**It takes two to tango:**

**Mortgage markets, labor markets and rising household debt in Europe**

Gregory W. Fuller[[1]](#footnote-1), Alison Johnston[[2]](#footnote-2) and Aidan Regan[[3]](#footnote-3)

**Abstract**: Household mortgage debt unleashed devastating consequences for the international financial system in 2007-2008.  Yet, despite the growing importance of household (mortgage) debt in domestic and international financial markets, IPE and CPE have not theorized why household indebtedness is so different across Europe. In this paper, we argue that variation in household debt can be explained by the intersection of two domestic political institutions; labor market institutions (and by extension welfare state institutions) that govern households’ income and employment security, and mortgage finance institutions that govern households’ credit access. We postulate, and empirically demonstrate via a panel analysis of 17 developed economies, that the impact of these institutions on household debt is *co-dependent*. Household indebtedness is highest in European countries where housing finance institutions encourage mortgage formation *and* where collective bargaining provide income security to borrowers (i.e. Scandinavia and the Netherlands), and not in Anglo-Saxon financialized regimes that inhibit stable income streams. As household debt becomes an ever greater share of developed countries’ total debt profile, our findings highlight that finance research needs to integrate labor market (and welfare state) institutions into their analysis to understand how domestic financial systems function.

**Word Count (excluding title page):** 9,852

1. **Introduction:**

International political economy (IPE) and European political economy (EPE) have long examined how banks and other international financial actors shape the regulatory and policy preferences of national governments (Woll 2008; Bouwen 2002; Culpepper 2010). While there is not a universal consensus as to how financial actors constrain or are constrained by governments, financial liberalization (and the associated increase in capital mobility) have tipped the balance of power in favor of mobile banks and international financial actors in the determination of national regulatory policy (Obstfeld, 1998; Mosley, 2003; Johnson and Kwak 2010).[[4]](#footnote-4) Rules governing capital, particularly those covering capital controls and restrictions, have increasingly converged across advanced capitalist economies – 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 IPE and EPE debates on global finance: households. In general, political economy scholars do not perceive households as capital, but rather as labor. Yet, with the advent of securitization, households have grown ever-more entangled with the international financial system through their largest financial liability – the mortgages on their homes. 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 global financial system in which they were circulating.[[5]](#footnote-5) Indeed, Helliner (2011; p69), Aalbers (2016) and Schwartz (2009) go so far as to blame 2008 Global Financial Crisis on the US subprime mortgage crisis. Unsustainable mortgage debt also proved catastrophic for Europe, pushing countries like Ireland and Spain into sovereign debt crises in the late 2000s.

This paper tries to fill a gap in IPE through analyzing the political and institutional determinants of household debt. In contrast to banks, sovereigns and international firms, households lack access to multiple markets. A multinational corporation like Unilever is listed on both the New York Stock Exchange and the Euronext exchange, and can raise capital in either jurisdiction (and in either currency). Banks that are restricted from activities in one jurisdiction can easily move them to another. Households’ economic activity tends to be rooted in domestic markets, and built around assets (their homes) that are relatively illiquid. Because of this, national governments and central banks still have significant sway over households’ capacity to consume credit. While EU rules govern capital reserve requirements and liquidity ratios, it has not created common regulations governing households’ consumption of credit or mortgage lending. 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 between 2000-2015)**

****

Housing debt data from the OECD (2018).

How can we explain the variation in household debt accumulation across Western Europe, and throughout the OECD more broadly? How is this related to the political economy of housing? 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 market economies, particularly from the late 1990s onwards, meaning that they cannot account for the significant *divergences* in household debt levels amongst EU and OECD countries. This is especially puzzling within the European context, where the integration of capital markets runs deeper than in the world at large – and where virtually all financial markets are regulated through a bricolage of supranational and domestic rules. Solving puzzles like this, in short, calls for a specific political economy of Europe – what this issue calls a European Political Economy (EPE)

We therefore aim to provide a *comparative European* lens for understanding household debt accumulation. Our theoretical argument merges insights from three fields of scholarly research: the political economy of housing literature, particularly those that focus on financialization and housing regimes (Kemeny, 2006; Schwartz and Seabrooke, 2008; Aalbers and Christophers, 2014; Bohle, 2014); comparative political economy literature that focuses on how the organization of the labor market impacts employment and income security (Esping-Andersen, 1990; Hall and Soskice, 2001; Pontusson et al 2002; Korpi 2003), and the comparative finance literature that examines how domestic rules govern credit consumption (Schelkle, 2012; Fuller, 2015; van Gunten and Navot 2018; Blackwell and Kohl 2018).  We propose a political institutional framework for understanding the variation in household debt that integrates both capital (mortgage finance) and labor (income) markets. Our claim is that household debt can be explained by the intersection of two crucial domestic political economy institutions – labor market institutions[[6]](#footnote-6) (and by extension welfare state institutions) that govern households’ income and employment security, and mortgage finance institutions[[7]](#footnote-7) that govern households’ credit access.

