Global Finance, Labor Politics, and the Political Economy of Housing Prices

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Abstract
International political economy identifies declining nominal interest rates, securitization, and financial liberalization as drivers of rising housing prices. Despite witnessing these common credit shocks, however, developed economies experienced divergent trends in housing inflation since the 1980s. We offer a comparative political economy explanation of variation in house prices, arguing that by restraining household incomes, wage-setting institutions can blunt financial liberalization's inflationary impact on housing markets. Employing quantitative analysis and a comparative study of Ireland and the Netherlands, we uncover two findings. First, countries where political coalitions in the export sector held veto powers over those in the nontraded sector in national wage setting realized lower housing inflation. Second, the impact of sectoral coalitions on housing prices in OECD countries is similar to that of financial variables. Our results suggest that the organization of labor politics continues to play an important role in mitigating the destabilizing effects of global finance on developed economies.

Keywords
housing prices, labor politics, growth models, international political economy, comparative political economy

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The US subprime mortgage crisis and subsequent 2008 global financial crisis demonstrated the devastating effects of rapid housing inflation (and housing bubbles) on national economies. In addition to their destabilizing economic effects,[1] housing bubbles also have important political implications. Sudden declines in housing prices can be deeply regressive if disproportionate shares of poor households store their wealth in (subprime) mortgages.[2] Likewise, Ansell[3] has shown that rising or falling housing prices impact individuals' electoral preferences toward the welfare state.

International political economy (IPE) highlights a number of factors that led to *asset* bubbles within OECD countries in the late 2000s: declines in nominal interest rates, financial liberalization, the proliferation of cross-border capital flows, and (mortgage) securitization.[4] These developments also had important implications for *real estate*, as they reduced the costs of (mortgage) borrowing for households and increased the volume of debt instruments that banks could extend to households.

However, IPE accounts of global financial and credit market trends, which tend to rely heavily on the US's experience,[5] fall short in explaining the variation in housing prices within the OECD. Financial liberalization and reductions in nominal interest rates impacted all developed economies since the 1970s. Despite this common credit shock, there was a wide divergence in housing inflation across countries. Some (Ireland and Spain) witnessed rapidly rising prices in the 1990s and the 2000s, while others (Germany and Japan) witnessed average declines.[6]

We offer a novel political argument to explain variation in house prices across developed economies. Shifting toward a comparative political economy (CPE) perspective, we suggest that the labor politics that govern income growth are a crucial determinant of housing inflation. Our approach complements the recent call by Baccaro and Pontusson[7] to rethink the supply-side bias of CPE by bringing the political determinants of aggregate demand back in. While (international) credit shocks are important for the emergence of rapid housing inflation, we highlight that buoyant housing price growth also requires the presence of income shocks, which are shaped by domestic wage setting and labor politics.

We argue and empirically demonstrate that countries with labor market institutions that allotted the export sector[8] agenda-setting or veto powers in national wage setting (what we call "export-led political coalitions") over the nontraded sector (what we call "domestic-led political coalitions") realized moderated income growth, which mitigated households' demand for mortgages and, in turn, housing inflation. In other words, countries with labor market institutions coordinated by political coalitions in the export sectors of the economy enabled a countercyclical incomes policy that tamed the inflationary effects of cheap credit on housing markets.

Our analysis of the political determinants underlying housing prices makes three important contributions to political science. First, it illustrates that labor politics continue to play an important role in mitigating the destabilizing effects of global financial liberalization on developed economies. Second, our results suggest that the old corporatist debate on the relationship between wage setting and macroeconomic outcomes is not dead, but has manifested itself in new ways with important implications for (housing-driven) wealth inequality.[9] Third, it reverses the causal arrow in current political science literature that dissects the effects of housing prices on politics (namely,

on individuals' political preferences for the welfare state[10]), by detailing how politics affect housing prices.

IPE and CPE Explanations of Housing Inflation: A Credit Supply-Side Bias?

IPE literature identifies a link between financial liberalization and the loosening of capital controls, and the presence of asset bubbles.[11] Increased international capital flows, and new "innovative" financial products, such as (mortgage-backed) securities (MBSs), gave governments and households a greater capacity to borrow due to higher credit volume. Moreover, the harmonization of financial market rules among developed countries reduced regulatory uncertainty among foreign lenders, providing further incentives for lenders to increase credit supply.[12]

Increased capital mobility in *developed* economies also aligned with reductions in nominal interest rates, which made credit *cheaper*. Since the late 1970s, the removal of capital controls and reduced exchange rate volatility that accompanied the transition to a low inflation regime produced lower nominal interest rates. These developments were magnified in Western Europe for countries that participated in the European Monetary System (EMS) and joined the EU's Economic and Monetary Union in 1999. Under the EMS, various Western European countries committed themselves to a fixed exchange rate regime, which prompted them to initiate difficult wage and price adjustments in order achieve exchange rate convergence.[13] These adjustments (and the removal of capital controls) reduced exchange rate risk, while the Euro eliminated it completely, enabling lower nominal interest rates in EMU countries that previously had high borrowing costs (notably Greece, Italy, Portugal, and Spain). Abundant credit and declining borrowing costs established an environment conducive toward increased private and public borrowing, which, through cross-national capital flows, became intimately connected to securitization originating in the United States.[14]

The IPE literature alerts us to a constellation of factors that would fuel housing inflation from the 1980s onward. Cheaper and more abundant credit, coupled with MBSs' reduction of default risk exposure, allowed banks to increase mortgage supply. Households thus had greater capacity to borrow, allowing them to buy larger mortgages and accumulate greater personal debt. Yet, despite its important effects on housing markets, international financial liberalization fails fully to account for the wide cross-national variation in housing prices among developed countries. Financial liberalization and reductions in nominal interest rates impacted all advanced economies in the 1980s, 1990s, and 2000s. And although there was heterogeneity in the *speed* of financial liberalization (countries that liberalized capital markets earlier witnessed smaller nominal interest rates declines during the 1980s and 1990s than those that liberalized later), heterogeneity in interest rate declines does not fully explain the divergence in housing price growth across the OECD.

