



Gouzoulis, G. (2023). What do indebted employees do? Financialisation and the decline of industrial action. *Industrial Relations Journal*, 54(1), 71-94. <https://doi.org/10.1111/irj.12391>

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# What do indebted employees do? Financialisation and the decline of industrial action

Giorgos Gouzoulis 

Business School, University of Bristol,  
Bristol, UK

## Correspondence

Giorgos Gouzoulis, Business School,  
University of Bristol, Bristol, UK.  
Email: [g.gouzoulis@bristol.ac.uk](mailto:g.gouzoulis@bristol.ac.uk)

## Abstract

While isolated episodes of work stoppages keep occurring, aggregate industrial action rates have been on the decline over the last five decades. Attempts to explain this trend centre on the short-term effects of the business cycle and the long-term impacts of labour market liberalisation, deindustrialisation and globalisation. This paper argues that household indebtedness is a missing piece of the puzzle. Since indebted employees tend to become self-disciplined at the workplace on the fear of losing their job and defaulting, this paper argues that the post-1970 rise of household financialisation is associated with the decline of strike activity. The econometric evidence reported provides strong support to this argument for the cases of Japan, Korea, Sweden, the United States and the United Kingdom over the period 1970–2018.

## 1 | INTRODUCTION

Industrial action has been historically one of the main *levers of pressure* for employees to demand economic, political and social change from employers and the government. For example, on the economic side, the establishment of the 8-h workday in the late 19th/early 20th century is an achievement of mass strikes, while, in the political arena, mass strikes also contributed to the fall of the apartheid in South Africa. In terms of the post-war period, the

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early/mid-1970s was a period of significant labour unrest in the context of the stagflation crisis (Glyn & Sutcliffe, 1972; Hyman, 1972), which achieved several victories in terms of pay and working conditions for the employees.

However, despite since the early 1980s workers' share of national income is declining and workplace conditions are worsening across most advanced economies, major nationwide work stoppages have also been declining dramatically (Godard, 2011; Kelly, 2015). The literature on the determinants of strike action presents several competing and complementary explanations regarding the driving forces behind this stylised fact. These range from the effects of inflation and the decline of the associational power of workers to deindustrialisation and the disciplining effects of outsourcing (Ashenfelter & Johnson, 1969; Brandl & Traxler, 2010; Goerke & Madsen, 2004; Kaufman, 1982; Piazza, 2005; Scheuer, 2006; Tracy, 1986; Tuman, 2019).

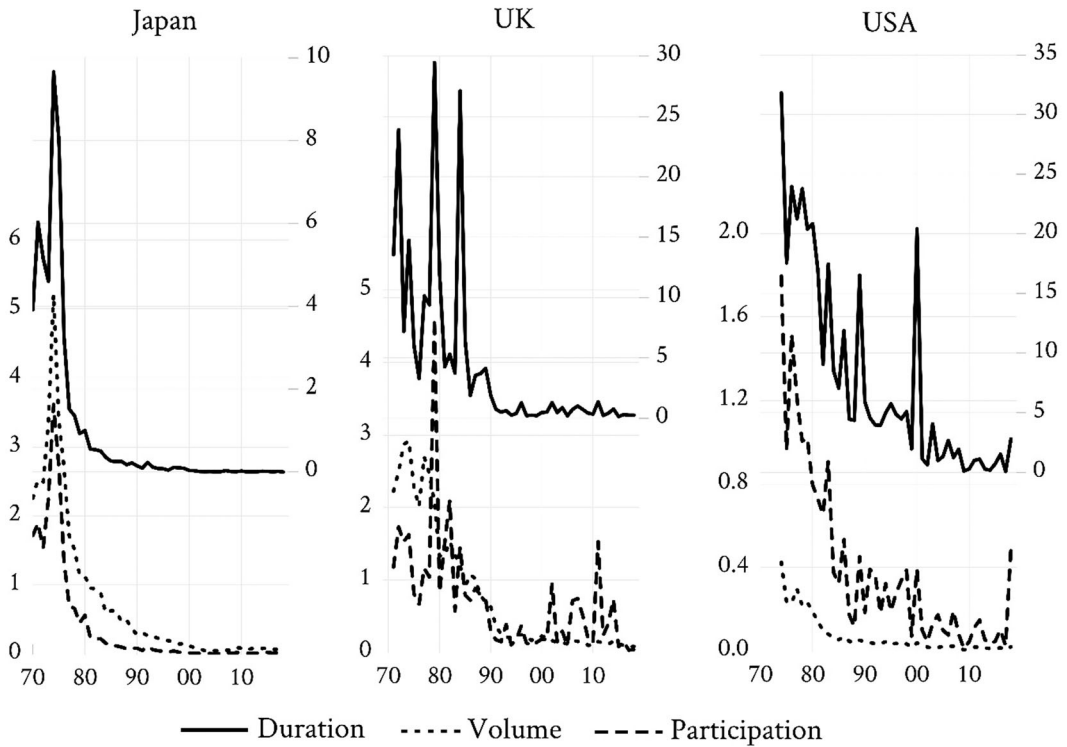
This paper argues that the financialisation of households is an important overlooked missing piece of the declining strike activity 'puzzle'. The term 'financialisation' broadly describes the increasing dependence of nonfinancial actors on financial institutions and instruments, which, in turn, affects their behaviour and strategies. In particular, since the 1970s, the financial sector has been increasingly financing households rather than nonfinancial corporations, with household debt ratios increasing rapidly across the globe and mortgages being the vast majority of new credit (Bezemer et al., 2021).

Recent studies show that rising dependence on private credit has made indebted workers more self-disciplined and risk-averse at the workplace on the fear of losing their job and defaulting. Related evidence demonstrates that household indebtedness undermines wage demands and, accordingly, that the increasing share of household debt has contributed to reductions in the labour income share and the increase in involuntary atypical work (Gouzoulis, 2021, 2022; Gouzoulis et al., 2021, 2022; Wood, 2017). Building on the concept of debt-induced self-discipline, this paper argues that since strike action involves a loss of income and a risk of dismissal, indebted workers are less likely to strike. Due to the widespread distribution of household debt across income all groups (including the strike-prone, working-class households), the aggregate rise in household debt is likely to be associated with the decline in strike participation, duration and volume.

To explore this idea, this paper focuses on Japan, Korea, Sweden, Norway, the United States and the United Kingdom over the period 1970–2018 using annual data from a variety of sources including ILOSTAT, World Bank, IMF, UNCTAD and Visser (2019). Estimations based on the Unrestricted Error-Correction Model (UECM) demonstrate a robust association between rising household debt ratios and the reduction in strike activity rates in Japan, Korea, Sweden, the United States and the United Kingdom. Most importantly, household debt is found to be the most consistent explanatory variable across countries, in contrast to proxies for other well-established drivers of strikes.

