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Centre for Globalisation Research

Household Debt Burden and Union Jobs: Evidence from a Quasi-Experiment in the United States

CGR Working Paper 122

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1. Introduction

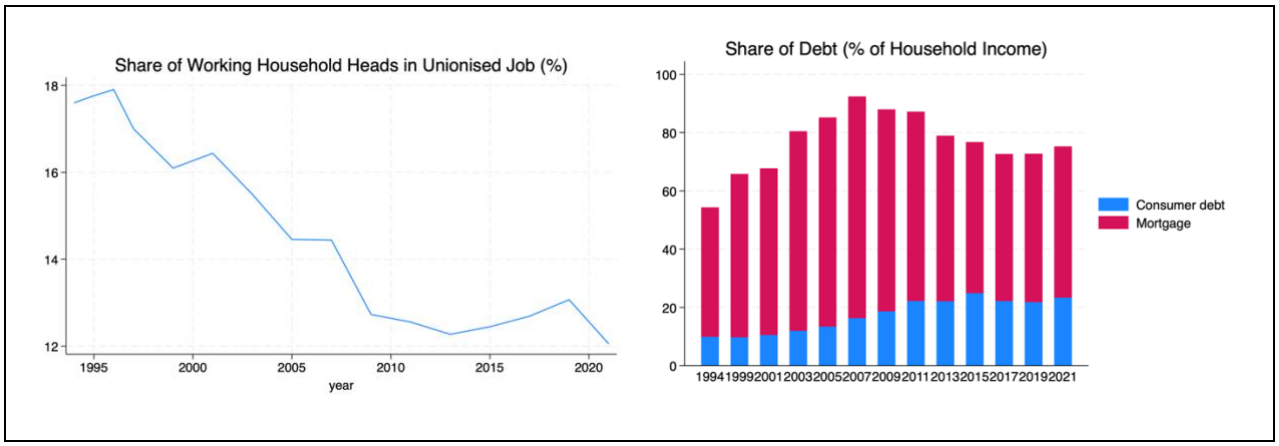
Union density in the United States has experienced a sustained decline over the past several decades, largely driven by the erosion of union jobs across key sectors, even as recent years have seen a modest resurgence in organizing activity (Naidu, 2022). While union jobs typically offer higher wages, stronger protections, and greater long-term stability, increasing job satisfaction (Artz et al. 2022), they may also be perceived as less flexible or more risky by debt-burdened workers. At the same time, household debt has become a key factor in shaping labour market behaviour (Daniels Jr and Smythe, 2019). Under deregulated conditions, employers face stronger incentives to shut down unionized workplaces and relocate production to lower-cost regions. Debt-burdened employees, prioritizing job and income stability over wage gains, therefore view workplaces with lower closure risk as safer from a bankruptcy perspective (Wood 2017; Kim et al. 2019; Kohler et al. 2019; Gouzoulis 2021; Gouzoulis et al. 2023b, 2025).

The need for income continuity and short-term security may outweigh the long-term benefits of union affiliation. This reflects a core labour market trade-off: union jobs offer higher wages and protections, while non-union settings provide flexibility and lower perceived closure risk. For heavily indebted workers, financial pressures intensify this trade-off, leading them to avoid union jobs not from ideology but risk sensitivity. In this sense, unionization is not simply an individual labour market choice but a decision embedded within employment relations institutions, where perceived employment risks, firm-level restructuring strategies, and collective bargaining arrangements shape workers' ability to exercise voice at work. This dynamic aligns with the classic tension between exit and voice (Hirschman 1970), where indebted workers may favour avoiding potential job loss over pursuing collective action through union representation, even when doing so would improve long-term employment conditions.

A growing body of research shows that personal debt shapes employment decisions, including job search, contract choice, and wage bargaining (Crouch 2012; Herkenhoff 2019; Chaumont & Shi 2022; Gouzoulis et al. 2023a). This dynamic is reflected in Figure 1: the left panel shows union density in the United States falling from nearly 18% in the early 1990s to just under

10% by 2021, while the right panel shows household debt burdens rising steadily over the same period. Specifically, the consumer debt share of household income nearly doubled, from below 10% in 1999 to nearly 20% in 2021. These parallel trends lead to the motivating question of our paper: to what extent has the rise in household debt contributed to the decline in union jobs in the US?

Figure 1: Union Density and Household Debt in the United States, 1994-2021



Notes: *Left panel:* Share of workers employed in unionized jobs as a percentage of all employed persons in the analysis sample. The sample comprises working household heads aged 25–65 at the time of interview (see Section 4 for further details.) *Right panel:* Income shares of consumer debt (blue bars) and mortgage debt (red bars) among the analysis sample. Source: PSID

To answer this question, we draw on longitudinal data from the Panel Study of Income Dynamics (PSID), which provides detailed information on household income and personal debt by type of credit. We focus on the period beginning in 1994, which marks the beginning of a major deregulatory era following the gradual repeal of the Glass–Steagall Act in 1999. To identify causal effects of debt on unionised employment, we exploit the 2005 Bankruptcy Abuse Prevention and Consumer Protection Act (BAPCPA), a federal reform that generated exogenous variation in the cost of filing for bankruptcy and led to a change in the interest rates for unsecured loans (Goss et al. 2021). The reform tightened eligibility requirements for Chapter 7 bankruptcy and redirected many highly indebted households into longer Chapter 13 repayment plans. The reform was implemented uniformly nationwide, its timing was unrelated to labour-market dynamics, and the extent to which they were impacted depended on households' pre-reform debt levels rather than their subsequent employment decisions.

In principle, households could have anticipated the introduction of BAPCPA by accelerating bankruptcy filings prior to its implementation. However, the way in which we construct our treatment and control groups precludes households from self-selecting into treatment through contemporaneous changes in employment or union-related choices (see Section 5). Because treatment status is based on households' pre-reform debt positions, measured in PSID waves years before BAPCPA was enacted, households could not alter their labour-market behaviour in anticipation of the reform to influence their treatment status in our identification strategy. The reform therefore provides plausibly-exogenous variation in household debt burdens. We show that treated households exhibit a relative decline in their debt-to-income ratios after 2005, enabling us to identify how an exogenous change in the cost of debt due to reduced access to bankruptcy protection affects subsequent union employment outcomes.

We find that higher household debt significantly lowers the likelihood of unionized employment, with the effect concentrated among workers who were not in unionized employment before the reform and in states with *Right-to-Work* (RTW) laws. RTW laws, adopted in many U.S. states, prohibit agreements that require all workers in a unionized workplace to join the union or pay union dues. In contrast, non-RTW states allow such agreements, making union membership effectively compulsory in unionized firms. We interpret our finding through the lens of institutional labour market frictions: in RTW states, financially constrained workers can avoid unionising since this might involve higher conflict, instability, or employer pushback, and, therefore, higher perceived risk of income disruption. The findings connect household financial vulnerability to collective-bargaining institutions, highlighting how personal balance sheets and legal regimes jointly shape employment dynamics, particularly union jobs. Differences in domestic industrial relations (IR) systems and the regulatory framework around personal finance can drastically alter these effects.