Figure 1 presents bivariate comparisons of changes in nominal/real interest rates, and nominal/real housing inflation, between 1990 and 2007 for seventeen OECD countries[15] (we select 2007 as the end date, because the 2008 global financial crisis marked a sharp break in previous trends). Reductions in nominal interest rates fail to correspond
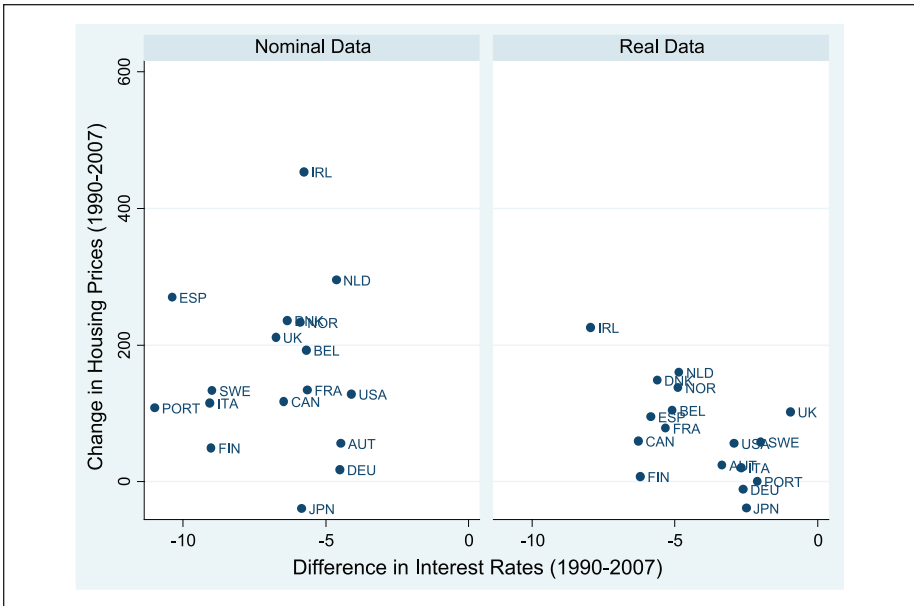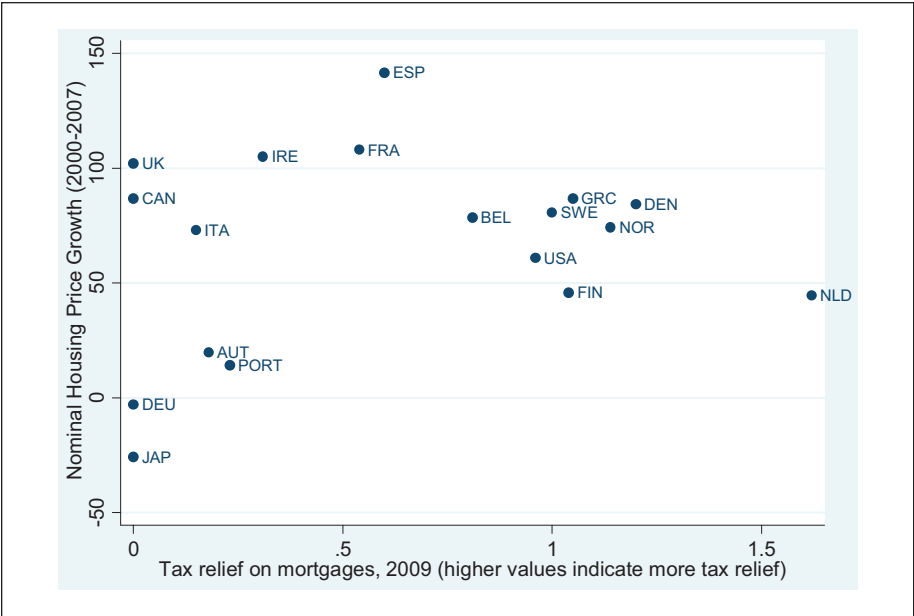
Figure 1. Housing Inflation and Differences in Interest Rates, 1990–2007.
Source: Nominal and real housing price data from the OECD, "Housing Price Indices"; Austria and Portugal housing price data from the Bank of International Settlements (BIS), "Residential Property Price Statistics"; nominal and real interest rates from the EU Commission's AMECO database.[16]

consistently with increases in nominal house prices. Spain, for example, witnessed a decline in nominal interest rates by over 10 percent between 1990 and 2007 and an increase in nominal housing prices by over 270 percent, while Ireland witnessed a 5.8 percent decline in nominal interest rates, but had more pronounced housing price increases (450 percent). Similar inconsistencies arise when looking at real data.

While banks and mortgage providers in all developed economies were exposed to financial liberalization, they were not exposed to similar credit regulatory frameworks. Recent CPE scholarship notes that differences in cross-national approaches to credit expansion and mortgage securitization further exacerbated some countries' exposure to housing/asset bubbles. Fuller[17] argues that households in countries with lax credit-market regulations were more exposed to debt accumulation and in turn, housing infla-tion. Likewise, Schwartz and Seabrooke[18] highlight that idiosyncrasies in mortgage securitization (which increases banks' willingness to expand mortgage supply because they can pass risk onto private investors) and social housing helps to explain diver-gence in housing finance systems and the levels of mortgage debt that are tied to them.

Though these CPE insights are a welcome departure from general IPE arguments, they are subject to some country-case inconsistencies. Quantitative data on mortgage credit regulations (e.g., those impacting loan-to-value ratios and tax subsidies on mort-gages) and mortgage securitization are patchy across the OECD. However, for the scant data that are available, current quantitative codings of regulatory frameworks do

Figure 2. Housing Inflation and Tax Relief for Mortgage Interest Payments (2000s).
Source: Nominal housing price data from the OECD, "Housing Price Indices"; Austria and Portugal housing price data from the BIS, "Residential Property Price Statistics"; tax relief data from the OECD, "Housing and the Economy."

not neatly explain housing inflation divergence across developed economies. Figure 2 demonstrates the bivariate relationship between governments' tax subsidization of mortgage interest payments in 2009 (higher values indicate a greater subsidy wedge between the market and after-tax interest rate on mortgages) and nominal housing price increases between 2000 and 2007.[19] Similar to the interest rate data, government tax relief fails to explain variation in housing inflation before the 2008 financial crisis. Countries with more prominent increases in nominal housing prices (the United Kingdom and Canada) had some of the lowest levels of tax relief for mortgage interest payments in the OECD, while countries with higher values of tax relief (Finland) witnessed slower growth in housing inflation.

