i>New England</i>	Binary (0-1)	0.05	0.22	0	1
<i>Middle Atlantic</i>	Binary (0-1)	0.16	0.37	0	1
<i>East North Central</i>	Binary (0-1)	0.16	0.36	0	1
<i>West North Central</i>	Binary (0-1)	0.07	0.26	0	1
<i>South Atlantic</i>	Binary (0-1)	0.16	0.37	0	1
<i>East South Central</i>	Binary (0-1)	0.06	0.23	0	1
<i>West South Central</i>	Binary (0-1)	0.11	0.32	0	1
<i>Mountain</i>	Binary (0-1)	0.07	0.26	0	1
<i>Pacific</i>	Binary (0-1)	0.16	0.36	0	1
<i>Time Controls</i>					
Year	Year-2000	9.48	5.47	0	18
Year, squared	(Years-2000) ²	119.73	102.71	0	324
Year, cubed	(Year-2000) ³	1677.73	1795.42	0	5832

top 5% of workers should theoretically receive the most wage and salary benefits from privatization, and they also increasingly benefit from capital gains income at that point in the distribution (Piketty 2014)¹², which cannot be accounted here.

To isolate the effects of privatization, several controls rule out alternative explanations for earnings. Industry-level controls used to isolate privatization effects include the previous year's employment privatization level and the logged total public-sector employment in each worker's industry, both of which contextualize the industries in which privatization occurs. Demographic controls include union membership, college education status, race, and gender. Occupational controls include potential years of experience along with its squared term (Rosenfeld and Kleykamp 2012), usual hours worked per week, whether a worker is in management according to CPS occupational coding, and whether a worker is in a support occupation rather than in production.¹³ Geographic controls include status living in a metropolitan area as well as region of the country. Time controls include year, year-squared, and year-cubed (see Carter and Signorino 2010).

Methods

While I expect privatization to have a broad negative impact on individual earnings, I do not anticipate that the effect will be constant across the earnings distribution, or across industry and public/private sector contexts.

To analyze the effect of privatization on earnings, I employ unconditional quantile regression analysis with industry fixed effects (Firpo, Fortin, and Lemieux 2009). Models are weighted using the Current Population Survey's earnings weight. Unconditional quantile regression (UQR) is an appropriate method because it retains information from all observations to calculate the unique effect of regressors at specific earnings quantiles, relaxing the ordinary least squares assumption that a unit increase in privatization has the same effects for everyone across the earnings distribution. Rather, these models rely on the properties of the actual data. UQR is also an attractive tool because outliers and other points in the distribution do not affect the results of each quantile estimate (see Cobb and Lin 2017; Lin 2015). That is, each estimation retains the full data sample, but provides estimates for only one point in the earnings distribution.

Using the UQR approach, the earnings data values are "recentered" based on the characteristics of observations expected at that point in the income distribution. The regression coefficients are obtained by using a recentered influence function

¹² <http://piketty.pse.ens.fr/files/capital21c/pdf/G8.10.pdf>

¹³ Workers are in production occupations if their work activities are directly involved in their industry's production of goods/services and are considered to be in support occupations if they are neither production workers nor managerial.

(RIF) to calculate the effect of privatization on logged earnings at the quantile τ , which represents a fixed point in the distribution.

The RIF can be specified as:

$$RIF(Y; q_\tau, F_Y) = q_\tau + \frac{\tau - \mathbb{1}\{Y \leq q_\tau\}}{f_Y(q_\tau)}$$

where q_τ represents earnings Y at quantile τ , F_Y represents the cumulative kernel density distribution of earnings (Fortin and Lemieux 2000), $f_Y(q_\tau)$ represents the density of earnings at quantile τ , and $\mathbb{1}\{Y \leq q_\tau\}$ represents the indicator function determining whether earnings Y is less than the earnings of quantile τ , measured as a binary variable of 0 if $Y \leq q_\tau$ and 1 if $Y > q_\tau$. This RIF can be estimated with a point estimate of the quantile of interest and the kernel density estimation of inflation-adjusted annual earnings at that quantile, q_τ .

Since the earnings distribution has changed substantially across the 19 years included in the survey, even after adjusting for inflation, I calculate RIFs unique to each individual year to avoid time-biased quantile and density estimations. My modification builds upon the method used by Firpo et al (2009). I estimate density functions using Epanechnikov kernels with optimal bandwidths, except that mine are estimated for each year separately rather than cumulatively (see DiNardo, Fortin, and Lemieux 1996). Employing this method ensures that earlier years are not overrepresented in lower earnings quantiles and later years are not overrepresented in higher quantiles. They are instead encapsulated within their relevant periods. The result is a time-dynamic RIF estimation, which is particularly useful in long time series. Just as UQR drops the assumption that effects are stable across a dependent variable's distribution, this method also drops the assumption that workers earning the same amount of money in different years should belong to the same earnings quantile.

Once the RIF is calculated, it can be applied to a standard ordinary least squares model, which can be specified as:

$$Q_\tau = \alpha_0 + \alpha_1 + \alpha_2 + \beta_{1,\tau}\Delta X_{j,t} + \beta_{2,\tau}\Delta X_{j,t-1} + \beta_{3,\tau}X_{j,t} + \beta_{4,\tau}X_{i,t} + \varepsilon_{i,t}$$

where Q_τ predicts $RIF(Y; q_\tau)$, or annual earnings at quantile τ , α_0 represents the grand mean, α_1 represents industry fixed effects, α_2 represents controls for year, $\beta_{1,\tau}\Delta X_{j,t}$ represents the first-differenced industry-level employment privatization measure of marginal change from the prior year, $\beta_{2,\tau}\Delta X_{j,t-1}$ represents how privatized the worker's industry was the previous year, $\beta_{3,\tau}X_{j,t}$ represents other industry-level controls, $\beta_{4,\tau}X_{i,t}$ represents the demographic/occupational/geographic controls for individual earnings, and $\varepsilon_{i,t}$ represents unmeasured variation.

Total employment changes by year, so an inverse probability weight is included to balance the influence of each particular year. This is measured as:

$$W_{1,i,t} = \frac{W_{2,i}}{N_t}$$

where W_1 represents the inverse probability weight for each worker i in year t , W_2 represents the CPS earnings weight for each worker, and N represents the total number of workers in year t .

Since I expect several types of variation, I first examine industry-level privatization trends. After presenting UQR results for the entire U.S. economy to provide baseline models, I then present models highlighting industry-specific variation in industries with the most public-sector workers. Within each of the UQR models, quantiles are estimated for the 25th, 50th, 75th, and 95th percentiles of the earnings distribution.

Trends in Employment Privatization

I provide one way to capture the extent of privatization trends by observing industry employment trends between the public and private sectors, something privatization scholars have not done.¹⁴ For the entire U.S. economy, total employment privatization increased from 82.4% in 1983 to 83.9% in 2000 and 84.7% in 2018, a seemingly small marginal change of 2.3 percentage points that is actually a 13% reduction in the public sector share of U.S. employment. Where national trends mask changes to the overall composition of the economy, large variation and change exists at the industry level.

Figure 1 maps the changing composition of privatized employment by industry for years 1983, 2000, and 2018. Figure 1 reveals these dynamics by illustrating the percentage of private sector workers in industries that were less than 99% privatized in 2018. Figure 2 further elaborates the underlying public/private sector employment dynamics underlying Figure 1 results. Most industries in the U.S. economy are almost entirely privatized, so room for additional privatization only exists in pockets of select industries. Only 34 of 61 industries in the classification scheme are less than 99% privatized. Only seventeen industries in this industrial grouping were less than 96% privatized in 2018, comprising 41.5 million workers, or just over 31% of the nation's 133 million workers in 2018. Only six industries, comprising 18 million workers, were less than 80% privatized. However, this amounts to a sizable portion of the U.S. workforce. The public sector alone contained a total of 20.4 million workers in 2018.

¹⁴ Scholars have observed public-sector work as a share of total employment (Farber 2005).

Looking at industries in Figure 1, the most drastic shifts happened in the least privatized industries. Elementary and Secondary Schools, privatized from 13.6% in 1983 to 17.5% in 2000 and 24.6% in 2018, a total privatization of 11.3 percentage points. Employment included 8.8 million workers in 2018, with Figure 2 showing nearly 6.7 million public-sector workers. Public-sector employment in 2018 had grown 46.4% from 1983 levels, while the private sector grew 202%.

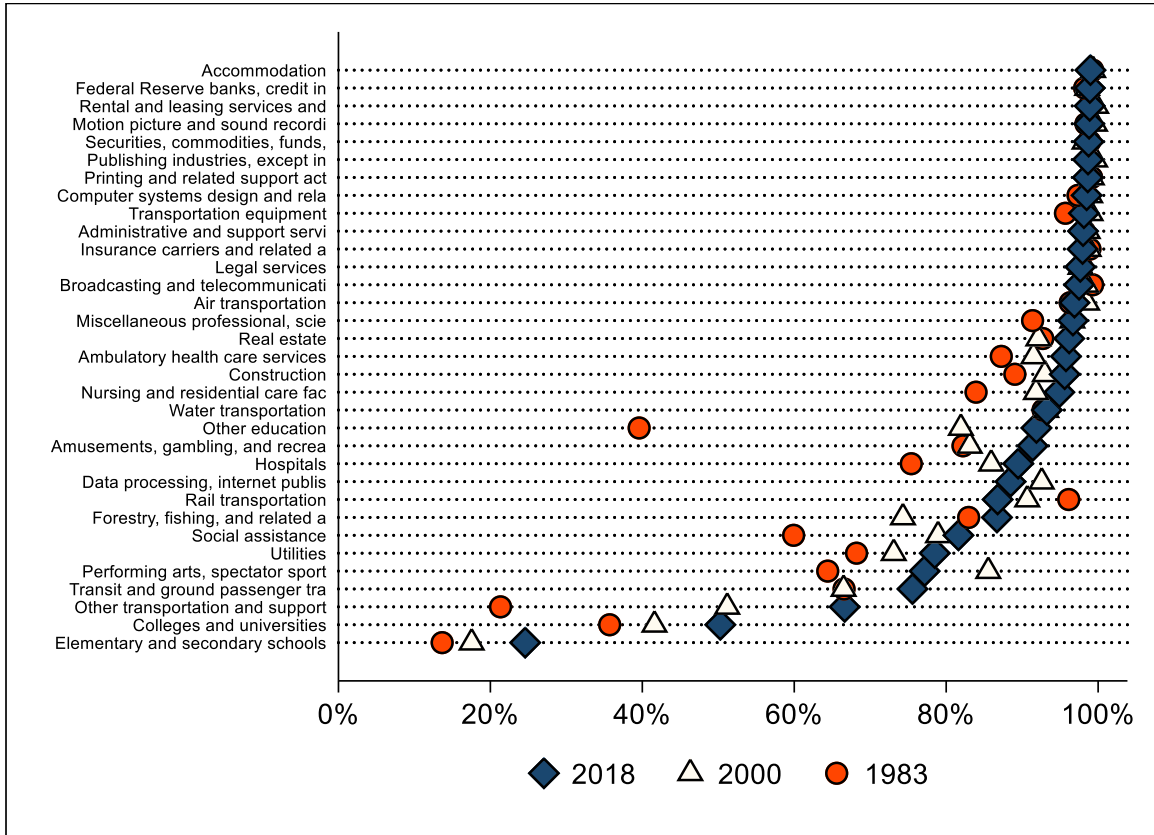
Colleges and Universities the second least privatized industry, privatized from 35.7% in 1983 to 41.6% in 2000 and 50.3% in 2018, a total privatization of 14.6 percentage points. Employment included 3.68 million workers in 2018, with 1.8 million public-sector workers. Public-sector employment in 2018 had grown 27.3% from 1983 levels, while the private sector grew 132%.

Hospitals privatized from 75.4% in 1983 to 86.0% in 2000 and 89.5% in 2018, a total privatization of 14.1 percentage points. Employment included 6.8 million workers as of 2018, with over 716,000 public-sector workers. Public-sector employment by 2018 had shrunk by 33.0% since 1983, while the private sector grew by 85.7%.

Other Transportation and Support Activities privatized from 21.3% in 1983 to 51.2% in 2000 and 66.6% in 2018, a total privatization of 45.3 percentage points. Employment included nearly 2.1 million workers in 2018, with over 693,000 public-sector workers. This industry includes the U.S. Postal Service, whose employment shrunk by 106,500, or 15.2% between 1983 and 2018, even as the broader industry grouping boosted employment by 212% during this time. From 2000 onward, with much higher employment than 1983 levels, the Postal Service lost 309,000 workers, or 34.2% of its workforce. Notably, these changes coincided with the 2006 Postal Accountability and Enhancement Act, which aimed to privatize and financially restructure the USPS (Ecker 2018). Other industries within this catchall “Other” industry include Couriers and Messengers, sightseeing, and services incidental to transportation. Notably, the almost fully privatized Couriers and Messengers grew by 23.6% in this time, from about 545,000 in 2000 to 713,000 in 2018.

Transit and Ground Transportation privatized from 66.6% in 1983 to 66.5% in 2000 and 75.6% in 2018, a total privatization of 9.0 percentage points. Employment included nearly 951,000 workers in 2018, with over 232,000 public-sector workers. The industry includes bus service & urban transit and taxi & limousine services. Public-sector employment in 2018 had grown 56.9% from 1983 levels, while the private sector grew 144%.

Figure 1. Percentage of Workers Employed by the Private Sector, 1983, 2000, and 2018.



Note: Industries with 2018 levels above 99% are excluded. Public Administration is entirely public by definition, and therefore excluded.

Social Assistance privatized from 59.9% in 1983 to 78.9% in 2000 and 81.6% in 2018, a total privatization of 21.7 percentage points. Only 2.7 percentage points of the privatization happened after 2000. Employment included 2.8 million workers in 2018, with over 517,000 public-sector workers. The industry includes individual & family services, community food & housing, vocational rehabilitation, and child daycare. Public-sector employment in 2018 grew to 16.4% higher than 1983 levels, while private-sector employment grew by 145%.

Utilities privatized from 68.2% in 1983 to 73.1% in 2000 and 78.5% in 2018, a total privatization of 10.3 percentage points. Employment included 1.75 million workers in 2018, with nearly 377,000 public-sector workers. The industry includes power and water distribution, sewage treatment, and waste management &

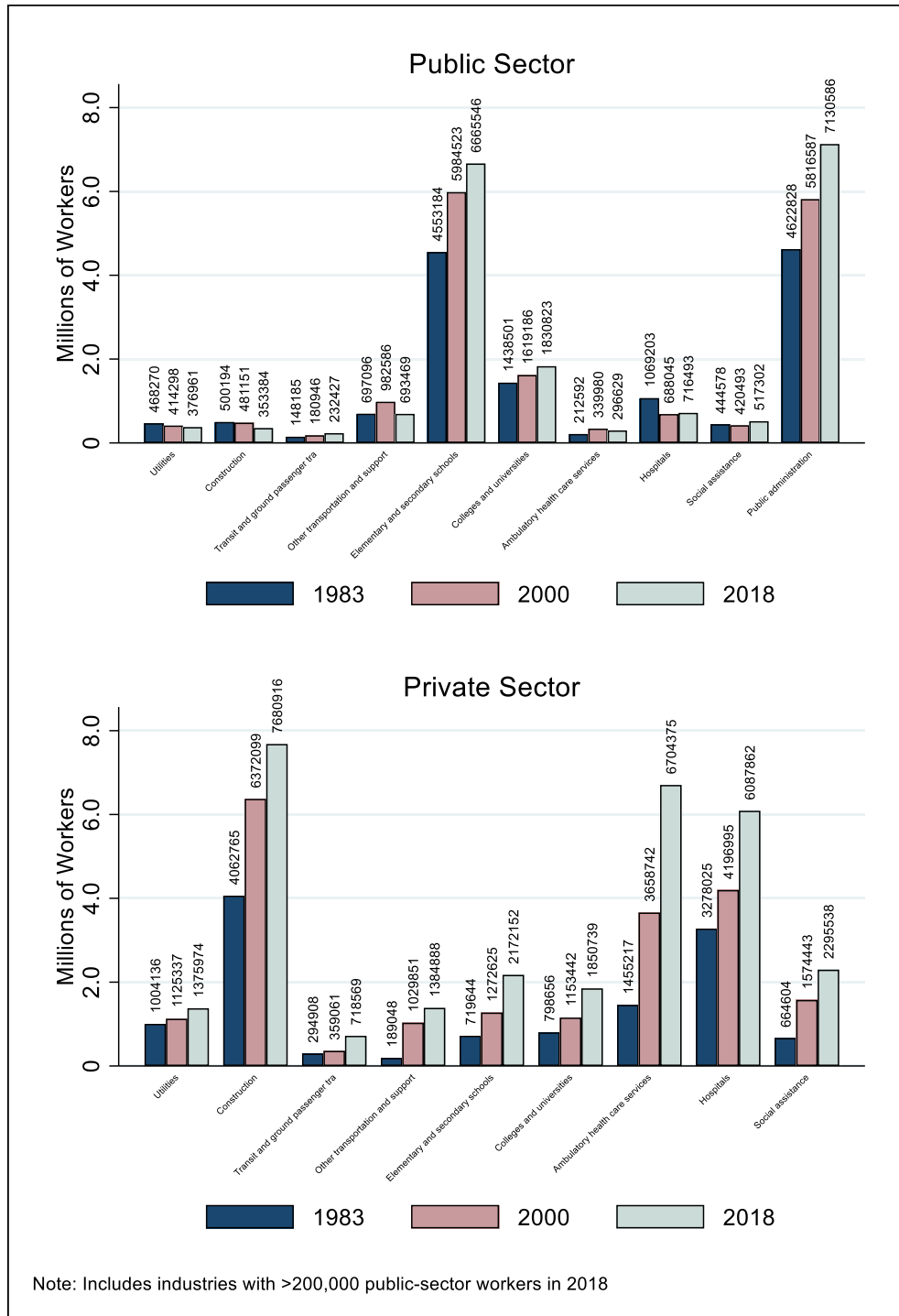
remediation. Public-sector employment in 2018 had shrunk 19.5% from 1983 levels, while the private sector grew by 37.0%.