This paper contributes to industrial relations scholarship by introducing household financial vulnerability as a causal mechanism shaping unionization in the contemporary U.S. labour market, an element largely overlooked in existing explanations of union decline. Traditional IR accounts emphasize employer opposition (Freeman 1998), cost–benefit evaluations of union

membership (Ashenfelter & Pencavel 1969), sectoral and technological restructuring (Bluestone & Harrison 1982), the pressures of globalization (Western 1997; Slaughter 2007), and institutional deregulation (Hogler et al. 2004), as well as the incentives for free-riding in systems with broad bargaining coverage (Bryson 2008). Research also documents the benefits associated with union jobs, including higher wages, more generous benefits, and greater job satisfaction (Blanchflower & Bryson 2004; Artz et al. 2022). However, these literatures give comparatively limited attention to how workers' personal debt obligations reshape their willingness to assume the risks associated with such employment in a deregulated and highly mobile economy. By showing that rising household indebtedness decreases the probability of taking or remaining in unionized employment, particularly in RTW states, our analysis provides a micro-level complement to these structural and institutional accounts.

Leveraging policy-driven variation from the 2005 BAPCPA reform and individual-level PSID data, we offer the first causal micro-evidence that indebted workers avoid union jobs because they perceive them as carrying heightened risks of closure or outsourcing, which is consistent with research linking debt to precautionary employment behaviour (Kim et al. 2019; Kohler et al. 2019; Gouzoulis et al. 2023a, 2023b, 2025). This insight connects workers' balance-sheet pressures to core IR concepts such as worker voice, collective bargaining, and institutional complementarity, reframing unionization not only as a function of workplace conditions or employer strategies but also as a consequence of financially constrained household livelihoods. In doing so, the paper bridges previously separate strands of research on union decline, worker risk preferences, and household credit markets (Gouzoulis 2024; Barradas 2025a). It also demonstrates the need for IR theory to integrate personal finance constraints into models of worker power and collective action.

The rest of this paper is structured as follows. Section 2 provides background on the drivers of unionisation and union density. Section 3 discusses the specificities of the U.S. industrial relations system on which our analysis focuses. Section 4 describes the data and presents descriptive statistics. Section 5 outlines the empirical strategy and reports the reduced-form results. In Section 6, we use the BAPCPA as a quasi-natural experiment to estimate the causal

relationship between household debt and union membership. Finally, Section 7 concludes and discusses the implications of our findings for future research and policy.

2. The Decline of Unionization & Union Density

Extensive empirical research has shown that the presence of unions at the workplace enhances worker welfare by significantly strengthening collective bargaining power, which, in turn, leads to higher wages, access to benefits, protection from arbitrary dismissal, and improved occupational safety (Freeman & Medoff, 1984; Freeman, 1998; Farber et al., 2018; Barth et al. 2020). Despite this broad empirical consensus regarding the positive effects of unionization, both union membership and union density have been undergoing a persistent decline across advanced industrial economies over the past several decades.

2.1 Unionization as a Cost-Benefit Problem & Employer Opposition

The academic debate on what motivates workers to join a trade/labour union, dates back at least to the late 1960s – the era when unionization reached its historic peak. The seminal work of Ashenfelter and Pencavel (1969) looks at unionization as a cost–benefit problem from the perspectives of the union and the individual worker. Through this lens, their model suggested that workers tend to join a union when the monetary benefit of being a union member (union wage premium) exceeds to cost of membership (union fee). Later, Freeman (1998) shifts the focus to the involvement of employers in unionization efforts, highlighting that corporate spending against union organizing can significantly undermine employees' perceptions of unions and discourage membership.

Expanding Freeman's unionization model, Palley and LaJeunesse's (2007) formally model how the path dependence of employees' attitudes towards unions shapes their perception of unionization, on top of tangible factors like union wage premia, (anti-)union spending, or pro-labour legislation. More specifically, this paper argues that societies with historically high union participation tend to cultivate a favourable consensus on trade unions and collective action among workers. This creates a widespread sense of group identification, which is transferred from one generation to another, reinforcing union participation and the growth of trade unions (Kelly and

Kelly 1994). Inversely, the opposite might be true as well. In countries where historically unions are marginalized and membership is low, unionization efforts tend to be costlier and substantially less efficient.[4]

2.2 Inflation Shocks, Sectoral Restructuring, & Globalization

On top of theoretical models of unionization, a growing empirical literature has been looking at the determinants of union membership and union density, distinguishing between structural and institutional drivers as well as external market constraints. As early as the late 1970s, Bain and Elsheikh (1976) argued that one important factor that incentivizes workers to join a union is inflation. Since one of the core functions of trade unions is to secure higher salaries, during periods of high consumer price inflation, like the 1970s and the inflation crisis caused by supply-side shocks related to COVID-19, employees are more likely to decide to join a union in order to "protect" their real purchasing power. Empirical studies report that there is indeed a strong statistical association between increases in the consumer price inflation rate and union membership rates, especially in economies where union agreements cover non-unionized workers too (e.g., see Western 1997; Checchi and Visser 2005).

The empirical literature also shows that workforce shifts between economic sectors have contributed notably to the decline of unionization. These shifts are driven by two parallel processes. On the one hand, the de-industrialization of advanced economies due to the rise of the East and the rise of services has led to the growth of relative employment in the services sector (Bluestone and Harrison 1982). Due to the remoteness of workplaces belonging to the same corporations, the prominence of gig economy occupations, and the extensive employment of freelancers, unionization in service jobs is challenging, and, therefore, union membership rates have been historically low compared to manufacturing and industry. As such, several empirical studies present findings that show that the decline in employment in industrial and manufacturing occupations and the movement of workers to service jobs have played a key role in the aggregated

[4] One indicative example of such a case is the evolution of unionization in Greece, where employees have historically adopted a very distrustful stance on unions (Papadopoulou and Gouzoulis 2020). This is because of two reasons. First, during the late 1960s – early 1970s military dictatorship the dictators directly appointed and controlled the leaders of trade union congresses. Second, after the end of the dictatorship certain sectoral unions/congresses became openly affiliated with specific political parties, which discouraged the unionization of workers with differing political views. Similar examples can be observed in other countries too.

reduction in unionization rates across countries (e.g., see Blaschke 2000; Lee 2005; Polachek 2004; Schnabel 2013; Jensen 2020).

In addition to workforce shifts within national economies, in recent decades, another important driving force behind the decline of unionization rates is the globalization of trade and production networks/value chains. Early frameworks on the impact of global trade and capital mobility predicted that globalization would induce the specialization of different countries in either labour or capital-intensive industries, depending on the structures of local economies, which would balance bargaining power differentials between workers globally (Stolper and Samuelson 1941). In reality, however, the globalization of capital has allowed the quick and easy reallocation of production and service provision to different workplaces across the world. This process has allowed managers to outsource work to regions where unions are weaker or even absent, and, thus, labour costs are lower. As a result, globalization has generated a "race to the bottom" in terms of working conditions (Sassoon 1996, Wallace and Brady 2001). In such an environment, workers competing across the globe often avoid joining or forming unions to avoid unemployment, as unionization can discourage investors from pursuing labour-intensive investment projects in their region. Moreover, the global segmentation of production has also created a major coordination problem between local unions and foreign employers, making unions less effective in their negotiations. This, naturally, disincentivises employees to unionize as the costs often exceed the benefits (Western 1997). Brady and Wallace (2000), Scruggs and Lange (2002), Slaughter (2007), and Boulhol et al. (2011) provide econometric evidence that trade openness, foreign direct investments, and import penetration have eroded union membership and power in most advanced Western economies over the past few decades.