A similar picture emerges when we examine the relationship between changes in maximum loan-to-value ratios for home mortgages and nominal housing prices. Figure 3 demonstrates the bivariate relationship between loan-to-value ratio changes between 1990 and 2000 (the only years for which the OECD provides these data) and nominal housing price growth for the same period. OECD countries exhibit no discernible patterns in changes in maximum loan-to-value ratios and nominal housing prices. For countries where limits on maximum loan-to-value ratios for home mortgages remained untouched between 1990 and 2000, nominal housing price increases ranged from 2.5 percent (Finland) to over 150 percent (Ireland).
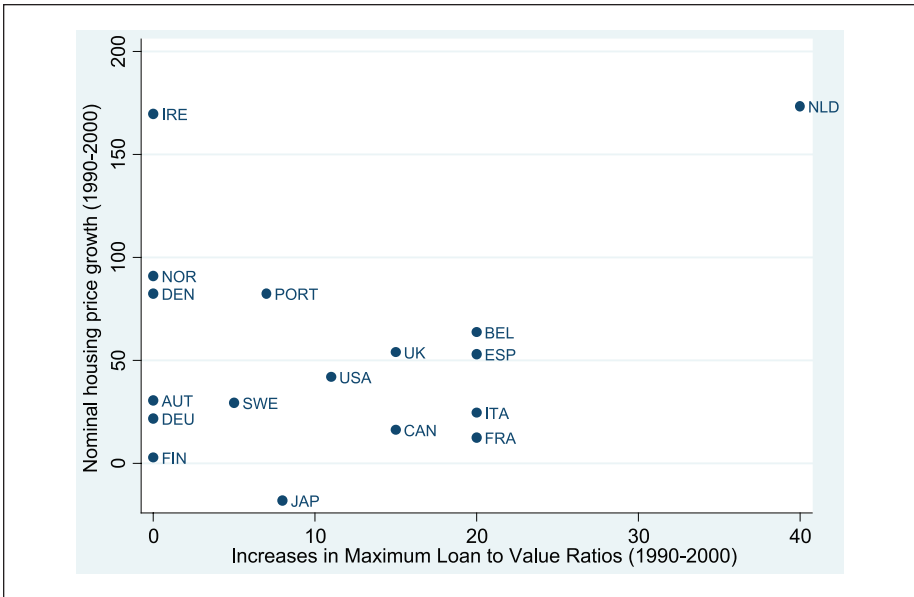
Figure 3. Housing Inflation and Maximum Loan-to-Value Ratios for Mortgages (1990–2000).
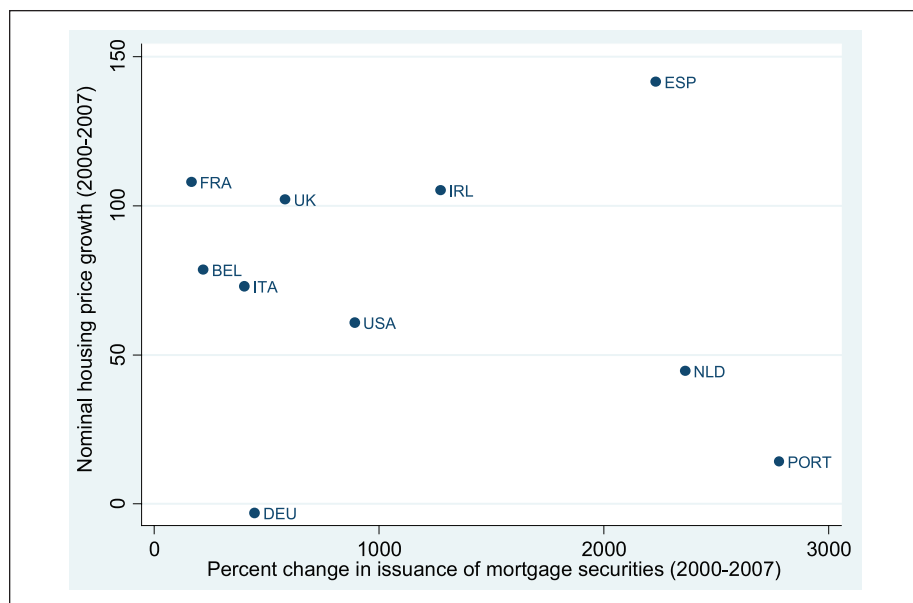***Source:*** Nominal housing price data from the OECD, "Housing Price Indices"; Austria and Portugal housing price data from the BIS, "Residential Property Price Statistics"; tax relief data from the OECD, "Housing and the Economy."

Inconsistencies also emerge when we examine variation in mortgage securitization issuance (see Figure 4). The Securities Industry and Financial Markets Association[20] provides limited time series data for MBS issuance in the United States and several European countries from the late 1990s onward. Some countries with rapidly increasing nominal house prices (e.g., Spain and Ireland) witnessed significant expansions in MBS issuance between 2000 and 2007. The Netherlands, however, also witnessed dramatic increases in MBS issuance but had lower housing inflation during the 2000s.

By analyzing credit-market policies that encourage banks to lend and incentivize households to accumulate mortgage debt, the CPE literature above introduces necessary cross-national variation into the analysis of housing prices. Although we do not refute these research findings, we suggest this literature has a *supply-side* (credit) bias that must be complemented with an analysis of *demand factors*, specifically the determinants of household incomes and wage-led growth.[21] Our core theoretical claim is that rapid housing inflation arises when credit shocks are complemented with income shocks.

Bringing Demand Back In: A Labor Politics Account of Housing Inflation

The one feature that links the CPE and IPE literatures above is their focus on credit supply. Although income booms are acknowledged, little attention is paid to why

Figure 4. Housing Inflation and Mortgage Securitization (2000–7).
Source: Nominal housing price data from the OECD, "Housing Price Indices"; Austria and Portugal housing price data from the BIS, "Residential Property Price Statistics"; securitization data from SIFMA, "US Mortgage-Related Issuance" and "European Structured Finance Issuance."

income booms fail to accompany credit booms in all developed economies. This lack of attention is surprising given that microeconomic literature has identified a strong link between (permanent/stable) household income and mortgage demand.[22] But few economists have examined cross-national institutional and political factors that explain why income growth is more persistent in some countries than in others, and the extent to which this fuels the pro-cyclical impact of a credit shock.

Recent welfare state research[23] suggests that income growth and credit expansion may be *substitutes*. Credit expansion compensates for stagnating household incomes, enabling low-income households to borrow more to finance consumption. Income stagnation certainly overlapped with credit booms in the United States. But the United States is also a mortgage lending outlier. Its credit regulatory policies are heavily lax and its issuance of nontraditional (subprime) mortgage loans during the 2000s was uniquely acute. By 2006, 23.5 percent of mortgages issued in the United States were subprime.[24] By contrast, households in most OECD countries were relatively shielded from systemic subprime lending.

The crucial difference between prime and subprime lending is how *households' incomes* feature in the extension of mortgages. For the former, annual income places a cap on what households can borrow (banks in prime markets not only require documentation of current household income, but also request information on future income flows). For the latter, it does not (income's irrelevance in subprime US mortgage

lending is perhaps best embodied in stated-income, or "liar-liar," loans, in which households do not have to provide formal documentation of their incomes). Income dynamics are of central importance to prime lending; though banks may have a plethora of credit to extend, thanks to financial liberalization and securitization, households' incomes constrain the scale of their mortgage issuance. This constraint means that outside subprime markets, income is an important *complement* to mortgage lending; households are able to accumulate more debt from banks only if their incomes allow it. Therefore, in order explain divergence in housing inflation in those OECD countries where prime lending dominates, it is necessary to analyze not only institutions that shape credit supply but also income.