Construction privatized from 89.0% in 1983 to 93.0% in 2000 and 95.6% in 2018, a total privatization of 6.6 percentage points. Employment included 8.0 million people in 2018, with over 353,000 public-sector workers. Public-sector employment in 2018 had shrunk by 29.4% of 1983 levels versus an 89.1% growth for the private sector, with 27 percentage points of the public-sector loss happening after 2000.

Ambulatory Health Care Services privatized from 87.3% in 1983 to 91.5% in 2000 and 95.8% in 2018 a total 1983-2018 privatization of 8.5 percentage points. Employment included 7.0 million workers in 2018, with nearly 297,000 in the public sector. The industry includes offices of health practitioners, outpatient care centers, and home health care services. Public-sector employment in 2018 was 39.5% higher than 1983 levels but 12.8% lower than 2000 levels. Meanwhile, private-sector employment grew 260% in 1983-2018.

A few other notable industries have lower levels of public-sector employment. Other Education, a catchall industry with approximately 50 thousand public-sector workers in 2018, experienced a 52% privatization. Nursing and Residential Care, consisting of 125,000 public-sector workers in 2018, privatized from 83.9% in 1983 to 94.9% in 2018. Rail Transportation “publicized” slightly as employment for rail crews declined, in addition to freight and passenger services being undifferentiable in the industry coding. Water Transportation and Forestry, Fishing, and Related do not have enough public-sector employees to analyze reliably. Real Estate, Performing Arts, Spectator Sports, Museums, & Related Activities, and Amusements, Gambling, & Recreation do not provide the types of public services typically associated with privatization.

Figure 2. Industries with the Most Public Employment, 1983, 2000, and 2018.



Note: Includes industries with >200,000 public-sector workers in 2018. Public Administration, being entirely public by definition, is excluded from the private-sector chart.

Table 2. Predicted Effects of Privatization on Worker Earnings by Earnings Quantile and Private/Public Sector, 2001-2018.

	Private Sector				Public Sector			
	25th	50th	75th	95th	25th	50th	75th	95th
	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se
Δ Privatization	34.39 (32.10)	-24.75 (43.36)	-189.19* (84.62)	-620.04* (301.60)	-86.07* (38.79)	-228.03** (69.01)	-294.49*** (72.33)	-240.97 (191.92)
Lag Privatization	43.24 (32.24)	9.91 (60.43)	-189.46* (84.73)	-613.20** (201.65)	-66.83 (52.43)	-211.18* (87.63)	-215.21** (76.80)	-148.37 (187.13)
Ln total public sector employment	-75.17 (57.78)	-163.12 (121.96)	-334.39 (352.97)	-1,374.19 (1,304.15)	-1,008.79*** (261.81)	-1,679.49*** (270.52)	-3,455.62*** (591.56)	-4,619.94* (2,191.62)
Union member	3,517.00*** (324.94)	7,911.64*** (1,254.57)	10,656.81** (3,947.08)	-11,700.09** (3,983.22)	7,305.11*** (244.78)	7,345.60*** (577.71)	3,571.96** (1,252.51)	-10,776.34* (4,524.69)
Race, Black	-2,193.06*** (307.84)	-6,839.85*** (502.88)	-11,105.64*** (952.98)	-17,434.07*** (2,394.37)	-2,831.37*** (740.75)	-5,338.22*** (1,294.32)	-5,599.21** (1,655.38)	-8,855.34*** (2,425.03)
Race, Latino	-3,877.08*** (409.16)	-10,076.18*** (982.42)	-14,009.94*** (1,518.52)	-18,949.27*** (1,960.95)	-1,890.95*** (244.18)	-3,046.50** (898.64)	-3,184.02* (1,229.73)	-4,061.17 (2,622.08)
Race, Other	-620.46* (296.14)	-2,626.68*** (406.98)	-2,935.95*** (822.33)	-9,007.74*** (2,212.53)	-2,425.08*** (336.80)	-2,904.30*** (441.08)	-2,256.24* (933.88)	554.74 (2,759.84)
Female	-2,050.90*** (452.77)	-6,545.59*** (564.00)	-14,130.77*** (1,402.06)	-36,349.61*** (6,337.92)	-2,554.16** (812.33)	-6,224.12*** (269.87)	-10,627.44*** (710.78)	-24,878.99*** (3,734.77)
College	4,765.14*** (396.34)	15,829.03*** (552.48)	36,264.63*** (1,663.09)	89,533.90*** (6,147.68)	16,029.73*** (2,857.70)	23,711.66*** (3,037.39)	27,337.68*** (1,796.02)	39,667.38*** (5,013.28)
Potential	731.38*** (53.70)	1,051.34*** (80.43)	1,362.48*** (214.54)	1,802.45** (553.38)	956.93** (276.41)	1,169.34*** (64.39)	1,560.55*** (177.64)	1,831.25*** (199.54)
Potential ²	-12.92*** (0.85)	-17.35*** (1.33)	-20.23*** (3.34)	-18.95* (7.88)	-16.42*** (4.39)	-18.39*** (0.97)	-21.72*** (2.58)	-18.49*** (4.17)
Metro Area	1,878.33*** (239.78)	4,103.45*** (282.29)	6,884.85*** (736.04)	11,932.10*** (1,605.74)	2,732.86*** (179.22)	4,897.92*** (357.97)	6,776.39*** (321.93)	10,775.33*** (1,220.28)

Usual Weekly Hours	946.36*** (61.31)	921.98*** (41.56)	1,112.43*** (101.28)	2,348.25*** (393.91)	1,325.68*** (32.64)	935.96*** (32.10)	811.90*** (48.76)	1,362.30*** (277.81)
Management	1,571.94* (759.05)	9,619.38*** (1,036.40)	26,176.52*** (1,866.39)	84,484.40*** (8,148.61)	3,476.46*** (876.10)	9,989.34*** (457.59)	23,468.85*** (4,767.77)	54,034.11** (15,940.24)
Support	-579.84 (528.72)	-2,697.78 (2,137.45)	-7,038.25 (3,914.42)	-5,721.66 (7,495.26)	-157.44 (855.46)	-3,507.83*** (765.44)	-3,445.37 (1,979.36)	-5,520.47 (5,829.32)
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.398	0.373	0.315	0.127	0.396	0.347	0.239	0.081
Degrees of Freedom	59	59	59	59	59	59	59	59
No. of Obs.	2,592,967	2,592,967	2,592,967	2,592,967	365,617	365,617	365,617	365,617

Note: .001 - ***; .01 - **; .05 - *. Controls for time, geography, and industry fixed effects are included but not reported. Results are robust to alternative modelling choices, including using hourly earnings as a dependent variable and including state fixed-effects instead of geographic division.

Table 3. Effects of Employment Privatization on Worker Earnings by Industry, Earnings Quantile, and Private/Public Sector, 2001-2018.

	Private Sector				Public Sector			
	25th coef/se	50th coef/se	75th coef/se	95th coef/se	25th coef/se	50th coef/se	75th coef/se	95th coef/se
Elementary & Secondary Schools	-231.20 (210.07)	-131.93 (260.45)	219.12 (390.07)	1,634.14 (1,309.58)	-198.91 (121.19)	-346.66** (129.44)	-522.51** (200.54)	827.33 (571.08)
Colleges & Universities	196.71 (149.75)	179.82 (190.24)	-9.49 (306.15)	-459.09 (1,147.38)	-374.13** (123.38)	-174.61 (170.95)	-461.56 (288.25)	249.01 (896.11)
Hospitals	-258.60* (117.35)	-127.83 (161.36)	573.33* (241.03)	-1,395.74 (916.82)	-816.88* (341.00)	410.56 (416.57)	875.68 (700.70)	853.22 (2,658.46)
Other Transportation & Support Services	231.94 (122.10)	-71.99 (168.23)	-303.35 (267.68)	-553.65 (796.13)	297.07 (183.97)	-299.25 (153.15)	-33.56 (158.24)	-2,052.32* (962.82)
Social Assistance	-74.27 (76.89)	-8.33 (98.58)	332.76 (180.92)	82.74 (775.19)	347.38 (243.10)	-119.46 (292.92)	-530.45 (426.81)	-673.15 (1,208.69)
Utilities	49.27 (187.31)	61.00 (243.31)	106.76 (349.70)	78.51 (889.89)	135.21 (268.14)	161.55 (327.09)	484.93 (506.67)	3,583.06** (1,281.78)
Construction	-735.33*** (97.09)	-659.28*** (137.85)	-736.38** (230.42)	-3,468.38*** (696.02)	-986.12* (394.02)	-1,588.20*** (463.62)	-1,333.74 (749.45)	-4,133.71* (1,771.51)
Ambulatory Health Care Services	-953.95*** (145.76)	-604.17** (186.11)	-370.80 (363.75)	-1,187.96 (1,944.80)	-773.12 (707.58)	535.15 (882.52)	302.44 (1,477.45)	-6,663.52 (4,803.99)
Transit & Ground Passenger Transportation	227.20**	351.67***	387.04*	981.80	335.59	600.57*	675.71	-255.14

(82.12) (104.63) (181.28) (692.46) (230.98) (274.10) (353.75) (950.51)

Note: Elementary & Secondary Schools (priv. n=44,184, pub. n=178,426); Colleges & Universities (priv. n=40,828, pub. n=50,102); Other Transportation (priv. n=27,344, pub. n=22,584); Transit & Oth. Ground Pass. Trans. (priv. n=12,055, pub. n=3,995); Utilities (priv. n=32,742, pub. n=10,658); Social Assistance (priv. n=53,453, pub. n=12,164); Hospitals (priv. n=138,911, pub. n=19,545); Construction (priv. n=170,964, pub. n=12,688); Ambulatory Health Care Services (priv. n=138,511, pub. n=7,944)

Earnings Results

Table 2 contains the full model results predicting the effect of privatization on earnings across the entire economy. Outputs are omitted for controls for time, geographic division, and industry fixed effects from the analysis. Standard errors are clustered by industry. Demographic, occupational, and industry controls are also included. Predictions are made by earnings quantiles, including quantiles for the 25th, 50th, 75th, and 95th percentiles in the earnings distribution. These quantiles were chosen to provide a wide spread of earnings while limiting the number of discrete estimation points. Due to top-coded earnings in the CPS survey, the 95th percentile is the upper bound for which earnings can be reliably reported. Reported results control for the total level of privatization in a worker's industry of employment. Models contain observations for 2001-2018 and are separated into public and private sectors.¹⁵

Controlling for other factors, compositional employment privatization broadly decreases earnings across several quantiles of public- and private-sector workers. In the public sector, a one percentage-point increase in employment privatization from the previous year is associated with a \$86.07 decrease in annual earnings for the average worker in the 25th earnings percentile, a \$228.03 decrease at the median, and a \$294.49 decrease at the 75th percentile. The \$240.97 decrease at the 95th percentile was not significant. In the private sector, employment privatization is associated with a \$189.19 decrease in 75th percentile earnings and a \$620.04 decrease in 95th percentile earnings. No economy-wide effect is present for private-sector low and middle earners. These small yet significant results demonstrate that industry-level shifts in public/private sector employment composition, while concentrated in few industries and not directly impacting all workers, are large enough to have a measurable impact on the entire economy. The expectation of industry variation means that industry-specific effects are likely to be averaged out in models for the entire economy, especially since most industries are nearly entirely privatized, so the presence of any significant effect here is noteworthy. To address Figure 1 evidence of industry employment variation, I next analyze privatizing industries that provide public services.

Using the Table 2 model at the industry level, Table 3 displays the predicted effects of privatization on earnings for workers in all industries with at least 200,000 public-sector workers in 2018 with results reported in descending order from most

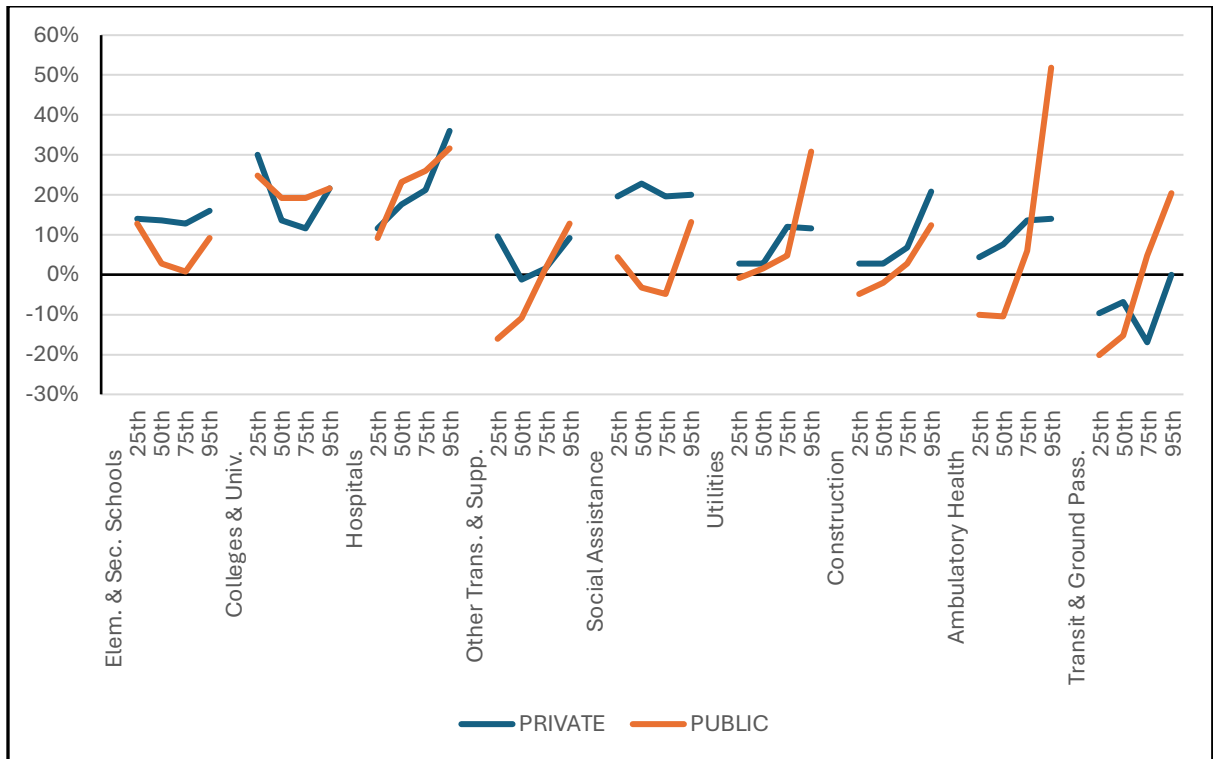
¹⁵ The year 2000 was dropped from the models due to first-differencing the employment privatization measure.

to least workers. Table 4 estimates the total impact of privatization on annual earnings using the Table 2 results along with each industry's marginal privatization and the 2018 earnings for each sector, industry, and quantile. Figure 3 presents the descriptive statistics for earnings growth for each industry in Table 3, also by sector and earnings quantile. Figure 3, for example, shows that private-sector workers in the Social Assistance industry gained 20%+ regardless of quantile, whereas public-sector workers either gained substantially less (25th and 95th percentiles) or lost earnings (50th and 75th percentiles). For each significant industry quantile within each sector, the primary occupations impacted are also reported, calculated by observing the occupational characteristics within +/- 5 percentiles of the earnings quantile.