2.3 Institutional Deregulation & Government Ideology

Beyond employers' union-busting tactics, product market shocks, and structural economic shifts that affect the sectoral composition of the economy, policy changes in labour market institutions and other economic institutions are also central for the evolution of union density over time. Both economic institutions and the ideology of the governing majority determine how effective unions can be, given that they can undermine or upgrade unions' institutional power (Masters and Delaney 2005, Gumbrell-McCormick and Hyman 2013, Rigby and García Calavia 2018).

In economies with more regulated labour markets, trade unions are more institutionally embedded in the formal wage setting negotiations and processes. Hence, given their stronger formal role as stakeholders in the economy, employees are likely to become more keen to join a union and actively influence their strategies that can have an impact on higher-level policy setting. Indeed, building on Freeman (1998), Hogler et al. (2004) examine differences in pro-labour employment laws at the regional level and show how tighter labour market regulation can counterbalance employer opposition against unionization. Nonetheless, the expansion of bargaining coverage into both unionized and non-unionized workers may incentivize 'free-riding', i.e., unionized workers to leave their union since they, anyways, enjoy the benefits of collective union agreements (Olson 1965, Freeman and Medoff 1984, Bryson 2008).

The relationship between government ideology, *per se,* and unionisation is not always straightforward. Broadly speaking, when more progressive/left-leaning political parties are in power, it is not uncommon to go beyond just labour market regulation and also restructure the broader institutional setting of the economy in a more economically democratic manner. This can indeed include strengthening employee voice in economic negotiations and processes other than just wage setting (Korpi 1983, Western 1995, 1997, Sassoon 1996, Brady 2007, Trentini 2022). In that regard, such an economic and political environment can incentivize workers to form or join unions since they can exert direct influence over sector- or country-level economic strategies. The opposite process can take place when more conservative/right-leaning parties are in government. Another important aspect of the government ideology-unionization nexus is that when a union has clear ties with specific political parties or elected officials, this can be a deterring factor for workers who do not identify politically with a specific political spectrum to join such a union, especially in more politically divided societies.

2.4 Financialization: Shareholder Value Orientation & Personal Debt

While sectoral shifts in employment, the pressures of globalization, and macroeconomic shocks such as inflation are well-documented factors shaping unionization, the role of external financial constraints has received comparatively limited attention. These financial pressures do not only shape broader macroeconomic outcomes but also alter the institutional context in which workers

engage in collective bargaining and workplace representation, making them directly relevant to industrial relations scholarship.

Over the past four decades, privatizations, welfare state retrenchment, and rapid technological change have enabled the extraordinary expansion of the financial sector relative to the rest of the economy. Financial institutions now finance a wide range of activities across the private sector, from lending to non-financial corporations for inventory, investment, or share buybacks, to providing credit to households for housing, education, vehicles, and even everyday consumption. As a result, both firms and households have become increasingly dependent on private credit, pushing them to adopt economic strategies oriented toward servicing financial obligations (Gouzoulis 2026). For corporations, rising indebtedness and deepened stock market exposure have intensified short-term pressures. The separation of ownership and management has created conflicting incentives, and corporate governance has become increasingly oriented toward the immediate demands of shareholders (Lazonick and O'Sullivan 2000). Share buybacks, often financed through loans collateralized by real assets, are widely used to raise share prices and retain investors. This practice destabilizes corporate balance sheets, prompting managers to restore financial stability through divestment, layoffs, or wage reductions (Stockhammer 2004; Kohler et al. 2019; Gouzoulis 2022; Guschanski and Onaran 2025). Because unions typically resist such cost-cutting measures, financially pressured firms face incentives to weaken or eliminate union presence. Consistent with this, cross-country evidence shows a strong negative association between indicators of shareholder-value orientation and union density in Europe and North America (Kollmeyer and Peters 2019; Gouzoulis et al. 2024).

For households, the erosion of social safety nets since the mid-1990s has made working families more reliant on private credit than ever before. The rising costs of goods that were once heavily subsidized (such as housing, education, and healthcare) have made access to credit essential, especially for low-income households. Because debt obligations require a stable income stream, households facing personal finance constraints often adopt precautionary economic strategies (Hu et al. 2025; Fermand et al. 2024). Recent studies show that financial uncertainty linked to rising household indebtedness can influence workers' decisions about workplace voice and job choice. In a context of weak labour protections, union activity is frequently

met with punitive redundancies; consequently, forming or joining a union can be a high-risk decision for indebted workers who prioritize employment stability over potential wage gains as a safeguard against financial distress or bankruptcy. Macro-level analyses provide initial evidence for this mechanism, documenting a robust negative association between household debt-to-income ratios and unionization rates in several highly indebted advanced economies, including Sweden, Japan, Korea, and Portugal (Gouzoulis 2024; Barradas 2025a)[5]. These effects are likely to be especially pronounced in sectors where employers can respond to organizing efforts by relocating production or outsourcing to non-unionized labour markets (Myers and Saretto 2016).

3. Unionization in the Era of Financialization in the United States

Financialization, particularly the financialization of working households, is prominent in the vast majority of high-income economies globally, however, differences in domestic industrial relations systems and the regulatory framework around personal finance can shape its effects drastically. While the existing empirical studies discussed above find that the effects of personal/household debt on union density are indeed negative across several countries over the past five decades, these studies focus on economies where the choice to unionize is an individual worker choice.

In most of Western Europe, collective bargaining occurs at the industry or sectoral level (e.g., metalworking, retail, healthcare), and, thus, sectoral unions negotiate with the respective employer federations about wage floors and working standards for entire industries. In countries like Denmark, Sweden, or Finland, which use the Ghent system, trade unions also administer unemployment benefits, creating a strong incentive to join. In Germany and the Netherlands, work councils and co-determination laws ensure that trade unions and workers have representation within firms, regardless of union membership. Accordingly, in practice, workers have the right to decide individually whether or not they will join their sectoral union, subject to their personal financial constraints. As such, indebted workers face the deliberate dilemma to unionize or not in their current job in order to avoid redundancy and default on their debt.

[5] In addition to unionization, quantitative studies also show that the same mechanism also holds for strike activity, since striking also involves a high risk of redundancy in the current institutional environment (see Gouzoulis 2023; Barradas 2024, 2025b).

In contrast, in the United States, unionism operates at the enterprise level, since union representation is typically established at the level of the "bargaining unit" (individual workplace or firm). Under this regulatory framework, workers must petition for a union election, usually through the *National Labor Relations Board* (NLRB), and if a majority votes in favour of unionizing, then the union becomes the exclusive bargaining agent for that workplace/firm. In the United States, unionized workplaces are well-documented to offer higher wages and more generous non-wage benefits (Blanchflower & Bryson, 2004). Despite recent unionization efforts in high-profile firms, like Amazon and Starbucks, the aggregate decline in union density remains unmitigated (Silver-Greenberg & Abrams, 2021). As can be seen in Figure 1, union density has fallen from over 30% in the mid-20th century to under 10% in the private sector today.