We draw on new CPE research on national growth regimes and sectoral politics to examine how wage-setting dynamics affect housing prices through their restraining effects on incomes.[25] We compare the impact of domestic wage-setting institutions that are dominated by political coalitions in the (manufacturing) export sector, to those dominated by the nontraded sector (i.e., the public sector and construction). Labor market institutions have frequently been linked to wage moderation[26] and consumer price inflation. We suggest that such political dynamics may also constrain *housing* inflation through their impact on households' capacity to service mortgage debt.

Sectoral-Class Politics and Mortgage Demand

Our theoretical claim starts from the observation that aggregate demand is determined by income growth in two different types of sectors with conflicting political preferences: tradable (export-oriented) and nontradable (domestic-oriented). Wage setters in the former have the incentive to restrain wage growth; employers are less able to pass wage increases onto prices because of competitiveness constraints. If trade unions price wages too high, employers are more likely to respond by shedding employment than by increasing prices. Actors in the nontradable sector, however, do not possess similar incentives, because employers, given reduced competitiveness constraints, have greater leeway to pass wage increases on to prices. In the public sector such wage increases can be passed on to or funded by taxes or borrowing.

Such sectoral political cleavages exist within all economies, but some countries possess labor market institutions that contain the influence of the nontradable sector better if and when they push for wage inflation. Those institutions are the political outcome of the type of growth regime (export-led or domestic-led) countries possess and promote.[27] Countries with export-led growth models, where the export sector is politically prioritized, given its economic dominance in national output, tend to have coordinated wage-setting institutions that grant export-led political coalitions veto powers in the determination of national incomes. Labor market institutions that grant export-led political coalitions greater leverage in wage negotiations, and in government policy more broadly, enable these producer groups to enforce their wage-moderation preferences on the economy at large.

These sectoral dynamics and the income effects they produce can have important effects on housing markets through households' capacity to service prime mortgage

loans. Because export-led political coalitions depress national incomes (the most important household determinant a bank considers when issuing prime mortgages) by prioritizing wage moderation, they should also witness repressed mortgage demand; wage moderation undercuts households' capabilities to meet the income requirements of prime loans.

By contrast, domestic-led growth regimes and the nontraded political interests that underpin it, tend to promote wage inflation in order to boost domestic consumer demand. In some domestic-led growth regimes, private home ownership expansion was deliberately encouraged as a domestic-consumption growth strategy. In Spain, for example, Prime Minister Filipe González engaged in major industrial restructuring, by downsizing mining and manufacturing, while reorienting Spain's economy toward existing (sheltered sector) specializations in banking, construction, and property development during the 1980s.[28] In order to enhance the construction and property development sectors, the Spanish government strongly emphasized home ownership; consequently, by the early 2000s, Spain had one of the highest owner-occupancy rates in the OECD.[29] Because sheltered sector led wage-setting institutions inflate domestic consumption, they will enhance households' capabilities to meet income requirements for prime mortgages, which in turn should lead to higher demand for home loans.

Political Coalitions and Wage-Setting Institutions

Current literature on sectoral-based wage-setting institutions identifies three (coordinated) labor market regimes that grant greater agenda-setting and veto powers to export-led political coalitions, thereby enhancing their bargaining power over producer group interests in the nontraded sector.[30] These include *pattern bargaining* coordination, *state-imposed* coordination, and *export-led* centralized wage pacts.

- In pattern bargaining regimes, (manufacturing) export-sector unions (the metalworking sector for Germany and Austria) establish wage-settlements first. These then serve as the upper limit for all subsequent sectoral wage agreements in national wage setting.[31] The political strength of the export (manufacturing) sector in Germany and Austria stems from the prominence of this political coalition in shaping their national export-led growth regime.[32]
- State-imposed coordination regimes allot the government a role in monitoring wage inflation in line with exposed-sector interests. In France, such coordination stems from the state's use of the collective agreements of (politically powerful) large exporting firms, which then act as nonnegotiable benchmarks for the public sector.[33] In Belgium, the state's imposing role occurs through legislative statutory acts, which allow the government to intervene and cap aggregate wage growth if labor costs exceed the average of Belgium's three largest trading partners (France, Germany, and the Netherlands).
- The government's role in monitoring wage developments in the interest of the export-sector also exists in countries with export-led centralized wage pacts. These national pacts are led by export-sector interests but can involve the state's

assistance for their enforcement. In the event that public sector unions do not abide by these centralized pacts, the state may intervene via either legislative threats or side payments. Wage setting in the Netherlands has relied on these national pacts on a temporal basis (in response to economic crisis), and export employers and unions usually initiate them with the assistance of the state.[34]

The sectoral-politics literature also identifies two wage-setting regimes that grant agenda-setting and veto powers to sheltered-sector interests. These domestic-consumption favoring wage-setting regimes include *peak bargaining* coordination and *sheltered-sector led* centralized wage pacts.

- In peak bargaining regimes (Italy, Spain, and Portugal), both traded and nontraded sectors compete for influence under a confederal umbrella. If nontraded sector unions hold greater membership in these umbrella organizations than export-sector unions, peak bargaining will be dominated by the inflationary preferences of domestic-led political coalitions. However, if export-sector unions hold greater membership in peak confederations than those in the nontraded sector, peak bargaining may be swayed by the wage moderation preferences of export-led political coalitions. In Denmark, for example, the manufacturing sector's dominance within the Danish Confederation of Trade Unions (LO) was maintained by the formation of the CO-Metal export cartel in 1992.
- These coordination problems are also present in sheltered sector led wage pacts (Ireland before the 2008 crisis). Unlike export-led wage pacts, these national wage pacts are determined by coalitions in the nontraded sector. In Ireland, where the competitive US multinational sector is nonunionized and hence absent in centralized wage negotiations, these regular wage pacts rest largely on the preferences of public sector unions.[35]

Finally, in uncoordinated bargaining regimes such as the United Kingdom and the United States, free-market dynamics determine wages. In classic wage-setting literature,[36] both "liberal" market regimes and "coordinated" market regimes were predicted to contain consumer price inflation, although Soskice[37] noted that coordinated wage bargaining was more effective at delivering wage moderation because fragmentation in uncoordinated (market-driven) bargaining regimes inhibits employers' ability to restrain wages in all sectors. However, the growing exacerbation of income inequality in market-led regimes (notably in the United Kingdom and the United States) has allowed for rapid wage increases at the *very top* of the income distribution in recent decades.

This (top-end) explosive income growth can place upward pressure on housing prices, particularly in cities such as London (which has almost exclusively driven UK housing inflation since the mid-1990s), San Francisco, and New York. Hence, though uncoordinated labor markets tend to be less wage inflationary than those governed by nontraded-sector political coalitions, the absence of (export-led) wage coordination as a check on spiraling income inequality has the potential to drive housing inflation in

these countries. Indeed, using US Census microdata, Matlack and Vigdor[38] find that disproportionate increases in income at the top end of the income distribution were associated with significantly higher rents per room and crowding in American metropolitan areas with low vacancy rates.