Exploiting the institutional heterogeneity of institutional diversity in Europe, we use a distributive lagged panel analysis to assess the impact of labor market and housing finance institutions on household debt accumulation. Our main argument is 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 will protect them from adverse economic risks, they (and the banks that lend to them) will be willing to assume greater amounts of debt. For this to happen, however, credit must also be widely available. In other words, household indebtedness in Europe will be highest in countries that possess both strong collective bargaining *and* permissive credit institutions. Our empirical results support this argument. They show that household indebtedness is highest not in financialized liberal market economies like the US or UK, but rather in those economies where housing finance institutions encourage mortgage formation *and* where collective bargaining is strongest (the Scandinavian countries and the Netherlands). We suggest that this relationship is not coincidental. Contrary to the argument that households take on more debt to compensate for precarious income (USA), we suggest that in Europe, stronger income security encourages households to borrow more.

Our findings have several implications for political economy of finance – in Europe, in particular. First, echoing several in the housing literature (Schwartz and Seabrooke, 2008; Christophers, 2013; Anderson and Kurzer, 2016), our results show that the conventionally “financialized” Anglo-American growth models are not those with institutions that enable the highest levels of household debt accumulation (the US and UK most notably – see Epstein, 2005, Thompson, 2013, and Baccaro and Pontusson, 2016). While households in the US and UK enjoy permissive mortgage market institutions, they possess more precarious labor market (and welfare state) institutions, which limit income and employment security, making it difficult for (lower income) households to secure loans.[[8]](#footnote-8) In contrast, the “egalitarian” Scandinavian countries (and the Netherlands) possess both mortgage and labor market institutions that enable higher household indebtedness.

Second, speaking to an emergent comparative capitalism and growth model literature, our findings identify why “coordinated market economies” (CMEs) can pursue different growth strategies and different levels of domestic consumption. In contrast to export-led CMEs like Germany, the Scandinavian countries can pursue “balanced growth models” because they possess financial institutions that encourage households to accumulate (mortgage) debt. This politics of *household debt accumulation*, and how it impacts domestic consumption, has been largely overlooked in comparative capitalism. Our argument is that a “balanced growth path” is made possible in Scandinavia because of the intersection between labor and mortgage markets/homeownership.

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 European political economy, and how, in some European countries, total household debt even rivals that of government debt. Second, we outline a theoretical framework that integrates the labor market (which governs income and employment security) and the housing finance market (which governs households’ credit access), 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. We conclude with a discussion on the implication of our findings for the study of political economy in Europe.

1. **Putting households at the center of European political economy**

The growing centrality of the household in contemporary (European) finance matters because *who borrows matters.* 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 and 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 loan problems 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).

Household borrowing generally grew faster than borrowing in the non-financial and government sectors in the years leading up to the global financial crisis. The average OECD economy saw the household share of liabilities rise, from just under seven percent of all liabilities to over eight percent between 1995 and the crisis. That may sound insignificant; however, that is comparable with the overall debt load of most OECD *governments*. In fact, the typical government went from accounting for 15 percent of borrowing in 1995 to just over 9 percent by 2007. Figure 2 shows the OECD-average ratio of household to non-financial (dotted line) and government (solid line) sector liabilities, illustrating a pronounced relative increase in household debt. This trend halts but is not fully reversed in the post-crisis period. This data suggests that OECD economies have become relatively more exposed to the financial management of households – displacing businesses and governments to some extent (on “privatized Keynesianism” see Crouch 2009).

**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).

Despite this general trend, Figure 3 – which shows the ratio of household debt to government liabilities – provides an impression of how much national variation remains. Germany and Italy – both featuring highly restrictive mortgage finance regimes – have experienced far lower (and, in Germany, declining) levels of overall borrowing. Italy and the UK experienced 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 has seen 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.

**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).

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 often borrow to create mortgages; every time a homeowner signs a mortgage-debt contract, they also create financial assets within the financial sector (Fuller 2016). In a traditional financial system – where banks take customer deposits and lend them out as mortgages – this is not a major issue. In a contemporary financial system, however, a single household transaction can underpin numerous layers of financial sector debt.

For instance, a bank might borrow from the interbank market to create a mortgage intended for securitization. That means selling the mortgage to a separate securitization vehicle, which must also buy the mortgage, paying with funds raised from short-term bonds. Finally, an investor might also borrow to purchase part of the resulting securitized asset (and then borrow more to pay for a credit default swap protecting their investment). In other words, the evolution of household finance is closely linked to changes in how banks manage their balance sheets, which economists have long recognized would influence macro-economic performance (c.f. King and Levine 1993). Ultimately, this multilayered tangle of liabilities remains fundamentally reliant on the ultimate 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, government and global economic stability, which is precisely what happened in the late 2000s (Lewis 2011).

Mortgages are indeed the largest financial product used by the working and middle classes. For European and OECD countries – setting aside post-communist transition 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 (i.e., excluding pay-day loans, credit cards, home equity lines of credit and other forms of short-term borrowing) account for between 80 and 90 percent of all household liabilities in most OECD countries.[[9]](#footnote-9) Even in the United States, where student loan debt accounts for the largest share of non-mortgage household borrowing (around ten percent of the total), mortgages still account for 68 percent of all household debts.[[10]](#footnote-10) This means that when we talk about household debt, we are overwhelmingly talking about borrowing a mortgage for the purpose of buying a home.