Elementary & Secondary Schools privatized 7.0 percentage points in 2000-2018. For the public sector, a one percentage-point increase in employment privatization from the previous year was associated with a \$346.66 decrease in average annual earnings for median earners and a \$522.51 decrease for the 75th percentile. Earners in other public-sector quantiles and those in the private sector displayed no significant effects. These public-sector earners negatively affected by privatization are overwhelmingly elementary, middle, and high school teachers. Figure 3 shows that public-sector workers at the 50th and 75th percentiles had an earnings growth of 2.7% and 0.6%, respectively, compared to 13.6% and 12.7% in the lower-paid private sector. Table 4 shows that a 7.0 percentage-point privatization is estimated to have reduced annual earnings for workers at the 50th percentile by \$2,441, or 6.3% of their 2018 earnings, and at the 75th percentile by \$3,680 per year, or 5.4%. For the median public-sector worker across 2000-2018, this would amount to \$43,938 in total earnings lost over 19 years, close to a year's worth of earnings (94%).

Colleges & Universities privatized 8.7 percentage points in 2000-2018. Only public-sector workers at the 25th percentile experienced significant earnings loss. For this group, a one percentage-point privatization was associated with an average \$374.13 decrease in yearly earnings. This portion of the earnings distribution is representative of postsecondary teachers, building cleaners, and administrative assistants. Earnings growth of 24.8% across 2000-2018 for this group exceeded other public-sector quantiles yet fell short of 30.0% growth in the private-sector 25th percentile. An 8.7 percentage-point privatization is estimated to have reduced annual earnings for workers at the 25th percentile by \$3,243, or 13.5% of their 2018 earnings.

Figure 3. Public and Private Sector Distributional Earnings Growth Percentages by Industry and Quantile, 2000-2018.



Hospitals privatized 3.6 percentage points in 2000-2018. Low-earners in both sectors lost earnings, while the private-sector 75th percentile benefitted. For private-sector workers, a one percentage-point privatization was associated with a \$258.60 decrease in average annual earnings for the 25th earnings percentile and a \$573.33 increase for the 75th percentile. While nurses are heavily represented in both the 75th and 95th percentiles (>40%), the 75th percentile is also more representative of technologists. Alternatively, the 25th percentile is more representative of health aides and assistants. The public-sector 25th percentile lost an average of \$816.88 in annual earnings. This portion of the public-sector earnings distribution is overrepresented by health aides, assistants, cleaners, and low-paying registered nurse jobs. Earnings growth for Hospitals was high, although the 25th percentile growth of 11.6% in the private sector and 9.2% in the public sector was much lower than other quantiles. A 3.6 percentage-point privatization is estimated to have reduced annual earnings for the 25th percentile by \$919 in the private sector, or 2.9% of their 2018 earnings, and \$2,904 in the public sector, or 8.2%.

Table 4. Estimated Change in Earnings Due to Employment Privatization.

Industry	Earnings Percentile	Regression Coefficient	Marginal % Change in Privatization	2018 Yearly Earnings	Total Earnings Impact	% Change in Earnings
Elementary & Secondary Schools						
<i>Private</i>	25th	-231.20	7.0%	\$24,960	-\$1,628	-6.5%
	50th	-131.93	7.0%	\$41,450	-\$929	-2.2%
	75th	219.12	7.0%	\$62,174	\$1,543	2.5%
	95th	1,634.14	7.0%	\$119,964	\$11,508	9.6%
<i>Public</i>	25th	-198.91	7.0%	\$29,952	-\$1,401	-4.7%
	50th	-346.66**	7.0%	\$46,800	-\$2,441	-5.2%
	75th	-522.51**	7.0%	\$67,600	-\$3,680	-5.4%
	95th	827.33	7.0%	\$118,560	\$5,826	4.9%
Colleges & Universities						
<i>Private</i>	25th	196.71	8.7%	\$25,000	\$1,705	6.8%
	50th	179.82	8.7%	\$48,000	\$1,559	3.2%
	75th	-9.49	8.7%	\$75,000	-\$82	-0.1%
	95th	-459.09	8.7%	\$150,000	-\$3,980	-2.7%
<i>Public</i>	25th	-374.13**	8.7%	\$24,000	-\$3,243	-13.5%
	50th	-174.61	8.7%	\$48,000	-\$1,514	-3.2%
	75th	-461.56	8.7%	\$79,444	-\$4,001	-5.0%
	95th	249.01	8.7%	\$150,000	\$2,159	1.4%
Hospitals						
<i>Private</i>	25th	-258.60*	3.6%	\$31,460	-\$919	-2.9%
	50th	-127.83	3.6%	\$49,920	-\$454	-0.9%
	75th	573.33*	3.6%	\$74,360	\$2,038	2.7%
	95th	-1,395.74	3.6%	\$145,000	-\$4,962	-3.4%
<i>Public</i>	25th	-816.88*	3.6%	\$35,360	-\$2,904	-8.2%
	50th	410.56	3.6%	\$54,600	\$1,459	2.7%
	75th	875.68	3.6%	\$80,000	\$3,113	3.9%
	95th	853.22	3.6%	\$150,000	\$3,033	2.0%
Other Transportation & Support Services						
<i>Private</i>	25th	231.94	15.5%	\$26,000	\$3,586	13.8%
	50th	-71.99	15.5%	\$38,610	-\$1,113	-2.9%
	75th	-303.35	15.5%	\$61,750	-\$4,690	-7.6%

	95th	-553.65	15.5%	\$115,000	-\$8,559	-7.4%
<i>Public</i>	25th	297.07	15.5%	\$31,200	\$4,593	14.7%
	50th	-299.25	15.5%	\$46,800	-\$4,626	-9.9%
	75th	-33.56	15.5%	\$62,400	-\$519	-0.8%
	95th	-2,052.32*	15.5%	\$98,800	-\$31,728	-32.1%

Social Assistance

<i>Private</i>	25th	-74.27	2.7%	\$18,200	-\$201	-1.1%
	50th	-8.33	2.7%	\$28,392	-\$22	-0.1%
	75th	332.76	2.7%	\$43,056	\$898	2.1%
	95th	82.74	2.7%	\$84,000	\$223	0.3%
<i>Public</i>	25th	347.38	2.7%	\$22,880	\$938	4.1%
	50th	-119.46	2.7%	\$33,592	-\$323	-1.0%
	75th	-530.45	2.7%	\$49,972	-\$1,432	-2.9%
	95th	-673.15	2.7%	\$92,540	-\$1,817	-2.0%

Utilities

<i>Private</i>	25th	49.27	5.4%	\$39,000	\$266	0.7%
	50th	61.00	5.4%	\$59,956	\$329	0.5%
	75th	106.76	5.4%	\$90,000	\$577	0.6%
	95th	78.51	5.4%	\$150,000	\$424	0.3%
<i>Public</i>	25th	135.21	5.4%	\$33,280	\$730	2.2%
	50th	161.55	5.4%	\$51,168	\$872	1.7%
	75th	484.93	5.4%	\$72,000	\$2,619	3.6%
	95th	3,583.06**	5.4%	\$143,000	\$19,349	13.5%

Construction

<i>Private</i>	25th	-735.33***	2.6%	\$31,200	-\$1,928	-6.2%
	50th	-659.28***	2.6%	\$43,680	-\$1,729	-4.0%
	75th	-736.38**	2.6%	\$65,520	-\$1,931	-2.9%
	95th	-3,468.38***	2.6%	\$125,000	-\$9,095	-7.3%
<i>Public</i>	25th	-986.12*	2.6%	\$33,280	-\$2,586	-7.8%
	50th	-1,588.20***	2.6%	\$45,760	-\$4,165	-9.1%
	75th	-1,333.74	2.6%	\$65,520	-\$3,498	-5.3%
	95th	-4,133.71*	2.6%	\$105,000	-\$10,840	-10.3%

Ambulatory Health Care Services

<i>Private</i>	25th	-953.95***	4.3%	\$24,960	-\$4,102	-16.4%
	50th	-604.17**	4.3%	\$37,752	-\$2,598	-6.9%

	75th	-370.80	4.3%	\$60,320	-\$1,594	-2.6%
	95th	-1,187.96	4.3%	\$130,000	-\$5,108	-3.9%
<i>Public</i>	25th	-773.12	4.3%	\$22,984	-\$3,324	-14.5%
	50th	535.15	4.3%	\$35,984	\$2,301	6.4%
	75th	302.44	4.3%	\$65,000	\$1,300	2.0%
	95th	-6,663.52	4.3%	\$150,000	-\$28,653	-19.1%

Transit & Ground Passenger Transportation

<i>Private</i>	25th	227.20**	9.1%	\$19,200	\$2,060	10.7%
	50th	351.67***	9.1%	\$29,952	\$3,189	10.6%
	75th	387.04*	9.1%	\$41,964	\$3,510	8.4%
	95th	981.80	9.1%	\$87,100	\$8,903	10.2%
<i>Public</i>	25th	335.59	9.1%	\$29,120	\$3,043	10.4%
	50th	600.57*	9.1%	\$44,460	\$5,446	12.2%
	75th	675.71	9.1%	\$70,000	\$6,127	8.8%
	95th	-255.14	9.1%	\$125,000	-\$2,314	-1.9%

Other Transportation & Support Activities privatized 15.5 percentage points in 2000-2018. Only high-earners in the public-sector lost earnings due to privatization. A one percentage-point privatization was associated with a loss of \$2,052.32 in average annual earnings for the public-sector 95th percentile. The 95th percentile is representative of managers including postmasters/mail superintendents, postal service mail carriers, and air traffic controllers/operations specialists. The years 2000-2018 represent a time when public employment in this industry shrunk 29% as nearly 300,000 jobs were eliminated. Despite experiencing a downward pressure on earnings from privatization, the 95th percentile still gained 20.5% (Figure 3) in earnings while median and low-earners lost over 15%, meaning that the negative privatization effect only offset gains for top earners. Notably, 93% of public-sector workers were federally-employed. A 15.5 percentage-point privatization is estimated to have reduced annual earnings for the 95th percentile by \$31,728, or 32.1% of their 2018 earnings.

Social Assistance privatized 2.7 percentage points in 2000-2018. No significant earnings effect resulted in either sector. Employment in this industry clustered around community and social services, educators and trainers, and personal care services. Both the public and private sectors grew rapidly, although

this coincided with private-sector workers gaining 19-22% across the earnings distribution while in the public sector earnings shrunk for middle earners, remained stagnant for low earners, and grew 13% for the 95th percentile. However, these changes were not linked to privatization in this model and, of industries examined individually, Social Assistance had the lowest median earnings in both sectors.

Utilities privatized 5.4 percentage points in 2000-2018. No public- or private-sector workers lost earnings due to privatization, although the public-sector high-earners experienced an earnings boost. A one percentage-point privatization was associated with a gain of \$3,583.06 in average annual earnings for the 95th percentile. The 95th percentile is representative of managers and engineers. Their overall earnings grew 30.9% while low-middle earners experienced stagnant growth of -0.9%-1.4% and public-sector employment shrunk 9%.

Construction privatized 2.6 percentage points in 2000-2018. All quantiles of private- and public-sector Construction workers lost earnings due to privatization except the non-significant public-sector 75th percentile. For instance, a one percentage-point privatization was associated with a \$659.28 decrease in average annual earnings for private-sector median earners and \$1,588.20 for public-sector median earners. Across both sectors, the industry predominantly consists of Construction & Extraction occupations, although many workers are in Transportation & Material Moving occupations. High earners are more likely to be managers or, additionally, in Architecture & Engineering occupations in the public sector. Public-sector employment declined by nearly 27% and the much larger private sector grew 21% in 2000-2018, while overall earnings for the bottom half of the public-sector distribution declined (>2%) and equivalently remained stagnant (~2.7%) for the private sector. Simultaneously, 95th percentile earnings grew 20.7% for the private sector and 12.3% for the public despite strong downward earnings pressure from privatization. A 2.6 percentage-point privatization is estimated to have reduced annual earnings for median private-sector earners by \$1,729, or 4.0% of 2018 earnings, and \$4,165 for public-sector workers, or 9.1%.

Ambulatory Health Care Services privatized 4.3 percentage points in 2000-2018. Low- and middle-earners in the private sector lost earnings due to privatization. Other quantiles did not have significant results despite large negative coefficients. In the private sector, one percentage-point privatization was associated with an annual earnings decrease of \$953.95 for the 25th percentile and \$604.17 for the 50th percentile. The lower end of this earnings distribution is much more representative of healthcare support occupations, such as aides/assistants,

and administrative support, while the top half of the distribution is increasingly represented by healthcare practitioners and managers. Public-sector employment shrunk nearly 13% in 2000-2018 while the larger private sector nearly doubled, all while low-middle earners lost 10%+ in annual earnings and equivalently remained stagnant in the private sector relative to high earners. A 4.3 percentage-point privatization is estimated to have reduced annual earnings for the private-sector 25th percentile by \$4,102, or 16.4% of their 2018 earnings, and \$2,598 for the median, or 6.9%.

Transit & Ground Passenger Transportation privatized 9.1 percentage points in 2000-2018. Privatization did not affect any earners in this industry negatively, although some gained. For the private sector, a one percentage-point privatization was associated with a \$227.50 annual earnings increase for the 25th percentile, \$351.67 for the 50th percentile, and \$387.04 for the 75th percentile. For the public sector, the increase was \$600.57. As a whole, both sectors consist of Bus Drivers and support occupations, while the private sector also contains a large share Taxi Drivers & Chauffeurs. With this being one of the few industries with considerable public employment growth, the more rapid growth in the private sector did not lead to a negative pressure on earnings. However, some earnings dynamics underlie the privatization findings. First, the public sector, consisting almost entirely of bus service and urban transit, experienced a rapid employment growth of 28% in 2000-2018 while top earners gained 20% and low/middle earners lost 15-20%. Second, while private-sector bus services grew at a similar rate as the public sector at 32% and experienced earnings growth, taxi and limousine service grew by 141% in 2000-2018, eclipsing bus services in terms of employment as sub-industry median earnings dropped 20%. The decrease in taxi and limousine service earnings happened after the founding of Uber in 2009 and Lyft in 2012. Private taxi companies compete with public bus services in local areas, with similar wage dynamics while private sector bus services with more intercity routes have a different earnings dynamic.

Discussion

Using pooled time-series data, this article systematically documents the employment privatization of the U.S. economy in 1983-2018 by focusing on the workplace. This shift in employment upset established institutional norms in public- and private sector workplaces. While the share of private-sector workers increased relative to the public sector across the economy, this transformation was

especially prominent in industries with initially-high public-sector employment. Privatization was the result of both public-sector job elimination and rapid private-sector employment growth outpacing the public sector in a growing economy. Hypothesis 1 is supported.

These descriptive employment findings reconceptualize U.S. privatization as a workplace phenomenon, representing what may be the first attempt to capture the full extent of privatization in the U.S. economy in terms of employment. Prior research has tended to focus on the impact of privatization on government administration and public stakeholders (Sclar 2000; Lobao, Adua, and Hooks 2014; Warner 2024; Warner, Aldag, and Kim 2021; Bel and Fageda 2007; Bel and Warner 2008; Hodge and Coghill 2007; Hefetz and Warner 2004; Warner and Hefetz 2002; Bel and Gradus 2018; Bel 2020; Hefetz, Warner, and Vigoda-Gadot 2012) or the welfare state (Marwell 2004; Levine 2016; Walker 2009; Parker 2024). Some has treated privatization as the context under which workplace inequalities occur (Wilson et al. 2015). Some authors have operationalized privatization outside the U.S. using economic measures (Mercille and Murphy 2017; Megginson 2017). Observing the full extent of employment privatization by measuring marginal changes in the private-sector share of the total U.S. industry-level employment composition, I firmly recenter privatization around work while mapping the full contour of privatization within the U.S. economy.

