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## It takes two to tango: mortgage markets, labor markets and rising household debt in Europe

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### ABSTRACT

Household mortgage debt unleashed devastating consequences for the global economy in 2007–2008. Despite the growing importance of household debt in financial markets, international political economy and comparative political economy have not theorized why it varies so much across Europe. We argue that variation in household debt can be explained by the intersection of two domestic institutions: labor market institutions (and by extension the welfare state) that enable households to withstand negative employment/income shocks, and mortgage finance institutions that govern households' credit access. We empirically demonstrate *via* a panel analysis of 17 advanced capitalist democracies that the impact of these institutions on household debt is *co-dependent*. Strong collective bargaining institutions (and generous welfare states), which protect borrowers from income and employment insecurity, are associated with *higher* household indebtedness, but *only* if housing finance institutions that encourage mortgage lending are present (i.e. in Scandinavia and the Netherlands). In contrast, liberal (financialized) economies have comparatively lower household indebtedness because their labor market institutions inhibit income security for borrowers. As household debt becomes more central to comparative political economy, our findings suggest that scholars who study financialization need to integrate labor market (and welfare state) institutions into their analysis to understand how domestic financial systems function.

### KEYWORDS

Household debt; labor markets; the welfare state; financialization; comparative political economy

## Introduction

International political economy (IPE) and comparative political economy (CPE) have long examined how financial actors shape the regulatory and policy preferences of national governments (Culpepper, 2010; Woll, 2008; Zysman, 1984). There is

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not a universal consensus as to how financial actors constrain or are constrained by governments; however, financial liberalization, greater capital mobility, and the increasing opacity of financial products empower international financial actors in the determination of national regulatory policy (Johnson & Kwak, 2010; Mosley, 2003). Rules governing capital, particularly those covering capital controls, have increasingly converged across advanced capitalist democracies, and nowhere has this been more evident than in the creation of a ‘single market’ for capital in the European Union (EU) (Abdelal, 2007).

One market actor, however, has received short shrift in major debates on global finance: households. Outside the community of scholars focused specifically on housing – publishing in journals such as *Housing Studies*, *Critical Housing Analysis*, or *Housing, Theory, and Society* – political economy scholars tend to perceive households as labor rather than capital. Yet, with the advent of securitization, households have grown ever-more entangled with the global financial system through their largest financial liability: their home mortgages. The importance of households in financial markets was emphatically demonstrated by the US subprime mortgage crisis when ‘toxic’ subprime mortgages jeopardized the integrity of the wider global financial system in which they were circulating.<sup>1</sup> Indeed, Helleiner (2011, p. 69), Aalbers (2016) and Schwartz (2009) go so far as to blame the 2008 Global Financial Crisis on the collapse of the US subprime mortgage bubble. Unsustainable mortgage debt also proved catastrophic across the Atlantic, pushing countries like Ireland and Spain into sovereign debt crises.

The purpose of this paper is to analyze the political and institutional determinants of household debt. Banks and international firms that are restricted from activities in one jurisdiction can easily move them to another. In contrast, households lack (international) mobility. Consequently, national governments and central banks still have significant sway over households’ capacity to consume credit. Perhaps because of this, household debt levels remain heterogeneous throughout Europe and the OECD (see Figure 1).

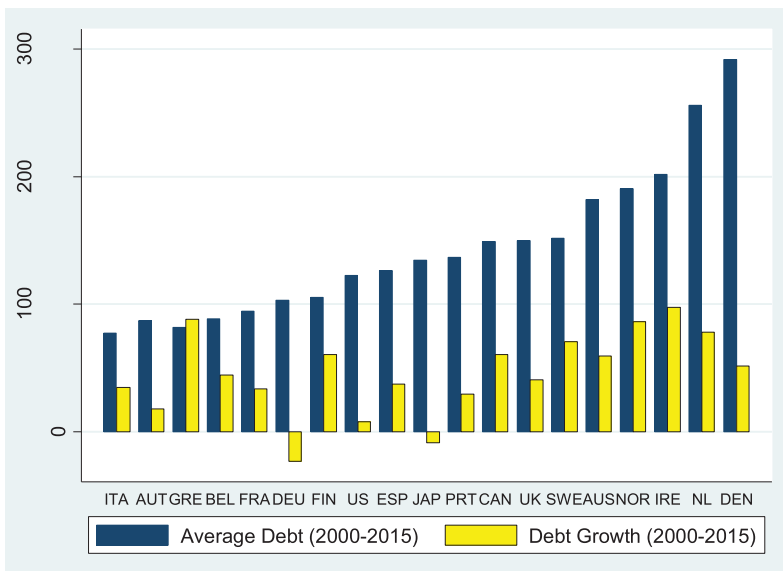


Figure 1. Household debt (average levels and growth, 2000–2015). Data from the OECD (2018).

How can we explain the variation in household debt accumulation across Western Europe and throughout the OECD more broadly? IPE would argue that financial liberalization, greater capital mobility, and declines in nominal interest rates have made (cheaper) credit more widely available to households. However, these common developments were relatively ‘constant’ across advanced capitalist democracies, particularly since the mid-1990s, meaning that they cannot account for *divergence* in household debt levels amongst OECD countries that we see today. We propose a CPE framework for understanding the variation in household debt that integrates both capital (mortgage finance) and labor (income) markets.

Our theoretical argument stems from merging insights from three fields of scholarly research. The first is the political economy of housing literature, particularly those that focus on financialization and housing regimes (Aalbers & Christophers, 2014; Kemeny, 2006; Schwartz & Seabrooke, 2008) and debates over how housing wealth is connected to the welfare state (Anderson & Kurzer, 2020; Lennartz & Ronald, 2017; Malpass, 2008; Van Gunten & Kohl, 2020; Whitehead, 2016). Second, we incorporate the CPE literature that focuses on how the organization of the labor market and welfare state impacts income and job transition security (Esping-Andersen, 1990; Hall & Soskice, 2001; Johnston & Regan, 2017; Korpi, 2006). Finally, we draw from the comparative finance literature that examines how domestic rules govern credit consumption (Fuller, 2016; Schelkle, 2012; van Gunten & Navot, 2018). Our claim is that household debt can be explained by the intersection of two crucial domestic political economy institutions: (1) labor market institutions<sup>2</sup> (and by extension welfare state institutions) that protect (or fail to protect) households against negative income and employment risks, and (2) mortgage finance institutions<sup>3</sup> that govern households’ credit access.

We argue that these two sets of institutions have a *co-dependent* impact on household indebtedness. Strong trade unions and collective bargaining institutions (and robust welfare states) enable households to engage in debt accumulation due to the income and employment security they provide. That is, if households enjoy insurance mechanisms that protect them from adverse economic risks, or assist them in weathering through them, they will be willing to assume greater amounts of debt, and banks will be more willing to lend to them. For this to happen, however, credit must also be widely available. In other words, household indebtedness will be highest in countries that possess both strong collective bargaining *and* permissive credit institutions. Our empirical results, which stem from a distributive lagged panel analysis of household indebtedness in 17 OECD countries, support this argument. They show that strong collective bargaining institutions (and generous welfare states) have a *positive* effect on household indebtedness, but this effect becomes tempered as mortgage credit rules become more restrictive. Contrary to the asset-based welfare view (Ronald et al., 2017), we find that in Europe, stronger income security allows households to borrow more.

Our findings have important implications for CPE. Echoing several in the housing literature (Anderson & Kurzer, 2020; Christophers, 2013; Schwartz & Seabrooke, 2008), our results show that the conventionally ‘financialized’ Anglo-American countries (notably the UK and US – see Epstein, 2005) *lack* the labor market (and welfare state) institutions that enable the highest levels of household debt accumulation. While households in these countries enjoy permissive mortgage market institutions, they possess more precarious labor market (and welfare state)

institutions, which limit income and employment security and provide minimal assistance with employment transitions, making it difficult for (lower income) households to secure loans.<sup>4</sup> In contrast, the ‘egalitarian’ Scandinavian countries (and the Netherlands) possess both mortgage and labor market institutions that enable higher household indebtedness. This is despite the deregulation of atypical employment in some Scandinavian countries.<sup>5</sup>

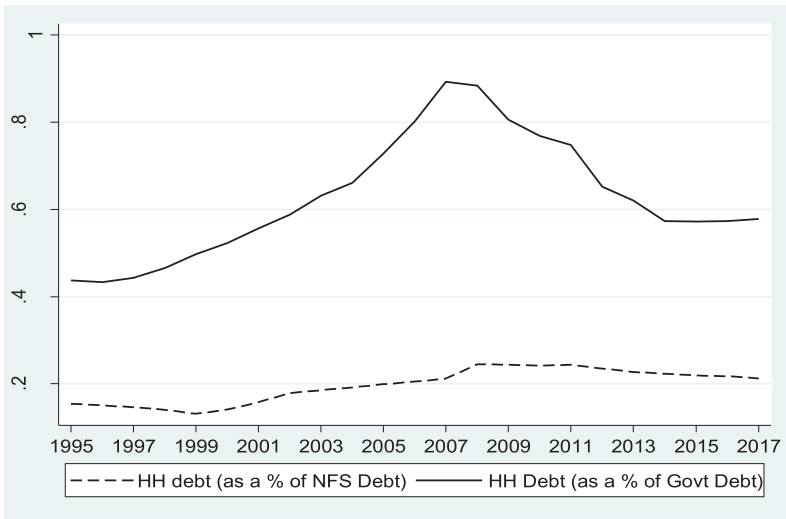
The remainder of the paper is structured as follows: first, speaking to the scope of the special issue, we identify why household borrowing is important for the political economy of international finance. Second, we outline a theoretical framework that integrates the labor market and the housing finance market to explain cross-national variation in household debt. Third, we present our empirical findings that demonstrate the interaction effects of labor market and mortgage market institutions on household debt accumulation in the developed world. We conclude with a discussion on the implications of our findings for the study of European political economy.