As discussed above, this trend might be explained to a significant extent by the fact that liquidity-constrained individuals may prioritize employment continuity and income stability over higher wages. Yet, given the legal and institutional framework that governs industrial relations in the United States, unlike Europe, the choice the individual indebted worker/household faces is between a union or a non-union job/workplace. In light of that, in this paper, we explore whether financially constrained workers in the United States may be more willing to forgo higher wages of unionized workplaces as they are deterred by the perceived risks, such as the higher risk of outsourcing as a means of cost-cutting. Importantly, not all workers in unionized workplaces are union members, reflecting the distinctive legal and institutional features of the American industrial relations system (Freeman, 1988). As of 2023, 26 U.S. states and the territory of Guam have enacted *Right-to-Work* (RTW) legislation, which prevents mandatory union membership or unions demanding dues as a condition of employment, while workers can still be receiving the benefits of collective agreements. These laws tend to undermine unions' financial resources and reduce membership participation, thereby weakening their collective bargaining power (Fortin et al., 2021). However, RTW legislation does not automatically suppress union membership. Many unions offer excludable benefits —such as legal representation, grievance support, and enhanced workplace protections— that may continue to incentivize workers to join (Farber et al., 2021).

To estimate the causal effect of household debt on union employment choices, we exploit the 2005 Bankruptcy Abuse Prevention and Consumer Protection Act (BAPCPA) as a quasi-

experiment that exogenously tightened bankruptcy access and increased the cost of filing for one. The reform introduced stricter means-testing requirements for Chapter 7 eligibility, forcing many highly indebted households into Chapter 13 repayment plans that require servicing outstanding balances over three to five years instead of discharging them under Chapter 7. Although publicly justified as preventing abuse of bankruptcy protections, the reform made debt relief less accessible and increased repayment burdens, thereby raising the financial distress experienced by affected households. Because the reform differentially impacted households based on their pre-reform debt levels, it generates plausibly exogenous variation in indebtedness that is independent of labour-market choices. By reducing the insurance value of bankruptcy (Gross et al. 2021) and increasing binding repayment obligations, BAPCPA provides a setting in which we can isolate how changes in debt servicing pressures influence decisions to enter or remain in unionized employment.

4. Data

Our primary data source is the Panel Study of Income Dynamics (PSID), a nationally representative, longitudinal survey of U.S. individuals and families. Conducted by the University of Michigan, the PSID was launched in 1968, collecting rich information from over 84,000 individuals and 9,200 families on a broad range of socioeconomic variables, including employment status, income, education, family structure, and health. These families are followed over time, even if the individual members moved out and started their own families in subsequent years. The PSID's panel structure enables us to track individual labour market outcomes and debt accumulation over time, making it well-suited for causal inference in the context of policy changes such as the 2005 Bankruptcy Abuse Prevention and Consumer Protection Act (BAPCPA).

Our analysis period starts in 1994 and includes information from every biennial wave from 1999 to 2021. In 1994, the PSID began incorporating detailed financial modules that capture household assets and liabilities, including various forms of debt such as credit card balances, student loans, medical debt, and mortgages. From 1999 onward, these measures became more standardized and were consistently reported across survey waves, allowing for reliable

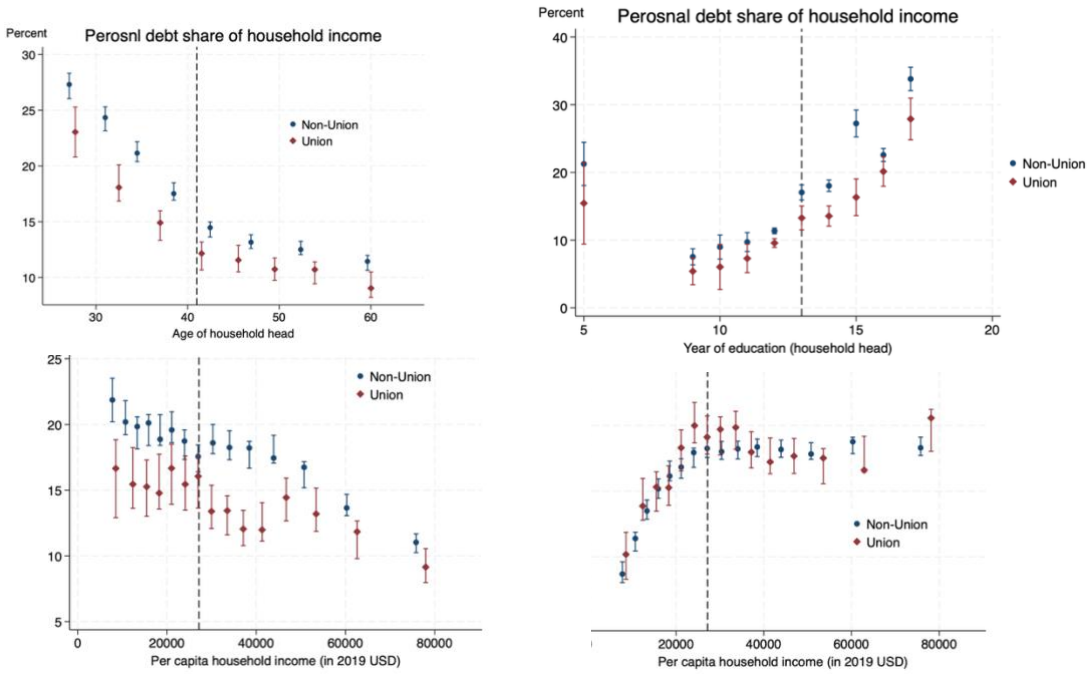
comparisons over time. Our primary outcome is a binary indicator of unionized employment, coded as one if the respondent reports working in a unionized workplace.

The estimation sample is restricted to households with working heads aged between 25 and 65 at the time of the survey waves. To focus on full-time labour market participants, we exclude individuals who report working fewer than 35 weeks each year. All monetary values are adjusted to 2019 U.S. dollars using the Consumer Price Index (data available from the U.S. Bureau of Labor Statistics). To reduce the influence of outliers, we exclude households with per capita annual income below $6,000 or above $88,800 —corresponding to the bottom and top 5% of the income distribution in the sample. After applying these sample selection criteria, the final estimation sample comprises approximately 15,600 household heads.

Figure 2 plots the distribution of household debt burdens across key demographic and economic dimensions, disaggregated by union employment status. Panel A reveals a clear negative association between personal debt (as a share of household income) and the age of the household head, a pattern consistent across households in unionized and non-unionized workplaces. However, at any given age, households with union employment consistently exhibit lower personal debt shares, suggesting a potential financial buffer associated with union membership. Panel b shows that personal debt shares increase with educational attainment, likely reflecting the positive correlation between education and lifetime income, as well as the role of student loans. However, conditional on education level, unionized households carry a smaller personal debt burden.

Examining the relationship between debt and income, Figure 2, panel c documents an inverse relationship between personal debt shares and per capita household income, whereas mortgage debt shares rise with income (panel d). Notably, across the income distribution, unionized households maintain consistently lower personal debt shares, while mortgage debt levels are similar between unionized and non-unionized households. These patterns are consistent with the interpretation that unionized employment provides financial advantages that reduce reliance on borrowing.

Figure 2: Personal Debt Ratio - Binned Scatter Plots



Notes:
The figures are binned scatter plots of personal debt shares of household income over age (Panel A), years of completed education (Panel B), per capita household income (Panel C), and that of mortgage share over per capita household income (Panel D). The dotted lines represent the median household, which is 41 years old, with 13 years of completed education, and with USD27,174 income per household member (in 2019 dollars).