How does employment privatization affect earnings and inequality? Across the entire economy, privatization results in broad, mild earnings losses for private-sector workers in the top half of the earnings distribution and public-sector workers in the 25th, 50th, and 75th percentiles. These earnings losses were more prominent in industries with higher levels of public-sector employment. In Elementary & Secondary Schools, public-sector workers in the 50th and 75th percentiles lost annual earnings equivalent to 5.2-5.45% of their 2000 earnings by 2018 due to employment privatization. In Colleges & Universities, public-sector workers in the 25th percentile had lost 13.5%. In Other Transportation & Support Services, public-sector workers in the 95th percentile had lost 32.1%, although the industry had also shed nearly a third of its workforce while overall earnings plummeted for other public-sector quantiles. In Construction, all private-sector workers lost 2.9-7.3% while public-sector workers lost 7.8-10.3%, except for the 75th percentile. In Hospitals, workers in the 25th percentile lost 2.9% in the private sector and 8.2% in the public sector. In Ambulatory Health Care Services, private-sector workers in the 25th percentile lost 16.4% while the median lost 6.9%. No earnings losses were reported in both Transit & Ground Passenger Transportation and Social Assistance,

two low-paying industries, as well as in Utilities. There were some earnings gains from privatization that require further explanation, including Transit & Ground Passenger Transportation workers in the private-sector 25th-75th percentiles and public-sector median, Utilities at the public-sector 95th percentile, and Hospitals at the private-sector 75th percentile. Cumulatively, these results demonstrate that privatization tends to reduce earnings, with effects contingent on a worker's industry, sector, and location in the earnings distribution. Hypothesis 2 is supported.

The findings that earnings effects from privatization are contingent on institutional contexts such as industry, sector, and earnings are consistent with prior literature on political economy and organizational inequality. Rising between-firm inequality has outpaced the growth of within-firm inequality in the private sector in recent decades, highlighting the role of institutional context in shaping earnings dynamics (Zwysen 2023). In this research, industry employment composition shifted from the public to the private sector. This happened at a time when the public sector employment was under threat coinciding with less stable employment (Wilson et al. 2015), government austerity efforts, local budget shortfalls (Lobao et al. 2014), and threats to public-sector unions that might eliminate pay premiums (Kerrissey and Meyers 2022). Privatization was not a boon to private-sector workers either, as a growing private sector in the 2000s coincided with historically low union membership (Rosenfeld 2014), declining job quality and stability (Kalleberg 2013; Weil 2014), and several dynamics that undermined worker earnings potential (Kristal 2013; Lin and Tomaskovic-Devey 2013; Wilmers 2018). In short, relational earnings dynamics in both the private and public sectors were upset by privatization, meaning that less powerful actors lost from shifting organizational resource pools and new inequality regimes (Tomaskovic-Devey and Avent-Holt 2019).

The historical, time-specific earnings dynamics documented in this article are consistent with a Polanyian approach to social science research (Bandelj, Shorette, and Sowers 2011). Employment privatization represents the commodification of labor, transforming social goods into private assets. In this view, the economy became disembedded from society with the rise of neoliberal economic policies in the 1980s. In the present research, measuring privatization is one method of gauging disembeddedness. This research captures the 2000-2018 era of government austerity and a shrinking public sphere. Countervailing forces have re-embedded the marketized economy back into society in many ways, as observed in recent earnings compression (Aeppli and Wilmers 2022). With privatization, this

may mean that negative effects observed in 2000-2018 should not be expected to remain linear in an extended time series, especially if earnings inequality changes and fewer industries have substantial public-sector employment.

There are some limitations and caveats for these findings. Privatization is a complex, multifaceted phenomenon that is not fully captured through industry employment properties. This article makes full use of CPS data, opting for a broad conception of privatization and observing industry-wide effects rather than employing a more fine-grained approach that captures proximate, firm-specific dynamics at the expense of systematized findings. Overall, CPS offers nationally-representative, individual-level data with a wide array of economic indicators and worker classifications, although this advantage of observing national trends comes at the expense of tracking privatization activities that may have more profound effects for smaller groups of workers in specific workplaces. Additionally, many privatization dynamics, such as massive postal service layoffs, are not fully captured in this earnings analysis and complicate the findings of some industries. Privatization also might not be fully independent of other inequality-producing dynamics like financialization (Megginson 2010) and market concentration. While the goal of this research is to make privatization less of a nebulous concept, some effects may be underestimated due to my conceptualization, some may be hidden or muddled out of significance due to modelling choices, and some might not be estimable using CPS data.

These findings should serve as a caution to public administration scholars and government officials. The decision to expand the private sector is more than an administrative decision or a matter of public goods and services. Rather, the decision is also about the future of work and workplaces. Local economies are affected by decisions to contract out, whether through immediate pay cuts, reduced dignity in the workplace, or the destabilization of worker's lives, all of which are a threat to the communities. Additionally, as public administration scholars have noted, work on contracting back in (Hefetz and Warner 2004), remunicipalization (Bel et. Al 2007; Bel 2020) and de-privatization (Kwiek 2016) demonstrate the potential for reversing privatization. Contracting out is not the only option for cost savings either, as inter-municipal cooperation (Bel and Gradus 2017; Bel et. Al 2018), regionalism (Warner and Hefetz 2002), and pragmatic municipalism (Warner 2024) represent a few approaches where inter-governmental cooperation can produce economies of scale. More importantly, perhaps, is the question of values, such as whether we value funding public services, paying workers fairly, and maintaining portions of the economy that are directly accountable to the public.

Consistent with a Polanyian narrative, privatization is not unidirectional, public-ization is also possible.

Future research should further explore how privatization might differentially impact groups of workers based on their demographics and among different levels of government. Occupational and temporal variation can also be explored in more detail.

CHAPTER 3
**REVISITING UNION DECLINE: WHAT CAUSED THE COLLAPSE OF PRIVATE-
SECTOR ORGANIZED LABOR IN THE UNITED STATES? 1973-2008**

Nathan Meyers

Abstract:

Critiquing single-cause explanations and using a relational view of labor, capital, and the state, I use industry data from 1973-2008 to show that U.S. private-sector union decline resulted from linked institutional transformations benefitting capital relative to labor. These include: 1) a reconfiguration of productive capital in the 1970s-1980s, 2) the consistent inability of unions to sufficiently organize new members, and 3) weakening protections of labor policy by the 1970s. This confluence of factors enabled a business political mobilization and offensive, causing union decline in the 1980s. Error correction models identify cumulative effects, while local weighting highlights shifting temporal dynamics.

Introduction

Scholars have proposed many potential causes of the decline of private-sector unions in the United States. Most scholars emphasize one cause of union decline at the expense of others, such as Ronald Reagan (Tope and Jacobs 2009; Jacobs and Myers 2014), computerization (Kristal 2013; 2019), lack of labor militancy (Aronowitz 2014), the political mobilization of the business community (Hacker and Pierson 2010a; Mizruchi 2013; Walker and Rea 2014), the failure of unions to organize (Mills 1948; Barkin 1961; Fletcher and Gapasin 2008), changes to the National Labor Relations Board (Bronfenbrenner 2009), or deindustrialization (Bluestone and Harrison 1982). Other scholars list multiple causes, but do not articulate how they occur as interdependent social processes that interact spatially and temporally (Luce 2014; Fiorito and Maranto 1987; Clawson and Clawson 1999; Freeman and Medoff 1984; Goldfield 1987). Another stream of scholarship focuses on cross-national variation (Misra and Hicks 1994; Western 1997; Kollmeyer and Peters 2018; Meyer 2019). While each provides valuable contributions, few explore how this complex set of factors interacted as a broader social force. In this regard, faulting individual studies is a misplaced critique; however, faulting the field for collectively undervaluing the complexity of social dynamics seems appropriate.

This paper attempts to develop a more cohesive narrative. Theoretically, I highlight the relational aspects associated with union decline, situating them within

a broader institutional framework. This means that the power of institutional actors can only be understood in relation to one another. To accomplish this, I stress the theoretical importance of addressing how different factors become more or less prominent at specific moments in time. I view institutional changes as products of the diffusion of behaviors and processes at the organizational level.

I examine three broad institutional processes through a relational lens. These include: 1) the reconfiguration of productive capital in the 1970s and 1980s, 2) a business mobilization and offensive against unions in the 1970s, and 3) the failure of unions to adequately organize throughout the entire period. In short, I aim to provide a more comprehensive institutionally- and organizationally-embedded analysis of U.S. union decline that highlights the empirical potential of treating temporal dynamics seriously.

Methodologically, I identify when in time causal processes are stronger, weaker, or absent. These institutional processes are analyzed using 1973-2008 private-sector, industry-year panel data. By employing local weighting within a dynamic time series estimation strategy, I highlight temporal variation in causal processes. In doing so, the temporal impact of each union decline explanation (and by extension any quantitative historical analysis) is identified. This approach relaxes the assumption of constant effects over time, consistent with Isaac and Griffin's (1989) cautioning against ahistoricism in time-series analysis, enabling both the disentanglement of complex social processes and the advancement of relational theorization of capital-labor power struggles.

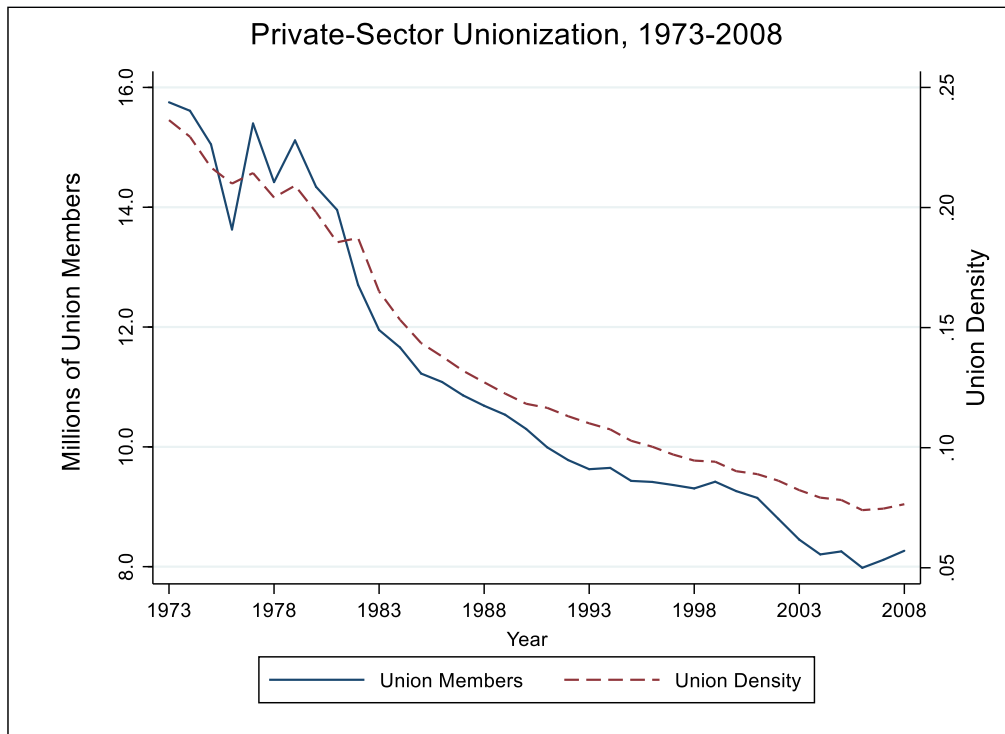
Empirically, the findings demonstrate that many, although not all, factors identified by previous scholars have contributed to union decline. I examine seven hypotheses present in the union decline literature and estimate models pinpointing *when* as well as *whether* they affected union decline.

In the next section, I provide context for U.S. union decline, focusing particularly on changing fortunes in the 1980s. I then articulate a relational approach to capital-labor struggles before discussing the primary explanations for these trends. Results identify long-term effects, the total amount of union membership lost due to each cause, and when each cause was most prominent.

The Historical Context

U.S. unionism has been in crisis since the early 1980s. Beginning around 1980, U.S. private-sector union membership plummeted.¹⁶ Organized labor had enjoyed a fairly secure existence for most of the previous forty years, but political and economic currents carved a new institutional landscape, eroding established bargaining patterns. Private-sector union density peaked at 36% in 1953 (Troy and Sheflin 1985). Since then, private-sector membership levels have dwindled to 6.3% of total employment (Bureau of Labor Statistics, 2021).¹⁷ Total union membership, however, remained relatively stable through the 1970s before plummeting in the early 1980s. By 2008, absolute union membership was only 52.5% of its 1973 level, a large and drastic change to the national economy as well as to the collective and workplace power of US workers. These declines happened with almost no changes to collective bargaining laws. Figure 1 shows trends in private-sector union membership in the productive economy over time, which is indicative of the declining power of the labor movement.

Figure 1. Private Sector Union Membership and Density, 1973-2008.



Note: Current Population Survey data

¹⁶ Contrary to this trend, the public sector has retained about half of all U.S. union members and a union density of 34.4% as of 2018, rivalling the private-sector peak. Due to these factors, the public sector is omitted from this study.

¹⁷ <https://www.bls.gov/news.release/pdf/union2.pdf>

The decline of unionism has been socially destructive. Unions reduce inequality (Farber et al. 2021). Union workers earn more than non-union workers (Freeman and Medoff 1984; Brady, Baker, and Finnigan 2013; Rosenfeld 2014), so the decline of unionization has been a major contributor to increased inequality in the United States (Wallace, Leicht, and Raffalovich 1999; Western and Rosenfeld 2011; Lin and Tomaskovic-Devey 2013; Hacker and Pierson 2010a). Part of this rising inequality, as union density has decreased, is exhibited by increasing rates of poverty (Brady et al. 2013) and a shrinking middle class (Reich 2007). Unemployment benefits have suffered because of waning union power (Gordon 2015). Perhaps most importantly, unions are no longer able to shape pay standards for non-union workers across the private economy (Rosenfeld 2014). Politically, the absence of labor unions has meant lower voter turnout and political participation (Kerrissey and Schofer 2013). These have all been outcomes of organized labor's declining bargaining power and the waning effects of union benefits on the rest of the workforce.

The National Labor Relations Act (NLRA) of 1935, or the Wagner Act, first enabled most workers the legal right to unionize without employer interference. The NLRA created the National Labor Relations Board to mediate capital-labor disputes, enabling unfair labor practice charges against employers and with the power to mandate that employers bargain in good faith. By 1947, anti-union forces had gained enough momentum to pass the Taft-Hartley Act—limiting strikes and boycotts; enabling so-called Right-to-Work by allowing states to legislate whether employees can opt out of paying union dues while retaining union benefits; granting employers the ability to hold captive audience meetings with employees and to express opposition to unions; and requiring union leaders to make anti-communist pledges for their unions to remain legally recognized.

Taft-Hartley was designed to hobble union organizing (Getman and Pogrebin 1988), but unions thrived for decades after its inception. Although union activities were restrained, many workers—initially opposing the law when union leaderships likened it to “slave labor”—began to feel less strongly after several years passed without drastic consequences to their employment conditions (Lubell 1954). As one unionized textile cutter who originally opposed Taft-Hartley claimed a few years after passage, “I’m for it now...There have been fewer strikes. When other workers strike, business drops and we get laid off (1954:204-05).” As this cutter’s experience illustrates, the negative effects of Taft-Hartley were not immediately apparent as union gains accumulated and many workers’ lives seemed more stable.

The sudden decline in union strength in the 1980s, I argue, is partly based on latent constraints from Taft-Hartley becoming manifest. Unions were always restricted by Taft-Hartley, but they remained strong under the existing institutional arrangements of collective bargaining in the United States. When structural changes in the economy transformed the field of contestation between labor and capital, Taft-Hartley restrictions became more burdensome. The collapse of established bargaining norms across many industries required unions to engage in alternative tactics (Kochan, Katz, and McKersie 1986), but many potential tactics were illegal or restricted. Organized labor effectively lost many tools when they were less vital for survival; when new challenges required the use of those tools, they were no longer legally available.

Federal labor law barely changed for private-sector workers in the several decades preceding the 1980s. Still, the effect of established policies did change with relational power. Hacker and Pierson (2010a) use the concept of *policy drift* to explain how political actors use inaction as a method of achieving goals as policies become outdated, yet remain in effect. Under the static umbrella of the NLRA with Taft-Hartley, employers gradually ended the labor-capital accord as the economy changed throughout the 1970s, as the established bargaining system no longer benefitted them (Kochan et al. 1986).

The Relational Approach

Relational Inequality Theory (RIT) provides a useful theoretical perspective for interpreting union decline. In this framework, categorical distinctions—specific relational classifications—channel interactions between actors. When the relational power of actors shifts, patterns of resource allocation may shift, providing actors the opportunity to make claims over new or existing resources (Tomaskovic-Devey and Avent-Holt 2019). These claims are not always direct contestations. Opponents can make claims by trying to erode each other's bases of power through legislative or other efforts rather than directly confronting each other (Dixon 2008).

While organizational settings (i.e. workplaces) are the points where claims occur, they are always nested in institutional contexts. Events can spread across workplaces, creating an institutional phenomenon. At the same time, national trends developed by the state, social movements, or the legitimation of institutional phenomena can disseminate or block practices in an organizational field. This dispersion of practices affects the field of contestation between capital and organized labor at the organizational level. The workplace is the ultimate point of contestation, where all institutional influences— global and local, political and

economic, external and internal— converge to influence outcomes of the claims made by workers and employers. Here, the institutions of capital and labor contest each other in an iterative manner— providing temporal dynamics— where the product of power and institutional forces at one point in time is a function of how transformations occurred at earlier points in time (Kristal 2010; Haydu 1998; Tilly and Tilly 1998).