### The importance of households for international finance

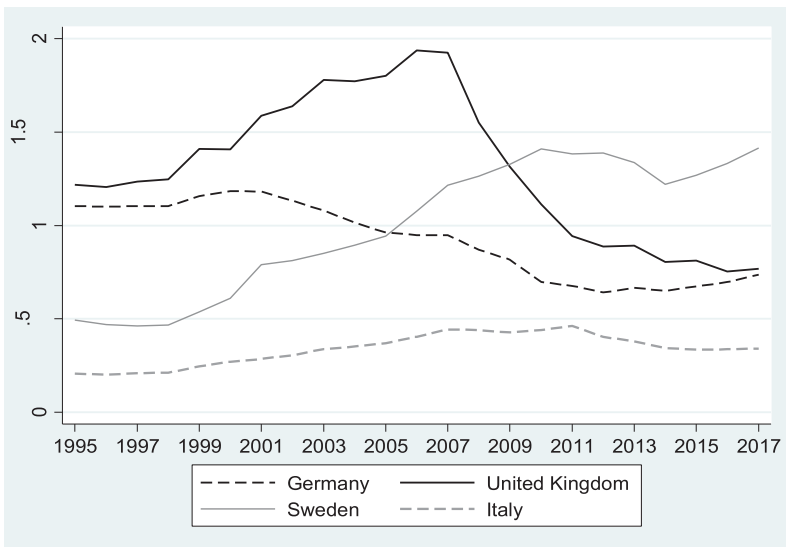
The political economy of debt accumulation matters because *who borrows matters* (Fuller, 2015; Roos, 2019; Streeck, 2014). In a country like Greece, the government absorbed a large share of capital inflows in the years following the launch of European Monetary Union (EMU). In Ireland, the domestic banking sector filled this role. In Spain, it was the regional savings banks and local governments (Fuller & Jones, 2015). The stability of a financial system relies on the capacity of indebted sectors to manage their repayments adequately; however, that capacity and the factors that modify it differ from sector to sector. For example, wage stagnation in a country with heavy household borrowing will probably lead to non-performing loans and potential macroeconomic risks (USA). The same wage stagnation in a more traditional banking system, where non-financial corporations borrow extensively and households do not, would pose less macroeconomic risk (Germany).

If *who borrows matters*, the identity of borrowers has changed markedly in advanced economies. Household borrowing generally grew faster than government and non-financial sector borrowing in the years leading up to the global financial crisis. The average OECD economy saw the household share of all national liabilities rise from 6% to over 8% between 1995 and the crisis. While this may not seem like much, it is important to remember that the financial sector itself was the fastest-growing borrower during this period. The rapid expansion of financial sector debt meant that the shares of liabilities owed by governments and non-financial firms *decreased* (from 40% of borrowing to 33% for non-financial firms and 14 to 9% for governments). In other words, households and financial firms expanded their share of society’s liabilities during the late 1990s and early-to-mid 2000s while non-financial firms and governments shrank. Rather than focus on household borrowing in isolation, [Figure 2](#) reflects how much the relative composition of national liabilities has shifted between 1995 and 2017.

Despite the evident general trend above, [Figure 3](#) shows the ratio of household debt to government liabilities in countries with different welfare and wage-setting institutions, providing an impression of how much national variation remains. Germany and Italy – both featuring highly restrictive mortgage finance regimes – have experienced far less household borrowing. Italy and the UK experienced



**Figure 2.** Household debt relative to non-financial sector and government debt (OECD Average, 1995–2017). Vertical axis is the ratio of household (HH) debt to non-financial sector (NFS) debt (for the dotted line) and the ratio of household debt to government debt (for the solid line). Data from the OECD (2017).

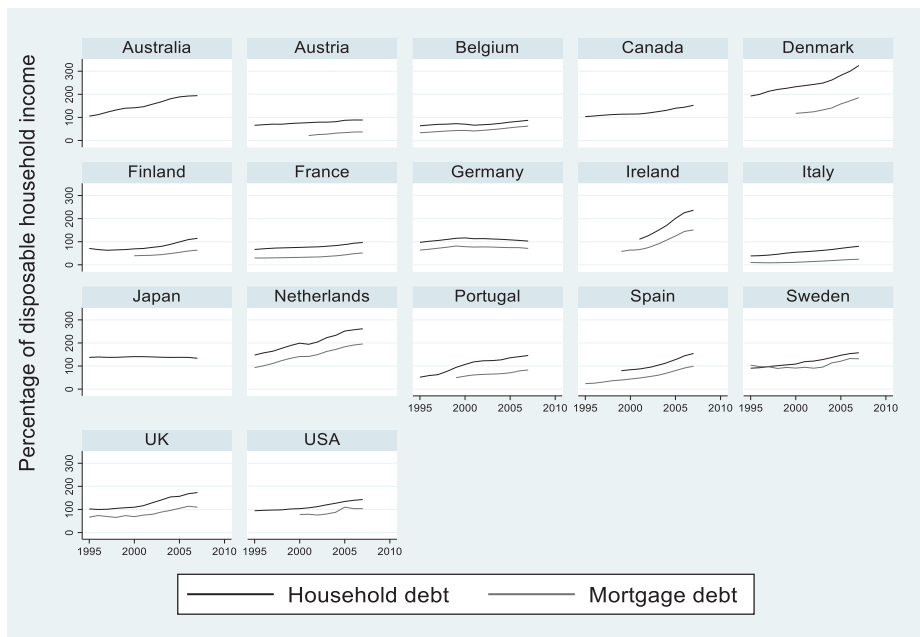


**Figure 3.** Household debt relative to government debt for Germany, Sweden, Italy, and the UK (1995–2017). Vertical axis is the ratio of household (HH) debt to government debt (for the solid line). Data from the OECD (2017).

similar patterns in household debt relative to government spending: in both cases, relative household debt spiked during the economic expansion of the 2000s, only to collapse as their economies slowed. Sweden, however, has seen household debt continually rise throughout the period in question. Quite clearly, there is a comparative story to tell about the determinants of household indebtedness in Europe.

It is crucial to note that these figures radically *understate* the importance of rising household borrowing. Household borrowing generally leads to greater indebtedness within the financial sector itself. Banks have to take on liabilities in order to engage in mortgage-lending and, especially in securitized systems, numerous layers of financial products could ultimately be underpinned by one household transaction (Fuller, 2016, 2019). In a traditional financial system where banks take customer deposits and lend them out as mortgages, this layering effect is minimal. However, where a special-purpose vehicle sells asset-backed commercial paper to buy mortgage-backed securities (MBS) from lenders (typical for systems allowing US-style MBS), the number of layers grows quickly – and this is before considering the impact of tranching, credit-default swaps, and the bizarre world of synthetic collateralized debt obligations (see Blyth, 2013 and Turner, 2017).

When discussing household debt, the conversation is primarily about mortgages. Mortgages are unarguably the most substantial debt contract most households will ever sign. For European and OECD countries – setting aside post-communist states where the housing stock was largely privatized prior to the development of a robust mortgage market (see Bohle, 2014) – mortgages make up the vast majority of household debt. Long-term mortgage loans account for between 80% and 90% of all household liabilities in most OECD countries.<sup>6</sup> Even in the United States, where student loan debt accounts for the largest share of non-mortgage household borrowing (around 10% of the total), mortgages still account for 68% of all household debt.<sup>7</sup> This means that when we talk about household debt, we are overwhelmingly talking about borrowing for the purpose of buying a home. Indeed, household debt and mortgage debt display significant co-movements with each other. Within our sample, the pairwise correlation coefficient between the two data series is 0.930 ( $p$ -value of 0.000, see also Figure 4).



**Figure 4.** Household debt and mortgage debt, 1995–2007. Data from the OECD (2018) and the EMF (2018). Mortgage data for Australia, Canada and Japan unavailable from the EMF.



In other words, the evolution of household indebtedness is closely linked to changes in how banks manage their balance sheets, with respect to *mortgages* in particular (Barba & Pivetti, 2008; Kim, 2016; Tooze, 2018). This multilayered tangle of liabilities remains fundamentally reliant on the end-borrower: for the system to work, the homeowner must *pay their mortgage*. Any instability in the mortgage market could ultimately threaten banks, their creditors, governments, and global economic stability, which is precisely what happened in the build-up the international financial crisis in 2008.