Table 1 presents summary statistics of key variables for individuals in our estimation sample, disaggregated into the pre-BAPCPA period (columns 1 and 2) and post-BAPCPA period (columns 3 and 4). The distinction between the two periods is motivated by the need to contextualize post-2005 data within a shifting macroeconomic landscape. The 2008 Global Financial Crisis (GFC) followed shortly after the enactment of BAPCPA, introducing substantial economic dislocation marked by widespread defaults, bank failures, and credit market disruptions, particularly among households with subprime mortgages. The data reflect this deterioration in financial conditions. The average share of personal debt relative to household income more than doubled in the post-BAPCPA period, rising from approximately 9–11% to 16–21%. Mortgage debt as a share of income also increases, from about 60% before 2005 to between 67% and 73% afterward. Across both periods, households with non-unionized heads carry higher personal debt burdens than their unionized counterparts.

Table 1: Summary Statistics

	PSID pre-2005			PSID post-2005		
	Union Job (1)	Non-Union Job (2)	*p-value*	Union Job (3)	Non-Union Job (4)	*p-value*
Individual Characteristics						
Age	42.21	40.28	<0.0001	43.20	41.24	<0.0001
Male	0.79	0.77	0.0060	0.75	0.74	0.2510
White	0.53	0.62	<0.0001	0.51	0.61	<0.0001
High school	0.54	0.47	<0.0001	0.42	0.36	<0.0001
University	0.44	0.50	<0.0001	0.56	0.61	<0.0001
Weeks worked per year	48.34	49.05	<0.0001	48.56	49.13	<0.0001
Public sector	0.29	0.16	<0.0001	0.05	0.12	<0.0001
Labor income	60,885	54,773	<0.0001	60,512	55,011	<0.0001
Household Characteristics						
Household income	92,113	83,446	<0.0001	91,304	83,908	<0.0001
Per capita household income	32,925	30,849	<0.0001	34,539	31,777	<0.0001
Personal debt income share (%)	9.09	10.77	<0.0001	16.46	20.84	<0.0001
Mortgage income share (%)	60.75	60.91	0.9207	73.32	67.26	<0.0001
2nd mortgage share (%)	0.67	0.57	0.1274	0.84	0.72	0.0595
Number of individuals	1,771	6,044	-	2,409	9,623	-

Notes: The table reports summary statistics for individuals in the estimation sample. Observations are separated into the pre-2005 period (columns 1 and 2) and the post-2005 period (columns 3 and 4), the year in which the Bankruptcy Abuse Prevention and Consumer Protection Act was enacted. Average characteristics of household heads in unionised employment are shown in odd-numbered columns; those of non-union household heads are shown in even-numbered columns. The public-sector indicator is a proxy measure, defined as reporting employment in transportation, communications, public utilities, or public administration. Data are drawn from the Panel Study of Income Dynamics (wave 1994 and all subsequent available waves through 2021).

Demographic and labour market characteristics of household heads remain broadly similar across union and non-union groups over time. Age, educational attainment, weeks worked, and total labour income show only modest differences. Non-union workers are, on average, slightly more likely to be white and have marginally higher levels of formal education, consistent with existing evidence on the demographic characteristics of union membership in the U.S. during this period (9). Moreover, the average labour income of non-union household heads is about 92% of that of their unionized counterparts, consistent with the documented wage premium associated with union jobs in the literature.

5. Empirical Strategy and Reduced-Form Results

We begin our analysis by providing a formal version of our theoretical argument, using a random utility framework along the lines of Manski and McFadden (1981) and McFadden (2001) among others. Assume a large population of workers, each with a debt level d, who choose between employment in a unionized workplace U or a non-union workplace N. Workers compare wages across the two settings and consider the probability of job loss due to relocation or closure. If a relocation occurs, workers face a probability of default that increases with their debt burden d and

(exogenous) policy measures regarding the easiness of debt repayment (for example debt restructuring). Let ϕ capture the existing policies such that higher d and higher ϕ imply a greater risk of financial distress following unemployment.

Let w^U be the wage for a given task in a unionized workplace and w^N the wage for the same (or similar) task in a non-unionized workplace with $w^U > w^N$. Furthermore, let p^U and p^N to capture the probabilities of redundancies due to relocation with $p^U > p^N$ which would lead to a default with cost relative to debt $a\ d$. Assume that ϵ_i^j is the random utility component of the preferences regarding the choice of worker $j = \{U, N)$. This captures the variation of potential costs and benefits across workers, with ϵ_i^j following a generalized extreme value (GEV) distribution[6]. The expected utility of working at the unionized workplace ($E[u_i^U]$) is

$$E[u_i^U] = (1 - p^U)w^U - p^U a\ \phi d + \epsilon_i^U, \qquad (1)$$

while the utility for choosing a non-unionized workplace ($E[u_i^N]$) is

$$E[u_i^N] = (1 - p^N)w^N - p^N\ a\phi d + \epsilon_i^N. \qquad (2)$$

The worker chooses the unionized workplace if $E[u_i^U] > E[u_i^N]$. Given the GEV assumption of the random utility component, the probability of choosing U, call this P will be given by the following logit formula:

$$P = \frac{\exp\left(E[u^U] - E[u^N]\right)}{1 + \exp\left(E[u^U] - E[u^N]\right)}, \qquad (3)$$

with P increasing with $E[u^U] - E[u^N]$ with,

$$E[u^U] - E[u^N] = (1 - p^U)w^U - (1 - p^N)w^N - \alpha\phi d(p^U - p^N)\ , (4)$$

which is decreasing in d given that $p^U > p^N$. So, from (3) and (4) we have that the probability of working at a union place is decreasing with household debt. From (4) we get that for a worker to choose with higher probability U over N, the following should hold $d < \frac{(1-p^U)w^U - (1-p^N)w^N}{\alpha\phi(p^U - p^N)}$, i.e. the

[6] This is the standard assumption in the random utility models, discrete choice literature. For a theoretical and its implications see Train (2009) and Galanis et al. (2025) respectively.

level of debt to define this choice depends on the wage gap and also the difference between redundancies risks.

To provide a more intuitive discussion of this relationship between individual indebtedness and the likelihood of being employed in a unionized workplace, we estimate the following specification:

$$Y_{ist} = \alpha + \beta Debt_{ist} + X_{ist}\delta + \gamma_i + v_s + \kappa_t + \varepsilon_{ist} \quad (5)$$

where Y_{it} is a binary indicator that equals one if individual *i* reports holding a unionized job in PSID wave *t*, and zero otherwise. We estimate linear probability models (LPM) to facilitate interpretation of coefficient magnitudes, and we show that the results are robust to using a panel probit specification. Our key independent variable is household debt, combining both personal and mortgage components, measured as a percentage of total household income. We also disaggregate this measure into separate shares for personal debt (e.g. credit card balances, student loans) and mortgage debt. All debt measures are expressed as the natural logarithm of their respective shares of household income, a transformation that mitigates the skewed distribution of debt shares and allows coefficients to be interpreted as approximate percentage changes. The vector $\mathrm{X_{ist}}$ includes time-varying individual-level controls: age, educational attainment, and per capita household income as a proxy for overall household economic well-being. All LPM regressions include individual (worker), state and year fixed effects to account for unobserved heterogeneity and time trends. Standard errors are clustered at the worker level.