## 2 | TRENDS AND DRIVERS OF STRIKE ACTIVITY

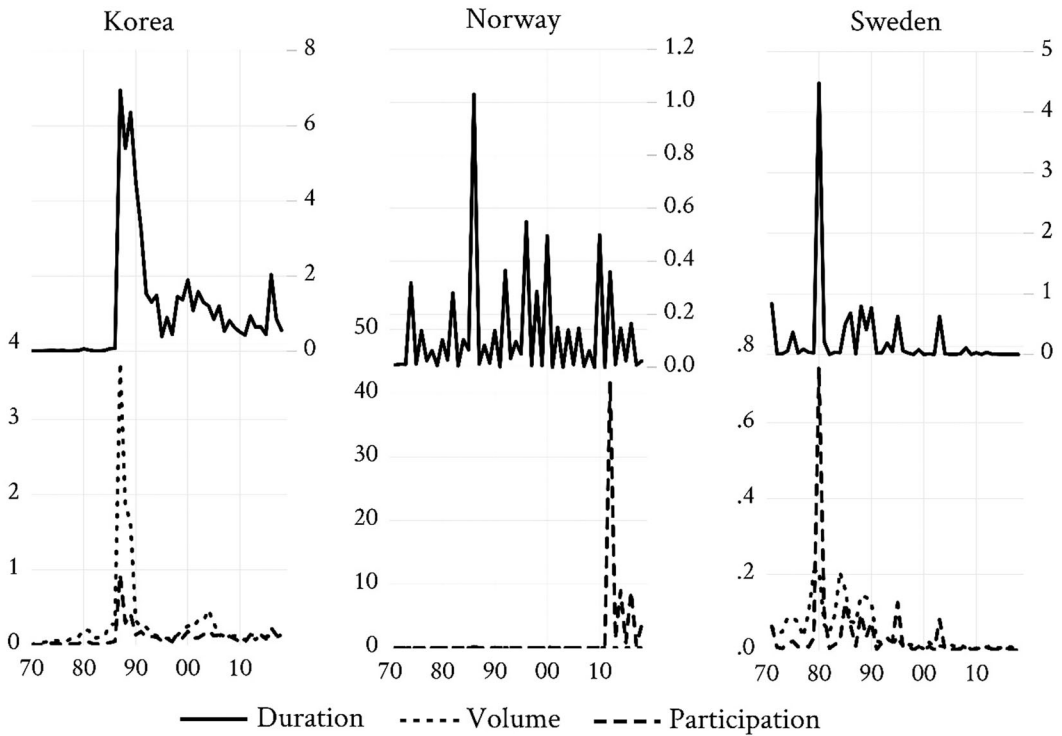
While the 1970s was a period of labour unrest across sectors and national economies, since the early 1980s strike participation, strike duration and the number/volume of strikes at the economy level have reached their lowest point. Despite the main focus of the literature being the Anglo-Saxon experience, this stylised fact can also be observed across regions and continents. To get a sense of relevant cross-country trends, Figure 1 reports strike duration, participation and volume at the economy/country-level for the post-1970 period for Korea,



**FIGURE 1** Long-run trends in strike activity—Japan, United Kingdom and United States, 1970–2018. *Note:* ‘Duration’ (right axis) reports the number of days not worked due to strikes (millions). ‘Volume’ (left axis) presents the volume/number of strikes (thousands). ‘Participation’ (left axis) refers to the number of workers involved in strikes (thousands). All indicators refer to the total economy. (Source: ILOSTAT).

Norway and Sweden. Figure 2 reports the same series for Japan, the United Kingdom and the United States. The data come from the International Labour Office (ILO) database. The ILO series are the most consistent strike series that allow cross-country comparisons, but it is important to note some measurement differences between the six countries. First, regarding minimum thresholds, in Japan and Korea, there are none, in Norway, it is 1 day, in Sweden it is 8 workhours (even if only eight workers walked out for a minimum of 1 h each), in the United Kingdom it is 1 day or 10 workers involved (unless more than 100 days not worked), and in the United States it is 1000 simultaneously involved in a full shift stoppage (until 1982 the threshold was 6 workers). Sympathetic and political protests are included for Korea, Sweden and Norway, political protests only are included for Japan, and sympathetic strikes only are included for the United States. In Japan, Sweden, Norway, the United Kingdom and the United States unpaid family workers, laid-off staff and workers on leave are not included.

Each pair of countries represent different varieties of capitalism, which, however, share the common characteristic that they are highly financialised. Japan and Korea represent the state-led, neo-developmental model of East Asia (Kalinowski, 2015), which has been increasingly converging with the growth model of Liberal Market Economies (LMEs). Sweden and Norway are two key examples of the Nordic, Social-Democratic model of capitalism, which, despite its convergence towards the LME model, in comparison, retains some of its key elements: a fairly regulated labour market, relatively high public welfare provision and a state-regulated financial



**FIGURE 2** Long-run trends in strike activity—Korea, Norway and Sweden 1970–2018. *Note:* ‘Duration’ (right axis) reports the number of days not worked due to strikes (millions). ‘Volume’ (left axis) presents the volume/number of strikes (thousands). ‘Participation’ (left axis) refers to the number of workers involved in strikes (thousands). All indicators refer to the total economy. (*Source:* ILOSTAT).

development model with significant debtor protection despite the steep rise in household indebtedness (Gouzoulis, 2021; Blackwell & Kohl, 2018). Last, the United States and the United Kingdom are the archetypal LMEs with very high private indebtedness, low public welfare provision, largely pro-creditor laws (Deakin et al., 2017) and very minimalistic debtor protection in special cases (e.g., first-time home buyers).

As shown in the previous figures, despite the significant economic, political and institutional heterogeneity between the six countries, all have experienced a decline in strike participation, duration and volume over the last five decades. Still, the short-run fluctuations and the rates of decline vary notably. The only exception to the cross-country reduction of strike activity rates is the major increase in strike participation in Norway in the early 2010s when the mass strikes of 2010 and 2012 (including local and national government workers) took place. Yet, this is only an outlier case that contrasts the broader long-term, cross-country trend of declining labour militancy. Hence, the big question is what are the driving forces behind the secular decline of strike action?

Early work on strike activity underscores the association between strike activity and fluctuations in economic activity. At the peak of the business cycle when unemployment decreases and inflation rises, workers have incentives to strike and demand higher wages. Hence, the early industrial action literature argues that strike activity tends to be procyclical (e.g., Goerke & Madsen, 2004; Kaufman, 1982; McConnell, 1990; Tracy, 1986). Yet, the

probability and duration of industrial action vary substantially across industries that face different economic conditions (Card, 1990). More major structural shifts within a national economy also affect strike activity. One of the most notable examples is the deindustrialisation of many advanced economies since the 1970s and the movement of the workforce from the strike-prone, private manufacturing sector to the substantially less militant service sector (Bell, 1973; Troy, 1990; Visser, 1991). The vast majority of workers in the industrial sectors are dependent employees that have closer ties with unions, while workers in the service sectors are commonly independent contractors, agency workers and self-employed that are rarely unionised. However, the impact of deindustrialisation on strike activity can be positive if the workforce moves to the even more strike-prone public sector (Piazza, 2005).

Scholars within the institutionalist labour/industrial relations tradition and Power Resources Theory (PRT) have also emphasised the role of labour market and corporate governance institutions, employees' associational and positional power and the state of political conflict in a country as fundamental drivers of industrial conflict (e.g., Budd, 1994; Clegg, 1970; Edwards & Hyman, 1994; Gall, 2013). The main argument of PRT is that when a pro-labour party governs a country, workers have fewer incentives to strike since such a government typically follows an agenda focused on low unemployment, high benefits and better working conditions (Korpi & Shalev, 1979). However, on the other hand, labour market regulation, and strengthening unions and employee voice under a prolabor reform agenda might allow employees to form a broader movement and demand even more drastic changes in the functioning of the economy. Thus, it is important to note that the short- and long-term effects of domestic politics on industrial action can be different.