It is clear that households are playing a growing role in national financial systems and, ultimately, the political economy of advanced capitalism (Fuller, 2016, 2019; Turner, 2017). As noted above, one major consequence is that today's advanced economies are more reliant on the debt management of individual households than they have been in the past. In this sense, the existence of asset-based welfare is undeniable. Yet as Figures 1 and 3 indicate, significant variation in the growth of household debt remains to be explained. Below, we argue that explaining different trajectories in household indebtedness across Europe requires an understanding of two markets and how they interact: the labor market (and by extension the welfare state), which governs income and employment conditions, and the mortgage market, which governs how much debt households can accumulate to finance home-ownership.

## **Two to tango: the impact of labor and mortgage markets on household debt**

Our theoretical framework explains how two key sets of institutions – those governing income and employment and those governing housing finance – interact to determine household debt. Labor market institutions are important because they directly influence income and employment security, which are unarguably the most important household characteristic that banks assess when issuing (prime) mortgages. Logically, the more households earn and the more secure their employment status is, the larger the mortgage they are able to service. A household with secure income, and an upward trajectory of wage growth, is a safer bet for mortgage lenders.

A wealth of CPE literature has detailed why and how labor market institutions impact income and employment security in advanced capitalist democracies. Power resource theorists would argue that strong unions, high collective bargaining coverage, and highly coordinated labor markets deliver income and employment security, because these institutions are the political vehicles through which labor organizes and exerts its power (Korpi, 2006). An extensive literature shows that encompassing trade unions and wider collective bargaining coverage provides a wage premium, particularly for middle-income households (Blanchflower & Freeman, 1992; Stockhammer, 2017; Wood, 2017).

Strong and highly organized unions assist workers through negative income shocks. In the classically corporatist countries of Northern Europe, unions aid workers in more precarious positions (i.e. those working part time and under temporary contracts) by providing them with stability through job transitions (Thelen, 2014). This is perhaps best embodied by the 'flexicurity' programs seen in Netherlands and Denmark (both of which have a high incidence of part-time work, see OECD, 2018). Unions play central roles in (re-)training systems (i.e. labor

market activation schemes) and help to uphold mechanisms of the welfare state that provide income security during employment transitions (i.e. generous unemployment insurance, or the protection of social security rights to labor market outsiders – see Gazier, 2007). Highlighted by Viebrock and Clasen (2008), strong social partners are ‘pivotal’ to the success of flexicurity model. Flexicurity lacks traction amongst the working class *unless* unions and the welfare state can provide a guarantee that the unemployed are protected, particularly as the share of atypical employment grows.<sup>8</sup> Conversely, weaker unions, and narrow collective bargaining coverage, results in weaker wage growth and more precarious employment, particularly for lower income households and labor market outsiders (Dølvik et al., 2018).

Esping-Andersen (1990) highlighted that in Nordic social democracies, organized labor was the crucial political actor that delivered another insurance mechanism for adverse employment and income shocks: a universalist welfare state. Unlike the conservative welfare states in Germany, Italy and France, Nordic welfare states enabled households’ to access high replacement income and public services, regardless of their employment status. Since the 1990s these welfare states have undergone significant liberalization, particularly in terms of the shift toward social investment, activating labor into employment, and upholding a flexicurity model. But the core rationale remains the same: universalist welfare states secure the incomes of households throughout the business (and work) cycle. By securing household income, highly unionized labor markets, encompassing collective bargaining *and* generous welfare states make households ‘safer’ risks for banks. Because households in these types of labor markets are a safer bet, banks should be willing to grant them access to larger credit lines, holding all else equal.

Institutions that strengthen the income and employment security of households are, however, only one side of the story. Even the richest and most economically secure households cannot become indebted if banks refuse to (or are unable to) lend. This brings into play a different set of institutions – those that govern households’ access to credit. While governments often have specific housing policies, the rules and norms governing household access to credit (especially mortgage credit) are heavily influenced by the configuration of national financial systems. This includes directly regulating mortgage contracts themselves, which can include statutory restrictions on the amount of interest banks can charge on mortgages or the permissible level of lending relative to the value of a home. Furthermore, governments and banks form policies that co-determine how mortgage markets are financed: Germany, for example, did not allow US-style mortgage securitization until 1997. Even after progressively removing those legal barriers to securitization between 1997 and 2005, German banks tended to buy securitized assets from elsewhere (often based on US lending) rather than securitize their own domestic markets.

The government also possesses the power to indirectly influence mortgage markets through the tax code. The best-known measure of this is the mortgage interest deduction. While the US mortgage interest deduction might be better-known, the Dutch scheme is the costliest in the developed world; the Dutch interest subsidy surrenders 2.1% of GDP in foregone tax receipts every year (compared to only 0.5% in the US).<sup>9</sup> These sorts of tax breaks are effectively a subsidy to (middle class) homeowners, and typically encourage larger mortgages, and higher levels of household debt. Finally, and more indirectly, there is the tax regime for the sale of property itself. If it becomes more expensive to sell a home, housing transactions,

**Table 1.** Four worlds of household debt accumulation.

	Credit-encouraging mortgage markets	Credit-limiting mortgage markets
Employment/income secure labor markets	Household debt highest (NL, SE, DK)	Indeterminate (DE, AT, BE)
Employment/income insecure labor markets	Indeterminate (UK, US, IE, ES – post 1980s)	Household debt lowest (GR, IT, PT)

and in turn domestic consumption, will drop. This results in less buying, selling, and borrowing.

If households are easily able to obtain cheap (mortgage) credit (and a lot of it), they will find it easier to go into debt, while if their access to mortgages is restricted, their indebtedness will be limited. Additionally, if households have a secure and upward trajectory of income, they should be able to become more indebted. Ultimately, taking labor and credit institutions together, our argument suggests four possible institutional ‘worlds’ of household indebtedness (see also [Table 1](#)):

1. Encompassing and inclusive collective bargaining (and universalist welfare states) combined with *permissive* mortgage credit institutions: Under this constellation of institutions, households’ income and employment is made more secure by collective bargaining coverage and strong unions (and generous welfare states), while their access to borrowing is enhanced by accessible and plentiful (mortgage) credit. This institutional grouping is seen in the Scandinavian countries and the Netherlands.
2. Strong (but potentially sectoral-specific) collective bargaining combined with *restrictive* mortgage credit institutions: Under this constellation of institutions, income and employment security does not necessarily translate into higher indebtedness, primarily because of limited access to mortgage loans. While households in this constellation are often ideal credit risks, governments make it difficult for banks to convert these low risks into higher indebtedness. This grouping of institutions is best seen in countries like Germany and Austria.
3. Market-led and narrow collective bargaining (with weaker and means-tested welfare states) combined with *permissive* mortgage credit institutions: This constellation of institutions pairs more precarious income and employment conditions with generous access to mortgage credit. This combination of institutions typically exists in the UK, Ireland (before the euro crisis), and the USA, as well Spain during the late-1990s and pre-crisis 2000s.
4. Weak and fragmented (insider-oriented) collective bargaining (with weaker welfare states) combined with *restrictive* mortgage credit institutions: This constellation of institutions can be observed in countries like Italy and Greece, and is prominent in ‘familialist’ housing regimes where housing is more often inherited rather than purchased with a mortgage-debt contract (see Schwartz & Seabrooke, 2008).

It is crucial to emphasize that over the past three decades some OECD countries have undergone significant institutional change because of reforms to their credit and labor market institutions. Spain, for example, while embodying a familial household debt system before the 1990s, pursued banking reforms that moved it

into the institutional constellation more commonly seen in the Anglo-Saxon countries. Ireland went from a highly permissive mortgage credit market regime to a much more restrictive one after the financial crisis. Yet regardless of which ‘worlds of household indebtedness’ different countries are in at different points in time, these institutional configurations allow us to make theoretical predictions on how the structure of domestic labor and credit markets drive household debt accumulation. For countries with weak collective bargaining and restrictive credit access, the outcome is obvious: both interact to constrain households’ indebtedness. Household debt outcomes are also obvious in those countries with encompassing collective bargaining and permissive credit access: both of these institutions facilitate high indebtedness *via* secure income within the labor/welfare market and access to generous loan terms within the (mortgage) credit market.

The effect of the remaining two configurations is less clear, however, as labor/welfare market and credit institutions work against each other. Countries with coordinated collective bargaining but restrictive mortgage credit regulations are likely to exhibit lower household indebtedness than countries with permissive finance institutions. However, they may observe higher indebtedness than countries with similar financial institutions but more precarious labor markets. Likewise, countries with weak collective bargaining but permissive credit institutions are likely to be less indebted than countries who share similar household finance regimes, but possess encompassing collective bargaining. However, they are likely to be more indebted than states with similar precarious labor market institutions but with restrictive access to credit. Below we formally test the interactive effects between labor market and mortgage credit institutions on household debt, to determine whether these groupings bear fruit.