In sum, looking at the origins of debt clearly reveals that households are playing a growing role in national financial systems and, ultimately, the political economy of advanced capitalism. As noted above, one major consequence is that today’s advanced capitalist economies are more reliant on the debt management of individual households than they ever have been in the past. 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, which governs income and employment conditions, and the mortgage market, which governs how much debt households can accumulate to finance home-ownership.

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

We provide a theoretical framework that explains how two key sets of institutions – those governing income and employment (i.e., the organization of wage-setting and the unionization of the labor force) and those governing housing finance (i.e., mortgage markets) – interact to determine household debt. In Europe and advanced market economies, labor market institutions are important because they directly influence income and employment terms, which are unarguably the most important household characteristic that banks assess when issuing (prime) mortgages.[[11]](#footnote-11) 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 wage-setting institutions (including not only wage coordination and centralization, but also trade union density and collective bargaining coverage) impact income and employment security in developed economies. Power resource theorists would argue that strong unions, higher collective bargaining coverage, and highly coordinated labor markets, are institutions that deliver wage and employment security, because these very institutions are the political vehicles through which labor organizes and exerts its power (Korpi, 2006). There is now an extensive literature showing that encompassing trade unions and wider collective bargaining coverage provides a wage premium, particularly for middle income households (Blanchflower & Freeman, 1992; Budd & Na 2000; Stockhammer, 2017; Stockhammer, Onaran, Ederer 2008). Conversely, weaker unions, and narrow collective bargaining coverage results in weaker wage growth and more precarious employment, particularly for lower and middle income households (Baccaro & Howell 2017; Dølvik et al 2018).

It is important to note that in terms of the *European political economy*, weak unions and shrinking collective bargaining, does not imply a decline in wage coordination, particularly amongst employers in core sectors of the economy. This is precisely the argument of varieties of capitalism – Germany can remain a ‘coordinated’ market economy, even in the context of weakened labor. However, this weakened role for labor will translate into the real economy. For macroeconomists, it will be directly observable in lower inflation, and a lower real exchange rate. Similarly, in countries with strong trade unions capable of pushing for wage growth across the economy, it will be observed in higher inflation, and growth in domestic demand. It is our argument – and as far as we are aware, it has not been made before – that this can also be observed in the housing market. The stronger power resources available to labor, the more this will translate into household security, which enhances their access capital. This was precisely the intention of the ‘democratic class struggle’ in Nordic social democracies – strengthen the working class, and enable the emergence of a property owning middle class (Korpi 1983). Except, today, this means accessing and owning *mortgage-debt*.

Furthermore, 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: the universalist welfare state. Unlike the conservative welfare states in Germany, Italy and France, Nordic welfare states were designed to enable households’ access high replacement income, and public services, regardless of their employment status. Since the 1990’s these welfare states have undergone significant change, particularly in terms of the shift toward social investment and activating labor into employment. But the core rationale remains the same: secure the incomes of households throughout the business cycle. By securing household income, highly unionized labor markets and encompassing collective bargaining effectively 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 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 central bank rules, and the type of banking regime that exists within countries.

Some rules directly concern mortgage contracts themselves. These can come from governments, such as through statutory restrictions on the amount of interest banks can charge on mortgages. Central banks can explicitly limit the percentage of a home’s purchase price that a prospective buyer is permitted to borrow, though these rules (where present) were usually self-imposed by banks prior to the financial crisis – function more as norms. Only after the crisis have states like the Netherlands (2012) and Sweden (2010) written restrictions into law. Furthermore, governments and banks form policies that co-determine how mortgage markets are financed: Germany 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 type takes the shape of mortgage interest deduction. While the US mortgage interest deduction might be better-known, the Dutch scheme is the costliest in the developed world, with the OECD estimating that the Dutch government surrenders 2.1 percent of GDP in foregone tax receipts through the tax break every year (that figure is only 0.5 percent in the US).[[12]](#footnote-12) These sorts of tax breaks are effectively a subsidy to indebted homeowners, encouraging greater mortgage borrowing. 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, 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 also have greater capabilities to go into debt. However, if households’ access to mortgages is restricted, their indebtedness should be limited. If households have a secure and upward trajectory of income and easier access to credit, they can borrow bigger mortgages. Taking labor and credit institutions together, there emerges four possible institutional “worlds” of household indebtedness:

1. Encompassing and inclusive collective bargaining (and strong welfare states) combined with *permissive* mortgage institutions: Under this constellation of institutions, households’ income and employment is made more secure by collective bargaining coverage and strong unions, while their access to borrowing is enhanced by accessible and plentiful (mortgage) credit. This institutional grouping is seen in the Scandinavian countries as well as the Netherlands.
2. Sectoral-specific collective bargaining (and status oriented welfare states) combined with *restrictive* mortgage credit institutions: Under this constellation of institutions, income and employment security does not necessarily transpire into higher indebtedness (and home ownership), 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 welfare states) combined with *permissive* mortgage credit institutions: This constellation of institutions pairs more precarious income and employment conditions with generous access to mortgages. 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 (insider-oriented) narrow 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 ad Seabrooke, 2008).