Appendix A provides the complete list of these labor market regimes and countries' classifications within them between 1980 and 2007. We hypothesize that wage-setting regimes that favor export-led political coalitions (pattern bargaining, state-imposed coordination and export-led centralized wage pacts) are more inclined toward economy-wide wage moderation, which depresses domestic demand. This depressed income growth, in a period of cheap credit, reduces households' capacity to service mortgages, which in turn limits mortgage demand, and slows housing price growth. Countries where political coalitions in the nontraded sectors dominate the politics of wage setting are more subject to wage inflation, which fuels mortgage demand and, in turn, house price inflation.

Labor Politics and Housing Inflation: Empirical Evidence

Variables and Estimator

We employ a distributive lag, OLS panel analysis of seventeen OECD[39] countries from 1980 to 2007 to test whether sectoral politics that govern income growth impact housing price growth. Our baseline model stems from Aizenman and Jinjarak,[40] who examine the influence of current account balances on housing prices. The authors use a (one-year) distributive lag model to examine determinants of real-estate valuations. Aizenman and Jinjarak's model includes only lagged independent variables, because real estate is a substantial investment for households, who must incur significant debt burdens to purchase these assets. Therefore, changes in housing purchases that result from changes in income and interest rates are subject to greater delays than for other goods.

Aizenman and Jinjarak's final model includes only one-year lags of their independent variables. Our results in our baseline model (Model I, Table 1) are largely similar if a two-year distributive lag model (all independent variables are two years removed from the present value of the dependent variable) is used, with the exception of population growth, which becomes significant under a two-year lag structure. Unlike our financial controls, the impact of our sectoral politics proxy remains significant for a third and fourth year lag, but becomes insignificant within the fifth year lag (we do not show these results below, but they are provided at https://sites.google.com/site/dralisonljohnston/research). Our baseline OLS model can be summarized as follows:

$$HP_{i,t} = \beta_1 + \beta_2 pop_{i,t-1} + \beta_3 SP_{i,t-1} + \beta_4 \sum X_{i,t-1} + \beta_5 \sum Y_{i,t-1} + \beta_6 \sum Z_t + \varepsilon_{i,t}$$

All our variables, except for the capital account openness index, central bank independence (CBI), and government partisanship, are differenced, as they do not exhibit stochastic processes required for time series within our panels. $HP_{i,t}$ is real housing price growth (*percentage change* from the previous year, measured from 0 to 100

Table 1. The Impact of Sectoral Politics on Real Housing Price Growth.

(Standardized) Independent Variables	I	II	III	IV
Difference in public and manufacturing sector wages (t–1)	0.4943* (0.058)	0.5013** (0.050)		
Peak bargaining exposed-dominated (t–1)			1.3257 (0.530)	1.5475 (0.438)
Uncoordinated wage bargaining (t–1)			1.7852** (0.020)	2.2168** (0.035)
Sheltered-favoring bargaining institutions (t–1)			6.1722*** (0.000)	6.0660*** (0.000)
Population Growth (t–1)	–0.058 (0.748)	–0.053 (0.784)	–0.0511 (0.761)	–0.0419 (0.820)
Δ Real Interest Rate (t–1)	–0.787*** (0.009)	–0.7769** (0.011)	–0.8042** (0.012)	–0.7946** (0.016)
Δ Private Credit to GDP (t–1)	0.1151 (0.629)	0.1134 (0.648)	0.1476 (0.558)	0.1531 (0.555)
GDP growth (t–1)	3.5585*** (0.000)	3.5498*** (0.000)	3.5542*** (0.000)	3.5374*** (0.000)
Δ Net (external) capital inflows (t–1)	0.5049* (0.076)	0.5210* (0.067)	0.5527** (0.048)	0.5747** (0.040)
Capital account liberalization (t–1)	–0.2925 (0.605)	–0.2604 (0.655)	–0.2586 (0.646)	–0.2094 (0.717)
Right cabinet seats (t–1)		–0.1824 (0.579)		–0.2461 (0.435)
CBI (t–1)		0.2548 (0.628)		0.3655 (0.514)
Constant	2.1973*** (0.001)	2.3826*** (0.001)	1.6435 (0.134)	1.7305 (0.109)
N	407	407	409	409
R-squared (overall)	0.484	0.4852	0.4841	0.4863
Chi-squared (p-value)	0.000	0.000	0.000	0.000

Note: Dependent variable is real housing price growth. Independent variables are standardized, dependent variable is nonstandardized. Estimator used was a pooled cross-sectional, time series, OLS estimator for seventeen OECD economies from 1980 to 2007. N–1 time dummies and n–1 country dummies included but not shown. P-values provided in parentheses (standard errors are clustered by country). *, **, and *** indicate significance at a 90 percent, 95 percent, and 99 percent confidence level. **Source:** Authors' calculations.

rather than 0 to 1) in country i at year t. In line with Aizenman and Jinjarak's model, we use real rather than nominal housing prices as the dependent variable in Table 1.[41] However, we also run our models using nominal housing price growth as the dependent variable (results in Table 2), which produces stronger results than those in

Table 2. The Impact of Sectoral Politics on Nominal Housing Price Growth.

(Standardized) Independent Variables	I	II	III	IV
Difference in public and manufacturing sector wages (t−1)	0.7168** (0.036)	0.7205** (0.032)		
Peak bargaining exposed-dominated (t−1)			2.185 (0.319)	2.2271 (0.312)
Uncoordinated wage bargaining (t−1)			0.8837 (0.302)	1.076 (0.344)
Sheltered-favoring bargaining institutions (t−1)			6.8756*** (0.000)	6.8760*** (0.000)
Population Growth (t−1)	0.1587 (0.521)	0.1624 (0.514)	0.173 (0.445)	0.1771 (0.448)
Δ Real Interest Rate (t−1)	−1.0549*** (0.000)	−1.0545*** (0.000)	−1.0763*** (0.000)	−1.0735*** (0.000)
Δ Private Credit to GDP (t−1)	0.2508 (0.319)	0.2395 (0.354)	0.2894 (0.266)	0.285 (0.292)
GDP growth (t−1)	3.7631*** (0.000)	3.7521*** (0.000)	3.7854*** (0.000)	3.7736*** (0.000)
Δ Net (external) capital inflows (t−1)	0.4597 (0.130)	0.4602 (0.130)	0.5002* (0.096)	0.5079* (0.088)
Capital account liberalization (t−1)	−1.3812* (0.073)	−1.3441* (0.078)	−1.3815* (0.084)	−1.3447* (0.100)
Right cabinet seats (t−1)		−0.1305 (0.656)		−0.135 (0.697)
CBI (t−1)		−0.09 (0.858)		0.0449 (0.935)
Constant	5.478*** (0.000)	5.4831*** (0.000)	4.9207*** (0.000)	4.9183*** (0.000)
N	408	408	410	410
R-squared (overall)	0.5200	0.5203	0.5180	0.5182
Chi-squared (p-value)	0.000	0.000	0.000	0.000

Note: Dependent variable is nominal housing price growth. Independent variables are standardized, dependent variable is nonstandardized. Estimator used was a pooled cross-sectional, time series, OLS estimator for seventeen OECD economies from 1980 to 2007. N−1 time dummies and n−1 country dummies included but not shown. P-values provided in parentheses (standard errors are clustered by country). *, **, and *** indicate significance at a 90 percent, 95 percent, and 99 percent confidence level. **Source**: Authors' calculations.