A particularly important but controversial dimension of the institutional drivers of industrial disputes is labour's associational power and, more specifically, unionisation. Simplistic views of the relationship between union strength and industrial action contend that there is a mutually reinforcing relationship between the two, but understanding strike action as an issue of strategic choice by unions can offer more fruitful insights (Boxall & Haynes, 1997). Even in times when employees are organised and, thus, unions are stronger, the choice of engaging in industrial action is not straightforward since it depends on various criteria. These include whether there are alternative ways of engaging in conflict with employers and/or the government, how realistic are the ideal goals of industrial action given the economic and political environment, the cost-benefit balance of engaging in the conflict, and broader value-based criteria (Brandl & Traxler, 2010; Scheuer, 2006). Therefore, on the one hand, powerful unions can mobilise more workers and organise mass strikes, but, on the other hand, their power might enable them to negotiate and achieve wins only by threatening with strike.

Early macro-level work on the United States by Kaufman (1982, 1983) shows that unionisation and other institutional factors matter for strike action, but Piazza's (2005) more recent cross-sectional linear regression analysis shows no significant effects of union density on labour conflicts across various advanced economies between 1952 and 2001. In contrast, Brandl and Traxler (2010) measure employee power as the differential between employees' and employers' participation in their respective unions and find that this indicator exhibits a positive and statistically significant impact on the volume of labour conflicts. Further, they show that it is a superior predictor of industrial action as compared to union density. Similarly, Tuman's (2019) study on the drivers of strike activity in the automobile industry of Mexico between 1980 and 2012 shows that the institutional characteristics of unions, such as

democracy within them and corporate affiliation/independence, do matter. More specifically the results show that union democracy and independence increase industrial action.

Last, another strand of the literature focuses on how broader institutional complementarities affect industrial action and, more specifically, on the effects of globalisation. Economic globalisation can be broadly defined as the increasing interconnectedness of production networks, trade, financial flows, and labour markets between geographically distant places across the globe. The transnationalisation of the production process has made production relocation and outsourcing easier for employers, particularly in the manufacturing sector, thus, industrial action has become riskier, shifting employees' cost-benefit balance towards avoiding conflict. Simultaneously many governments facilitate this process since they implement reforms on liberalising national employment relations systems and reducing wages in the hope of attracting foreign investment (Scheuer, 2006). Econometric evidence suggests that indeed globalisation and trade openness have contributed to the decline of industrial action over the last decades in a diverse array of economies (Brandl & Traxler, 2010; Piazza, 2005; Tuman, 2019). Still, it is important to note that the effects can vary across countries and sectors with different structural characteristics. For example, port workers tend to remain militant even in times of increased globalisation given that, by definition, it is virtually impossible to be threatened with relocation (Turnbull, 2000).

### 3 | FINANCIALISATION, HOUSEHOLD INDEBTEDNESS AND INDUSTRIAL ACTION

Beyond globalisation, another major structural shift that coincides with the decline of organised labour and the steep decline in strike activity is the financialisation of the economy and society. While definitions vary, in general, financialisation refers to the rising dominance of financial actors and institutions over the decisions and motives of the nonfinancial sectors of the economy. Financialisation, as a dynamic and multidimensional process, has been affecting different parts of society, including corporate governance, real estate and everyday life (van der Zwan, 2014). Thus, given the focus of this study, the open question that emerges is whether any aspect of financialisation is related to the decline of industrial action over the last decades.

Focusing on the strand of the financialisation literature that looks at its effects on labour, the vast majority of relevant studies centre on corporate financialisation. Since the late 1990s/early 2000s, scholars from different social science disciplines have conceptualised and assessed how the rise of the shareholder value orientation in corporate governance has been negatively affecting the employment relationship and income inequality (e.g., Froud et al., 2000; Lazonick & O'Sullivan, 2000; Medoff & Harless, 1996; Thompson, 2003, 2013). The core argument of this literature is that due to the increased influence of capital markets over nonfinancial firms, firm managers actively pursue the maximisation of shareholder value, that is, dividend payments to shareholders. This, in turn, increases financial payments for nonfinancial corporations and worsens their balance sheets, as dividend maximisation is commonly achieved via share buybacks funded by business loans. Consequently, this vicious cycle pushes managers to cut labour costs to improve the financial position of their firms.

Several empirical studies demonstrate that the financialisation of corporate governance has led to the breach of employment contracts, workforce downsizing, worsening workplace conditions and lower wages (Appelbaum et al., 2013; Darcillon, 2016). Further, more recent empirical work shows that financialised corporations also undermine labour's organisational capacity via two parallel processes (Dubuis et al., 2020; Kollmeyer & Peters, 2019; Peters, 2011). First, indebted firms tend to

hire nonunionised employees to avoid union premia and reduce labour costs, generating incentives for other employees to not join or leave unions. Second, the growth of the financial sector, a particularly low unionisation part of the economy, has increased its employment share over total employment. Still, given the hypotheses and frameworks presented above, corporate financialisation is likely to only have an indirect negative relationship with industrial action via subverting the organisational capacity of workers.

Is that the case for household financialisation too? Since the late 1970s, the financial system has shifted its focus from financing nonfinancial corporations to providing credit to households (Bezemer et al., 2021). The deregulation of the financial sector over this period included lowering the collateral requirements for obtaining credit, thus, the aggregate increase in household debt ratios reflects an increase in debt accumulation by poorer households. Since lowering collateral requirements is particularly important for larger loans, the vast majority of new debt issued over this period has been mortgage credit, which, nowadays, is the majority of total household debt (Bezemer et al., 2021). Data for several economies show that the expansion of household credit provision has led to its widespread distribution across income quantiles (e.g., see Betti et al., 2007; Cox et al., 2007; ONS, 2016). Given that for several decades the earnings of richer households are rising relative to low-income earners (Pontusson, 2013) and that the decline of social housing has been pushing poorer households to borrow large amounts to purchase houses, the burden of over-indebtedness falls disproportionately on the most strike-prone part of the population.<sup>1</sup>

Figure 3 reports the rapid increase in household debt-to-GDP ratios for the six economies examined in this study over the period 1970–2018.<sup>2</sup> Even in the case of Japan where the household debt ratio has been relatively stable since 1990, the level reached at this point is approximately three times larger compared to its starting point in 1970. Comparing these trends to the evolution of strikes and lockouts (Figures 1 and 2), there is an apparent negative correlation between household indebtedness and strike rates.