These institutional configurations allow us to make 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 institutions constrain households’ indebtedness (Italy and Greece). 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 market and access to generous loan terms within the (mortgage) credit market (Scandinavia and the Netherlands).

The effect of the remaining two configurations is less clear, however, as labor market and credit institutions often work against each other. Countries with sectoral-specific collective bargaining (whereby the core workforce have high incomes and secure employment) but restrictive mortgage credit regulations (i.e. Germany) are likely to exhibit more limited 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 (the US/UK) are likely to be less indebted than countries who share similar household finance regimes, but with encompassing collective bargaining. Likewise, they are likely to be more indebted than states with similar precarious labor market institutions but with restrictive access to credit (Italy). Below we formally test the interactive effects between labor market and mortgage credit institutions on household debt, to determine whether these groupings bear fruit.

1. **The impact of wage-setting 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[[13]](#footnote-13) 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[[14]](#footnote-14) (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: 1.) 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, and; 2.) they exclude the 2008 Global Financial Crisis and European Sovereign Debt crisis, where domestic financial systems, along with international financial markets, encountered significant turmoil. In other words, this time period allows us to observe the organic evolution and idiosyncratic patterns of domestic household credit institutions that were subject to similar international credit conditions but had yet to encounter serious financial stress.

Ideally, our dependent variable would be household *mortgage* debt rather than household debt. We rely on the latter for two reasons. First, the OECD lacks data on household mortgage debt, while other databases with mortgage debt time-series data (the European Mortgage Federation most notably) possess it from the early 2000s onwards. Second, mortgage debt does not include household debt that is linked to home equity and the size of a household’s mortgage, but is not directly included in the mortgage itself (i.e. home equity lines of credit). Mentioned above, the largest line items in households’ overall debt tends to be mortgages debt – consequently, institutions that influence the size and growth of mortgage debt will also directly move household debt.

Most household debt is tied to purchases of major durable goods (homes, automobiles, etc.) that require long repayment periods. Because of this, our model incorporates lags, rather than present values, of all our independent variables. Market and institutional developments are unlikely to cause households to make instantaneous purchases of major durable goods;, if real interest rates declined tomorrow, it is unlikely that a household would immediately buy a house or refinance, but they may 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 Appendix B). Our baseline model is as follows:

$$∆y\_{i,t}= \hat{β}\_{0}+ \hat{β}\_{1}LMInst\_{i, t-1}+\hat{β}\_{2}MCMInst\_{i, t-1}+ \hat{β}\_{3}\left(LMInst\_{i, t-1}\* MCMInst\_{i, t-1}\right)+ \hat{β}\_{4}\sum\_{}^{}M\_{i, t-1}+ \hat{β}\_{5}\sum\_{}^{}N\_{i, t-1}+ \hat{β}\_{6}\sum\_{}^{}TE\_{i}+ ε\_{i, t}$$

All our independent variables, except for our political and institutional controls, are differenced to rectify non-stationarity problems within our data. $∆y\_{i,t}$ 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 four of the most popular measures of labor market institutions in comparative political economy 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[[15]](#footnote-15)); trade union density (the percentage of the labor force that are trade union members), and; collective bargaining coverage (the percentage of the labor force whose employment terms are determined by collective agreements negotiated between unions and employers).

Highlighted above, countries with stronger and more coordinated unions are also more likely to witness securer employment and wage conditions, compared to countries where employer power trumps that of labor. Consequently, we anticipate that $\hat{β}\_{1}$ 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 trade union density data was taken from the OECD (2017).

$MCMInst\_{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 encourage or mitigate the creation of household 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).[[16]](#footnote-16) 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 percent and above);[[17]](#footnote-17) (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.[[18]](#footnote-18) 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 United Kingdom) to 2 for those with strict caps on what lenders can charge, such as in France, where interest rates cannot exceed 133 percent 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 2s. 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 percent (such as Germany, Italy, Denmark) and those that did not. At the most extreme end, 125 percent 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 their interest payments from taxable income. State-backed mortgage insurance schemes, an indirect form subsidy, have a less-pronounced credit-encouraging effect. 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 mortgage-formation 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). This encourages credit-formation in relation to places with no secondary markets (mostly in Eastern Europe). Mortgage-backed securities 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: $\hat{β}\_{2}$, in other words, should be *negative*.

Figure 4 presents a scatter plot between growth in household debt, and the average credit mitigation index for our 17-country sample from 1995 and 2007. 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 4, however, is that countries with collectivist wage-setting institutions 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.

**Figure 4: Credit mitigation and household debt, 1995-2007**

****

\*Ireland debt growth from 2001-2007. Spain debt growth from 1999-2007

As argued above, we do not expect labor market institutions that provide employment and income security, on their own, to drive differences in household debt accumulation across our sample – rather, their role in shaping household debt growth is *conditioned* on the presence of permissive (mortgage) credit institutions. In a context of permissive credit lending, households with more secure income are likely to borrow larger mortgages, and become more indebted. Consequently, we should expect the beta coefficient ($\hat{β}\_{3}$) 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[[19]](#footnote-19), 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 (because mortgages tend to be the biggest line item in household debt, it is important to account for price increases in the commodity that mortgages finance), and real GDP growth[[20]](#footnote-20) to control for cyclical effects which may cause households to take on greater debt. Foreign capital flows data stemmed from the EU’s Annual Macroeconomic Database (AMECO, 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).