Building on this general approach, I first explore the institutional causes of union decline identified in the literature. I summarize these explanations under three more general headings: the reconfiguration of productive capital, political mobilization and the business offensive, and the failure of unions to organize.

The Reconfiguration of Productive Capital

A reconfiguration of productive capital preceded the decline of union power in the 1980s. Comprising six primary moments, this reconfiguration included: 1) a deindustrialization of regions containing unionized workforces, 2) the rapid growth of the mostly unorganized services sector, 3) a rise in global competition causing a reduction in investments in domestic goods production, 4) the wide-scale automation of production, 5) an expanded college-educated workforce, and 6) the financialization of the economy. Together, these factors destabilized the capital-labor accord of the early postwar era (Rubin 1986).¹⁸

Massive layoffs began during 1970s economic stagnation. The postwar economic engine ceased to produce expected rates of growth. Simultaneously, new technologies increased capital mobility, allowing capital to flee to new industries and locations, particularly from domestic heavy industry and the unionized Northeastern and Midwestern states (Miller and Tomaskovic-Devey 1983). Bluestone and Harrison (1982) estimated that 38 million jobs were lost as businesses disinvested, fleeing unionized settings. At the same time, global competition increased as foreign markets developed and U.S. capital chased new global investment opportunities. This process can be called deindustrialization.

This considerable shift in the employment structure of the U.S. economy is reflected in changes to a more service-oriented economy (Miller and Tomaskovic-Devey 1983). Most job loss occurred in the manufacturing sector, as those jobs became easily transported to regions of the country or world with cheaper, unorganized labor (see Silver 2003). Productivity gains in manufacturing also meant fewer workers were necessary to perform the same tasks. This process was further

¹⁸ By accord, I refer to a structural harmony rather than a harmony of sentiments among social actors.

driven by new demands for the freer flow of capital across international borders, thereby creating demands for more financial malleability of international capital (Harvey 2005), furthering job destruction and industrial reconfiguration. Since union strength had been strongest in the manufacturing sector and in the Northeast and Midwest, the onslaught of layoffs eliminated union jobs, directly reducing union membership.

Geographic shifts of industries from heavily-unionized states to low-union Right-to-Work (RTW) states inhibited new union formation (Rao, Yue, and Ingram 2011; Hogler, Shulman, and Weiler 2004). RTW laws decrease union campaign contributions as well as voter turnout for more labor-friendly candidates (Feigenbaum, Hertel-Fernandez, and Williamson 2018). Since employment growth in RTW states coincided with deindustrialization and capital flight from states with stronger labor laws, the geographic reconfiguration of employment shifted the relational nature of workplace contestations toward regions with weaker institutional protections of labor unions. Employment in the United States did not shrink, but employment composition did change. Given the destruction of employment in Northern manufacturing and the growth of employment in the RTW states, capital flight may have been responsible for much of U.S. union decline.

1) Capital Flight Hypothesis: Capital flight away from states with strong labor laws caused union decline.

Increasing global competition was likely a driver of union decline as well. Historically, large U.S. firms have avoided unions by diverting investments (Silver 2003). The decentralization of global economic activity across the postwar era (Clawson and Clawson 1999) was likely a partial result of capitalists fleeing heavily-unionized regions in favor of cheaper labor. Increasing levels of import penetration in U.S. goods-production provides support for this argument, as this meant Americans increasingly consumed foreign goods, potentially leading to declining unionization as domestic production diminished.

2) Global Competition Hypothesis: Global competition in goods-producing industries caused union decline.

Another major way workplaces have been reorganized is through a process of technological change, or automation (Reich 2007). Kristal (2013; 2019) argues that the computerization of the economy is an additional mechanism driving union decline, resulting from conscious technological changes that both privilege and empower capitalists over workers. Although ignoring the relational struggles, the

skill-biased technological change (SBTC) literature also assumes that technological advancement weakened labor unions by providing highly-trained workers the agency to bargain individually and reducing the bargaining leverage of lesser-trained workers (Acemoglu, Aghion, and Violante 2001; Autor, Levy, and Murnane 2003; Acemoglu and Autor 2011). Mosher (2007) argues that SBTC falsely equates the rising college premium in the U.S. economy with increasing skill-biased work, instead finding that the rising college premium was the result of union decline rather than the cause. Regardless of perspective, automation is typically viewed as a threat to labor unions.

3) Technological Change Hypothesis: The automation of workplaces caused union decline, but the effect has been greatest in the manufacturing sector.

Profoundly transforming the U.S. economy since the 1970s, financialization is marked by both the increasing reliance on financial investments by non-financial firms and the growing predominance of financial service firms (Epstein and Jayadev 2005; Krippner 2005). U.S. financialization began with several deregulatory measures in the late 1970s and early 1980s (Tomaskovic-Devey and Lin 2011). As a result, the finance industry vastly expanded its economic influence through the expansion of credit intermediation and asset management (Greenwood and Scharfstein 2013) and fueling the financialization of non-financial corporations (Lin and Tomaskovic-Devey 2013). The combined effects of financialization, as financial investments reduced productive investments, has been linked to an overall decline in production in the U.S. economy (Stockhammer 2004; Tomaskovic-Devey, Lin and Meyers 2015) and a downward pressure on employment (Lin 2016). Some of what appears as financial investments on the balance sheets of U.S. companies may simply be global investments in international subsidiaries (Krippner 2011; Baud and Durand 2012), which also could undermine organized labor via direct externalization of production.

But does the rise of finance undermine the labor movement?

Financialization has been deeply tied to the shareholder value movement, which advocates for the benefit of stock owners as the primary concern of a firm (Lazonick and O'Sullivan 2000). This ended the "managerial revolution" of the early 20th century (Chandler 1977), reconfiguring the dominant logic of U.S. capitalism from production-oriented to finance-oriented. As Fligstein and Shin (2007) note, the shareholder value movement was fundamentally at odds with organized labor, viewing unions as costly inefficiencies from which profits could be liberated.

There is growing cross-national evidence of the link between financialization and union decline. Vachan, Wallace, and Hyde (2016) find that a higher share of national employment in finance, insurance, and real estate is associated with country-level union decline. Meyer (2019) establishes a link between country-level stock market performance and union decline. Kollmeyer and Peters (2018) find that national-level stock market performance and highly-liquid foreign capital inflows are linked to union decline, effects that persist when liberal market economies including the U.S. are dropped from the models.

4) Financialization Hypothesis: The financialization of non-finance firms caused union decline.

Political Mobilization and the Business Offensive

Some scholars identify the Ronald Reagan presidency as the proximate cause of union decline (Tope and Jacobs 2009; Jacobs and Myers 2014). This account argues that Ronald Reagan played a pivotal role in union decline by: 1) appointing an all pro-business NLRB and 2) firing 11,000 striking air-traffic controllers in 1981 (see McCartin 2011), thereby using his charismatic leadership to embolden employers to engage in a business offensive. One problem with the first explanation is that previous NLRBs were never decidedly pro-labor (Barkin 1961). Another is that previous work has found that drops in union organizing activity preceded the Reagan Administration (Farber and Western 2002). Third, this narrative ignores the political mobilization of business in the 1970s that enabled Reagan to win the presidency (Akard 1992). While the Regan presidency remains a plausible contributor to union decline due to its empirical support (Tope and Jacobs 2009; Jacobs and Myers 2014), situating it within the historical context of the business political mobilization and offensive is necessary.

5) Ronald Reagan Hypothesis: Ronald Reagan caused union decline.

During the 1970s, the behavior of capitalists transformed in two major ways. First, business elites extensively mobilized as a political interest group. Second, employers engaged in an anti-union business offensive, becoming more openly hostile towards collective bargaining. These processes occurred in tandem, but the business offensive required the advancement of political goals before becoming fully successful. Earlier views on the business offensive focused largely on how employers directly attacked unions at the workplace level, but more recent

literature has also emphasized business political mobilization relative to the state (Hacker and Pierson 2010a, 2010b; Mizruchi 2013; Walker and Rea 2014).

Shortly before his nomination to the Supreme Court by the Nixon administration in 1971, then Chair of the Education Committee of the Chamber of Commerce Lewis Powell wrote an internal memo calling for the business community to mobilize its unused organizational potential to combat a perceived attack on free enterprise. Powell called for the development of conservative responses to media, universities, and cultural products (Hacker and Pierson 2010b; Mizruchi 2013; Gross, Medvetz, and Russell 2013). Even if this memo echoed sentiments already present in the business community, Powell's call to action and subsequent appointment to the U.S. Supreme Court were harbingers of an emerging business activism.

A primary goal of this organizing was the business community's view that organized labor was one of the primary impediments to their vision. The Business Roundtable, a collection of CEOs from major corporations, formed in 1972 to advance the political interests of American business (Mizruchi 2013; Walker and Rea 2014). The policy-drafting American Legislative Exchange Council (ALEC) was formed in 1973 by conservatives seeking to change the political tides in response to Left successes of the 1960s. Conservative think tanks were founded and mobilized to develop intellectual alternatives to organized labor and the New Left (Medvetz 2006; Gross et al. 2013; Mizruchi 2013). Existing business interest organizations, such as the National Association of Manufacturers and the U.S. Chamber of Commerce, actively opposed unions as well (Hacker and Pierson 2010a; Mizruchi 2013; Walker and Rea 2014). To wield greater influence in electoral politics and public opinion, business interests developed conservative media organizations (Jamieson and Cappella 2008). These 1970s era organizational inventions were designed to undermine the labor movement through means other than changing labor laws.

The business political mobilization in the 1970s produced the political space for a business offensive at the workplace level. This offensive had two primary components: 1) employer use of anti-union intimidation tactics and 2) the use of the NLRB as a tool to thwart union efforts (Bronfenbrenner 2009). The results of NLRB elections are measurable and indicative of labor's successes and failures in organizing. Simultaneously, NLRB election results highlight the success of employer attempts to stifle union efforts.

Although many—if not most—employers never fully embraced the idea of organized labor in their workplaces, employer opposition towards unions markedly increased for two decades before the 1980s (Freeman and Medoff 1984; Fiorito and Maranto 1987). Freeman and Medoff's (1984) landmark study, *What Do Unions Do?*, illustrates how union success rates in NLRB elections had deteriorated beginning in the mid-1950s, continuing into the late 1970s, when the private-sector success rate in NLRB elections dropped below 25 percent. They also note that employers of the 1970s began contesting nearly every NLRB election, conducting anti-union campaigns, firing union activists, and bargaining in bad faith over contracts when unionization occurs (see also Reich 2007; Bronfenbrenner 2009). By the late 1960s, employers' use of illegal tactics and disregard for labor law increased (Freeman and Medoff 1984). As Freeman and Medoff (1984: 233) claimed, "managerial opposition to unionism, and illegal campaign tactics in particular, are a major, if not the major, determinant of NLRB election results." Employers clearly disregarded the threat of unfair labor practice (ULP) rulings as the business offensive began well before the 1980s (Freeman 2011).

Instead of resulting from administrative power or charisma from the executive branch, the business offensive was a response to changing economic conditions. Kleiner (2001) points to employers realizing the perceived high benefits and low costs of suppressing union activity, as supported by findings in the federal Dunlop Commission report of 1994. Kochan et al. (1986) explain that, after decades of stable bargaining conditions under NLRA guidelines, management was no longer committed to established bargaining practices while organized labor remained committed, resulting in a gigantic setback for the labor movement as unions struggled for survival. Mizruchi (2013) describes this period of transition as a time where the corporate elite collectively mobilized against organized labor in response to new regulations and an economic slump in the 1970s, achieving their goal of destroying union power in the 1980s.

6) Business Political Mobilization and Offensive Hypothesis: An accelerating business attack on labor in the 1970s caused union decline as employers increasingly engaged in illegal tactics and pursued anti-union strategies.

Union Failure to Organize

Throughout most of the postwar period, unions failed to organize at an adequate level to maintain membership (Hurd 2004). The U.S. labor movement, through its postwar embrace of *business unionism*—a conservative version of

unionism expressed through a narrow focus on economic benefits and a general disregard for social issues outside of one's bargaining sphere— became an amalgamation of workplace centered actors that largely sought to protect and further their own gains rather than devote resources to pursue a broader working-class movement (see Clawson and Clawson 1999). Their categorical identities and claims as workers were mostly local, not national. Partially caused by the 1947 Taft-Hartley amendment to the NLRA, union organizing tactics became limited and radical unionists with broader institutional goals were expelled in the following years (see Stepan-Norris and Zeitlin 1991). Business unionism worked well at the level of organizational claims making, as union membership and wages rose for decades. In practice, this was often a mechanism serving the immediate economic interests of the already organized.

Three major demographic shifts may have negatively affected union strength: 1) the workforce grew dramatically, presenting an organizing challenge for unions, 2) the composition of the workforce became more female and less white, and 3) the proportion of college educated workers increased. While scholars have highlighted the role of unions in reducing racial and gender inequalities through formalized contracts (Ferguson 2015) or reducing education-based inequalities (Mosher 2007), little research has addressed how the growth of new workforces and changes to existing workforces affected unions. As these compositional changes to the U.S. workforce progressed, the failure of unions to organize sufficiently may have been equivalent to a neglect of these growing groups of workers (Clawson and Clawson 1999). Despite these broader trends, these compositional changes did create pockets of rank-and-file activism in the 1960s and 1970s (Windham 2017), albeit with more energy in the growing public sector than the weakening private sector (Isaac and Christiansen 2002).

Union density shrinks when the workforce grows rapidly, unless new workers and firms are organized into unions (Clawson and Clawson 1999; Farber and Western 2001). Workforces that grow quickly do not usually grow as rapidly in mature areas of the economy; rather, they grow in geographic or industrial areas that are new, innovative, or transformed (Silver 2003). These areas of the economy are generally not the places where unionism is already established, so continued union strength requires organizing new industries.

A lack of organizing is reflected in declining union density since 1953 but is especially apparent with declining NLRB elections in the early 1980s (Farber and Western 2002). By then, unions experienced declining win rates and better

equipped opposition. This caused unions to seek alternative organizing strategies where possible (Benz 2005; Martin 2008). However, these strategies rely on employers acquiescing to union pressure or accepting union card checks, the first of which employers typically resist and the second employers can force to an NLRB vote.

With a growing workforce and because capital always gains a foothold in the workplace before organized labor—since that creates a power differential from each workplace’s birth— unions have faced an institutional challenge organizing in an expanding economy. So, the failure of unions to effectively maintain organizing efforts may have contributed to organized labor’s decline, impacting some demographic groups more than others (Freeman and Medoff 1984; Milkman 1985).

7) Union Organizing Hypothesis: The failure of unions to sufficiently organize new workplaces and new workforces caused union decline.

To summarize, union decline arguments can generally be placed into one of three categories: 1) the reconfiguration of productive capital, 2) the business political mobilization and offensive, or 3) the failure of unions to adequately organize. Within each argument lie hypotheses parsing components or aspects of the explanations. All explanations seem plausible, but the task is now to allow their temporal effects, if any, to emerge. Table 1 summarizes the empirical predictions that follow.

Table 1. Hypotheses Table.

	Hypothesis	Statement	Measure
Reconfiguration of Productive Capital	1) Capital Flight	Capital flight away from states with strong labor laws caused union decline.	Domestic capital flight to RTW states
	2) Global Competition	Global competition in goods-producing industries caused union decline.	Import penetration
	3) Technological Change	The automation of workplaces caused union decline, but the effect has been greatest in the manufacturing sector.	Computerization, automation of productive investments
	4) Financialization	Both the increasing predominance of the finance industry and the financialization of non-finance firms caused union decline.	Financialization of non-financial corporation assets
Business Political Mobilization and Offensive	5) Ronald Reagan	Ronald Reagan caused union decline.	Time spline— pre-Reagan, post-Reagan election
	6) Business Political Mobilization and Offensive	An accelerating business attack on labor in the 1970s caused union decline as employers increasingly engaged in illegal tactics and pursued anti-union strategies.	Unfair labor practice claims & union losses in NLRB elections
Failure to Organize	7) Union Organizing	The failure of unions to sufficiently organize new workplaces and new workforces caused union decline.	NLRB Certification Elections; workforce racial, gender, and educational composition

Data

These hypotheses are examined using industry-level panel data for the years 1973-2008¹⁹ and a temporally-weighted error correction model estimation strategy. Variables are derived from a variety of sources. The Current Population Survey (CPS) and its CPS Integrated Public Use Micro-Series (IPUMS) are sources for demographic, geographic, and economic data. The Bureau of Economic Analysis (BEA) provides National Income and Product Accounts (NIPA) data, including information on industry earnings, investments, and assets. The Internal Revenue Service (IRS) Corporation Complete Reports (CCR) provides a measure of financialization. The National Labor Relations Board (NLRB) details the outcomes of union certification elections and unfair labor practice (ULP) claims. The Organization for Economic Co-operation and Development (OECD) Structural Analysis (STAN) database provides the measure for global competition. Details on data sources can be found in Appendix A. See Table 2 for a description of variables and Appendix C for a presentation of time trends.