Table 1. $pop_{i,t-1}$, a rough proxy of housing stock demand, is population growth (*percentage change* from the previous year) in country i at year t−1. Real and nominal housing price data (private dwellings) stem from OECD, except for Austria and

Portugal whose more complete residential property price data came from the Bank of International Settlements.[42] Population data (for all ages) stem from the OECD.[43]

$SP_{i,t-1}$ is our measure of sectoral wage politics within country i at year t−1. We do not use per capita income growth to control for sectoral wage dynamics because this variable suffers from obvious reverse causality problems; income growth may be impacted by past housing price shocks. Rather we select two alternative measures of sectoral wage politics that do not suffer similar reverse causality problems, one an output variable (Tables 1–3, Models I-II), and the other an institutional input variable (Tables 1–3, Models III and IV). For our output sectoral politics proxy, we select the (lagged) difference in annual public sector[44] and manufacturing sector[45] wage growth (higher/lower values indicate public sector wage growth overshoots/undershoots wage growth in the manufacturing sector in a given year). Wage-setting regimes that favor export-led political coalitions are more effective in repressing public sector wage growth than regimes that favor domestic coalitions, because doing so upholds nationwide wage moderation. Consequently, public sector wage growth in export-favoring labor markets is more likely to undershoot wage growth in the manufacturing sector (causing negative wage growth differentials) than it is in sheltered sector-favoring labor markets.[46] A Granger causality test indicates the absence of a reverse causality problem between housing price growth and differentials between public and manufacturing sector wage growth, for a first and second year lag of housing prices.[47] Sectoral wage growth data are taken from EU KLEMS.[48]

Our input proxy of (export-favoring) sectoral politics is a series of wage regime dummies, based on the coordination regimes explained above. We merge all export-favoring regimes (pattern bargaining, state-imposed coordination and export-led wage pacts) into an "export-favoring" category; countries are given a value of 1 if they possess these institutions at time t−1, and 0 if they do not. We assign uncoordinated wage bargaining regimes their own category given that they are purely market driven; countries are given a value of 1 if they have uncoordinated bargaining at time t−1, and 0 if they do not.

We divide sheltered-favoring wage-setting regimes into two separate categories. The first category includes peak-bargaining where the export-sector has membership dominance. Discussed above, while peak-bargaining unites competing sectoral interests under a common umbrella, the exposed-sector may still be able to promote its wage-setting preferences if their membership power within peak-associations is stronger than their sheltered-sector counter parts (as is characteristic in Denmark, Finland and Sweden): countries are assigned a value of 1 if they have export-dominated peak-bargaining at time t−1, 0 if otherwise. Finally, we merge sheltered-sector peak-bargaining and sheltered sector-led wage pacts into a "sheltered-favoring" wage-setting category; countries are given a value of 1 if they possess these institutions at time t−1, and 0 if they do not. In Tables 1–3, we select export-favoring coordination regimes as the baseline category. Consequently, the uncoordinated, exposed-dominated peak bargaining, and sheltered-favoring wage-setting dummies should be interpreted relative to export-favoring regimes. Data on sectoral regime categories stem from Brandl[49] and Johnston.[50]

Table 3. The Impact of Sectoral Politics on Real Housing Price Growth (Exclusions of Prototypical Cases).

(Standardized) Independent Variables	I	II	III	IV
Difference in public and manufacturing sector wages (t–1)	0.9143** (0.034)	0.4842** (0.031)		
Peak bargaining exposed-dominated (t–1)			1.6933 (0.423)	1.7811 (0.356)
Uncoordinated wage bargaining (t–1)			1.9505 (0.113)	2.3761 (0.107)
Sheltered-favoring bargaining institutions (t–1)			5.3874*** (0.000)	6.8176*** (0.000)
Population Growth (t–1)	–0.1885 (0.292)	2.2503* (0.062)	–0.1631 (0.353)	2.1629* (0.079)
Δ Real Interest Rate (t–1)	–0.767*** (0.005)	–0.6956** (0.042)	–0.7576** (0.022)	–0.6941* (0.054)
Δ Private Credit to GDP (t–1)	0.1497 (0.558)	–0.1051 (0.661)	0.2122 (0.431)	–0.0617 (0.816)
GDP growth (t–1)	3.4729*** (0.000)	3.5519*** (0.000)	3.5023*** (0.000)	3.5467*** (0.000)
Δ Net (external) capital inflows (t–1)	0.6256** (0.037)	0.4959 (0.111)	0.6919** (0.031)	0.5384* (0.073)
Capital account liberalization (t–1)	–0.2618 (0.718)	–0.7978 (0.242)	–0.2186 (0.765)	–0.7269 (0.276)
Right cabinet seats (t–1)	0.1491 (0.684)	–0.2532 (0.387)	0.0516 (0.896)	–0.339 (0.256)
CBI (t–1)	0.3344 (0.625)	0.563 (0.335)	0.4875 (0.523)	0.709 (0.244)
Constant	2.6706*** (0.003)	1.3513 (0.189)	2.2021* (0.070)	0.7864 (0.588)
N	326	353	328	355
R-squared (overall)	0.432	0.5048	0.4302	0.5069
Chi-squared (p-value)	0.000	0.000	0.000	0.000
Country exclusions	IR, UK and ES	DE and JP	IR, UK and ES	DE and JP

Note: Dependent variable is real housing price growth. Independent variables are standardized, dependent variable is nonstandardized. Estimator used was a pooled cross-sectional, time series, OLS estimator for seventeen OECD economies from 1980 to 2007. N–1 time dummies and n–1 country dummies included but not shown. P-values provided in parentheses (standard errors are clustered by country). *, **, and *** indicate significance at a 90 percent, 95 percent, and 99 percent confidence level. **Source**: Authors' calculations.