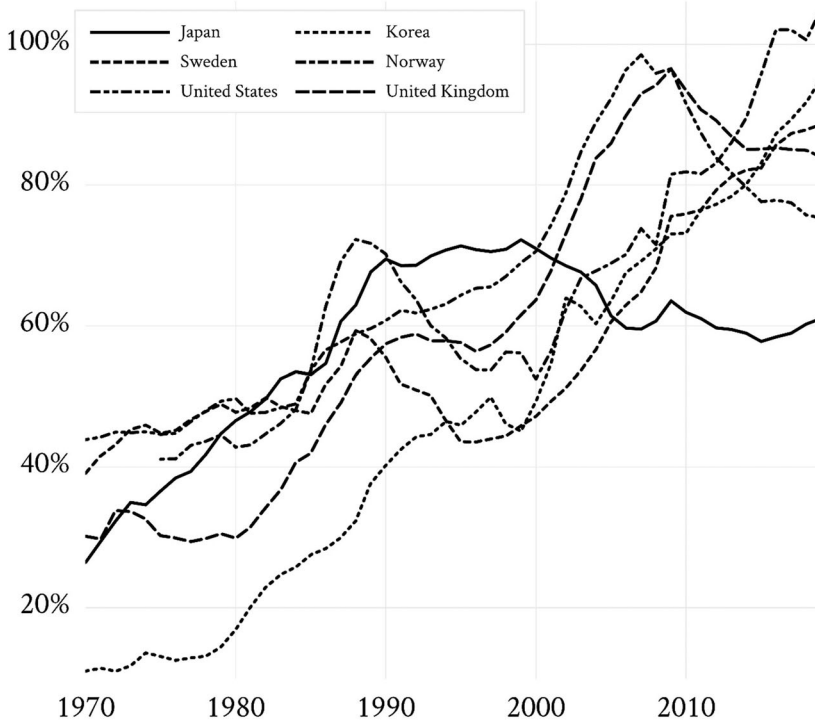
This stylised fact has motivated a steadily growing literature that explores how household debt commitments affect the labour market and the balance of power at the workplace. The main argument that links household financialisation and labour outcomes centres on the fear of private debt default. More specifically, the fear of defaulting on your debt induces self-discipline and risk-averse behaviour (Langley, 2007; Lazzarato, 2012; Sweet, 2018). Avoiding default involves securing a steady flow of income, thus, indebted employees prioritise job stability over income until they repay their debt. Consequently, during this period, they tend to be less demanding in their wage negotiations or even accept reductions to maintain their employment and avoid defaulting. Therefore, given that increasing aggregate household debt ratios reflect an increase in the share of indebted workers, there is evidence that this process has contributed to the decline of labour's income share (Gouzoulis, 2021, 2022; Gouzoulis et al., 2021; Wood, 2017). Yet, as correctly highlighted by Thompson and Cushen (2020), the household financialisation-industrial relations nexus remains particularly underdeveloped. Thus, expanding the scope of the literature on the disciplining effects of household debt, the overarching question this paper asks is *if increasing household debt default risk also disincentivises workers from participating in collective actions at the workplace?*

Several potential mechanisms can explain the negative association between household indebtedness and the different strike measures. Since industrial action involves a loss of income in

<sup>1</sup>While the other main component of household debt, consumer credit, might allow easing the financial pressure in the short-run by allowing individuals to repay their main debt obligations (mortgage), this comes typically comes at a high interest cost. Thus, in the medium/long-run it also contributes to rising financial distress.

<sup>2</sup>The household debt series do not distinguish between workless and working households, as this distinction in national accounts and surveys is relatively recent.





**FIGURE 3** Household debt-to-GDP ratios, 1970–2018. *Note:* The household debt ratio is the total stock of debt, loans and debt securities issued by households as a share of GDP (*Source:* IMF).

the short-run as well as in more liberalised labour markets, a high risk of being permanently replaced in the medium/long-run (Gourevitch, 2018; Stelzner, 2017), the likelihood that indebted employees will get involved in strike activities in any way should be lower compared to non-indebted employees.

Regarding *strike participation*, given that the expansion of household debt has come with increased credit provision for low-income, working-class households, this translates into a rising debt burden for the most strike-prone parts of the society. Thus, a rising share of indebted households suggests that a rising proportion of the workforce will likely not participate in strikes since it involves the risk of losing income or their job.

**H1:** *Increasing household indebtedness will be associated with declining strike participation.*

Concerning *strike duration*, rising household indebtedness may disincentivise employees to support prolonged industrial action due to loss of income (Grady & Simms, 2019). In other words, household debt repayment commitments can increase significantly the ‘cost-potential benefit’ balance of striking since there is little room for negotiation between households and financial institutions regarding missing payments. Even in countries where unions provide some strike pay, filing a claim and receiving reimbursement from the strike fund can be time-consuming and, typically, occurs after the strike ends. So, the incentive for indebted strikers to end the strike as early as possible remains.

**H2:** *Increasing household indebtedness will be associated with declining strike duration.*

As regards *strike volume*, indebted workers are likely to not participate in announced strikes, but also to be more reluctant to be involved in the organisation and coordination of industrial action or even vote in favour of strike action. Accordingly, the more working-class households become indebted and face default risk, the less likely is that they will support strike action in any way. However, this association is conditional to specific union structures and regulations about strike organisation, so this association is expected to be less strong compared to the cases of strike participation and duration.

**H3:** *Increasing household indebtedness will be associated with a declining number of strikes.*

Summarising, household debt-induced self-disciplined behaviour is likely to be negatively associated with all three key dimensions of strike action. While the arguments presented here are behavioural, the fact that upsurging household debt ratios across advanced economies reflect rising credit provision to low-income, working-class households, suggests that these micro-level mechanisms should translate into macro-level patterns. Needless to say, this argument does not suggest that potential macro-level evidence in favour of the main hypotheses would imply that all indebted workers experience identical self-disciplining effects. Such evidence would rather suggest that the majority of the indebted working class population experiences comparable debt-related disciplinary effects.

It is important to note that the legal aspects of the creditor-debtor relationship in each country and social norms about personal indebtedness can shape the disciplining effects of household debt (Gouzoulis, 2022). For example, as mentioned earlier, the UK law protects low-income households more compared to their counterparts in the United States, thus, similar amounts of household debt should have much stronger disciplining effects on workers in the latter. The same is likely to be the case in the context of the comparison between the pro-debtor financial systems of Sweden and Norway compared to the pro-creditor financial systems of Japan and Korea. Further, institutional variation within the period under examination may result in differences between seemingly similar cases. For instance, the first step of financial liberalisation in Sweden—the deregulation of the housing market—started taking place in 1968 (Sørvoll, 2013). Contrariwise, in Norway, this process started more than a decade later. Hence, household debt-related disciplinary effects should be stronger in the former. Lastly, in certain societies or regions, high personal indebtedness is viewed as a personal failure to successfully manage your finances and households tend to be very risk-averse concerning their financial decisions since personal default constitutes a social stigma. For example, scholars argue that this is the case for Japan (Gotoh, 2021; Naoi et al., 2019). In this respect, in such cases, comparatively smaller amounts of debt can generate substantially large disciplining effects on workers.

## 4 | RESEARCH DESIGN

### 4.1 | Empirical approach and data

While quantitative analysis is a widely used tool in labour studies, the debate on the suitability of aggregated, macro-level data for the analysis of strikes dates to the 1980s (Kaufman et al., 1984; Wheeler, 1984). This paper focuses on the macro level for three reasons. First, its primary goal is to explore whether a strong negative association between household debt and strike activity rates exists covering the longest possible period and prepare the ground for

follow-up micro-level studies. Second, given the discussion in the previous sections, it is reasonable to expect that the aggregate variables will exhibit the predicted micro effects. Third, since certain key channels are related to long-run, structural developments are primarily measured at the macro level (e.g., deindustrialisation and globalisation), micro-level analysis that omits such variables can overlook important parts of the 'strike puzzle'.