Table 2 reports the correlations. Columns 1 and 2 show that the total share of debt relative to income is not significantly associated with union employment status. This result appears counterintuitive, as union jobs, which typically offer wage premiums, may enable households to assume higher levels of debt, particularly through mortgage borrowing. To explore whether the null result masks the type of debt as a meaningful source of heterogeneity, we decompose total debt into mortgage and consumer debt, where the latter includes credit card debt, student loans, medical debt, and legal obligations. Columns 3 and 4 of Table 2 show that the composition of debt is consequential. Individuals with higher consumer debt as share of their income are less likely to hold a unionized job. Specifically, column 3 shows that a 10 percent increase in the personal debt

share is associated with a 2.2 percentage point decrease in the probability of unionized employment. We interpret this finding as evidence that highly indebted individuals may avoid union jobs, which are perceived as less stable due to the risk of employer relocation or restructuring. In contrast, mortgage debt share remains positively associated with union employment (columns 3 and 4), consistent with the notion that higher, stable earnings in unionized settings facilitate access to homeownership.

***Table 2*:** Correlations between Indebtedness and Union Jobs

Dep. Var.	Pr(Union Job)			
	LPM	Probit	LPM	Probit
	(1)	(2)	(3)	(4)
Total Debt Share	0.000839	-0.000191		
	(0.000924)	(0.00886)		
Personal Debt Share			-0.00219*	-0.0341***
			(0.00124)	(0.0116)
Mortgage Share			0.00369***	0.0343***
			(0.000953)	(0.00906)
Mean of dep. var.	.187	.186	.187	.186
Observations	46,447	50,743	43,936	48,260
R-squared	0.754		0.757	

Notes: The table reports estimated correlations between income shares of debt and the probability of holding a unionized job, using a linear probability model (columns 1 and 3) and a probit model (columns 2 and 4). Debt-share variables are log-transformed. All linear probability specifications include year, worker, and state fixed effects. In the probit models, the same sets of year and state dummies are included. All specifications for age, age squared, educational attainment (elementary, secondary, tertiary), and per-capita household income. Standard errors are clustered at the worker level. *** p<0.01, ** p<0.05, * p<0.1.

6. Causal Effects of Indebtedness on Unionised Employment

A potential concern with the preceding analysis is that the observed negative correlation between personal indebtedness and unionized employment may be driven by reverse causality. Specifically, rather than indebted workers avoiding union jobs, it is possible that individuals employed in unionized workplaces accumulate less personal debt due to higher and more stable

earnings. Under this interpretation, the negative association would reflect selection into lower debt levels because of union employment, rather than debt-inducing sorting away from union jobs.

To overcome this challenge in distinguishing cause from effect in the correlation between indebtedness and unionized employment, we adopt a two-stage approach to leverage the plausibly exogenous variation in debt generated by the 2005 BAPCPA reform. In the first stage, we estimate the following difference-in-differences model:

$$Debt_{ist} = \gamma_i + v_s + \kappa_t + \beta Treatment_i \times After_t + X_{ist}\delta + \varepsilon_{ist} \quad (6)$$

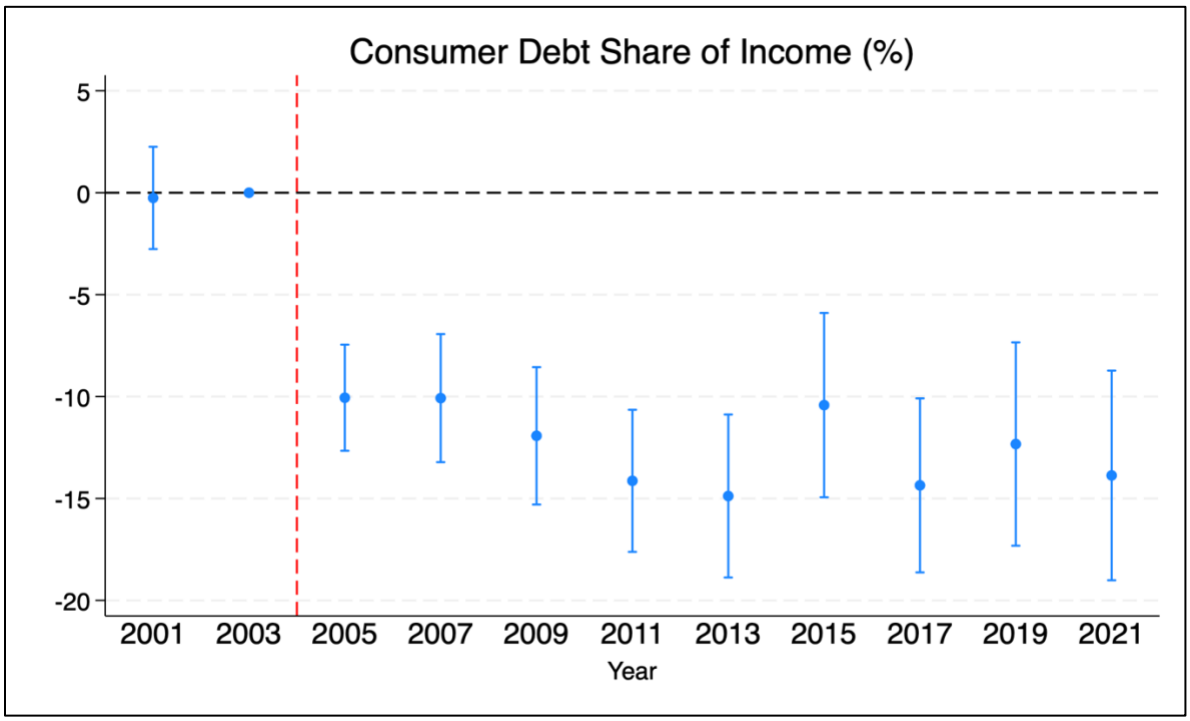
where the dependent variable *Debt* denotes the income share of consumer debt for individual *i* in year *t*. We control for individual fixed effects, γ_i , and time trends, κ_t. The coefficient of interest, β, is attached to an interaction term identifying the treatment group—households that were highly indebted before 2005. We construct a binary treatment indicator based on pre-reform debt levels. Treated households are initially highly indebted, defined as those who had between 20 and 72 percent of their income as personal debt (excluding mortgage) in at least one of the PSID waves before 2005 (2001 or 2003), corresponding to the mean and up to the 95th percentile in the distribution of consumer debt-to-income ratio. Control households were moderately indebted, defined as those who had between 5 to 20 percent of their income as consumer debt in at least one of the 2001 or 2003 waves. In this analysis, we excluded those with below 5 or above 72 percent of consumer debt, equivalent to the bottom and top 5 percent of the distribution. The interaction term equals one for treated households in years following the implementation of the 2005 BAPCPA, and zero otherwise. The parameter β thus captures the differential change in personal debt burden among initially highly indebted households relative to moderately indebted households before and after the reform. Standard errors are clustered at the worker level.

In the first stage, we estimate the effects of the 2005 BAPCPA on consumer debt with a difference-in-differences (DiD) model. In the second stage , we estimate Equation 1 using a linear probability model with the DiD estimator as the instrument for debt. This two-stage approach enables us to identify the causal effect of household indebtedness on selecting into unionized employment, leveraging plausibly-exogenous variation in consumer debt burdens induced by the BAPCPA reform.