### **The impact of labor market and mortgage credit institutions on household debt: evidence from 17 OECD economies**

Our empirical methodology employs a distributive lag panel analysis of first differences in household debt (as a percentage of disposable income) for 17 OECD economies<sup>10</sup> between 1995 and 2007. We use the first difference of household debt as our dependent variable, because household debt levels are non-stationarity across all our panels, which would result in spurious correlation with other independent variables that are rising or falling over time. Our time period is restricted by data availability – the OECD’s household accounts contain household debt data from 1995 onwards, whereas our credit mitigation index<sup>11</sup> (which we discuss below) is available until 2007. Nevertheless, this time period provides a helpful frame of reference to observe the evolution of household debt under different domestic institutional configurations for two reasons: First, all countries in the sample had removed capital controls and, with (near) perfect capital mobility, their domestic financial systems were intricately connected to the global financial system. Second, they exclude the 2008 Global Financial Crisis and European Sovereign Debt crisis, where domestic financial systems, along with international financial markets, encountered significant turmoil.

Ideally, our dependent variable would be household *mortgage* debt rather than household debt. The OECD lacks data on household mortgage debt, while other databases with mortgage debt time-series data (the European Mortgage Federation,

EMF) possess it from the early 2000s onwards. Using mortgage debt data from the EMF would reduce our (already limited) sample by a third, as this database covers mostly EU countries. However, we argue that household debt can serve as an effective proxy for mortgage debt for two reasons. First, for the limited time series for mortgage debt that we have, it is highly correlated with household debt (pairwise correlation of 0.93). Second, as seen in [Figure 4](#) and highlighted by the OECD,<sup>12</sup> the overwhelming majority of household debt in our sample is mortgage debt. Consequently, institutions that influence the size and growth of mortgage debt will move household debt in similar directions. Nevertheless, as a robustness check to our empirical results, we test our models below using the (first difference) of mortgage debt, measured as the percentage of total outstanding residential loans to household disposable income, as our dependent variable.<sup>13</sup> While the significance of these results are slightly weaker than they are for household debt – as expected with a smaller sample size – the direction of the effect remains the same, and for most models, the interaction effect remains significant at over a 90% level of confidence.

Most household debt is tied to purchases of mortgages, which require long repayment periods. Because of this, our model incorporates lags of all our independent variables. Market and institutional developments are unlikely to cause households to make instantaneous purchases of houses; if real interest rates declined tomorrow, it is unlikely that a household would immediately buy a house or refinance, but they may be prone to do so in the future. Our baseline model incorporates one year lags of all our variables, however our results for our institutional variables are consistent when two year lags are used (these results are available in [supplementary material](#) Appendix C). Our baseline model is as follows:

$$\begin{aligned} \Delta y_{i,t} = & \hat{\beta}_0 + \hat{\beta}_1 LMInst_{i,t-1} + \hat{\beta}_2 MCMInst_{i,t-1} \\ & + \hat{\beta}_3 (LMInst_{i,t-1} * MCMInst_{i,t-1}) + \hat{\beta}_4 \sum M_{i,t-1} + \hat{\beta}_5 \sum N_{i,t-1} \\ & + \hat{\beta}_6 \sum TE_i + \varepsilon_{i,t} \end{aligned}$$

All our independent variables, except for our political and institutional controls, are differenced to rectify non-stationarity problems within our data.  $\Delta y_{i,t}$  is the first difference of household debt (as a percentage of disposable income) in country  $i$  in year  $t$ . Household debt data stems from the OECD's (2018) household accounts.

$LMInst_{i,t-1}$  is a measure of labor market institutions that help (or fail to) promote income and employment security. We use five of the most popular measures of labor market institutions in CPE within our models: the degree of coordination in wage-setting, based on Kenworthy's (2001) index (values range from 1, indicating no coordination, to 5, indicating high coordination); the centralization of wage bargaining (values range from 1, indicating that wage-setting is completely decentralized, to 5.75, indicating that wage-setting is completely centralized<sup>14</sup>); trade union density (the percentage of the labor force that are trade union members); collective bargaining coverage (the percentage of the labor force whose employment terms are determined by collective agreements negotiated between unions and employers), and; the strictness of employment protection legislation (EPL – higher values of this index indicates a country has greater protections against dismissal for

workers on regular contracts, and that the ease of hiring temporary/precarius employees is difficult<sup>15</sup>). We opt to examine these institutions separately from each other rather than in combination because some labor markets may display a high degree of organization in some of these indicators but not in others (i.e. while France has a low level of trade union density, it has one of the highest collective bargaining coverage rates in the OECD).

Highlighted above, countries with stronger and more coordinated unions are more likely to witness higher levels of employment and income security, compared to countries where employer power trumps that of labor. Consequently, we anticipate that  $\hat{\beta}_1$  will be *positive* – households in countries with strong labor market institutions are more likely to take on more debt because their income and employment stability allows it. Data on wage coordination, centralization and bargaining coverage were taken from Visser (2016), while data measuring trade union density and the strictness of EPL was taken from the OECD (2017).

We also examine whether the size of the welfare state demonstrates similar effects. We measure the welfare state in four ways: total government spending (as a percentage of GDP); social spending on in-kind transfers and benefits (also as a percentage of GDP), the generosity of unemployment insurance (given its central role in successful flexicurity models), and; the generosity of sickness insurance. The latter two are included as measures of the welfare state because they reflect the *legal* generosity of benefits that are not connected to movements in the business cycle (social benefits spending may go down not because they are less generous, but because a country is experiencing low unemployment). We anticipate that, like our labor market institution variables, larger and more generous welfare states should be associated with greater debt accumulation (in order to avoid multicollinearity – robust welfare states are often the product of strong labor power – we incorporate these variables, and their interactions with the mortgage credit index, in separate models). Data on government and social benefits spending stems from the European Commission's Annual Macroeconomic Database (AMECO; DG ECFIN, 2018).

Time series data on unemployment and sickness insurance generosity comes from the Comparative Welfare Entitlements Database (Scruggs et al., 2013). Both indices measure insurance generosity as the duration of benefits, the replacement rate, the amount of waiting days to receive the benefit, and the ease of application. Higher values indicate that a country's unemployment/sickness insurance scheme is 'more generous' (i.e. duration of benefits is longer, replacement rates are higher, and there is a greater ease to apply and qualify for benefits). What is particularly valuable about this index is that by assessing countries' insurance schemes through a common rubric, it allows us to account for how generosity varies across countries and over time (market-based reforms that make insurance less generous over time within countries are reflected in falling index values).

$MCMI_{i,t-1}$  is the (mortgage) credit mitigation index for country  $i$  at time  $t-1$ . It reflects the extent to which national housing finance regimes encourages or discourages mortgage debt, ranging from 0 (systems that are highly *permissive* in allowing households to accumulate mortgage debt) to 10 (systems that are highly *restrictive* in allowing households to accumulate mortgage debt).<sup>16</sup> Fuller (2015) identifies five institutional characteristics – both formalized policies and informal practices – that mediate the formation of household debt. They are: (1) legal 'usury'

restrictions on the interest rates that lenders can charge; (2) transaction costs imposed on the transfer of personal real estate assets; (3) general willingness to extend mortgages with high loan-to-value (LTV) ratios (80% and above);<sup>17</sup> (4) subsidies to the mortgage market; and (5) the size of secondary (securitized) markets for mortgages.

For each of these five traits, countries are coded (from 0, the most credit *encouraging*, to 2, the most credit *mitigating*; values of 1 indicate moderate levels of credit permissiveness) for the degree to which their institutional mix favors the formation of credit.<sup>18</sup> The scores are then summed together to create the overall index value. This assumes, for lack of any compelling reason to do otherwise, that each of the factors play a roughly equal role in determining national approaches to mortgage credit. For interest rate restrictions, coding varies between 0 for countries with essentially no restrictions on the interest rates banks can apply to mortgages (such as the UK) to 2 for those with strict caps on what lenders can charge, such as in France, where interest rates cannot exceed 133% of benchmarks set by the Bank of France.

Property transfer taxes are included in the index as a means of capturing how amenable a national system is to property speculation. Policies that impose high taxes on the sale of personal real estate (such as Germany, Italy, and Austria) are intended, often explicitly, to depress property speculation, placing a brake on mortgage formation and the (short) selling of real-estate. Where tax exemptions are restricted to primary homes that have been owned for 5 years or longer, countries are scored as 2. More permissive regimes, offering lower tax rates and more generous exemptions, encourage more use of property as a form of investment are scored as zeros (like those in the Netherlands, US, and UK). Intermediate cases – such as systems with robust exemptions but higher fees (France) or low transfer costs but stricter exemptions (Sweden) receive the intermediate 1.

Prevailing LTV ratios indicate the systemic degree to which each country is willing to accept household leverage. While formal rules concerning LTV limits have been implemented by a number of countries after the Global Financial Crisis, there were relatively few legal restrictions on LTV ratios prior to 2008. Nevertheless, there is a clear divide between countries that generally limited maximum LTVs to 80% (such as Germany, Italy, Denmark) and those that did not. At the most extreme end, 125% LTVs were not uncommon in the pre-crisis Netherlands and Ireland (although since 2010 Ireland has since introduced strict LTV limits). Unlike the other scores, there is no intermediate category for leverage: countries either receive a 2 (those that typically do not offer mortgages above 80%) or a 0 (for those that do).