Combining insights from the previous sections, the econometric equations estimated evaluate the three hypotheses about the association between household debt (*HD*) and strike rates, and also include proxies for other well-established drivers related to labour power resources (*LP*), industrial employment (*IND*), inflation (*INFL*), trade globalisation (*OPEN*), and the political orientation of the governing party (*POL*). Therefore, the baseline econometric equation is the following:

$$\log(\text{Industrial Action}) = f(HD, LP, IND, INFL, OPEN, POL). \quad (1)$$

Following the hypotheses presented in section three, *Industrial Action* is measured by: (i) the number of workers involved in strikes; (ii) the duration of strikes, that is, the number of days not worked due to strikes and (iii) the volume/number of strikes (see Figures 1 and 2). Given the exponential changes in the series during the period under examination, and to enhance cross-country comparability (Brandl & Traxler, 2010; Paloheimo, 1984), the dependent variables are included in natural logarithm form.

To test the key hypotheses about the household debt-strike nexus (see Section 3), the explanatory variable included is the household debt-to-GDP ratio (household debt, loans and debt securities) from the IMF database (see Figure 3).

*LP* is included as a proxy of the state of labour market regulation/labour power. The only case where the longitudinal series on the right to strike show any variation is Korea, where the proxies included are the *Right of Association* and the *Right to Strike* from Visser (2019).<sup>3</sup> Regarding the rest countries, either minor or major restrictions to both rights exist over the whole period with no change since 1970. Hence, a broader institutional measure of labour power has to be used for them. Given the controversy about whether unionisation rates are appropriate measures of workers' bargaining power (Brandl & Traxler, 2010), this study uses membership concentration indices for the union level (*CONCunion*) and the confederal level (*CONCconf*) from Visser (2019) as institutional indicators for employee power. Higher union and/or confederal membership concentration indicates higher bargaining power for organised labour, thus, a positive association with strike action is expected. Yet, increased union power might enable unions to win disputes with employers only by threatening to mobilise workers, hence, in such cases, the association can be negative. Since the relevant series for Korea include major gaps and minimal variation over time, they are not included.

*IND* is proxied by employment in the manufacturing/industry sectors (*Source*: UNCTAD). Since the series are in level, the equation includes the natural logarithm of these series to account for exponential change. Industrial employment is commonly used as a proxy for deindustrialisation and the movement of the workforce from the strike-prone manufacturing sectors to the less militant service sectors or to unemployment, which lowers aggregate strike activity. Nonetheless, this is not always the case, since if employees move from the industry to the public sector (which is even more strike-prone), then this decline might increase industrial conflict.

<sup>3</sup>Both proxies refer to the market sector and are categorical, ordinal variables based on a 3-point scale (3 = yes, 2 = yes, with minor restrictions, 1 = yes, with major restrictions).

The proxy for *INFL* is the consumer price index from the OECD database. As discussed in section two, employees' incentive to strike for higher wages and maintain their purchasing power is likely to increase with higher inflation rates. This association is likely to be stronger when inflation occurs at the peak of the business cycle since replacing workers (or credibly threatening them with redundancy) is harder and riskier for employers when the economy operates closer to its full capacity.

*OPEN* is used as a proxy for the effects of globalisation on strike activity and the variable used here is trade openness, that is, the sum of imports and exports over GDP, from Jordà et al. (2017). An alternative measure of openness used is outward Foreign Direct Investment (FDI) (% GDP). As argued in section two, cross-country international price competition and the offshoring threat can disincentivise collective action by the employees. Yet, that is subject to the positional power of the economy/sector within the broader global production networks at a given time and to geographical comparative advantages that decrease the relocation threat.

The last control variable included for all countries is the political orientation of the government or the degree of autocracy (*POL*). For Japan, Sweden, Norway and the United Kingdom the variable used is the weighted government composition, that is, the seat share of left-wing parties as a percentage of the total parliamentary seat share of all governing parties. For the United States, where the left-right divide does not apply since relevant indicators classify the Democrats as centrists, the variable used is the cabinet posts held by right-wing parties as a share of total cabinet posts (weighted by the number of days in office). The indicators used are *left\_gov2* and *right\_gov1*, respectively, from Armingeon et al. (2021). Regarding Korea, given its turbulent political history and the continuous regime changes over the last five decades, the variable used is the *PolityV* score from the *Center for Systemic Peace*.<sup>4</sup> As discussed earlier, the presence of a more democratic/progressive government might: (a) disincentivise strike action if the governing majority adopts a pro-worker agenda without public pressure or (b) pro-worker right-to-strike legislation reforms might incentivise workers to strike demanding even more major reforms.

Overall, the period that the data set and the regression analysis cover varies slightly between Japan (1971–2018), Korea (1971–2018), Norway (1976–2017), Sweden (1973–2017), the United Kingdom (1973–2018) and the United Kingdom (1976–2018) due to data availability for certain explanatory variables. Descriptive statistics can be found in the online data appendix.

Finally, in such macrolevel analyses, it is common to control for changes in the trends and seasonality via the inclusion of dummy variables (Wooldridge, 2013, Ch. 10). In this case, this is particularly important for the United Kingdom and the United States, where the policy transition from the regulated early post-WWII era to the current pro-employer, disconnected mode of capitalism was rather rapid.<sup>5</sup> The cutoff points are the election of Margaret Thatcher in the United Kingdom in 1979 and the election of Jimmy Carter in the United States in 1976. Despite more progressive governments having been elected in both countries since then, the policy agendas of both right and left-wing parties have largely converged towards economic and social conservatism (Peters, 2012).<sup>6</sup> The sample for the United States starts in 1976 and, thus, it covers the whole neoliberal period. The sample for the United Kingdom starts before the first

<sup>4</sup>This categorical, ordinal indicator captures the degree of authoritarianism based on a 21-point scale [minimum: -10 (hereditary monarchy); maximum: +10 (consolidated democracy)].

<sup>5</sup>As discussed in Section 2, while Japan, Korea, Norway and Sweden have been becoming more liberal, they still retain significant regulation in certain areas of the economy and the transition to neoliberalism has not been as rapid as in the Anglo-Saxon countries.

<sup>6</sup>For this reason, it is not expected the correlation between the left-right index and the neoliberalism time dummy to be high. The absence of multicollinearity is indeed confirmed via variance inflation factor (VIF) analysis.

Thatcher government, hence, a binary time dummy variable that marks the neoliberal period since 1979 (1973–1978 = 0; 1979–2018 = 1) and a linear time trend are included.

## 4.2 | Econometric methodology

In general, two main criteria inform the choice of the appropriate regression model. First, whether each time series used is stationary, that is, whether the shape of its distribution remains unchanged over time. Second, whether there is a cointegrating relationship between the dependent and the explanatory variables, that is, whether there is a long-run correlation between the dependent variable and the set of explanatory variables. Typically, most economic datasets include a combination of stationary and nonstationary series. That is the case with this study too, as reported in the stationarity tests reported in the online data appendix. Further, evaluating the cointegration between the strike rates and the independent variables for each country shows that the variables are indeed cointegrated.<sup>7</sup> In cases where the datasets include both stationary and nonstationary time series and, simultaneously, the variables are cointegrated, the standard econometric approach used is the unrestricted error-correction model (UECM) (Davidson et al., 1978; Sargan, 1964).