$\sum\_{}^{}N\_{i, t-1}$ is a vector of political and (economic) institutional controls in country i at time t-1. These include: capital account openness (higher index values indicate fewer restrictions on capital entering and leaving a country – this index serves as a proxy for financial *liberalization*); the partisanship of government (measured as the proportion of cabinet seats occupied by right parties), and; the central bank independence index.[[21]](#footnote-21) 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 minimal 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 by 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). $\sum\_{}^{}TE\_{i}$ 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 1 provides our results. Because our four measures of labor market institutions can re-enforce each other (countries with high trade union density also tend to have higher levels of wage coordination, centralization and bargaining coverage), we incorporate these four variables in separate models. Models I, II, III and IV use wage coordination, wage centralization, trade union density, and collective bargaining coverage, respectively, as our measure of (employment/income security enhancing) labor market institutions. To preserve space, we only present findings for the institutional variables – the full table of results is provided in Appendix A.

**Table 1: Institutional determinants of household debt accumulation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **I** | **II** | **III** | **IV** |
| Credit Mitigation Index (t-1) | 1.161\*\*\* | 0.681 | 0.392 | 0.641\* |
|  | (0.009) | (0.160) | (0.393) | (0.087) |
| Wage Coordination Index (t-1) | 3.293\*\*\* |  |  |  |
|  | (0.000) |  |  |  |
| Credit Index \* Wage Coordination (t-1) | -0.611\*\*\* |  |  |  |
|  | (0.000) |  |  |  |
| Bargaining Centralization (t-1) |  | 3.424\*\*\* |  |  |
|  |  | (0.005) |  |  |
| Credit Index \* Centralization (t-1) |  | -0.524\*\* |  |  |
|  |  | (0.011) |  |  |
| Trade Union Density (t-1) |  |  | 0.215\*\*\* |  |
|  |  |  | (0.000) |  |
| Credit Index \* TU Density (t-1) |  |  | -0.036\*\*\* |  |
|  |  |  | (0.000) |  |
| Collective bargaining coverage (t-1) |  |  |  | 0.158\*\*\* |
|  |  |  |  | (0.000) |
| Credit Index \* Bargaining coverage (t-1) |  |  |  | -0.023\*\*\* |
|  |  |  |  | (0.000) |
| N | 168 | 158 | 168 | 100 |
| R-squared (overall) | 0.5457 | 0.5453 | 0.5182 | 0.6420 |

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). \*, \*\*, and \*\*\* indicate significance at a 90%, 95%, and 99% confidence level respectively.

Confirming our expectations, higher (lagged) levels of wage coordination, wage centralization, trade union density and bargaining coverage are associated with higher growth in household debt (these beta coefficients retain their sign and significance when a two lag, rather than one lag, structure is used – see Appendix B). 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 the most pronounced household debt accumulation during the later stages of the Great Moderation. However, this impact is tempered by the type of *mortgage finance institutions* within these countries.

Mortgage credit restrictiveness was non-significant for two of the four models in Table 1, and for the models where it held significance (Model I and IV), its sign was the opposite of what was anticipated. However, the interaction between labor market institutions and credit restrictiveness performs as expected. However, its interaction with collective bargaining institutions did 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, the difference in household debt accumulation between these two types of countries erodes. 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 Appendix B).

Figures 5-8 provide a (more straightforward) visualization of these interaction effects. Figure 5 demonstrates how the interaction between wage coordination and mortgage restrictiveness impacts growth in household debt, Figure 6 examines how wage centralization and mortgage restrictiveness interact in impacting household debt growth. Figure 7 examines the interaction effect of trade union density and mortgage market restrictiveness, while Figure 8 examines the interaction between credit restrictiveness and collective bargaining coverage. Figures 5 and 6 provide 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). Figures 7 and 8 replicates this exercise for trade union density and collective bargaining coverage, respectively – in both figures, 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. Sections of the graphic where (95%) confidence intervals do *not* overlap indicate that highly coordinated/centralized/unionized labor markets demonstrate *significantly different* growth in household debt than uncoordinated/decentralized/non-unionized regimes; if confidence intervals overlap, household debt accumulation is not significantly different between these two types of labor market regimes.

**Figure 5: Interaction between wage-setting coordination and credit restrictiveness on household debt accumulation**



Graphic produced from Model I in Table 1 (with 95% confidence intervals). Uncoordinated bargaining has an index value of 1, coordinated bargaining has an index value of 5.

**Figure 6: Interaction between wage centralization and credit restrictiveness on household debt accumulation**



Graphic produced from Model II in Table 1 (with 95% confidence intervals). Decentralized bargaining has an index value of 1, centralized bargaining has an index value of 5.75.