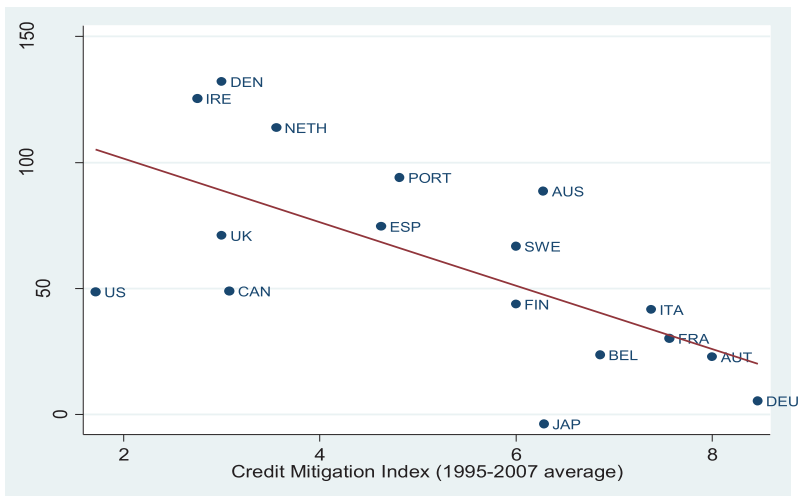
As noted previously, governments can also encourage mortgage-formation by deducting mortgage interest payments from taxable income. Countries that provide extensive subsidies were scored as more credit-encouraging (value of 0). Those that offered no subsidies – or operate relatively small means-tested programs – were coded as credit mitigating (value of 2). Finally, the presence of secondary mortgage markets also encourages lending by making mortgages more liquid. In some systems, these secondary markets are dominated by covered bonds, a relatively simple form of securitization that usually requires lending institutions to keep mortgages on their own balance sheets (such as in Germany or Denmark). In contrast, MBSs perform the same liquidity function – but also allow lending institutions to move

mortgages off their balance sheets, creating the potential for moral hazard. Housing systems that possessed or developed large MBS markets during the period of interest (the US, as well as Britain, Ireland, Spain, and the Netherlands) are considered the most credit-encouraging.

The use of an index here, rather than using each national trait separately, holistically captures national variation in credit approaches. These measures are not independent of one another: for instance, governments that find themselves encouraging credit in other areas may balk at also offering heavy mortgage subsidies (as was the case in Britain). In short, these national configurations are best considered as components of a single overall approach to mortgages, not separate drivers of mortgage-creation. All else being equal, countries with more restrictive credit indices should have lower household debt accumulation:  $\hat{\beta}_2$ , in other words, should be *negative*.

Figure 5 presents a scatter plot between growth in household debt, and the average credit mitigation index for our 17-country sample from 1995 and 2007 (time series data for the credit index by country over the entire period is provided in [supplementary material](#) Appendix D). As can be seen from the best fit line, debt growth between 1995 and 2007 was more pronounced in countries with permissive (mortgage) credit institutions (i.e. Denmark, Ireland and the Netherlands) than it was in countries with restrictive credit institutions (i.e. Germany, Austria and Japan). What is more revealing from Figure 5, however, is that countries with corporatist wage-setting and generous welfare states do not exhibit similar rates of household debt accumulation – only CMEs with credit permissive institutions witnessed notable rises in household debt. This suggests that labor market institutions' impact on household debt growth is tempered by national (mortgage) credit institutions.

As argued above, we expect the effect of labor market institutions (and by extension welfare state institutions) on household debt accumulation to be shaped by rules governing households' access to credit. In a context of permissive credit lending, households with more secure income are likely to borrow larger mortgages, and



**Figure 5.** Credit mitigation and household debt, 1995–2007. \*Ireland debt growth from 2001 to 2007. Spain debt growth from 1999 to 2007

Note: Y-axis is growth in household debt.



become more indebted, while under restrictive credit institutions, households with stable income and employment should be less able to borrow. Consequently, we should expect the beta coefficient ( $\hat{\beta}_3$ ) on the interaction between labor market institutions and the credit mitigation index ( $LMInst_{i,t-1} * MCMInst_{i,t-1}$ ) to be *negative*.

$\sum M_{i,t-1}$  is a vector of controls for country  $i$  at time  $t-1$  that impact household debt accumulation *via* their influence on the volume of credit that banks can lend or on annual (interest) servicing costs. These include: the real interest rate (*differenced* from the previous year); the ratio of domestic credit provided by the banking system to the private sector as a ratio of GDP,<sup>19</sup> a proxy for financial depth (*differenced* from the previous year); and the ratio of net foreign capital inflows as a percentage of GDP, which accounts for the degree of foreign lending entering a country's financial system (*differenced* from the previous year). This vector also includes growth in real housing prices, and real GDP growth to control for cyclical effects, which may cause households to take on greater debt. Foreign capital flows data stemmed from the European Commission's Annual Macroeconomic Database (AMECO; DG ECFIN, 2018), the ratio of domestic credit to GDP stemmed from the World Bank (2018), while GDP growth, (real) housing inflation, and real interest rate data stemmed from the OECD (2017). Ideally, we also would prefer to control for changes in home-ownership rates. However, historical time series data on home-ownership is notoriously limited for our sample period: when we include Nickell's (2006) measure of owner occupancy (by far the most comprehensive panel dataset on homeownership) in our models, our sample size falls below 30. Hence, we exclude it.

$\sum N_{i,t-1}$  is a vector of political and (economic) institutional controls in country  $i$  at time  $t-1$  that may impact household debt accumulation. These include: capital account openness (a proxy of financial *liberalization*; higher index values indicate fewer restrictions on capital entering and leaving a country); the partisanship of government (measured as the proportion of cabinet seats occupied by right parties), and; the central bank independence index.<sup>20</sup> The capital account openness index is taken from Karcher and Steinberg (2013), partisanship data is taken from Armingeon et al. (2016), while central bank independence data (an updated version of the Cukierman, 1992, index) is taken from Johnston (2012).

Given that our main variables of interest (credit and labor market institutions) show limited variation for several countries within our sample, we opt for a random effects rather than a fixed effects model. Fixed effects would enable one to control for omitted variables that affect debt accumulation, which are constant over time but vary across countries. However, fixed effects present notable collinearity problems for slow-moving (institutional) independent variables, by inflating their standard errors, which is why we opt to exclude them here (see Plümper et al., 2005 for a more robust critique on the use of fixed effects with institutional variables). As predicted by Plümper et al. (2005), including fixed effects renders our institutional results insignificant, because they largely crowd out these institutions' slow moving effects on debt accumulation (see results in an [supplementary material](#) appendix).  $\sum TE_i$  is a vector of  $(n-1)$  time dummies in order to control for omitted common shocks that would impact housing inflation across countries, but that vary over time. Wooldridge tests for autocorrelation and likelihood ratio tests indicated that both first order serial correlation and heteroskedasticity were present in

our baseline models. Consequently, we used country-clustered standard errors to correct for downward bias in our standard errors.

## Results

Table 2 provides our results. The first five models reveal how labor market institutions interact with credit institutions in determining household debt. Models I, II, III, IV, and V use wage coordination, wage centralization, trade union density, collective bargaining coverage, and strictness of EPL, respectively, as our measure of (employment/income security enhancing) labor market institutions. The last four models in Table 2 shows how the welfare state interacts with credit institutions in impacting household debt. Models VI, VII, VIII and IX in Table 2 use government expenditure (as a percentage of GDP), social expenditure (as a percentage of GDP), unemployment insurance generosity, and sickness insurance generosity, respectively, to measure welfare state institutions that deliver employment and income security. We anticipate these institutions would display similar effects as our labor market institutions variables. To preserve space, we only present findings for the institutional variables – the full results are provided in [supplementary material Appendix A](#). Table 3 presents the same models in Table 2, but using the first difference in mortgage debt as the dependent variable (like results for Table 2, we only present the findings of our institutional variables – full results can be found in [supplementary material Appendix B](#)).

Confirming our expectations, higher (lagged) levels of wage coordination, wage centralization, trade union density, bargaining coverage, and EPL are associated with higher growth in household debt (Table 2), and higher growth in mortgage debt (Table 3). Moreover, these beta coefficients retain their sign and significance when a two lag, rather than one lag, structure is used (see [supplementary material Appendix C](#)). This suggests that, holding all else equal, countries with institutions that strengthen income and employment security of households, and not those with liberalized labor markets associated with financialization and rising top incomes, witnessed more pronounced household (and mortgage) debt accumulation during the later stages of the Great Moderation. Similar results emerge for our welfare state variables. From Models VI-IX in Table 2, countries with larger welfare state spending and more generous unemployment and sickness insurance schemes have higher rates of household debt growth than countries with more residual welfare states and less generous insurance, holding all else constant (these results also hold when a two year lagged structure is used – see [supplementary material Appendix C](#)). With the exception of general government expenditure (which just lacks significance –  $p$ -value = 0.108), these results retain their sign and significance if mortgage debt is used as the dependent variable (Table 3).

Mortgage credit restrictiveness was non-significant for four of the nine models presented in Table 2 (and eight of the nine models in Table 3). In models where it held significance, the sign was the opposite of what was anticipated. While this goes against our hypothesis, it should be emphasized that low levels of our collective bargaining and welfare state variables in the interaction term render the *total* effect of credit mitigation negative within these five models. From Models I, II and VI-VIII, in Table 2, countries with wage coordination indices, bargaining centralization, total government and social expenditure and unemployment insurance

Table 2. Labor market and welfare state institutional determinants of total household debt accumulation.