Table 2. Descriptive Statistics.

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Union Members (thousands)	1,174	310.80	351.98	4.38	1,796.21
NLRB Elections (per thousand employees Unfair Labor Practices (per thousand employees)	1,174	0.08	0.06	0.02	0.20
NLRB Loss %	1,174	0.38	0.12	0.18	0.59
Financialization (%)	1,174	0.52	0.05	0.40	0.60
Domestic Capital Flight (%)	1,174	0.20	0.10	0.05	0.83
Computerization (%)	1,174	0.36	0.12	0.08	0.83
Global Competition (%)	1,174	0.13	0.13	0.00	0.68
% College Educated	1,174	0.10	0.14	0.00	0.84
% Nonwhite	1,174	0.21	0.13	0.00	0.73
% Female	1,174	0.23	0.10	0.00	0.69
	1,174	0.33	0.18	0.01	0.82

¹⁹ The data are bound at 1973 by limitations of the surveys used. 2008 provides a suitable end year since the dynamics of the economic recession may influence the results. With a total membership measure, coefficients are also likely to be lower in later years since there is less membership to lose.

Industry Size (thousands)	1,174	2,018.30	2,888.78	43.00	18,430.00
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Suitable firm-level employment data do not exist for the United States. Therefore, an industry-level analysis is used as a proxy for the sites where production occurs as is common in previous research (see Kristal 2013; Lin and Tomaskovic-Devey 2013; Wilmers 2017).

Industries include all goods and services in the private, non-finance economy. In total, data include 44 industries. Twenty-two industries span the entire period. Ten industries are only included for years 1970-1997. Twelve industries are only included for years 1998-2008. Data prior to 1998 use the Standard Industrial Classification (SIC) codes, but all years after 1998 use the North American Industrial Classification System (NAICS). Industrial classifications became reconfigured due to structural changes in the economy, meaning that many firms changed their industry groupings while some industries became aggregated or disaggregated. To create continuity where it exists and recognize structural change when it predominates, I combine industry groupings that remain mostly unchanged in the 1970-2008 period to bridge the SIC-NAICS divide. Industry classifications not appearing in NAICS drop from the data with the end of SIC in 1997 and new industries enter. See Appendix B for a detailed description.

Dependent Variable

Union decline is observed using the dependent variable *union members*, a CPS measure of thousands of unionized workers per industry-year.²⁰ Union membership, rather than union density, is appropriate since all the mechanisms theorized in the literature are about membership.²¹ Additionally, density can be a misleading measure when membership levels decline without any changes to density. For example, Ford Motor Company could shut down its Chicago Assembly plant, eliminating thousands of unionized auto worker jobs while leaving Ford's union density potentially unchanged or even increased.²² As noted by nearly all

²⁰ The Current Population Survey has included a union membership question since 1973. Values are imputed for 1982, when the survey did not include a union membership question.

²¹ Results using union density as the dependent variable are mostly similar. The financialization of non-finance firms produced non-significant results and increasing global competition produced negative results, contrary to those presented in Table 3. This highlights the fact that total membership and density are theoretically different measures.

²² In this example, unionized autoworkers might exercise their seniority rights at other Ford plants. Supervisors and other non-union employees might also experience layoff. In practice, plant closings have a more definite effect on the union density denominator than on the numerator.

previous scholars, there is a gradual decline across the period with a steep drop-off in the early 1980s (see Figure 1).

Explanatory Variables

There are 10 explanatory variables and one control. Operationalization of explanatory variables reflects both the theoretical accounts outlined above, available indicators, and past usage in the literature. There is a close match between theory, operationalization, and past usage. More detail is provided for new and more technical variables.

The *Reconfiguration of Productive Capital* explanations generated four hypotheses. The Capital Flight hypothesis is tested using *Domestic Capital Flight*, a measure of the spatial relocation of work away from unionized areas, calculates the percentage of workers within each industry-year employed in Right-to-Work states.²³ As this measure rises, industry employment is shifting to RTW states. The global competition hypothesis is tested using *global competition*, an OECD-STAN measure of import penetration in goods-producing industries.²⁴ For the technological change hypothesis, I use *computerization*, a BEA-NIPA measure of computer investment as a proportion of total investment in fixed assets (Kristal 2013). *Financialization* is an industry-level measure using IRS-CCR data of corporate financial assets as a proportion of total assets in non-financial industries (Tomaskovic-Devey et al. 2015), conceptualized to capture a shift in firm investment strategy away from production and towards finance.

Political Mobilization and the Business Offensive explanations generated two hypotheses. The Reagan hypothesis is tested with a linear time spline function (Farber and Western 2002; Keele 2008) to approximate both pre-Reagan effects and the “Reagan Revolution” variable used by Jacobs and Myers (2014), which consists of a binary variable coded “1” for every year after 1980. Alternatively, linear time splines create a kink in what would otherwise be a linear estimation, allowing a comparison of discrete temporal effects both before and after the Reagan took office. Given that Reagan took office in 1981, the effects of any such Reagan

²³ For each respondent in IPUMS, the worker’s state is coded as either a RTW state or a non-RTW state. CPS clustered several states into regions in years 1970-76, so fuzzy-set coding was used to derive the percentage of workers in RTW states. Fuzzy set estimates were obtained using Bureau of Labor Statistics (BLS) Current Employment Statistics state employment estimates for total employment by state. The data can be found at <http://www.bls.gov/sae/#tables>.

²⁴ Import penetration is a measure of foreign goods in an industry as a share of the gross domestic product attributable to that industry. Services are measured as 0 to preserve the data structure.

revolution would presumably not show up in the data until 1982, so the time spline has one knot at year 1982.

The Business Offensive explanation uses National Labor Relations Board data on national-level conflict between labor and capital. Focusing on national (not industry) trends reflects a conceptualization of the business offensive as a field-level process. *NLRB losses* measures the proportion of NLRB elections lost by unions in relation to the total number of elections held (Farber and Western 2002). This is an indicator of the increased usage of anti-union tactics on the part of employers, as the presence of these tactics been claimed to lower the chances that unions secure election victory (Bronfenbrenner 2009). *ULPs* is a measure of unfair labor practice claims made by workers at the national level. The total number of claims filed is used as an indicator of the intensity of managerial opposition to unionism. These Business Offensive variables also elaborate on the Reagan hypothesis, since the Reagan hypothesis includes discussions of employer and NLRB behavior.

The first indicator associated with the *Union Failure to Organize* hypothesis is *organizing efforts*, a measurement of total NLRB union certification elections per thousand employees (Block 1980; Farber and Western 2002). This indicates the effect of labor's collective ability to effectively organize. Since compositional and demographic changes to the workforce may also lead to union decline in the absence of equivalent changes to union membership composition, I also examine if the growth of new labor forces as an additional dimension of union failure (Clawson and Clawson 1999). IPUMS provides the workforce composition measures *non-white workers* as the percentage of non-white workers in an industry, *female workers* as the percentage of women in each industry, and *college* as the percentage of workers in an industry who hold a bachelor's degree. Together, these measures examine labor's ability to organize a changing labor force.

A BEA-NIPA measure of full-time equivalent employees, *industry size*, is used to control for temporal variation in total employment, also acting as the risk set for potential union members. The models below also include industry fixed effects to control for unobserved temporally stable attributes of industries.

Methods

The analysis estimates the causes of union decline using time-series error correction models, or ECMs (Beck 1991; DeBoef and Keele 2008). ECMs are an appropriate modelling choice when equilibrium conditions are present in time-series data. Theoretically, the proposed causes of union decline upset stable union

membership. When certain factors cause union decline, stable bargaining conditions are upset and union membership equilibrates around a new bargaining environment. By estimating the long-run effects of ECMs, the models calculate the total disruption caused to union membership levels by shifts in the explanatory variables.

ECMs have an analytical advantage estimating the long-run, cumulative effect of the explanatory variable. Industry fixed effects are used to absorb interference from isolated industrial trends. Standard errors are clustered by industry. Long-run estimations are calculated by first estimating the average effects attributable to the year after a disruption, then dividing estimated coefficients by the rate at which processes equilibrate with changes in union membership levels. The first model can be specified as:

$$\Delta Y_{i,t} = \alpha_0 + \alpha_1 + \beta_0 Y_{i,t-1} + \beta_1 X_{i,t-1} + \beta_2 \Delta X_{i,t} + \varepsilon \quad (1)$$

where $\Delta Y_{i,t}$ denotes the first difference of union membership in $Y_t - Y_{t-1}$, α_0 denotes the grand mean, α_1 denotes industry-specific deviation, β_0 denotes the adjustment or error correction rate of $Y_{i,t-1}$, and β_1 denotes the direct effect of a one-unit change in X_{t-1} on ΔY_t . $\beta_2 \Delta X_{i,t}$ is treated as a control for changes in $X_{i,t}$ that are only contemporaneously associated with $\Delta Y_{i,t}$. Conditional on other covariates, a unit increase in Y_{t-1} leads to β_1 percent decrease in ΔY_t and therefore $1 - \beta_0$ percent increase in Y_t .

Using this estimation, the long-run effects can be calculated by dividing the estimates by the error correction rate. This produces long-run multipliers (LRMs) equivalent to $\frac{\beta_1}{\beta_0}$ from the standard ECM model. By examining long-run rather than short-run effects, I drop the assumption of stable trends in covariate effects. LRMs from the error correction models use Bewley transformation by regressing $Y_{i,t}$ on $\Delta \hat{Y}_{i,t}$, $X_{i,t-1}$, and $\Delta X_{i,t}$. The long-run model can be specified as:

$$Y_{i,t} = \alpha_0^* + \alpha_1^* + \beta_0^* \Delta \hat{Y}_{i,t} + \beta_1^* X_{i,t-1} + \beta_2^* \Delta X_{i,t} + \varepsilon \quad (2)$$

where $Y_{i,t}$ denotes total union membership, α_0^* denotes the transformed intercept net of fixed effects, α_1^* denotes the transformed industry-specific effects, β_0^* denotes the effect of instrumented control $\Delta \hat{Y}_{i,t}$ on $Y_{i,t}$ ²⁵, β_1^* denotes the cumulative effect of a one-unit increase in the transformed slope of $X_{i,t-1}$ on $Y_{i,t}$ after being

²⁵ Since $\Delta \hat{Y}_{i,t}$ is an endogenous component of dependent variable $Y_{i,t}$, it must be instrumented for inclusion on the right-hand side of the equation.

divided by $\hat{\beta}_0$, and $\beta_2^* \Delta X_{i,t}$ is the transformed control for contemporaneous associations between $X_{i,t}$ and $Y_{i,t}$.

There is theoretical logic to using lagged and first-differenced regressors. When attempting to establish temporal causality, using contemporaneous values highlights association. Aside from addressing concerns over endogeneity and nonstationarity, lagging provides an assumption that trends in X_i lead to future changes in Y_i in a historical cause-effect relationship. Contemporaneous values are equal to the components $X_{i,t-1} + \Delta X_{i,t}$. That is, if $X_{i,t} = 1$, then $X_{i,t-1} + \Delta X_{i,t} = 1$. By separating first-difference effects from lag effects, the models parse causal trends from non-temporal associations between dependent and independent variables. This assumes that a cause in each $t-1$ must happen before an effect is observed in t , and that simultaneous relationships highlight association rather than causality. In practice, for example, a collective bargaining agreement takes time to expire, so changes to the economy or employer actions in one year will likely not affect union membership until the contract expires in a future year.

Locally-weighted regressions are appropriate when the effects of covariates are not assumed to be constant across time (Keele 2008; also see Andersen 2009). This regression approach is useful for highlighting variation in temporal effects, but is rarely used in sociology (for exceptions, see Lin and Tomaskovic-Devey 2013; Tomaskovic-Devey et al. 2015; Cobb and Lin 2017). Local weighting has the attractive potential to estimate causality in temporal context. The application is limited by the availability of sufficiently-long time series and time-varying effects, which are both present in the union membership data. By using a nonparametric weighting structure within the parametric modelling, I allow temporal effects to emerge. The weighting structure is:

$$W_j = 0.8^{|t_j - t_0|} \quad (3)$$

where W denotes the weight of year j , t_0 denotes the local year, $|t_j - t_0|$ denotes the absolute value of the distance between year t_j and the local year, and 0.8 denotes the smoothing factor used.²⁶ Each weight is equal to 0.8 raised to the power of the absolute value of the distance from the year of focus. A separate regression is

²⁶ When using this technique, a researcher must choose a smoothing factor that best fits their analysis. A factor of 1 yields the same results as the long-run output table. Numbers closer to one are better at measuring long-term stability, while numbers closer to 0 are better at measuring change. A factor of 0.8 was chosen as a compromise between the two because it highlights the stability of social processes. The recent work by Cobb and Lin (2017) uses 0.7. The calculations used in these models produce more conservative coefficients and more stable standard errors than factors closer to 0.

estimated for each year in this analysis, providing temporal dynamics in coefficients.

The first year every industry appears in the data drops from the long-run estimation equation due to the lag and difference structure of the ECMs. This occurs in either 1973 or 1998, depending on the SIC/NAICS code. For this reason, the number of observations in each output does not match those of the descriptive statistics in Table 2.

My analyses first display the long-run impact of each proposed cause of union decline, calculating the number of union jobs lost or gained associated with each potential cause. Second, I present a sectoral analysis to examine differences between the goods-producing and service sectors. Third, having established the cumulative impact on union membership levels, I employ locally-weighted regressions to pinpoint specific moments in time when each cause was prominent. This type of temporal analysis is an emerging method for determining temporal causality in any historical analysis using time-series data.

The primary model of interest is Model 1, which contains all theorized variables. Model 2 drops the workforce composition variables to observe their effect on union organizing. Model 3 contains all industry-level variables, plus time spline functions to observe the effects of a Reagan presidency. Model 4 contains the same measures as Model 1, but restricts the analysis to goods-producing industries. Model 5 does the same for service industries. The presence of industry-invariant, national-level variables prevents usage of a fixed effect for year. Industry-year results are robust to year fixed effects, but they are excluded because national-level variables are theoretically important to the models. Even so, the time spline function in Model 3 controls for time. All industry-level variables remain the same in each model.

Results and Discussion

Results are presented by hypothesis (see Table 1). Table 3 presents the long-run effects predicting declines in private-sector union membership. Based on this table, I present cumulative impacts for 1973-2008 in Table 4. The private sector experienced a 50.4% decline in union membership in the 1973-2008 period; Model 1 predicts a 53.7% decrease, meaning that some of the predicted decline had yet to happen as of 2008 due to the union trends taking time to equilibrate after disturbance. Lastly, Figure 2 presents the locally-weighted regressions for the entire private sector from Model 1. Figure 2 should be interpreted as a multivariate regression output, with a series of coefficients and their confidence intervals

plotted by year to illustrate time-varying effects— a unit increase in a variable has a significant positive effect on union membership when its confidence intervals (CIs) are both above the line $y=0$ and a negative effect if both CIs are below the 0 line.

Table 3. Long-Run Effects and Error Correction Rate Predicting Union Membership (thousands) by Sector, 1973-2008.