The UECM approach includes the explanatory variables both in first-differences and (lagged) levels in the same equation and the dependent variable in first lag. This allows to simultaneously account for each variable's immediate/short-run effects and long-run effects, respectively. The inclusion of both first-differenced and level coefficients also addresses issues related to autocorrelation and yields more accurate estimates. These issues are common when a specification is estimated using the standard stationary ordinary least squares (OLS) regression analysis in levels for relatively small-size macroeconomic samples. For these reasons, this approach has become the standard econometric strategy in the relevant literature (e.g., Gouzoulis, 2021, 2022; Gouzoulis et al., 2021; Bengtsson, 2014; Flaherty & Riain, 2020; Kristal, 2010). The standard UECM specification is of the following form:

$$\Delta Y_t = a_0 + a_1 Y_{t-1} + \sum_{n=2}^N a_n X_{t-1} + \beta_1 \Delta Y_{t-1} + \sum_{n=2}^N \beta_n \Delta X + \varepsilon_t, \quad (2)$$

where the  $Y$  represents the dependent variable,  $X$  includes all explanatory variables. The terms  $\alpha_0$  and  $\varepsilon_t$  are the constant and error terms, respectively. The standard way to calculate the estimates from the above equation is via OLS, which assigns equal weights to all observations when minimising the sum of the squares of the differences between the dependent variable and the explanatory variables. Nevertheless, this approach is sensitive to the presence of outlier observations which can distort the (unweighted) estimates. In such cases, using Robust Least Squares (RLS) is preferable, since this weighted least squares estimator assigns a smaller weight to outlier observations to correct the estimates. More specifically, when the outliers appear in the dependent variable series, the M-Estimator is considered to be the most efficient RLS approach (Huber, 1973).<sup>8</sup> Strike activity series very often include several, major outliers. As

<sup>7</sup>Following the commonly used practice, after regressing each dependent variable against the explanatory variables at levels, the residuals of these regressions are found to be stationary. Thus, the variables are cointegrated.

<sup>8</sup>RLS also yields more efficient estimates than OLS when there are heteroskedasticity and/or serial correlation issues (Croux et al., 2003; Yu & Yao, 2017).

shown in Figures 1 and 2, this is also the case with the countries examined in this paper, hence, all equations are estimated via the M-Estimator.<sup>9</sup>

## 5 | RESULTS

This section presents the regression results for each country. To evaluate the sensitivity of the main variable of interest (household debt), three equations are reported for each strike rate and each country. The baseline equation includes the union membership concentration index as a labour power proxy (right to strike for Korea). In the second equation, this is replaced by the confederation membership concentration index (right to association for Korea). In the third equation, the outward FDI replaces trade openness as a proxy for the threat of relocation. The rest variables are used as described in the previous section. The coefficients reported in the tables are standardised, that is, each coefficient reflects the association between a one-unit increase in each independent variable and the relevant change of the dependent variable. Since the dependent variables are log-transformed, the standardised coefficients depict percentage changes. That allows comparing the size of coefficients within and across equations.

Table 1 reports the findings for Japan and Korea. In both cases, all household debt ratio coefficients are negative. Regarding Japan, all of them are statistically significant either at the 1% or 5% levels. It is also worth noting that the household debt coefficient is the largest among all explanatory variables. Taken together, this suggests a very strong association between increases in household indebtedness and declining strike participation, duration and volume in Japan since 1971. As regards the rest independent variables, the findings provide robust support that, in Japan, industrial employment and inflation are positively associated with strikes, and that trade globalisation is negatively associated with strikes. Regarding Korea, the negative association between household debt and strike activity is particularly strong for strike participation and duration. In five out of six equations, the negative coefficients of household debt are statistically significant. Focusing on the rest explanatory variables, the second most consistent finding is the positive association between strikes and improvement in the rights to strike and association.

Table 2 presents the results for the two Nordic economies. Centring on Sweden, in seven out of nine equations the household debt coefficients are negative. Among these, the coefficients of the strike participation equations are statistically significant at the 1% level. The negative association between household debt and strike duration is also statistically significant in two out of three equations. Hence, overall, the results show a fairly robust negative association between household debt and strike participation and duration in Sweden over the last five decades. Further, the findings confirm a strongly positive association between inflation and strike participation in the country. Regarding Norway, the results are substantially different, as household debt does not seem to play a key role in strike action, since the signs of the household debt coefficients vary in terms of signs and size across equations. In contrast, the positive association between confederate concentration and strikes is robust. In addition, interestingly, union concentration is found to be positively associated with strike participation and duration.

Table 3 displays the econometric findings for the United States and the United Kingdom. Similar to Japan and Korea, in the United States, all household debt coefficients are strongly

<sup>9</sup>As an additional form of robustness check, all equations reported in the main text have also been estimated using OLS-based Newey-West estimator (heteroskedasticity and autocorrelation consistent). The key coefficients are effectively similar in terms of signs, coefficient size and statistical significance, but the adjusted *r*-squared values are substantially lower.

TABLE 1 Determinants of strike activity—Japan and Korea

Japan		Strike participation			Strike duration			Strike volume		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	
<i>Log(Dep. Variable)<sub>t-1</sub></i>	-2.64***	-2.56***	-3.14***	-2.91***	-2.77***	-2.88***	-3.31***	-3.26***	-1.37**	
<i>Union Conc.<sub>t-1</sub></i>	0.07		-0.15	-0.01		-0.17**	0.31***		0.16	
<i>Confederation Conc.<sub>t-1</sub></i>		-0.51***			-0.73***			-0.24		
<i>Log(Ind. Employment)<sub>t-1</sub></i>	0.79***	0.40**	1.14***	1.51***	1.11***	1.43***	1.88***	1.61***	0.72*	
<i>Inflation<sub>t-1</sub></i>	0.95***	1.02***	0.92***	0.59***	0.60***	0.71***	0.63***	0.72***	0.17	
<i>Trade Openness<sub>t-1</sub></i>	-0.60***	-0.63***		-0.42***	-0.58***		-0.51***	-0.46***		
<i>FDI Outflows<sub>t-1</sub></i>			0.03			-1.10***			-0.12	
<i>Left-Right Index<sub>t-1</sub></i>	-0.02	-0.05	0.03	-0.12	-0.23***	-0.24***	0.14	0.09	0.16	
<i>Household Debt Ratio<sub>t-1</sub></i>	-1.16***	-0.75***	-1.29***	-1.16***	-0.60**	-0.75***	-1.86***	-1.61***	-0.92***	
<i>Adj. Rv-squared</i>	0.86	0.92	0.88	0.84	0.91	0.93	0.92	0.91	0.78	
<i>BG LM Test</i>	0.00	0.10	0.13	0.28	0.00	0.08	0.05	0.02	0.39	
<i>Observations</i>	48	48	48	48	48	48	48	48	48	
Korea		Strike participation			Strike duration			Strike volume		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	
<i>Log(Dep. Variable)<sub>t-1</sub></i>	-0.56**	-0.56**	-0.92***	-0.55**	-0.55**	-0.47*	-0.66***	-0.54***	-0.64***	
<i>Right to Strike<sub>t-1</sub></i>	0.92**		1.34***	0.29		1.01*	1.35**		1.81**	
<i>Right to Assoc.t-1</i>		0.75**			0.28		0.83**			
<i>Log(Ind. Employment)<sub>t-1</sub></i>	0.63**	0.46**	1.42	0.37	0.38*	0.93**	0.18	0.01	0.86	
<i>Inflation<sub>t-1</sub></i>	-0.18	-0.21	0.25	0.01	0.02	-0.08	-0.45**	-0.24	-0.34	