Independent variables	I	II	III	IV	V	VI	VII	VIII	IX
Credit Index ( <i>t</i> -1)	1.161*** (0.008)	0.762* (0.064)	0.254 (0.596)	0.581 (0.217)	0.057 (0.889)	3.777*** (0.000)	3.524*** (0.000)	2.735*** (0.002)	0.417 (0.272)
Wage Coordination Index ( <i>t</i> -1)	3.515*** (0.000)								
Credit Index × wage coordination ( <i>t</i> -1)	-0.657*** (0.000)								
Bargaining centralization ( <i>t</i> -1)		3.913*** (0.000)							
Credit Index × centralization ( <i>t</i> -1)		-0.615*** (0.000)							
Trade union density ( <i>t</i> -1)			0.188*** (0.000)						
Credit Index × TU density ( <i>t</i> -1)			-0.032*** (0.004)						
Collective bargaining coverage ( <i>t</i> -1)				0.130*** (0.000)					
Credit Index × bargaining coverage ( <i>t</i> -1)				-0.021*** (0.001)					
EPL ( <i>t</i> -1)					2.878*** (0.006)				
Credit Index × EPL ( <i>t</i> -1)					-0.383 (0.120)				
Government expenditure ( <i>t</i> -1)						0.486*** (0.000)			
Credit Index × gov't expend ( <i>t</i> -1)						-0.103*** (0.000)			
Social benefits and transfers ( <i>t</i> -1)							0.750*** (0.000)		
Credit Index × benefits and transfers ( <i>t</i> -1)							-0.169*** (0.000)		

(continued)



Table 2. Continued.

Independent variables	I	II	III	IV	V	VI	VII	VIII	IX
UI generosity ( $t-1$ )								2.022*** (0.000)	
Credit Index $\times$ UI generosity ( $t-1$ )								-0.313*** (0.000)	
SI generosity ( $t-1$ )									0.759*** (0.000)
Credit Index $\times$ SI generosity ( $t-1$ )									-0.132*** (0.000)
$N$	151	142	151	90	151	148	139	151	151
$R^2$ (overall)	0.5986	0.6115	0.5460	0.6734	0.5515	0.5680	0.6043	0.5312	0.5817

Note. Dependent variable is the first difference of household debt (as a percentage of disposable income).  $p$  values provided in parentheses (standard errors are clustered by country). Remaining controls and ( $t-1$ ) time dummies are included but not shown (see Appendix A for full results). \*, \*\*, and \*\*\* indicate significance at a 90%, 95%, and 99% confidence level respectively. EPL denotes employment protection legislation. UI, unemployment insurance; SI, sickness insurance.

generosity levels in the top three quartiles (i.e. 75% of our sample) will see a negative *total* effect for the credit mitigation index (after the indirect effect in the interaction term is considered).

While labor market institutions that promote employment and income security (and generous welfare states) increase household debt growth, their effect is tempered by the type of *mortgage finance institutions* within these countries. With the exception of the EPL index, the interaction between labor market institutions and credit restrictiveness perform as expected. Countries with strong unions and encompassing collective bargaining witness higher debt growth than those with weaker unions and more fragmented bargaining. However, as mortgage lending becomes more restrictive (i.e. the credit mitigation index increases), the difference in household debt accumulation between these two types of labor market regimes erodes. While EPL's interaction term with the credit mitigation index is non-significant when (first differences in) household debt is the dependent variable, it is significant in the anticipated direction when (first differences in) mortgage debt is used as the dependent variable (see [Table 3](#)). The significance (and direction) of the interaction between encompassing labor market institutions and credit restrictiveness also holds for a two year lag structure of our independent variables (see [supplementary material Appendix C](#)), and (with the exception of bargaining coverage, whose model has the lowest sample size) when (first differences in) mortgage debt is used as the dependent variable rather than total household debt (see [Table 3](#)).

Similar results for the interaction term emerge when the welfare state is interacted with the credit mitigation index. The interaction effect is significantly negative for all four measures of the welfare state in [Table 2](#), when a two year lag structure rather than a one year lag structure is used ([supplementary material Appendix C](#)), and (with the exception of sickness insurance whose interaction term in [Table 3](#) lacks significance) when mortgage debt rather than household debt is used as the dependent variable (see [Table 3](#)). In other words, our results show that the positive effect of the welfare state on household debt accumulation declines as credit restrictiveness increases.

[Figures 6–9](#) provide a (more straightforward) visualization of these interaction effects (given its lack of significance in [Table 2](#), we do not graphically depict the interaction effect between EPL and credit restrictiveness). [Figure 6](#) demonstrates how the interaction between wage coordination (left hand side)/centralization (right hand side) and mortgage credit restrictiveness impacts growth in household debt. [Figure 7](#) examines how trade union density (left hand side)/bargaining coverage (right hand side) and mortgage credit restrictiveness interact in impacting household debt growth. [Figure 8](#) examines the interaction effect of welfare state spending and mortgage credit restrictiveness on household debt accumulation, while [Figure 9](#) examines how unemployment (left hand side)/sickness (right hand side) insurance generosity interact with credit restrictiveness in determining household debt accumulation. [Figure 6](#) provides predicted household debt growth for the maximum and minimum value of the wage coordination and wage centralization indices, respectively, across the total range of credit restrictiveness: the highly coordinated (centralized) wage-setting line (in black) has a wage coordination (centralization) index value of 5 (5.75), while the uncoordinated (decentralized) wage-setting line (in grey) has an index value of 1 (1).



**Table 3.** Labor market and welfare state institutional determinants of mortgage debt accumulation.

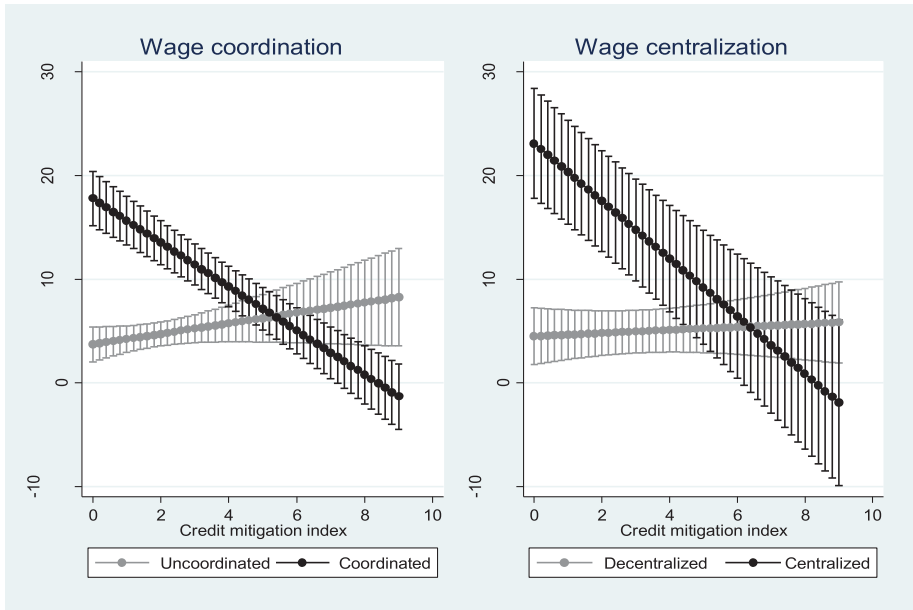
Independent variables	I	II	III	IV	V	VI	VII	VIII	IX
Credit Index ( $t-1$ )	0.342 (0.422)	0.754** (0.047)	-0.228 (0.437)	0.479 (0.578)	0.366 (0.448)	2.753 (0.131)	1.708 (0.131)	1.919 (0.169)	-0.538 (0.207)
Wage Coordination Index ( $t-1$ )	3.032*** (0.000)								
Credit Index $\times$ wage coordination ( $t-1$ )	-0.380*** (0.003)								
Bargaining centralization ( $t-1$ )		3.971*** (0.000)							
Credit Index $\times$ centralization ( $t-1$ )		-0.544*** (0.000)							
Trade union density ( $t-1$ )			0.159** (0.028)						
Credit Index $\times$ TU density ( $t-1$ )			-0.022** (0.050)						
Collective bargaining coverage ( $t-1$ )				0.092* (0.071)					
Credit Index $\times$ bargaining coverage ( $t-1$ )				-0.016 (0.141)					
EPL ( $t-1$ )					2.109* (0.051)				
Credit Index $\times$ EPL ( $t-1$ )					-0.433** (0.023)				
Government expenditure ( $t-1$ )						0.411 (0.108)			
Credit Index $\times$ gov't expend ( $t-1$ )						-0.077* (0.070)			
Social benefits and transfers ( $t-1$ )							0.514** (0.050)		
Credit Index $\times$ benefits and transfers ( $t-1$ )							-0.095** (0.034)		
UI generosity ( $t-1$ )								1.877** (0.025)	
Credit Index $\times$ UI generosity ( $t-1$ )								-0.244* (0.051)	

(continued)

**Table 3.** Continued.

Independent variables	I	II	III	IV	V	VI	VII	VIII	IX
SI generosity ( $t-1$ )									0.541*** (0.002)
Credit Index $\times$ SI generosity ( $t-1$ )									-0.036 (0.326)
$N$	124	119	124	69	124	114	117	124	124
$R^2$ (overall)	0.5551	0.5470	0.5023	0.5257	0.4916	0.5582	0.5448	0.5015	0.5181

Note. Dependent variable is the first difference of mortgage debt (as a percentage of disposable income).  $p$  values provided in parentheses (standard errors are clustered by country). Remaining controls and ( $t-1$ ) time dummies are included but not shown (see Appendix B for full results). \*, \*\*, and \*\*\* indicate significance at a 90%, 95%, and 99% confidence level respectively. EPL denotes employment protection legislation. UI, unemployment insurance; SI, sickness insurance.