	Entire Private Sector			Goods	Services
	Model 1	Model 2	Model 3	Model 4	Model 5
	coef/se	coef/se	coef/se	coef/se	coef/se
Domestic Capital Flight (%)	-147.052*** (22.950)	-186.044*** (22.864)	-21.034 (22.519)	-81.108** (22.509)	-1,428.085*** (86.076)
Global Competition (%)	150.034*** (33.627)	-41.457 (22.994)	173.609*** (35.932)	36.892 (22.811)	
Computerization (%)	-87.687** (27.543)	-114.611*** (28.933)	-52.572 (27.944)	-208.457*** (51.995)	-932.485*** (57.890)
Financialization (%)	-188.428*** (15.846)	-207.630*** (15.998)	-169.672*** (15.850)	-134.400*** (16.287)	-365.280*** (33.522)
Pre-Reagan Spline (pre-1982)			-19.961*** (0.564)		
Reagan Spline (1982 onward)			-1.839*** (0.239)		
Unfair Labor Practices (per 1000 employees)	152.799*** (19.330)	54.441** (15.936)		3.565 (20.159)	785.071*** (34.551)
NLRB Losses (%)	-871.293*** (57.241)	-372.663*** (40.348)		-615.806*** (61.938)	-2374.892*** (105.872)
NLRB Elections (per 1000 employees)	534.507*** (49.718)	1,026.131** * (40.408)		695.115*** (65.509)	-958.126*** (98.981)
College Education (%)	-569.707*** (43.451)		-494.765*** (40.390)	-139.001** (40.588)	-490.605*** (54.241)
Female Workers (%)	179.259*** (39.294)		173.911*** (37.941)	-325.826*** (54.582)	1,801.234*** (51.576)
Nonwhite Workers (%)	-538.965*** (53.499)		-301.659*** (51.932)	-339.901*** (37.826)	-1,662.886*** (95.343)
Industry Size	0.062*** (0.003)	0.055*** (0.003)	0.061*** (0.003)	0.158*** (0.008)	0.066*** (0.003)
Constant	Yes	Yes	Yes	Yes	Yes
Error Correction Rate	11.4%	11.5%	11.5%	15.6%	6.7%
R ²	0.144	0.138	0.148	0.190	0.167
Degrees of Freedom	43	43	43	24	18
Observations	1,130	1,130	1,130	734	396

Note: *** $p < .001$; ** $p < .01$; * $p < .05$ (two-tailed tests).

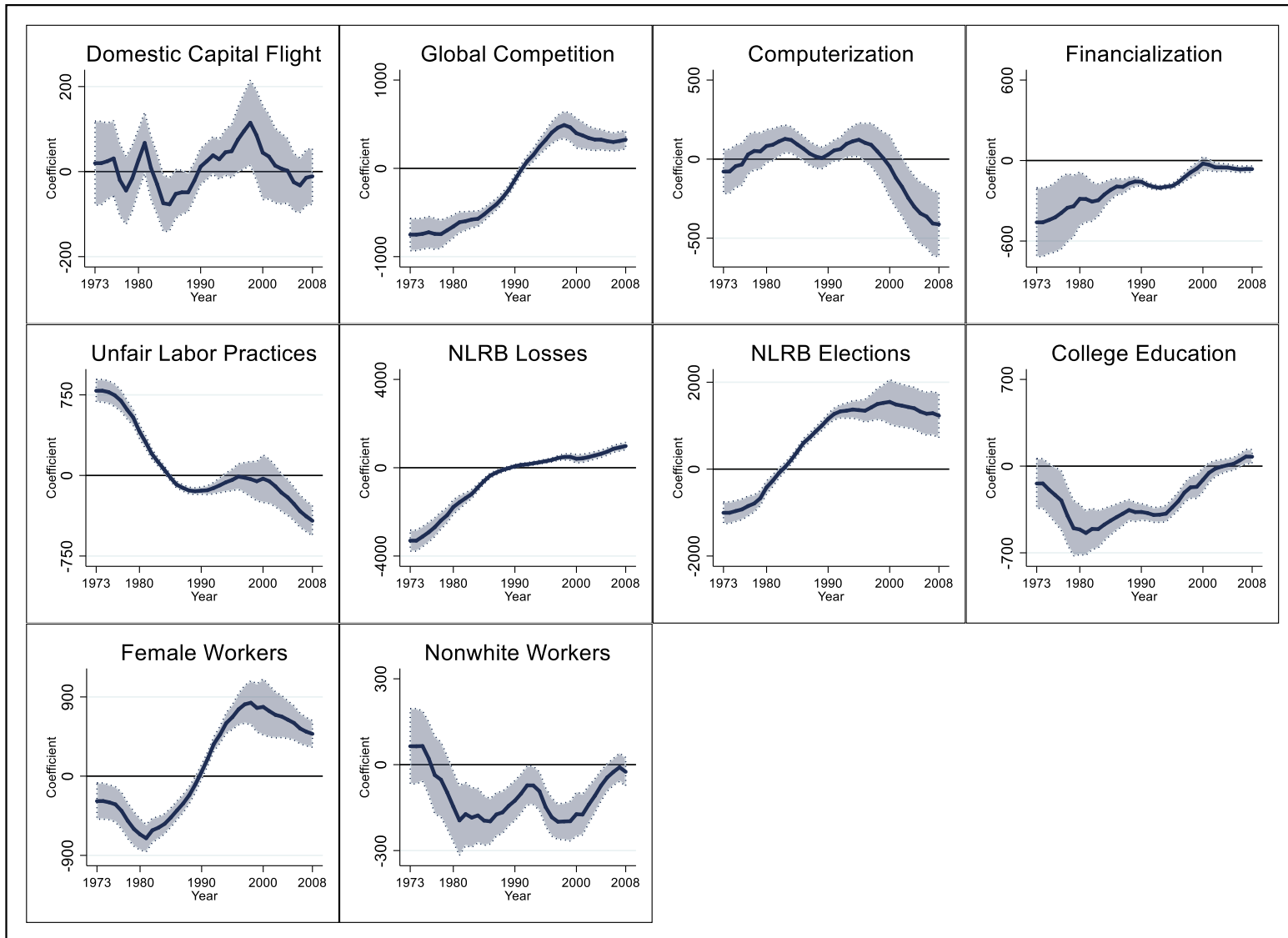
All estimates have fixed effects for industry. Only long-run multipliers and their standard errors are reported, while first-differenced coefficients are used as controls. Error correction rates are presented as percentages rather than as coefficients from the estimates. Model 3 excludes national-level variables due to multicollinearity.

Table 4. Predicted Cumulative Effect of Union Decline Explanations on Union Membership, 1973-2008.

Explanatory Cause	# of Union Members	% Change from 1973-Level Union Membership
NLRB Elections (per 1000 employees)	-3,074,101	-19.5%
NLRB Losses (%)	2,528,832	16.1%
Unfair Labor Practices (per 1000 employees)	-935,866	-5.9%
Financialization (%)	-479,564	-3.0%
Domestic Capital Flight (%)	-472,320	-3.0%
Computerization (%)	-501,823	-3.2%
Global Competition (%)	505,383	3.2%
College Education (%)	-3,119,473	-19.8%
Female Workers (%)	416,797	2.6%
Nonwhite Workers (%)	-3,331,844	-21.2%
Total Estimated Change	-8,463,979	-53.7% from 1973 level
Predicted 2008 Union Membership	7,543,642	47.9% of 1973 level
Actual 2008 Union Membership	7,935,980	50.4% of 1973 level

Note: The cumulative effect on total union membership was calculated by multiplying the coefficients (LRMs) of each variable by the average within-industry 1973-2008 change in each variable, then multiplying by the average number of industries per year. The percentage change for all estimates was calculated by dividing size estimates by the 1973 private-sector union membership total.

Figure 2. Locally-weighted results predicting union membership from Model 1, 1973-2008.



Note: The Y-axis displays coefficients from regression outputs for each year. Confidence intervals are shaded alongside coefficient trends. The local weighting factor is 0.8.

The Capital Flight Hypothesis suggests that the labor movement declined as employers avoided unions by relocating work and shifting investment to Right-to-Work states. Model 1 finds that a 1% increase in domestic capital flight to RTW states resulted in a long-term impact of 1,470 fewer union members per industry. This effect was particularly strong in the service sector. By multiplying the coefficient by the average industry change in RTW percentage points, then multiplying by the average number of industries, Table 4 calculates that domestic capital flight caused a loss of 472,320 union members over the 1973-2008 period, or 3% of total 1973 membership levels. Isolating these long-term negative results within a particular period (Figure 2) was difficult due to coefficients vacillating between positive and negative values over time while accompanied by large standard errors, meaning there is large industry and temporal variation in RTW effects despite the cumulative negative effect.

Capital flight has been a hallmark of deindustrialization. While the effect of RTW is found to be modest in relation to the entire union decline story, the process has been destructive. Effects may be more modest in goods than in services due to the overall stagnant levels of employment in goods production, and the shrinkage of manufacturing, while almost all net employment growth has been concentrated in the services. Service industries also tend to have less centralized production, meaning organizing workers is more difficult, so restrictive labor laws are likely to suppress the labor movement's power.

The Global Competition Hypothesis suggests that increased international competition in goods-producing industries has caused union decline. Results from Table 3 suggest that increasing levels of global competition had a net positive effect on union levels. This seems counterintuitive, given that increased competition theoretically reduces existing union power. Removing workforce composition measures in Model 2 eliminates the positive effect, possibly indicating that compositional changes to the workforce were linked to the same structural changes as increased global competition. The impact trends in Figure 2 also provide clarification. Increasing levels of global competition reduced union membership prior to the 1990s, after which net positive effects began. These estimates only account for the importation of goods, they do not account for global services competition made possible by advances in telecommunications in the 1990s.

Despite these global competition findings, large destructive effects during the 1970s and 1980s prevented unions from gaining traction when membership levels began to decline. Global competition represents both an offshoring of U.S.

employment and the decentralization of U.S. economic power. However, it also might indicate a growth in domestic product markets in addition to job destruction. Perhaps, the destruction of employment in Northern manufacturing cities was most impactful prior to the 1990s because growing product markets and other, more disruptive, social processes had become more impactful.

The Technological Change Hypothesis suggests that the automation of workplaces caused union decline. Model 1 finds that a 1% increase in computerization resulted in an average decrease of 876 union members per industry. Effects are stronger in the service sector. Overall, calculations from Table 4 estimate that computerization cost labor 501,823 union members, or 3.2% of the 1973-level membership. The negative impact is concentrated in the post-2000 era. Earlier years show either no effect or a slight positive effect (see Figure 2). This means computerization was not an early driver of union decline, but it did become one as other causes lost prominence.

Computer investments are investments in fixed assets, representing a commitment to production in particular localities in the pre-internet years. In later years, negative effects may have been caused by further advancements in labor-replacing computer technology and the growth of employment in the less capital-intensive service sector. Fewer limitations on the mobility of capital may have also reduced any benefits of fixed asset investments. Inter-industry variation of these effects likely exists, especially since some jobs may be supplemented and other jobs replaced by computer technology (Autor et al. 2003; Kristal 2013).

The Financialization Hypothesis suggests that the financialization of non-financial corporations' assets caused union decline.²⁷ Results from Model 1 find that a 1% increase in non-financial corporation financial assets as a proportion of total assets led to an average decrease of 1,884 union members per industry. Overall, financialization resulted in a decrease of 479,564 fewer union members by 2008, or 3.0% of 1973-level union membership. The negative impact was consistent across the sample period, but shrinking standard errors around 1980 indicate shrinking industry-level heterogeneity.

²⁷ An alternative measurement of financialization, value added by the finance sector as a share of U.S. gross domestic product, also produces negative results (see Meyer 2017). The measure is not included due to its externality to the collective bargaining process and its multicollinearity with other national-level variables that are more internal to the bargaining process. Results available upon request.

After financial deregulations relaxed restrictions on credit in 1978, firms gained greater ability to generate income without production. With labor marginalized in the revenue generation process (Lin 2016), unions lost a strategic point of leverage in the bargaining process as corporations gained increased ability to circumvent labor in the revenue-generating process. A financialized company is less dependent on production income and can more easily outlast workers engaging in a traditional strike, which is why increased worker militancy (Aronowitz 2014) is not sufficient for unions contesting capital in the new economy and may, at times, be counterproductive.

The Ronald Reagan Hypothesis considers whether Ronald Reagan uniquely caused union decline. This hypothesis is primarily measured using a time spline function in Model 3. Although the Business Political Mobilization and Offensive measurements indirectly test this as well, they were removed from this model due to multicollinearity with the time spline function. Model 3 finds that the pre-Reagan time spline function produces a coefficient of -19.961, while the coefficient for the Reagan time spline is -1.839. Both results are significant. This means that any measurable time effects net of other explanations are stronger before Reagan became President than after.

The Ronald Reagan Hypothesis does not receive support among these findings, especially because it hinges on 1) the business community becoming emboldened by an anti-union Reagan administration in 1981 and 2) the Reagan administration appointing a uniquely hostile NLRB. Given the evidence of the business community's coordinated attack on unions beginning prior to Reagan (Akard 1992), with an increase in ULPs and union losses in NLRB elections throughout the 1970s, the Reagan hypothesis loses its theoretical lynchpin. However, the business political mobilization of the 1970s ultimately elected Ronald Reagan, and the business offensive had a lasting destructive legacy for unionism.

The Business Political Mobilization and Offensive Hypothesis suggests union decline resulted from a business political mobilization and coordinated attack on organized labor. Unfair labor practices (ULPs) captures the effect of employers using illegal tactics against unions (although filing ULPs is not always a defensive measure, see Benz 2005). Model 1 finds that the labor movement filing an additional ULP per thousand employees resulted in an additional 1,528 union members per industry. However, the unfair labor practices filed per employee by unions increased through the 1970s before dropping after 1980 (see Appendix C). Therefore, trends in ULP claims resulted in the loss of 935,866 union members by

2008, or 5.9% of 1973 levels. The positive effects of filing ULPs lasted into the mid-to late-1980s before producing negative effects in the years following 1990.

As for union losses in NLRB elections (NLRB Losses), a measure of employer success in resisting new union formation, a 1% increase in the percentage of representation elections lost by unions led to a cumulative loss of 8,713 union members per industry. Since the loss percentage only trended upwards until 1982, even though it remained over 50% from 1974 to 2000, the NLRB Losses measure resulted in union growth of 2.5 million members. That is because a decrease in loss percentage, meaning an increasing win percentage, had a positive effect on union membership. Growth in union losses produced the strongest negative effects in 1973, before diminishing to zero in the mid-1980s and gaining a slight positive effect in remaining years.

The Union Organizing Hypothesis suggests that the labor movement failed to organize enough new membership to sustain itself. Model 1 results from Table 3 find that an increase of one NLRB election per thousand employees at the national level led to a growth of 5,355 union members per industry on average. Although additional organizing was beneficial to unions, the net positive impacts were concentrated in goods-producing industries and net negative impacts were concentrated in the service sector. While these findings reaffirm the benefit of additional union organizing, the number of NLRB certification elections per employee shrank dramatically throughout the entire period. This means that the failure to adequately organize cost the labor movement approximately 3.1 million union members. Overall, Figure 2 reveals that additional organizing had a negative impact in the 1970s, but had an increasingly positive impact throughout the largest union decline era of the 1980s. According to these findings, if unions had put more resources into organizing when membership plummeted in the 1980s, their membership levels might be higher today.

Consistent with the findings of Bronfenbrenner and Juravich (1998), unions must organize if they are to win. Whether or not this has always been possible is debatable. Some unions have tried alternative organizing strategies, such as voluntary employer recognition, after NLRB election declined (Benz 2005; Martin 2008). The overall inadequacy of union organizing efforts may have stemmed from the purging of labor radicalism in the 1950s, the inability to predict the business offensive during an economic boom period, or possibly the organizational inertia caused by the bureaucratization of the labor movement after Taft-Hartley. However,

the short-term survival techniques that unions used as the business offensive began were not effective in the long-term.

The labor movement failed to organize generally, but also failed to organize growing segments of the workforce. Model 1 finds that a 1% increase in college education led to a 5,697 decrease in union membership per industry. This equates to a loss of 3,119,473 union members over the period, or 19.8% of 1973 levels. A 1% increase in female workers led to a 1,793 gain in union membership per industry. However, this effect was not consistent across time. A 1% increase in non-white workers per industry led to a 5,390 decrease in union members per industry. This equates to a 3,331,844 drop in union membership over the period, or 21.2% of 1973 levels.

How are these compositional findings related to organizing? I remove college education, female workers, and nonwhite workers in Model 2 to illustrate. Removing them, the positive effect of increased union organizing nearly doubles, whereas the negative effects of losing NLRB elections are more than halved. This indicates that the negative effects of a changing workforce were largely caused by lack of organizing.

Second, Figure 2 illustrates the trends in workforce composition effects. Increasing college education had an increasingly negative effect on union membership in the late 1970s, and the negative effect lasted until 2000. The effect of an increase in female workers was negative throughout the 1970s and 1980s, becoming positive in the 1990s. An increase in non-white workers gained a negative effect around 1980, but the effect faded shortly after 2000. The fading of negative effects for the college-educated and non-white workers coincides with the AFL-CIO's post-1995 switch to a more organizing-focused style of unionism under the leadership of John Sweeney.²⁸

Although the negative impact of a changing workforce eventually disappeared, it did cause union decline before the AFL-CIO began to reemphasize organizing. With the reconfiguration of the productive economy, increasing rates of college education per industry led to major drops in union membership. This may be attributed to the transition to a service economy, advancing technology (Kristal 2013), and rising wage premiums for the college educated (Mosher 2007). Meanwhile, these transitions also meant that increasing proportions of women in the workforce led to higher union membership by industry, complementing previous

²⁸ <https://www.nytimes.com/1997/02/17/us/afl-cio-puts-recruiting-at-top-of-its-agenda.html>

research by Milkman (1985; 2007). However, higher rates of non-white workers led to much lower union membership levels. Even though African Americans, for example, are more likely to be union members than white workers (Rosenfeld and Kleykamp 2012), industries with growing rates of nonwhite workers had fewer union members. This evidence suggests that a white, male-dominated labor movement in the post-WWII era more readily incorporated women than college-educated and nonwhite workers as structural transitions to the economy and employment growth necessitated more organizing. At the same time, persisting racial and gender inequalities (Sakamoto and Kim 2010) would be lessened with higher rates of unionization (Rosenfeld and Kleykamp 2012). While each of these compositional changes support past arguments (Clawson and Clawson 1999), they also highlight how the labor movement failed to organize effectively while confronting new challenges posed by the business community.