TABLE 1 (Continued)

	Korea								
	Strike participation			Strike duration			Strike volume		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
<i>Trade Openness<sub>t-1</sub></i>	0.05	0.03		0.05	0.05		-0.24	-0.14	
<i>FDI Outflows<sub>t-1</sub></i>			-0.01			0.21			-0.25
<i>PolityV<sub>t-1</sub></i>	-0.52	-0.34	-0.87	0.78	0.77	-0.26	-1.18**	-0.65*	-1.76***
<i>Household Debt Ratio<sub>t-1</sub></i>	-0.62**	-0.53*	-0.51	-0.66*	-0.65*	-1.03*	-0.52	-0.36	-0.68
<i>Adj. Rw-squared</i>	0.78	0.78	0.77	0.58	0.58	0.77	0.71	0.57	0.73
<i>BG LM Test</i>	0.17	0.20	0.15	0.13	0.11	0.31	0.41	0.17	0.00
<i>Observations</i>	44	44	43	44	44	43	44	44	44

Note: Statistical significance at 10%, 5% and 1% levels is denoted by \*, \*\* and \*\*\*, respectively. The dependent variable is in first differences. The coefficients reported are standardised by multiplying the obtained coefficient with the ratio of the standard deviation of the explanatory variable over the standard deviation of the dependent variable. BG LM test at first lag. Constant terms and short-run (first-differenced) coefficients are included in the estimations, but not reported.



TABLE 2 Determinants of strike activity—Sweden and Norway

Sweden									
	Strike participation			Strike duration			Strike volume		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
<i>Log(Dep. Variable)<sub>t-1</sub></i>	-0.78***	-0.63***	-0.63***	-1.16***	-0.87***	-0.84***	-1.12***	-1.13***	-0.79**
<i>Union Conc.<sub>t-1</sub></i>	0.31	0.41	0.41	0.55	0.57	0.57	0.53	0.84	0.20
<i>Confederation Conc.<sub>t-1</sub></i>		1.50***			2.87***				
<i>Log(Ind. Employment)<sub>t-1</sub></i>	-0.67	-1.39***	-0.50	-0.17	0.31**	-0.09	0.58	-0.20	0.34
<i>Inflation<sub>t-1</sub></i>	0.82***	0.81***	0.78***	0.23	-1.16***	0.48	0.46	0.42	0.39
<i>Trade Openness<sub>t-1</sub></i>	-0.05	1.35***		-0.84**	1.07***		-0.75	0.36	
<i>FDI Outflows<sub>t-1</sub></i>			-0.10			-0.23			-0.35
<i>Left-Right Index</i>	-0.24	-0.40***	-0.21*	-0.11	-0.22***	-0.07	-0.01	0.15	0.04
<i>Household Debt Ratio<sub>t-1</sub></i>	-0.94***	-0.84***	-0.81***	-0.57*	1.24***	-0.70**	0.11	-0.11	-0.06
<i>Adj. Rv-squared</i>	0.79	0.96	0.83	0.79	0.97	0.69	0.53	0.70	0.45
<i>BG LM Test</i>	0.61	0.21	0.19	0.02	0.40	0.84	0.53	0.00	0.82
<i>Observations</i>	45	45	45	45	45	45	45	45	45
Norway									
	Strike participation			Strike duration			Strike volume		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
<i>Log(Dep. Variable)<sub>t-1</sub></i>	-0.16	-0.48***	-0.45***	-1.13***	-0.86***	-0.95***	-0.78***	-0.72***	-1.16***
<i>Union Conc.<sub>t-1</sub></i>	-0.51***	-0.89***	-0.89***	-0.50**	-0.64*	-0.64*	-0.48	0.80***	0.72***
<i>Confederation Conc.<sub>t-1</sub></i>		0.70***			0.39***				
<i>Log(Ind. Employment)<sub>t-1</sub></i>	-0.32*	-0.77***	-0.60***	-0.31	-0.53***	-0.38*	0.08	-0.75**	0.35**
<i>Inflation<sub>t-1</sub></i>	-0.26*	-0.02	-0.05	0.04	0.07	0.10	0.01	0.17	-0.06

TABLE 2 (Continued)

Norway									
	Strike participation			Strike duration			Strike volume		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
<i>Trade Openness<sub>t-1</sub></i>	0.06	0.12		0.07	0.02		0.18	0.30*	
<i>FDI Outflows<sub>t-1</sub></i>			0.11			0.15			-0.77***
<i>Left-Right Index</i>	0.12*	-0.10	0.11***	-0.14**	-0.08	-0.07	0.00	0.05	-0.22***
<i>Household Debt Ratio<sub>t-1</sub></i>	0.14	0.20	0.44***	0.17	-0.09	0.18	0.32	0.03	-0.51***
<i>Adj. Rw-squared</i>	0.95	0.89	0.98	0.95	0.97	0.95	0.78	0.88	0.97
<i>BG LM Test</i>	0.00	0.00	0.44	0.05	0.00	0.20	0.62	0.87	0.00
<i>Observations</i>	42	42	43	42	42	43	42	42	43

Note: Statistical significance at 10%, 5% and 1% levels is denoted by \*, \*\* and \*\*\*, respectively. The dependent variable is in first differences. The coefficients reported are standardised by multiplying the obtained coefficient with the ratio of the standard deviation of the explanatory variable over the standard deviation of the dependent variable. BG LM test at first lag. Constant terms and short-run (first-differenced) coefficients are included in the estimations, but not reported.