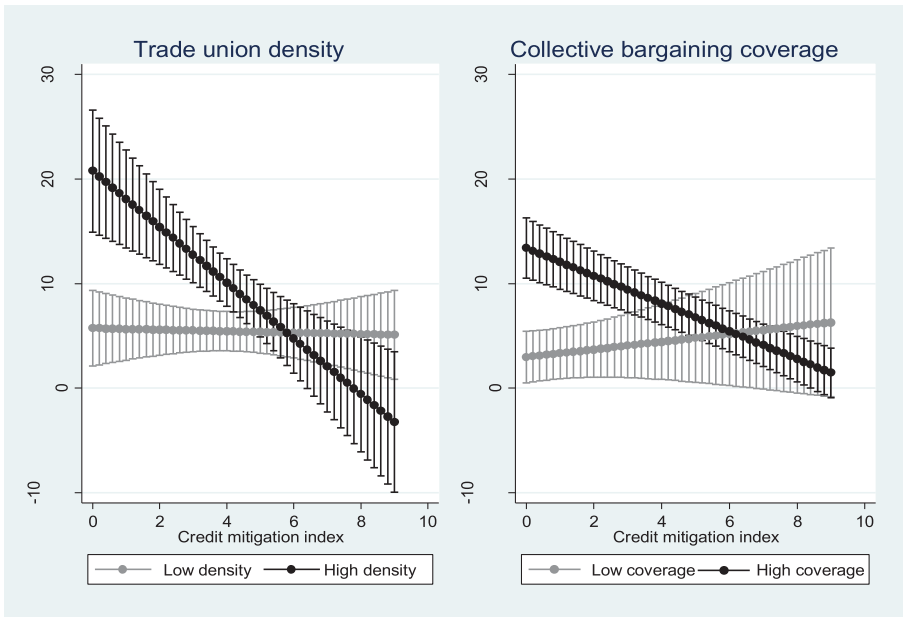


**Figure 6.** Interaction between wage-setting coordination/centralization and credit restrictiveness on household debt accumulation. Graphic produced from Models I (left hand side) and II (right hand side) in Table 2 (with 95% confidence intervals). Uncoordinated bargaining has an index value of 1, coordinated bargaining has an index value of 5. Decentralized bargaining has an index value of 1, centralized bargaining has an index value of 5.75.

Note: Y-axis is growth in household debt.

Figure 7 replicates this exercise for trade union density and collective bargaining coverage – in both graphics, the black line presents predicted growth in household debt accumulation across the total range of credit restrictiveness for a country with a union density/bargaining coverage rate of 90%, while the grey line presents debt accumulation predictions for a country where only 10% of the labor force is unionized/covered by collectively bargaining (these values are roughly the top and bottom decile for these variables within our sample). Figure 8 presents the interaction effect between total government expenditure (left hand side)/social spending (right hand side) and the credit mitigation index: for both graphics, the black line presents predicted growth in household debt accumulation across the total range of credit restrictiveness for a country with a government/social spending level in the highest decile of our sample (65% of GDP for total government spending, and 35% of GDP for social expenditure), while the grey line presents debt accumulation predictions for a country with a government/social spending level in the lowest decile of the sample (30% of GDP for total government spending, and 15% of GDP for social expenditure). Finally, in Figure 9 the black line presents the predicted growth in household debt across the credit mitigation index for a country with unemployment/sickness insurance generosity in the top decile of our sample, whereas the grey line presents predicted growth in debt for a country with unemployment/sickness insurance generosity in the bottom decile. For all four Figures, sections of the graphics where (95%) confidence intervals do *not* overlap indicate that highly coordinated/centralized/unionized labor markets (or more generous welfare states)



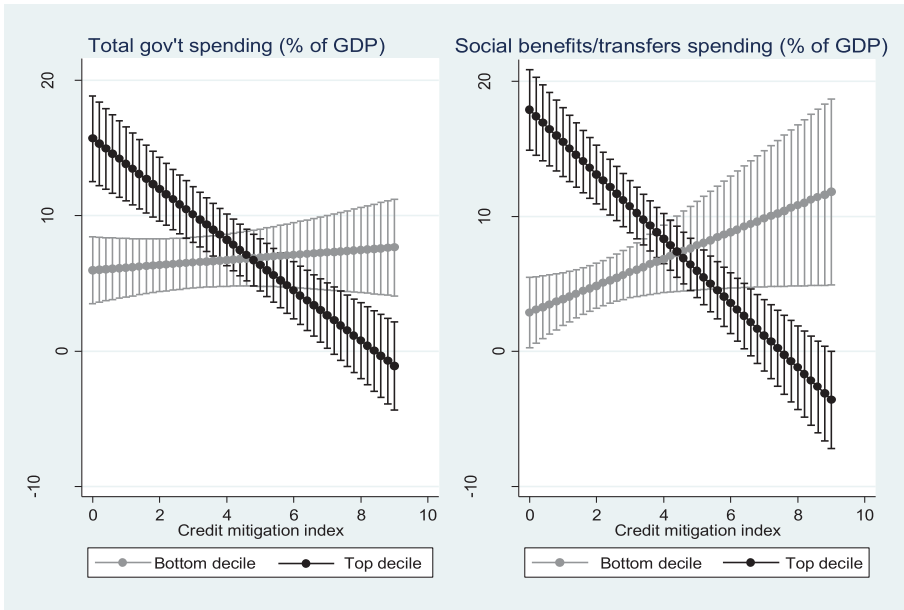


**Figure 7.** Interaction between trade union density/bargaining coverage and credit restrictiveness on household debt accumulation. Graphic produced from Model III (left hand side) and IV (right hand side) in Table 2 (with 95% confidence intervals). Low union density indicates 10% of the labor force is union members, high union density indicates 90% of the labor force is union members. Low bargaining coverage indicates 10% of the labor force is covered by a collective agreement, high coverage indicates 90% of the labor force is covered by a collective agreement.

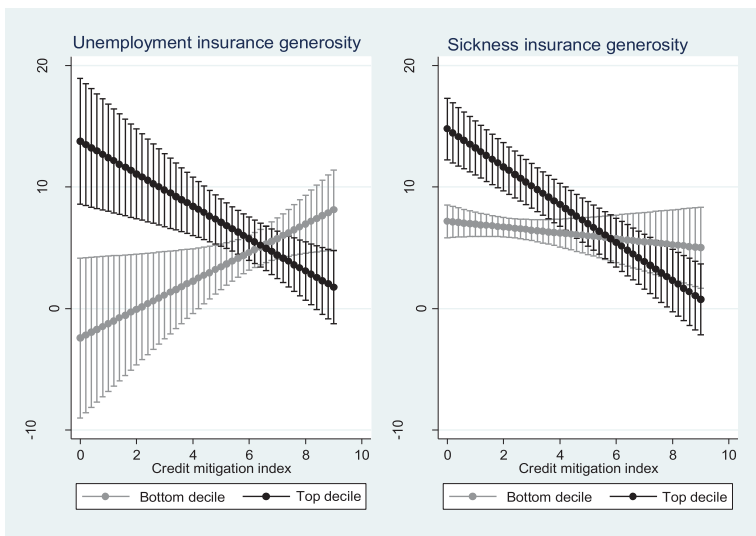
Note: Y-axis is growth in household debt.

demonstrate *significantly different* growth in household debt than uncoordinated/decentralized/non-unionized regimes (or weaker welfare states). If confidence intervals overlap, household debt accumulation is not significantly different between these two types of labor market/welfare state regimes.

From Figure 6, countries with highly coordinated/centralized wage-setting demonstrate significantly higher household debt accumulation than countries with uncoordinated wage-setting but *only* when mortgage restrictiveness index is low. Once the credit restrictiveness index reaches a value of 4, the confidence intervals between these two types of labor markets overlap, indicating that household debt growth is not significantly different between the two wage-setting regimes (surprisingly, for the highest level of credit restrictiveness, highly coordinated wage-setting regimes exhibit lower debt growth than uncoordinated ones). The same interaction effect can be observed for trade union density and collective bargaining coverage (Figure 7) – countries with highly unionized labor markets and expansive collective bargaining coverage observe significantly higher levels of household debt accumulation than their non-unionized/low-coverage counter-parts *when mortgage finance is less restricted*, but under moderate and higher levels of mortgage finance restrictions, countries with high trade union density and high collective bargaining coverage observe similar household debt growth as those with low union density and collective bargaining coverage. Similar interaction effects can be observed for government and social benefits/transfers expenditure, as well as unemployment and



**Figure 8.** Interaction between government/social spending and credit restrictiveness on household debt accumulation. Graphic produced from Model VI (left hand side) and VII (right hand side) in Table 2 (with 95% confidence intervals). Bottom decile for total government expenditure is 30% of GDP, whereas top decile is 65% of GDP. Bottom decile for social benefits and transfers spending is 15% of GDP, while upper decile is 35% of GDP. Note: Y-axis is growth in household debt.