**Figure 7: Interaction between trade union density and credit restrictiveness on household debt accumulation**

****

Graphic produced from Model III in Table 1 (with 95% confidence intervals). Low union density indicates 10% of the labor force are union members, high union density indicates 90% of the labor force are union members

**Figure 8: Interaction between collective bargaining coverage and credit restrictiveness on household debt accumulation**



Graphic produced from Model IV in Table 1 (with 95% confidence intervals). Low bargaining coverage indicates 10% of the labor force is covered by a collective agreement, high coverage indicates 90% of the labor force are covered by a collective agreement.

From Figure 5, countries with highly coordinated 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 effect can be observed for wage centralization (Figure 6), trade union density (Figure 7), and collective bargaining coverage (Figure 8) – countries with highly centralized/unionized labor markets and expansive collective bargaining coverage observe significantly higher levels of household debt accumulation than their decentralized/non-unionized/low-coverage counter-parts *when mortgage finance is less restricted*, but under moderate and higher levels of mortgage finance restrictions, countries with strong wage centralization, high trade union density, and high collective bargaining coverage observe similar household debt growth as those with decentralized, low bargaining coverage and (comparatively) non-unionized labor markets.

Similar interaction effects emerge when we use the welfare state as another institutional proxy for income and employment security. While we lack the space to present these results here, Appendix C presents the interaction effect between the credit mitigation index and the level of social benefits and transfer spending (as a percentage of GDP – Model I in Appendix C), and total government expenditure (as a percentage of GDP – Model II in Appendix C). A more robust welfare state protects against adverse income and employment shocks by providing households with an alternative income stream that reduces their mortgage default risk during times of duress (a mortgage lender in Sweden will likely be less concerned if a borrower loses their job than a mortgage lender in the United States). Results in Appendix C are in congruence with the results above; countries with larger welfare states (measured either through total government expenditure or merely expenditures on social transfers and benefits) have higher levels of household debt accumulation than countries with more residual welfare states, holding all else constant. However, larger welfare states lose their debt accumulation edge (compared to their residual welfare state counter-parts) as mortgage restrictiveness increases (the negative interaction effect between the welfare state and credit restrictiveness institutions is presented visually in Figures C.1 and C.2).

**Conclusions:**

Our results show that the intersection of two markets – the market for labor and the market for mortgages – shape the evolution of household debt in advanced market economies. Given our findings, we identify three theoretical contributions that are directly relevant to European political economy research. First, finance research needs 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, using the case of the USA. We have suggested that in Europe at least, it is a function of labor strength. The stronger the power resources 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 - including Fuller (2015; 2016) - 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 upward trajectory of those incomes. There is ultimately too little crossover between perspectives that see households as labor and households as financial actors. They are both, and both have important macroeconomic implications.

Second, comparative capitalism research (especially in the nascent growth model literature) needs to incorporate the role of *domestic housing finance* into their models 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 really the outlier case? German domestic institutions depress wage and credit growth, and its housing tenure regime is qualitatively distinct. Most other (CME) European countries allow for stronger wage growth, and/or easier access to credit. Within the euro area, this is increasingly presented as morally problematic, and heavily loaded with assumptions of reckless debt-fueled consumption (typified by the continual chastising of the “PIIGS” in the Euro-crisis). But this is not the case in the Nordic social democratic economies of Europe. The “balanced growth path” in these countries ultimately reflects a policy regime that promotes a property owning middle class.

Third, and in keeping with the theme of this special issue, none of these areas of inquiry is well served by the intellectual division between international and comparative political economy. 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 capital market unification and greater interdependency across national borders. Recall that German banks, despite legalizing American covered bonds for domestic use, generally preferred to buy mortgage-backed securities 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. The EMU is very far from a complete market, and significant cross-national variation in mortgage rules across the EU persist.

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 with post-crisis reforms shifting a substantial amount of financial oversight to the European Central Bank (ECB) (Howarth and Quaglia 2014). The ECB provides a common monetary policy and shared currency across much of the union – 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 almost certainly be taken up at different rates in different European countries, and it would almost certainly affect household debt. IPE and CPE would both be at a loss to explain how and why: in Europe, we need both together.

**References:**

Aalbers, M.B. (2016). “The financialization of home and the mortgage market crisis”. In Aalbers ed. *The Financialization of Housing*. Routledge. London: pg 40-63

Aalbers, M.B., & Christophers, B. (2014). “Centring housing in political economy”. *Housing, Theory and Society*. *31*(4): 373-394.

Abdelal, R. (2007). *Capital Rules: The Construction of Global Finance*. Cambridge, Mass: Harvard University Press

Anderson, K, and Kurzer, P. (2016). “The Politics of Mortgage Financing and Regulation in Denmark, the Netherlands and Sweden”, Presented at the 6th Annual Workshop on European Integration, Scripps College, Claremont. December 2-3, 2016.

Armingeon, K., Isler, C., Knöpfel, L., Weisstanner, D., and Engler, S. (2016).
Comparative Political Data Set 1960-2014. Bern: Institute of Political Science, University of Berne.

Baccaro, L., & Howell, C. (2017). *Trajectories of Neoliberal Transformation: European Industrial Relations Since the 1970s*. Cambridge University Press.