These results indicate that an adequate explanation of union decline should include: 1) the reconfiguration of productive capital through a series of political-economic processes, 2) the political mobilization and offensive of the business community, and 3) the failure of the labor movement to adequately respond to a changing environment. Conventional explanations stressing the unique importance of the Reagan administration are not supported by this analysis. Both the Reagan election and long-term union decline were the result of the business offensive, rather than Reagan newly empowering business anti-union activism.

Within these various explanations, the most immediate problem was a failure to organize, although other factors fundamentally reshaped collective bargaining patterns. The main lesson of this analysis is that labor lost power relative to capital due to a series of interdependent political and economic processes developing both within organizations and at the national level. Among these, Taft-Hartley restrictions may have been particularly impactful in the path dependence of decisions made by institutional actors.

Conclusion

Contrary to prior research (Tope and Jacobs 2009; Jacobs and Myers 2014), Ronald Reagan played a minor role in union decline and was not the primary driver of the labor movement's collapse in the 1980s. Instead, many forces caused the collapse of the labor movement as a powerful social force. Union decline was an institutionally complex process, occurring beyond the scope of any one explanation or any one presidential administration. Although the Reagan administration's NLRB was particularly hostile to labor, other social processes were more influential and

began at earlier moments in time. Individuals are the product of their historical moment; likewise, Reagan's election in 1980 can be viewed, in large part, as a product of the success of the political mobilization of business in the 1970s (Akard 1992; Mizruchi 2013). The business community effectively elected a pro-business candidate in their anti-union efforts, but union decline was the result of multiple other causes.

What, then, did cause union decline? First, the failure of unions to adequately organize, including too few organizing drives and failure to organize college educated and minority labor forces, left the labor movement susceptible to political-economic drift and the business offensive. Second, the financialization of the economy and increasing global competition in the 1980s undermined labor bargaining power and privileged capital. Third, the established collective bargaining framework deteriorated as the business community withdrew its participation in the labor-capital accord. Economic transformations undermined NLRA protections, although the Taft-Hartley amendment had already undermined initial NLRA protections. The business community took advantage of these opportunities by mobilizing against labor, shocking an unprepared labor movement. In short, the business offensive was the most visible rupture in the capital-labor accord, but was only enabled by a series of more fundamental events that empowered capital at the expense of labor.

Failure to adequately organize was a major driver of union decline. Labor is more likely to win when more union resources are devoted to organizing (Bronfenbrenner and Juravich 1998). However, wages and absolute union membership rose consistently until the late 1970s. Many labor unions lost sight of the need to maintain the vitality of the labor movement by supporting workers everywhere. This was evident by the failure to organize the college-educated, women, and non-white workers as the economy changed. Clinging to the gains of the past, many unions were unable to expand their organizing efforts as they struggled for self-preservation in the new economy with a different industry, geographic, and demographic composition. Many efforts towards labor movement reform were too little and may have happened too late, as the AFL-CIO did not embrace an organizing model of unionism until after 1995.

Evidence in this paper reveals that the financialization of the economy was also responsible for U.S. labor's sudden crisis of the 1980s. Financial investments by non-finance firms preceded decreased union membership levels. With increasing pressures to maximize shareholder value, firms reduced production-

related investment and employment, undercutting unionized labor (Fligstein and Shin 2007; Tomaskovic-Devey et al. 2015). This increased reliance of productive firms on financial investments in the 1980s was an influential factor in ending organized labor's reign as an influential advocate of working-class interests. Reducing uncertainty, financial investments could be used as a conscious anti-union tactic by ensuring some financial stability when confronting labor militancy while also signaling a commitment to shareholder value ideology.

Much of the decline was made possible via policy drift, as the delayed effects of the Taft-Hartley Act of 1947 became more prominent in the late 1970s and early 1980s. While Taft-Hartley limited labor tactics and sapped union vitality by design, the slow drag of the early postwar era became a resurgent force in these later decades, hindering new organizing when employer behaviors changed. First, unions had lost rank-and-file vitality as leftists were purged from their organizations, leaving many unprepared for the coming business offensive. Second, Right-to-Work laws, born of Taft-Hartley, harmed union organizing of new labor forces in many states. Third, so long as other structural barriers kept the capital-labor accord in place, unions did not have to worry much about restrictions on organizing or militancy. Though organized labor's hands were figuratively tied in 1947, they were initially unharmed. In fact, absolute union membership continued to grow until 1980. Union bargaining with capital was akin to playing a game, albeit with higher stakes; when this figurative game changed from soccer to baseball sometime around 1980, unions could no longer play effectively with their hands tied. In this manner, the 1947 labor law became disastrous for union membership three decades later.

A chain of shocks effectively transformed the collective bargaining landscape in the 1970s and 1980s. Private-sector union density had been shrinking by the 1970s, but the rapid spread of global capitalism and a sharp oil crisis gave the business community an incentive to mobilize. Coming amid political turmoil, the business community exploited the opportunity to use the political backlash against leftism to change institutional politics. Using their resources to transform public policy, they led the drive to deregulate both financial and productive economies, jolting the bargaining process out of its routinized patterns. Four decades later, organized labor has yet to recover.

Recent research has linked the automation of the economy to union decline (Kristal 2013; 2019). While this seems to be the case after 2000, computer investment led to higher levels of union membership in prior decades. Some

variation exists by industry, as evidenced by the wide confidence bands in Figure 2. While computer investments undoubtedly reduced the need for some kinds of labor, other jobs were generated. Unlike divesting from unionized areas or investing in financial speculation, most importantly, computer investment was a complement to increased production and accompanying employment.

Aside from these empirical findings, I advance relational inequality theory and other theories of organizational power by highlighting the complex interplay of temporal dynamics on social processes. As demonstrated, the success or failure of competing groups at one point in time rests on the ability of actors to capitalize on institutional configurations of social processes in previous time periods. Although the very nature of capitalism lends capital an advantage over labor, the ability of organized labor to wrest organizational resources from capitalists, or vice versa, lies in each groups' abilities to effectively assess and utilize themselves, each other, the state, and political economic configurations. Like a chess match, the advantage of a player in one turn may not determine the winner, but it sure helps.

This paper contributes to knowledge in three ways. First, methodological innovations using locally-weighted regressions offer an improved technique for establishing temporal causality. In this way, scholars can move from asking whether some variable is a plausible cause, to the more interesting historical question of when. Second, the use of error correction models establishes a novel causal linkage between financialization and U.S. union decline, but also suggests a much more limited role of the Reagan administration. More importantly, these models help adjudicate the most important causes of union decline, identifying failure to organize new union elections and an increasingly educated and non-white labor force most prominently, followed by the business offensive against organized labor. Finally, this paper helps advance Relational Inequality Theory (RIT), moving from a static notion of institutional context to a more interdependent, temporally-dynamic understanding of power in the capital-labor struggle.

The U.S. labor movement will continue to struggle in the foreseeable future. During the 1980s, unions lost much of their ability to influence representative politics, set prevailing wages, mitigate inequality, and many other factors as membership plummeted. This means unions must now successfully navigate an environment where labor policies are weakened, with employers less affected by traditional tactics and better equipped to resist demands. For unions to succeed and for workers to exercise their right to unionize, organized labor must find strategic points where workers can exert their power. How this is done depends upon the

particular aspects of each firm and industry. Beyond that, an update of NLRA will be necessary for allowing workers to more freely exercise their rights to unionize. The labor movement has a long struggle ahead. A better understanding of union decline will be crucial to the development of future strategies.

APPENDIX A. VARIABLES AND DATA SOURCES

Variable	Technical Definition	Sources	Additional Information
Union Members	Total union members	CPS	Industry level measure. Values imputed for 1982
NLRB Elections (per Thousand Employees)	Total number of union certification elections/ total workers (thousands)	NLRB	Representation elections only
ULP Claims per Employee (proportion)	Total number of Unfair Labor Practice claims received against employers/ total workers (thousands)	NLRB	National level measure. Initiated by employees only.
Union Loss Rate (proportion)	1- (total number of recognition elections won by unions/ total number of elections)	NLRB	National level measure. All elections.
Domestic Capital Flight	Employment in Right to Work states / total U.S. employment	IPUMS	Industry level measure. Fuzzy-set coding for clustered states in 1973-1976
Financialization	Financial assets / total assets	IRS	Industry level measure. Financial assets contains: Investments in government obligations, loans to shareholders, mortgage and real estate loans, other investments, and other securities.
Computerization	Computer investment/ investment in fixed assets	BEA-NIPA	Industry level measure. Computer investment contains NIPA variables: Mainframes, PCs, DASDs, Printers, Terminals, Tape Drives, Storage Devices, System Integrators, Prepackaged Software, Custom Software, and Own Account Software
Global Competition	Goods imported into the U.S. / total goods sold	OECD-STAN	Industry level measure. Measures import penetration in goods-production. Service sector values equal 0.
College	College graduates/ workers	IPUMS	Industry level measure. Bachelor's Degree recipients only
Female Workers	Female workers/ workers	IPUMS	
Non-white Workers	Non-white workers/ workers	IPUMS	Industry level measure. Non-Hispanic white only
Industry Size	Full-time equivalent workers (thousands)	BEA-NIPA	Industry level measure. Measures total employment

Note: See Data section for acronym descriptions.

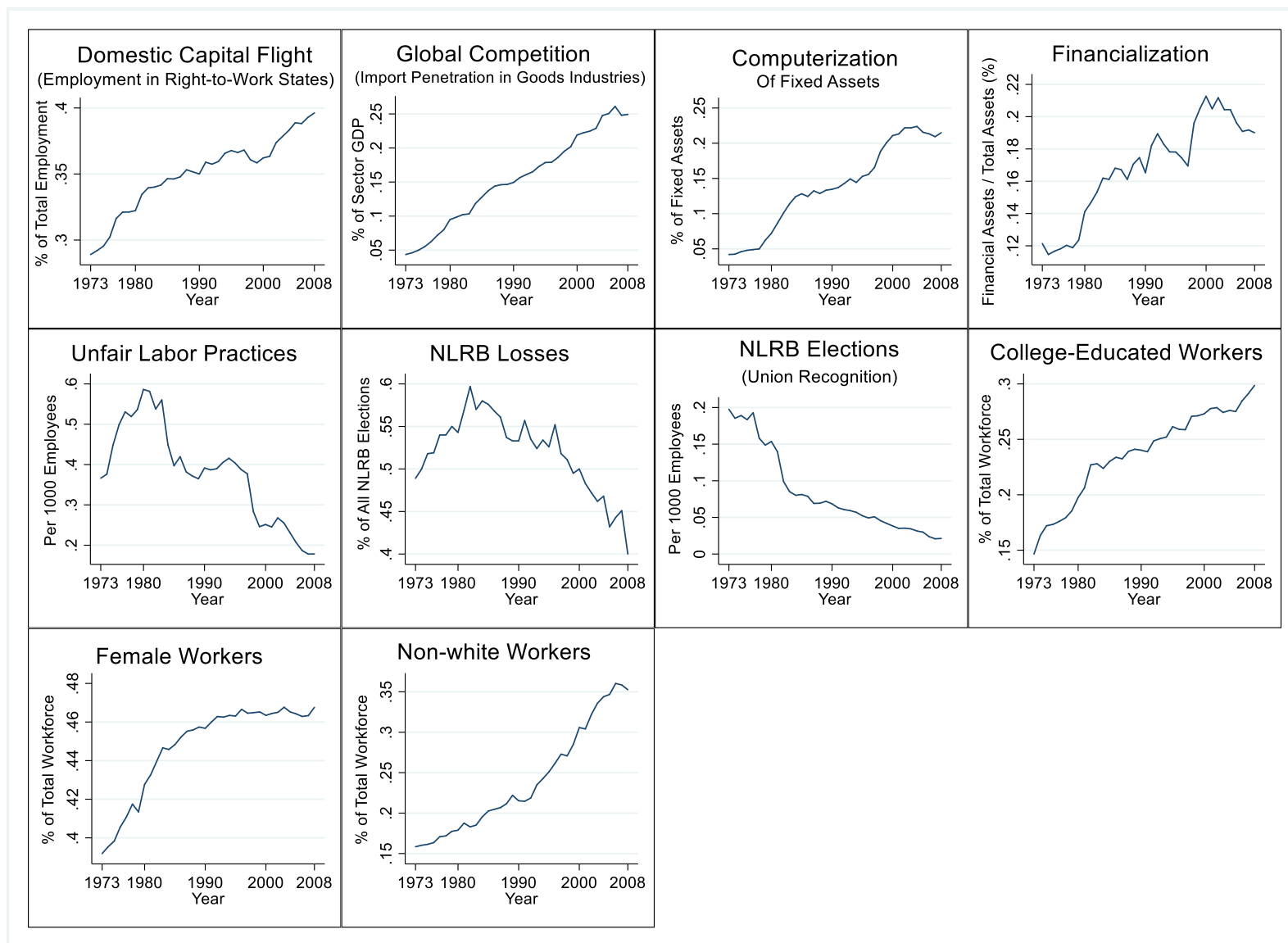
APPENDIX B. INDUSTRY MATCHING USED IN ANALYSIS

Standard Industrial Classification, 1970-1997	North American Industry Classification System, 1998-2008
	Mining
Metal mining	
Coal mining	
Oil and gas extraction	
Nonmetallic minerals, except fuels	
Electric, gas, and sanitary services	Utilities
Construction	Construction
Food and kindred products	Food, Beverage, and Tobacco manufacturing
Tobacco manufactures	
Apparel and other textile products	Apparel, Leather, and other textile products
Leather and leather products	
Lumber and wood products	Lumber and wood products
Paper and allied products	Paper and allied products
Printing and publishing	Printing and publishing
Chemicals and allied products	Chemicals and allied products
Rubber and miscellaneous plastics products	Rubber and miscellaneous plastics products
Petroleum (including integrated) and coal products	Petroleum (including integrated) and coal products
Primary metal industries	Primary metal industries
Furniture and fixtures	Furniture & related product
Textile mill products	Textile mill products
Primary metal industries	Primary metal industries
Fabricated metal products	Fabricated metal products
Machinery, except electrical	Machinery, except electrical
Electrical and electronic equipment	Electrical equipment, appliance, and component manufacturing
Transportation equipment, except motor vehicles	Transportation equipment
Motor vehicles and equipment	
Stone, clay, and glass products	
	Computer and electronic product manufacturing
	Nonmetallic mineral product manufacturing
Instruments and related products	
Wholesale (Total)	Wholesale (Total)
Retail (Total)	Retail (Total)
Transportation	Air, rail, and water transportation Truck transportation Transit and ground passenger transportation Pipeline transportation

	Other transportation & support activities Warehousing and storage
Communication	
	Broadcasting and telecommunications
	Information services and data processing services
	Motion picture and sound recording industries
Business services	
Personal services	
Auto repair, miscellaneous repair services	
	Professional, scientific, and technical services
	Administrative and support services
	Waste management & remediation services
	Health care and social assistance (Total)
Amusement and recreation services	Amusement, gambling, and recreation industries Other arts, entertainment, and recreation
Hotels and other lodging places	Accommodation Food services and drinking places

Standard Industrial Classification (SIC) coding for years 1970-1997 were combined with coding from North American Industrial Classification System (NAICS), years 1998-2008. Since industrial categories are not entirely congruent across the two classification systems, the combination strategy involved matching or combining industries when easily accomplished, and leaving industries separate from one another in cases where the industrial classification of firms changed or became more detailed. The table is shaded to indicate which industries match, are components of each other, or are unique to each classification system across the two periods. In the data, this produced the effect of some industries spanning the entire period, while some ended in 1997 and others began in 1998.

APPENDIX C. NATIONAL-LEVEL TIME TRENDS OF EXPLANATORY VARIABLES, 1973-2008



Note: Appendix A contains technical definitions and sources of each variable.

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