**Figure 9.** Interaction between unemployment/sickness insurance generosity and credit restrictiveness on household debt accumulation. Graphic produced from Model VIII (left hand side) and IX (right hand side) in Table 2 (with 95% confidence intervals). Bottom decile for both unemployment and sickness insurance generosity is an index value of 5, whereas top decile index value is 13 and 15 for unemployment insurance generosity and sickness insurance generosity, respectively. Note: Y-axis is growth in household debt.

sickness insurance generosity (Figures 8 and 9). Countries with larger total government and social expenditures exhibit higher levels of debt accumulation than countries with lower levels of spending, *but only when credit mitigation is low*. However, larger welfare states lose their household debt accumulation edge (compared to their residual welfare state counter-parts) as mortgage restrictiveness increases, and lose it completely for high levels of credit restrictiveness. From Figure 9, countries with generous unemployment and sickness insurance schemes display significantly higher debt growth than countries with less generous schemes *when mortgage credit is less restricted*. For moderate or high levels of credit mitigation, however, these two types of insurance schemes witness similar levels of household debt accumulation.

## Conclusions

Our results show that the intersection of two markets – the market for labor (and by extension the welfare state) and the market for mortgages – shape the evolution of household debt in advanced market economies. This links back to the aim of this special edition by providing a nuanced and contextually sensitive account of how financialization (allowed or encouraged for whatever reason) generates consequences for households through a complicated interaction with other extant institutions. We find three takeaways to be worthy of note.

First, those studying financialization need to integrate labor market and welfare state institutions into their analysis to understand how domestic financial systems function. Most finance research assumes that rising household debt is a function of labor weakness as workers are forced to rely on their housing wealth to secure their own welfare. We have suggested that in Western Europe at least, it is a function of labor strength. The stronger the power of labor, and the more permissive their access to credit, the more banks are willing to lend and the more debt households can accrue. This is a useful corrective to housing finance (and financialization) scholars who sometimes attempt to explain housing outcomes without due consideration of labor markets, often generating puzzling results (Kohl, 2018). Even the inclusion of wages in quantitative models is likely to be insufficient. It is not enough to merely accept that demand for credit rises with incomes; scholars must also consider the security and *potential* upward trajectory of those incomes. There is ultimately too little crossover between perspectives that see households as labor and households as capital. They are both, and both have important political economy implications.

Second, comparative capitalism research (especially in the nascent growth model literature - see Baccaro and Pontusson, 2016; Johnston and Regan, 2018) needs to incorporate the role of *domestic housing finance* into their analysis to understand how debt accumulation affects national growth strategies. In varieties of capitalism research, Germany is often held up as the archetype coordinated market economy. Similarly, in the growth model literature, Germany is the archetype export-led manufacturing growth regime. But perhaps Germany is the outlier case when it comes to the political economy of debt and growth? German domestic institutions depress wage and credit growth, and its housing tenure regime is unique and qualitatively distinct (see Kohl, 2018). Scandinavian countries allow for much stronger wage growth, and/or easier access to credit, with the implication that they have higher levels of household debt and homeownership. Within the Eurozone, access to credit is typically presented as something that is morally problematic, and heavily loaded with

assumptions of reckless debt-fueled consumption (typified by the chastising of the 'PIIGS' in the Euro crisis). However, this is not the case in the Scandinavian countries, whose 'balanced growth path' is partly made possible by permissive mortgage lending that encourage extensive *private* debt accumulation.

The purpose of encouraging more household debt through easier access to credit is to encourage a property owning middle class, which, of course, generates its own class tensions (see Fuller et al., 2020). Even in Scandinavia, not everyone can afford to take out a mortgage to buy a house. As argued by Iversen and Soskice (2019), the politics of capitalist democracy is ultimately about governments responding to the interests of a (property owning) middle class. Whether or not this is the case is beyond the scope of our paper. But it is worth noting that a larger property owning middle class potentially requires more household debt, and the institutions which enable its growth. More research needs to be done on the electoral implications of this (see Adler & Ansell, 2020).

Third, none of these areas of inquiry is well served by the intellectual division between IPE and CPE. The development of household debt in highly integrated financial spaces defies both the IPE and CPE lens. We cannot fully understand why household finance has gained economic importance (and grown in terms of its share of banks' collective balance sheets) without considering the IPE narrative of increased global capital market integration and greater interdependency across national borders. Recall that German banks, despite eventually legalizing American-style MBS for domestic use, still preferred to buy MBSs from *abroad*. That sort of capital flow – and the resulting intertwining of economies – is of central interest to IPE scholars. At the same time, we need a comparative political lens to tease out how and why nationally 'trapped' actors (such as households) interact with these increasingly globalized markets in different ways. This is particularly the case in the European single market, where significant cross-national variation in mortgage rules continues to persist across the EU.

The demand for a unified IPE/CPE approach is particularly important within the European Union, due to its *sui generis* status. Financial rules in the EU are not solely determined at the national level, particularly since post-crisis reforms shifted a substantial amount of financial oversight to the European Central Bank (ECB) (Howarth & Quaglia, 2014). The ECB provides a common monetary policy and shared currency across the Eurozone – a unique arrangement in global affairs. But consider this paper's findings in light of the (still nascent) Capital Markets Union. One of the key proposals calls for the creation of a homogenous 'simple transparent and standardized' securitization product, defined by European rules and circulating throughout the bloc (European Commission, 2017). Such a product would be the creation of a multi-level negotiation between European member states and its supranational institutions. It would almost certainly be taken up at different rates in different European countries, and it would almost certainly affect household debt. IPE and CPE on their own would both be at a loss to explain how and why. In studying the political economy of debt in Europe and beyond, we need both IPE and CPE together.

## Notes

1. By the time of the Global Financial Crisis, mortgage backed securities made up roughly 18% of debt sold in American financial markets, higher than the share of US government treasuries (US Financial Crisis Inquiry Commission, 2011, p. 68).

2. Our reference to ‘labor market institutions’ focuses on four aspects of the organization of the labor market: (1) the coordination of wage-setting, (2) the centralization of wage-setting, (3) union density and (4) collective bargaining coverage. We use the terms ‘organized’, ‘coordinated’ and ‘inclusive’ labor markets interchangeably.
3. We use the terms ‘mortgage credit regimes’, ‘household credit regimes’ and ‘household finance regimes’ interchangeably.
4. The rise of non-traditional mortgage lending in the US (and, to a lesser extent, the UK) loosened income ‘constraints’ on household borrowing prior to the 2006 subprime mortgage crisis.
5. We thank an anonymous reviewer for this point. The growing importance of atypical employment may, however, impact the growing pool of households with insecure income over time.
6. OECD Dataset 720: Financial Balance Sheets (Non-Consolidated).
7. US Federal Reserve Bank of New York Consumer Credit Panel.
8. We thank an anonymous reviewer for raising this point to us.
9. OECD Affordable Housing Database (PH: 2.2).
10. These countries include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, the Netherlands, Portugal, Spain, Sweden, the UK and US.
11. Time series data for this index is complete from 1990 onwards for the overwhelming majority of countries in our sample. Only Ireland and Japan lack credit mitigation data until 2000 and 2001, respectively.
12. OECD Dataset 720: Financial Balance Sheets (Non-Consolidated).
13. We are grateful to the European Mortgage Federation for providing us with this panel data for EU countries.
14. This measure, taken from Visser (2016) is computed slightly differently than Iversen’s (1998), but both are measures of the *level* at which wage-bargaining takes place.
15. It is important to emphasize that EPL is not synonymous with union power. OECD countries with the highest levels of EPL lie within Southern Europe (Portugal, Italy and Greece), countries which have highly dualized labor markets and weak unions. In contrast, it is easier to fire workers in the Nordic countries (and the Netherlands), but strong protections remain in place for them during employment transitions, insuring that their income security is not jeopardized by the loss of a job.
16. Despite the fact that the credit mitigation index has a maximum value of 10, no country in our sample obtained this value during the time period under examination (the highest credit mitigation score observed among our sample was 9, held by Germany in various years and France in 1999).
17. 80% is a commonly observed dividing line between lower and higher-LTV mortgages. Few systems are unwilling to offer an 80% LTV loan; but a large number will not generally offer anything higher.
18. For a full accounting of the coding process – including the specific country codes for the 1995–2007 period, see Fuller (2015).
19. In addition to (mortgage and non-mortgage) credit extended to households, this measure includes credit extended to firms, purchases of non-equity securities, loans to public enterprises, trade credits and other accounts receivable that establish a claim for repayment.
20. This measure becomes less relevant for countries within EMU, who share the same central bank, as the ECB is unlikely to respond to housing inflation within individual Euro-zone countries.

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## Disclosure statement

No potential conflict of interest was reported by the author(s).

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