$\sum X_{i,t-1}$ is a vector of lagged financial variables that affect the availability and cost of credit banks can extend to households. This includes the (lagged) real interest rate for country i at year t–1 (*differenced* from the previous year); the ratio of

domestic credit provided by financial institutions to the private sector as a ratio of GDP for country i at year t−1 (a proxy for financial *depth*, this ratio is also *differenced* from the previous year); the capital account openness index (a proxy of financial *liberalization*) for country i in year t−1, and; the value of net external capital inflows as a percentage of GDP for country i in year t−1 (this value, which measures the scale of net foreign lending entering a country's financial system, is *differenced* from the previous year). The domestic private credit supply variable, taken from the World Bank,[51] includes not only mortgage debt, but also nonmortgage loans, purchases of nonequity securities, private loans to public enterprises, trade credits, and other accounts receivable that establish a claim for repayment. The capital account index measures capital and current account restrictions, requirements to surrender export proceeds, and the presence of multiple exchange rates: higher values indicate greater capital account openness. Real interest rate and capital inflows data are drawn from the EU's AMECO Database, and the capital account openness index stems from Karcher and Steinberg.[52]

In addition to these financial variables, we also incorporate (lagged) real GDP growth as a control to account for cyclical fluctuations in economic growth more broadly. Real GDP growth shares a significant correlation with our sheltered-favoring bargaining regime dummy, population growth and differences in external capital inflows. However, GDP growth's inclusion in our models below does not affect the significance of these variables. Real GDP growth data are from the OECD.[53]

$\sum Y_{i,t-1}$ is a vector of lagged domestic political controls. We include partisanship, the lagged proportion of cabinet seats occupied by right parties, because right parties, given their capital/business leanings, may be more prone towards passing mortgage-credit-friendly policies than left parties. We also include the lagged CBI index as a rough proxy for the inflation aversion of the national central bank. The presence of a supranational central bank (the European Central Bank) within our panel poses some problems for comparing EMU to non-EMU countries: the ECB does not have the same inflation monitoring power for individual Eurozone countries as national central banks do. Therefore, we weight the CBI index by the proportion of national GDP to the central bank's jurisdiction.[54] Partisanship data stem from Swank,[55] while the CBI index stems from Cukierman[56] and Polillo and Gullién.[57]

Optimally, our analysis would include measures of national regulatory policies affecting mortgage debt accumulation (mortgage tax subsidies, maximum loan to value ratios, exposure to mortgage securitization, etc.). However, as emphasized above, these data are available only on a limited cross-sectional, not a time-series, basis. We recognize that by excluding these variables, we have the potential to introduce omitted variable bias into our models, which may overstate the effects of our sectoral politics variables. We apply three measures in an attempt to partially correct for this bias. First, we include (n−1) country fixed-effects in all of our models in Tables 1, 2, and 3. Unit fixed-effects control for time-invariant factors, and any omitted variable bias stemming from their exclusion, that differ across countries. Fixed effects can

partially account for differences in regulatory regimes, because, as legislative statutes, they are subject to little change over time (fixed effects can also control for other relatively time-invariant institutional factors such as EU and Eurozone membership for countries that remained inside or outside of these arrangements from 1980 to 2007).[58] Second, our political variables may partially account for political factors (government partisanship) that give rise to credit friendly institutions[59] or reflect a country's aversion to inflation booms (central bank independence[60]). Third, we formally incorporate national credit regulatory policies into our comparative case studies below.

$\sum Z_t$ is a vector of (n−1) year dummies to control for omitted time shocks. We incorporate country-clustered standard errors to control for contemporaneous correlation and panel heteroskedasticity.[61] Though Beck and Katz[62] suggest the use of a lagged dependent variable to rectify first-order autocorrelation, a Wooldridge test indicates that its inclusion does not correct first-order serial correlation.[63] Even worse, lagged dependent variable models with first-order serial correlation are inherently biased because the lagged dependent variable is correlated with the error term.[64] Consequently, we opt for country-clustered standard errors, rather than a lagged-dependent variable as a control, to rectify possible downward bias in the standard errors. Finally, all non-dummy independent variables, but *not* our dependent variable, are *standardized* making it possible to compare the impact magnitudes of the independent variables on housing price growth (beta coefficients are interpreted as "a one standard deviation change in X leads to a β percent change in housing prices").

Results

Table 1 presents our results. Model I includes the wage-differential sectoral proxy, all our financial variables, population growth and GDP growth. Model II includes our domestic political controls. Model III provides results when our sectoral coordination dummies, rather than sectoral wage differentials, are used as proxies for export-favoring versus domestic-favoring sectoral politics (export-favoring wage-setting institutions serve as the baseline category), while Model IV includes our political controls. Table 2 provides these results using nominal rather than real housing price growth as the dependent variable. Table 3 provides jack-knife tests to determine whether influential country cases drive our results. Models I and III in Table 3 exclude Ireland, the United Kingdom, and Spain; all three had average increases in real housing prices of 4 percent a year or more, and lacked export-favoring wage-setting institutions. Models II and IV exclude Germany and Japan, which had declining/stagnant real housing prices, and also possessed export favoring wage-setting institutions.

Reading results from Table 1, public and manufacturing sector wage differentials (positive values indicate public sector wage growth is higher than in the manufacturing sector) have a significantly positive effect on real housing price growth. Examining beta coefficients for Models I and II, a one standard deviation increase in public and manufacturing sector wage differentials leads to a 0.5 percent increase in annual real

housing price growth. This effect is robust (and becomes more significant) if nominal rather than real housing price growth is the dependent variable (see Models I and II in Table 2) or if prototypical cases are excluded (see Models I and II in Table 3). Moreover, the magnitude of the effect of sectoral wage differentials on real housing price growth is statistically equivalent to the impact of (lagged) interest rate and external capital inflow changes (this can be gauged by comparing the magnitude of the standardized beta coefficients and their confidence intervals between the three variables within each model). In other words, sectoral wage differentials have just as an impactful effect on real housing price growth as declines in real interest rates and increases in net capital inflows. As anticipated, (lagged) increases in the real interest rate has a significantly negative impact on real housing price growth, while (lagged) net capital inflows has a significantly positive effect on real housing inflation. Lagged real GDP growth was associated with significantly higher increases in real housing price growth (GDP growth's high beta coefficient may be overstated, given that it is likely to be affected by endogeneity),[65] while our remaining financial and political variables remained nonsignificant.

Models III and IV in Table 1 also support our hypotheses that export-favoring wage-setting institutions are associated with lower real housing price growth. While exposed-sector-dominated peak-bargaining regimes do not perform differently from export-favoring regimes, both uncoordinated and sheltered-favoring wage-setting regimes demonstrate significantly higher annual housing price growth than export-favoring regimes. Reading results from Models III and IV in Table 1, uncoordinated wage-bargaining regimes realize 1.7–2.2 percent higher increases in real housing prices per annum than export-favoring regimes, while sheltered-favoring regimes realize an astonishing 6 percent higher annual increase in real housing prices than export-favoring regimes. The results for uncoordinated bargaining regimes do not survive jack-knife analyses (Models III and IV, Table 3) or the modeling of nominal rather than real housing price growth (Models III and IV, Table 2), but sheltered-favoring wage-setting regimes are robust to these specifications. All remaining economic and political controls demonstrate similar results when wage-setting dummies are used to proxy sectoral politics.