Baccaro, L., & Pontusson, J. (2016). Rethinking comparative political economy: the growth model perspective. *Politics & Society*. *44*(2): 175-207.

Bouwen, P. (2002). Corporate lobbying in the European Union: the logic of access. *Journal of European public policy*, *9*(3), 365-390.

Blanchflower, D. G., & Freeman, R. B. (1992). Unionism in the United States and other advanced OECD countries. *Industrial Relations: A Journal of Economy and Society*, *31*(1), 56-79.

Bohle, D. (2014) “Post-socialist housing meets transnational finance: Foreign banks, mortgage lending and the privatization of welfare in Hungary and Estonia”, *Review of International Political Economy*. 21(4): 913-948.

Budd, J. W., & Na, I. G. (2000). The union membership wage premium for employees covered by collective bargaining agreements. *Journal of labor Economics*, *18*(4), 783-807.

Christophers, B. (2013). “A monstrous hybrid: the political economy of housing in early twenty-first century Sweden”. *New Political Economy*. *18*(6): 885-911.

Crouch, C. (2009). “Privatised Keynesianism: An unacknowledged policy regime”. *The British Journal of Politics and International Relations*. *11*(3): 382-399.

Cukierman, A. (1992) *Central Bank Strategy, Credibility and Independence*. Cambridge, Massachusetts: MIT Press

Culpepper, P. D. (2010). *Quiet politics and business power: Corporate control in Europe and Japan*. Cambridge University Press.

Dølvik, J. E., Marginson, P., Alsos, K., Arnholtz, J., Meardi, G., Müller, T., & Trygstad, S. (2018). Collective wage regulation in northern Europe under strain: Multiple drivers of change and differing responses. *European Journal of Industrial Relations*, *24*(4), 321-339.

Epstein, G, ed. (2005). *Financialization and the World Economy*. Northampton: Edward Elgar.

Esping-Andersen, G. (1990) *The Three Worlds of Welfare Capitalism*. Blackwell Publishing, Cambridge, UK.

European Commission (2017). “Communication From the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions on the Mid-Term Review of the Capital Markets Union Action Plan.” COM(2017) 292.

European Commission's Directorate General for Economic and Financial Affairs, (2018). *Annual macro-economic database (AMECO)* Available at <http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm>. Accessed January 2018–June 2018.

Fuller, G.W. (2015). “Who’s borrowing?: Credit encouragement vs credit mitigation in national financial systems”, *Politics & Society*. 43(2): 241-268.

Fuller, G.W. (2016) *The Great Debt Transformation*. New York: Palgrave Macmillian.

Fuller, G.W., and Jones, E. (2015) “Europe and the Global Economic Crisis.” In *Europe Today: A Twenty-First Century Introduction*, edited by Ronald Tiersky and Erik Jones, Fifth edition, 343–67. Europe Today. Lanham, Maryland: Rowman & Littlefield.

Hall, Peter, and David Soskice. (2001) “An introduction to the Varieties of Capitalism.” In *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*, edited by Peter Hall and David Soskice. 1-68 Oxford: Oxford University Press

Helleiner, E. (2011). “Understanding the 2007–2008 global financial crisis: Lessons for scholars of international political economy”. *Annual review of political science*. *14*: 67-87.

Iversen, T. (1998) "Wage Bargaining, Central Bank Independence and the Real Effects of Money". International Organization. 52(3): 469-504.

IMF (2011). “Germany: Technical Note on the Future of German Mortgage-Backed Covered Bond (PFandBrief) and Securitization Markets”. *Country Report* 11/369.

Johnson, S. & Kwak, J. (2010). *13 Bankers: The Wall Street Takeover and the Next Financial Meltdown*. New York: Pantheon Books.

Johnston, A. (2012). “European Economic and Monetary Union’s perverse effects on sectoral wage inflation: Negative feedback effects from institutional change?”. *European Union Politics*. *13*(3): 345-366.

Kahn, L. M. (2000). “Wage inequality, collective bargaining, and relative employment from 1985 to 1994: Evidence from fifteen OECD countries”. *Review of Economics and Statistics*. *82*(4): 564-579.

Karcher, S., & Steinberg, D.A. (2013). “Assessing the causes of capital account liberalization: How measurement matters". *International Studies Quarterly*. *57*(1): 128-137.

Kemeny, J. (2006). “Corporatism and housing regimes”. *Housing, Theory and Society*. *23*(1): 1-18.

Kenworthy, L. (2001). Wage-Setting Institutions: A survey and assessment. *World Politics*, 54(October): 57-98

King, R.G. and Levine, R. (1993). “Finance and Growth: Schumpeter Might Be Right.” *The Quarterly Journal of Economics.* 108(3): 717–37.

Kohl, S. (2018). “More Mortgages, More Homes? The Effect of Housing Financialization on Homeownership in Historical Perspective.” *Politics & Society* 46(2): 177-203.

Korpi, W. (2006). “Power resources and employer-centered approaches in explanations of welfare states and varieties of capitalism: Protagonists, consenters, and antagonists”. *World politics*. *58*(2): 167-206.