For our identification to hold, three conditions must be satisfied. First, households could not differentially anticipate the reform, since treatment status is defined by pre-existing debt levels rather than behavioural responses. Second, in the absence of BAPCPA, debt trajectories for initially highly indebted and moderately indebted households would have followed parallel trends, consistent with the lack of pre-trends shown in Figure 3. Third, the reform affected union employment only through its impact on household indebtedness, consistent with the fact that BAPCPA targeted access to bankruptcy protection rather than labour market regulation.

A key assumption underlying the DiD model is that the debt share of income in the treated and control groups would have evolved in parallel after 2005 in absence of the policy change. Figure 3 plots event study estimates of the BAPCPA's effects on the consumer debt share of household income for treated and control households. We find no evidence of differential pre-trends prior to 2005. Following the reform, all post-2005 coefficients are negative and statistically significant, ranging from −10% to −15%, indicating a substantial reduction in consumer-debt-to-income ratios among treated households after BAPCPA's enactment.

Figure 3: Event Study of the BAPCPA's Effects on Consumer Debt – 2001-2021



Notes: Event-study estimates based on Equation (6) of the impact of the 2005 BAPCPA reform on consumer debt as a share of household income for treated and control households. Treated households are defined as those whose consumer-

debt share ranged between 20% and 72% of income in at least one PSID wave prior to 2005 (2001, or 2003); households with under 5% consumer debt and those above the 72% threshold—the bottom and top 5% of the distribution—are excluded. The control group comprises households with consumer-debt shares between 5% to 20%. The red vertical dashed line marks 2005, the year in which BAPCPA was enacted. Blue whiskers denote 95% confidence intervals. All specifications include state, year, and worker fixed effects. Standard errors are clustered at the worker level. Source: PSID

Table 3, Column 1 reports the first stage, difference-in-differences estimation, showing that the reform led to a statistically significant, approximately 12 percentage point reduction in the consumer debt share of income among treated households. This finding is consistent with the mechanism implied by the reform: by restricting access to Chapter 7 bankruptcy, BAPCPA made debt discharge more difficult, thereby incentivizing repayment and reducing overall debt accumulation among affected households.

Table 3: Debt and the 2005 BAPCPA – DiD and IV

Dep. Var.	Consumer debt	Prob (Union Job)						
Sample		All Workers			Pre Union	Pre Non Union		
		All	RTW	Non-RTW	All		RTW	Non-RTW
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
BAPCPA	-11.79***							
	(1.116)							
Consumer debt (IV)		-0.00152	-0.000566	-0.00274	0.00225	-0.00224**	-0.00286**	-0.000855
		(0.00131)	(0.00207)	(0.00192)	(0.00359)	(0.00106)	(0.00144)	(0.00171)
Kleibergen-Paap test stat	-	67.252	22.796	39.760	18.892	48.083	20.159	27.886
Mean of dep. var.	17.7	.199	.115	.289	.724	.0398	.0282	.0581
Observations	13,693	11,538	5,001	5,205	2,638	8,485	4,071	3,391

Notes: The table reports estimates from the difference-in-differences (DiD) specification (column 1), comparing the income shares of debt among initially high-debt and low-debt households before and after the 2005 BAPCPA. We use the DiD estimate to instrument for debt and estimate its effects on unionized employment with a linear probability model by type of state (RTW or non RTW) and unionized job holding prior to the reform (columns 2 to 8). All specifications include year, worker and state fixed effects. Standard errors are clustered at the worker level.

In the second stage, we estimate the effect of consumer debt, instrumented with the 2005 BAPCPA, on the probability of unionized employment. Table 3, columns 2 through 8, report the instrumental variables estimate.[7] We find that higher personal debt significantly reduces the

[7] The Kleibergen–Paap rk LM statistics reported in Table 3 (columns 2–8) test the null hypothesis that the model is under-identified. Rejection of this null indicates that the excluded instruments are sufficiently correlated with the endogenous regressor (consumer debt share) to identify the structural parameters. In all specifications, the associated p-values are equal to 0.000, allowing us to reject underidentification at conventional significance levels. These results therefore provide strong evidence that the instrument, the DiD estimator based on exposure to the 2005 BAPCPA, enter the first stage with adequate relevance.

likelihood of union employment among those who did not have a unionized job prior to the reform (Column 5 to 6). Among these initially non-union workers, the negative effect of debt on income is concentrated in states with Right-to-Work (RTW) laws (Columns 7 to 8). A10-percentage point increase in the instrumented debt share of income is associated with a 2.24 percentage point lower probability of being in unionised employment after the reform. This negative relationship between consumer debt share and unionized employment is driven by those in RTW states, where the point estimate is 2.86 percentage points (column 7) versus a statistically zero effect in non-RTW states (column 8). Since in RTW states mandatory union membership or dues as a condition of employment is prohibited, financially constrained individuals may be more sensitive to the perceived risks of unionization, ultimately reducing their likelihood of participating in unions. In contrast, the effect is statistically zero in states without RTW laws.[8]

In the Appendix, we present event-study plots (Figure A1) and estimation results (Table A1) showing that these findings are robust to alternative ways of defining treatment and control status. Panel A defines treated households as those with consumer-debt shares between 20% and 72% prior to 2005 (2001 or 2003), with controls defined as households with non-zero to 20% debt (retaining the bottom 5%). Panel B defines treated households as those with consumer-debt shares above 20% (retaining the top 5%), and controls as those with 5% to 20% debt (excluding the bottom 5%). Panel C expands the treatment group to households with consumer-debt shares between 20% and 130% (excluding the top 1%), with controls again defined as those with 5% to 20% debt (excluding the bottom 5%).

Overall, our findings suggest that household indebtedness reshapes the institutional context of collective bargaining by altering workers' risk tolerance and willingness to engage in workplace voice. This mechanism interacts with union security rules, outsourcing incentives, and bargaining coverage, implying that personal finance constraints operate as an institutional complement to employer strategies and labour law regimes.

[8] The analysis excludes initially non-RTW states that have adopted RTW laws during our analysis period. These include Oklahoma (became RTW on Sept 25, 2001), Indiana (became RTW on Feb 1, 2012), Michigan (became RTW on Mar 8, 2013), Wisconsin (became RTW on March 9, 2015), West Virginia (became RTW on Feb 12, 2016), and Kentucky (became RTW on Jan 9, 2017).

7. Conclusions

This paper provides causal evidence that household indebtedness reduces the likelihood of unionized employment in the United States. Using individual-level data from the PSID and a quasi-experimental design based on the 2005 BAPCA reform, we show that tightened bankruptcy access disproportionately affected highly indebted households and reduced their propensity to work in unionized jobs. The effect is concentrated in RTW states, where workers can access collective agreements without being obliged to join their workplace union, which suggests that financial constraints heighten sensitivity to perceived employment risks in unionization.

Our findings extend scholarship on union decline by identifying household balance sheet pressures as an additional mechanism shaping labour market choices, complementing existing explanations centered on employer opposition, globalization, shifts in production, and institutional change. Although union jobs typically offer higher wages and greater employment protections, financially constrained workers appear to prioritise income continuity and perceived job stability over potential wage gains. These results highlight the importance of integrating household financial conditions into theoretical accounts of collective action, worker power, and industrial relations institutions.