TABLE 3 Determinants of strike activity—United States and United Kingdom

United States									
	Strike participation			Strike duration			Strike volume		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
<i>Log(Dep. Variable)<sub>t-1</sub></i>	-2.10***	-2.21***	-2.16***	-2.57***	-2.70***	-1.01***	-1.38***	-1.29**	-1.30***
<i>Union Conc.<sub>t-1</sub></i>	0.17	-0.08	-0.08	-0.89***	-0.40***	-0.19	0.24		0.22
<i>Confederation Conc.<sub>t-1</sub></i>		-0.05		-0.17					
<i>Log(Ind. Employment)<sub>t-1</sub></i>	0.31	0.31	-0.08	-0.03	0.84*	-0.24**	-0.12	-0.25	0.47
<i>Inflation<sub>t-1</sub></i>	0.68***	0.69***	0.77***	0.57***	0.66***	0.29***	0.65**	0.76**	1.24***
<i>Trade Openness<sub>t-1</sub></i>	0.01	-0.02		0.10	0.13		-0.05	0.02	
<i>FDI Outflows<sub>t-1</sub></i>			0.33			-0.34***			-1.23***
<i>Right-Centre Index</i>	0.04	0.08	0.13	-0.08	0.12	-0.29***	-0.01	0.02	-0.26***
<i>Household Debt Ratio<sub>t-1</sub></i>	-0.87***	-0.89***	-1.17***	-0.87***	-0.99***	-0.07	-0.30	-0.33	1.11***
<i>Adj. Rv-squared</i>	0.83	0.86	0.91	0.96	0.88	0.98	0.74	0.67	0.95
<i>BG LM Test</i>	0.28	0.14	0.05	0.10	0.53	0.82	0.65	0.28	0.10
<i>Observations</i>	43	41	43	43	41	43	43	41	43
United Kingdom									
	Strike participation			Strike duration			Strike volume		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
<i>Log(Dep. Variable)<sub>t-1</sub></i>	-1.44***	-0.24	-1.19***	-2.12***	-2.45***	-2.13***	-3.65***	-4.06***	-3.84***
<i>Union Conc.<sub>t-1</sub></i>	3.14***		2.24***	1.60***		2.12***	1.25		-0.14
<i>Confederation Conc.<sub>t-1</sub></i>		0.24		0.20*				0.26	
<i>Log(Ind. Employment)<sub>t-1</sub></i>	-2.21*	0.59	-2.87*	5.68***	-7.59***	-5.33***	-1.09	-2.00	-5.72***
<i>Inflation<sub>t-1</sub></i>	0.52*	-0.60**	0.61*	1.50***	1.54***	1.82***	0.48	0.47	1.51***

TABLE 3 (Continued)

	United Kingdom								
	Strike participation			Strike duration			Strike volume		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
<i>Trade Openness<sub>t-1</sub></i>	0.66**	0.91***		-0.24	-0.20		0.93**	1.08**	
<i>FDI Outflows<sub>t-1</sub></i>			0.08			0.23*			0.94***
<i>Left-Right Index</i>	-0.21	-0.06	-0.18	-0.24	-0.27*	-0.46***	-0.49	-0.42	-0.81***
<i>Household Debt Ratio<sub>t-1</sub></i>	-0.05	-0.28	-0.31	-1.82***	-1.71***	-1.74***	-1.26	-1.58*	-1.54*
<i>Adj. R<sup>2</sup>-squared</i>	0.86	0.82	0.64	0.87	0.94	0.93	0.51	0.63	0.68
<i>BG LM Test</i>	0.91	0.34	0.94	0.42	0.70	0.25	0.17	0.39	0.05
<i>Observations</i>	46	46	46	46	46	46	46	46	46

Note: Statistical significance at 10%, 5% and 1% levels is denoted by \*, \*\* and \*\*\*, respectively. The dependent variable is in first differences. The coefficients reported are standardised by multiplying the obtained coefficient with the ratio of the standard deviation of the explanatory variable over the standard deviation of the dependent variable. BG LM test at first lag. Constant terms and short-run (first-differenced) coefficients are included in the estimations, but not reported. For the United Kingdom, a time dummy for neoliberalism and a linear time trend are also included, but not reported.

negative, except for the last equation. All three household debt coefficients in the strike participation equations are statistically significant at the 1% level, while two out of three household debt coefficients are statistically significant (at the same level) in the strike duration equations. On top of the main hypotheses, the results for the United States provide consistent evidence that inflation is positively associated with all three strike rates. Regarding the United Kingdom, in all equations, the household debt coefficients are negative, while they are statistically significant in five out of nine specifications. More specifically, the estimations offer particularly consistent evidence that increases in household indebtedness are strongly associated with the decline in strike participation and the volume of strikes. Regarding the other explanatory variables, the estimations also provide evidence that increases in the inflation rate, the decline of industrial employment and declining union concentration are closely related to the reduction in industrial action rates since 1973.

All things considered, the findings presented above provide robust support in favour of the overarching idea that increasing household indebtedness is associated with the reduction in strike activity in Japan, Korea, Sweden, the United States and the United Kingdom since the early-to-late 1970s. Notably, this negative relationship is considerably stronger in Japan and the United Kingdom, compared to the other countries. Interestingly, the negative effects in both countries are similar in size, while the household ratio in the United Kingdom is considerably larger than in Japan. As discussed earlier, this is not an entirely unforeseen finding and is probably related to the fact that in Japan personal indebtedness is viewed very negatively and bankruptcy constitutes a social stigma (Gotoh, 2021; Naoi et al., 2019). By this logic, in societies where such social norms are dominant, smaller amounts of household debt are likely to generate disproportionately large disciplining effects for the indebted. In contrast, in countries where financial liberalisation took place later than the rest (e.g., Norway) the negative association between household debt and strikes is substantially weaker.

## 6 | CONCLUSIONS AND DISCUSSION

This paper argues that the speculative shift of the financial sector towards providing credit to households, either to fund consumption or the purchase of assets like residencies, is associated with the aggregate decline of strike activity over the last five decades. In particular, the steep increase in aggregate household indebtedness has come with increased credit provision to low-income, working-class households—the most strike-prone part of the population. This has led to the widespread distribution of household debt across income quantiles. A currently growing industrial relations literature demonstrates that declining wage shares and the rise of involuntary atypical employment are linked to the disciplining effects of household over-indebtedness (Gouzoulis, 2021, 2022; Gouzoulis et al., 2021, 2022; Wood, 2017). Extending this logic, this paper argues that since industrial action involves losing income in the short-run (Grady & Simms, 2019) and increases the risk of permanent replacement in the medium/long-run, indebted workers will likely not engage in long-term industrial action or participate in strikes at all.

To provide a first empirical assessment for these hypotheses, this paper focuses on three pairs of advanced financialised economies, Japan and Korea, Sweden and Norway and the United Kingdom and the United States in the post-1970 period, with each of them representing a different variety of capitalism. The post-1970 period denotes the end of the post-WWII period of economic regulation and the shift to financial and labour market liberalisation. The

econometric findings show that the rise of household indebtedness in Japan, Korea, Sweden, the United States and the United Kingdom has been associated with the decline in strike participation, duration and volume in most of them. Contrariwise, in Norway where the process of financialisation started later than the other countries of this study and relatively more extensive debtor protection exists, this relationship is much weaker.

Overall, the results provide significant evidence that the disciplining effects of personal indebtedness and the corresponding default risk are strongly associated with the decline in strike activity rates. This becomes particularly evident in economies where debtors are less protected and/or social norms about indebtedness increase the vulnerability of workers. These results suggest that industrial relations scholars should research more thoroughly how household financialisation negatively affects labour militancy and workers' compliance with managerial pressures on the fear of defaulting. Building on this study, individual-level survey data analysis and semi-structured interviews can provide further insights into underlying causal relationships.

## ACKNOWLEDGEMENTS

The author is grateful to Collin Constantine, Paul Edwards, Tamara Lee, Adam Seth Litwin, Aggela Papadopoulou, Harry Pitts, Alex Wood and participants of the BUIRA Annual Conference 2022: 'Why Employment Relations Matter(s) for Democratizing Work' for discussions and their feedback on earlier versions. Special thanks are also due to two anonymous referees for their constructive suggestions and comments.

## ORCID

Giorgos Gouzoulis  <http://orcid.org/0000-0001-6306-9556>

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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

**How to cite this article:** Gouzoulis, G. (2023). What do indebted employees do? Financialisation and the decline of industrial action. *Industrial Relations Journal*, 54, 71–94. <https://doi.org/10.1111/irj.12391>