Lewis, M. (2011) *The Big Short: Inside the Doomsday Machine*. New York: W.W. Norton.

Mosley, L. (2003). *Global capital and national governments*. Cambridge University Press.

Obstfeld, M. (1998). “The global capital market: benefactor or menace?”. *Journal of economic perspectives*. *12*(4): 9-30.

OECD (2017). OECD.Stat. <http://stats.oecd.org/> Accessed January, 2018-January, 2019.

OECD (2018) Household debt: Household Accounts. <https://data.oecd.org/hha/household-debt.htm>. Accessed August, 2018-January, 2019.

Plümper, T., Troeger, V., and Manow, P. (2005). “Panel data analysis in comparative politics: Linking method to theory”. *European Journal of Political Research.* 44: 327-354.

Schelkle, W. (2012). “A crisis of what? Mortgage credit markets and the social policy of promoting homeownership in the United States and in Europe”, *Politics & society*. *40*(1): 59-80.

Schwartz, H. (2009) *Subprime Nation: American Power, Global Capital, and the Housing Bubble*, Ithaca, NY: Cornell University Press.

Schwartz, H., & Seabrooke, L. (2008). “Varieties of residential capitalism in the international political economy: Old welfare states and the new politics of housing”. *Comparative European Politics*. *6*(3): 237-261.

Stockhammer, E., Onaran, Ö., & Ederer, S. (2008). Functional income distribution and aggregate demand in the Euro area. *Cambridge journal of Economics*, *33*(1), 139-159.

Stockhammer, E. (2017). Determinants of the wage share: a panel analysis of advanced and developing economies. *British Journal of Industrial Relations*, *55*(1), 3-33.

Thompson, H. (2013). “UK debt in comparative perspective: The pernicious legacy of financial sector debt”. *The British Journal of Politics and International Relations*. *15*(3): 476-492.

US Financial Crisis Inquiry Commission (2011) *The Financial Crisis Inquiry Report*. US Government Printing Office, Washington DC. <https://www.gpo.gov/fdsys/pkg/GPO-FCIC/pdf/GPO-FCIC.pdf>

Visser, J. (2016) ICTWSS Data base. version 5.1. Amsterdam: Amsterdam Institute for Advanced Labour Studies (AIAS), University of Amsterdam

Van Gunten, T. & Navot, E. (2018) “Financialization and Mortgage Market Institutions in Europe,” *Social Science Research* 70: 90-106.

Woll, C. (2008). *Firm interests: How governments shape business lobbying on global trade*. Cornell University Press.

World Bank, (2018) World Bank Open Data Database: Domestic Credit to Private Sector <http://data.worldbank.org/indicator/FS.AST.PRVT.GD.ZS> Accessed January-June, 2018.

1. Assistant Professor in International Relations and International Organizations, University of Groningen. Email: g.w.fuller@rug.nl [↑](#footnote-ref-1)
2. Associate Professor in Political Science and Public Policy, Oregon State University. Email: Alison.Johnston@oregonstate.edu [↑](#footnote-ref-2)
3. Assistant Professor, School of Politics and International Relations, University College Dublin. Email: aidan.regan@ucd.ie [↑](#footnote-ref-3)
4. Although see Culpepper and Reinke (2014) for an opposing view. [↑](#footnote-ref-4)
5. 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; 68). [↑](#footnote-ref-5)
6. 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. [↑](#footnote-ref-6)
7. We use the terms “mortgage credit regimes”, “household credit regimes”, and “household finance regimes” interchangeably. [↑](#footnote-ref-7)
8. 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. [↑](#footnote-ref-8)
9. OECD Dataset 720: Financial Balance Sheets (Non-Consolidated). [↑](#footnote-ref-9)
10. US Federal Reserve Bank of New York Consumer Credit Panel [↑](#footnote-ref-10)
11. An exception to this is non-traditional (i.e. subprime) mortgage markets, where mortgage sellers provide loans that are not directly tied to households’ income. However, expansive non-traditional mortgage markets are largely a US phenomenon. [↑](#footnote-ref-11)
12. OECD Affordable Housing Database (PH:2.2) [↑](#footnote-ref-12)
13. These countries include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Portugal, Spain, Sweden, the UK and US. [↑](#footnote-ref-13)
14. Time series data for this index is complete from 1995 onwards for the overwhelming majority of countries in our sample. Only Ireland and Japan lack credit mitigation data until 2000 and 2001, respectively. [↑](#footnote-ref-14)
15. 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. [↑](#footnote-ref-15)
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 17 countries was a 9, held by Germany in various years and France in 1999). [↑](#footnote-ref-16)
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. [↑](#footnote-ref-17)
18. For a full accounting of the coding process – including the specific country codes for the 1995-2007 period, see Fuller 2015. [↑](#footnote-ref-18)
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 [↑](#footnote-ref-19)
20. The effect of real GDP growth on household debt is indeterminate. Households may take on more debt in times of prosperity given greater economic exuberance. However, they may also take on greater debt in times of economic duress, because credit can serve as an immediate substitute for lost income. [↑](#footnote-ref-20)
21. 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. [↑](#footnote-ref-21)