The results carry implications for how unions and policymakers understand barriers to union participation. If debt-burdened workers face greater perceived employment risks in unionized workplaces, then institutional environments that insulate workers from plant closures and outsourcing may be increasingly important for recruitment and retention. Policy measures that reduce household exposure to financial shocks, including expanded bankruptcy relief or more comprehensive public provision of essential goods, may indirectly strengthen the environment in which collective bargaining occurs. For unions, strategies that foreground job security and limit employer discretion during restructuring may be particularly salient for financially vulnerable workers.

Future research should assess whether similar mechanisms operate in institutional settings where bargaining coverage is decoupled from individual workplace choice, including systems with

sectoral or coordinated bargaining, Ghent arrangements, multi-employer agreements, or stronger employment protection legislation. Cross-national evidence is particularly valuable for assessing whether household indebtedness plays a comparable role in labour markets where union participation is less tied to individual workplace choice. Further inquiry is also needed on how different forms of debt, including student, medical, and mortgage debt, shape preferences for workplace voice, non-wage benefits, and collective representation. Together, these avenues would provide a more comprehensive understanding of how household financial constraints interact with industrial relations institutions to shape labour market behaviour in a causal manner.

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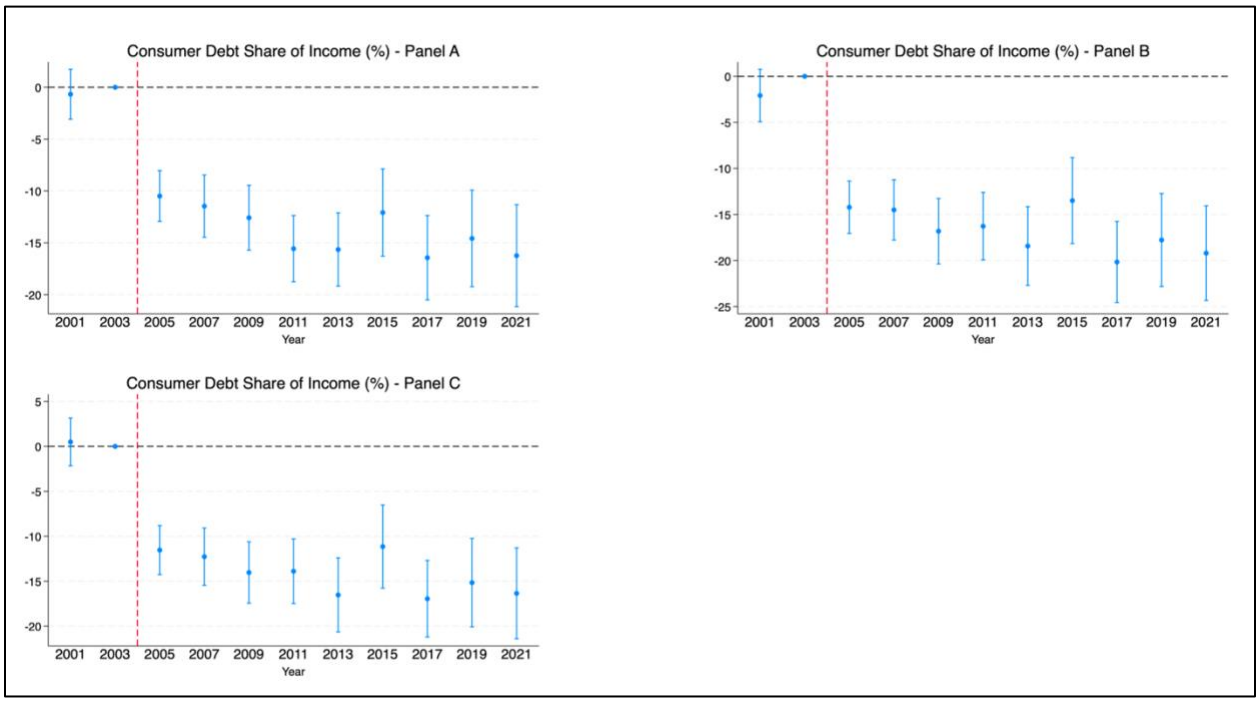
Appendix

Table A1: Debt and the 2005 BAPCPA - Robustness

Dep. Var.	Consumer debt	Prob (Union Job)						
Sample		All Workers			Pre Union	Pre Non Union		
		All	RTW	Non-RTW	All	RTW	Non-RTW	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A: Treatment (20 to 72%); Control (0 to 20%)								
BAPCPA	-12.78***							
	(1.049)							
Consumer debt (IV)		-0.000855	-0.0000931	-0.00199	0.00234	-0.00144*	-0.00203*	-0.000313
		(0.00111)	(0.00185)	(0.00163)	(0.00320)	(0.000874)	(0.00122)	(0.00149)
Mean of y	15.2	.206	.125	.29	.729	.0408	.0284	.0614
Observations	18,289	15,521	6,706	7,006	3,680	11,341	5,427	4,562
B: Treatment (>20%); Control (5 to 20%)								
BAPCPA	-15.09***							
	(1.158)							
Consumer debt (IV)		-0.00101	-0.000535	-0.00176	0.00255	-0.00134*	-0.00160*	-0.000465
		(0.000979)	(0.00142)	(0.00161)	(0.00316)	(0.000754)	(0.000891)	(0.00145)
Mean of y	19.6	.195	.111	.285	.72	.0405	.0278	.059
Observations	14,350	12,042	5,232	5,414	2,696	8,897	4,285	3,543
C: Treatment (20 to 130%); Control (5 to 20%)								
BAPCPA	-13.78***							
	(1.134)							
Consumer debt (IV)		-0.00107	-0.000548	-0.00212	0.00236	-0.00150*	-0.00174*	-0.000690
		(0.00106)	(0.00150)	(0.00180)	(0.00323)	(0.000836)	(0.000955)	(0.00169)
Mean of y	19	.197	.112	.288	.72	.0404	.028	.0597
Observations	14,205	11,921	5,184	5,366	2,693	8,792	4,246	3,498

Notes: The table reports estimates from the difference-in-differences (DiD) specification in column 1, comparing the income shares of debt among initially high-debt and low-debt households before and after the 2005 BAPCPA. We use the DiD estimate to instrument for debt and estimate the effect of debt on unionized employment with a linear probability model by type of state (RTW or non RTW) and unionized job holding prior to the reform in columns 2 to 8. All specifications include year, state and worker fixed effects. Standard errors are clustered at the worker level.

Figure A1: Event Study Estimates of the BAPCPA's Effects on Consumer Debt – 2001-2021



Notes: Event-study estimates based on Equation (6) of the impact of the 2005 BAPCPA reform on consumer debt as a share of household income for treated and control households. Treated and control households are defined in three alternative ways. Panel A refers to treated as those whose consumer-debt share ranged between 20% and 72% of income in at least one PSID wave prior to 2005 (2001, or 2003); control households have non-zero to 20% debt (keeping the bottom 5%). Panel B refers to treated as those whose consumer-debt share ranged above 20% of income (keeping the top 5%) and control households have 5% to 20% debt (removing bottom 5%). Panel C refers to treated as those whose consumer-debt share ranged between 20% and 130% of income (removing top 1%); control households have 5% to 20% debt (removing bottom 5%). The red vertical dashed line marks 2005, the year in which BAPCPA was enacted. Blue whiskers denote 95% confidence intervals. All specifications include state, year, and worker fixed effects. Standard errors are clustered at the worker level. Source: PSID