Our empirical results indicate that sectoral wage-setting politics influences housing inflation. However, in visualizing sectoral wage politics' (proxied by wage differentials) impact on housing prices by decade, one also notices interesting temporal variation across countries (see Figure 5). The best-fit line between sectoral wage differentials and real housing price growth is steadily positive for all three decades, but there are clear cases (Finland, Spain, Italy, the United States, and the United Kingdom in the 1980s; Portugal in the 1990s and 2000s) that lie off the best-fit line. Although we do not have the space to discuss all of these cases here, we suspect that these deviations are driven in part by factors related to idiosyncrasies in national mortgage regulations. Italy's comparatively low housing inflation in the 1980s (and 1990s and 2000s), is likely driven by the "suppressive" nature of its mortgage terms, where, in contrast to liberal household finance regimes such as the United States, a 50 percent down
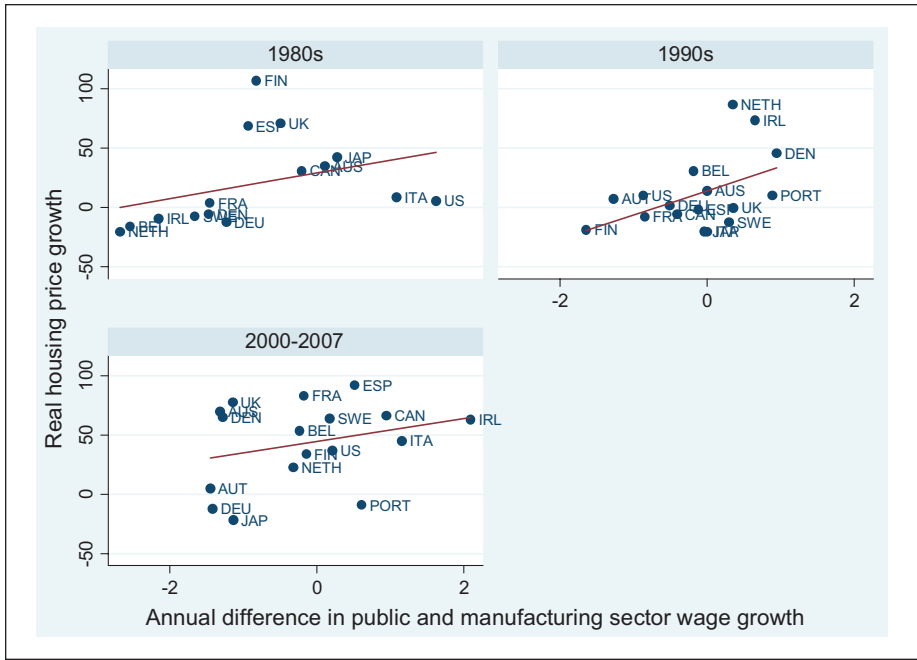
Figure 5. The Impact of Sectoral Wage Politics on Real Housing Inflation, by Decade.
Source: Authors' calculations.

payment and a ten-year amortization schedule for home loans is common.[66] Though the sheltered-sector dominates Portuguese wage setting, Portugal, like Italy, also has a comparatively more restrictive mortgage regulatory regime (home loan terms are short, and mortgage securitization is restricted), which may explain its declining housing prices.[67]

Likewise, countries' shifting positions on and off the best-fit line may be partially explained by changes to their mortgage regulatory (and securitization) policies over-time. The curious position of the United States in the 1980s (when housing inflation was quite low) is likely driven by the fact that before the mid-1990s, traditional prime mortgages sustained securitization, and hence there was not a significant drive to extend mortgage lending to risky households. However, once prime lending was exhausted, by the late 1990s, banks and investors required more risky (sub-prime) mortgage loans and home equity loans to maintain consistent growth in securitization issuances, leading to what the US Financial Crisis Inquiry Commission dubbed the "runaway mortgage securitization train."[68]

Other countries are consistently on the best-fit-line, but shift their location on it over time. We focus on two countries (Ireland and the Netherlands) that realized movements up and down the best fit line over the past three decades in our case study section below. We actively selected these two cases because they provide the

capacity to narrow our examination of *sectoral labor politics* on housing prices while keeping other factors (including mortgage and household finance regulations) constant.

As illustrated in Figure 5, Ireland and the Netherlands exhibit similar places on the best-fit line in the 1980s and 1990s. During the 1980s, sheltered sector wage growth was repressed, as was housing inflation in both countries. In the 1990s, public sector wage growth, relative to manufacturing, was prominent, as was housing inflation. During the 2000s, however, Ireland and the Netherlands occupied different positions on the best-fit line: in Ireland, public sector wage inflation and rapid housing inflation continued, but in the Netherlands, public sector wage suppression ensued, and housing price growth ebbed. We outline in our case study analysis below that these different developments were not coincidental, but rather can be explained by sectoral labor politics.

Sectoral Politics and Housing Inflation: A Tale of Divergence in Ireland and the Netherlands

Ireland and the Netherlands provide a useful method-of-difference case study design to examine the influence of export-led/demand-led political coalitions on housing prices. During the 1990s, both countries had similar trajectories in their housing markets. Ireland and the Netherlands had the largest housing price increases in nominal and real terms in the OECD. Yet while both countries experienced significant housing booms during the 1990s, they experienced divergent trends during the 2000s. In Ireland, nominal housing prices continued to outpace those of most other OECD countries, growing by over 100 percent between 2000 and 2007, the third highest in the OECD.

In the Netherlands, housing price growth slowed considerably (see Figure 6). Between 2000 and 2007, nominal housing prices grew by only 45 percent; while the Netherlands had the highest housing inflation in the 1990s, its housing price growth dropped to the thirteenth highest in our seventeen-country sample during the pre-crisis 2000s. No other OECD country witnessed the Netherlands' precipitous slowing of housing inflation between the 1990s and 2000s. These developments were mirrored in household take-up of mortgage credit. Between 2002 and 2007 total outstanding mortgage loans in Ireland expanded by 198 percent, compared to only 47 percent in the Netherlands.[69]

Why did the Netherlands witness such a drastic slowing of housing inflation in the 2000s, while Ireland did not? Several economic and political determinants can be ruled out given that both countries shared these characteristics. Ireland and the Netherlands realized similar general nominal interest rate reductions, as well as rapid declines in unemployment and domestic demand booms during the late 1990s and 2000s. Admittedly, much of the Dutch employment miracle concentrated in part-time employment. Yet the deregulation of Dutch mortgage lending matched these part-time employment trends, making it possible for (part-time) second household incomes to qualify for loan-to-income mortgage limits.[70] Both countries also witnessed similar
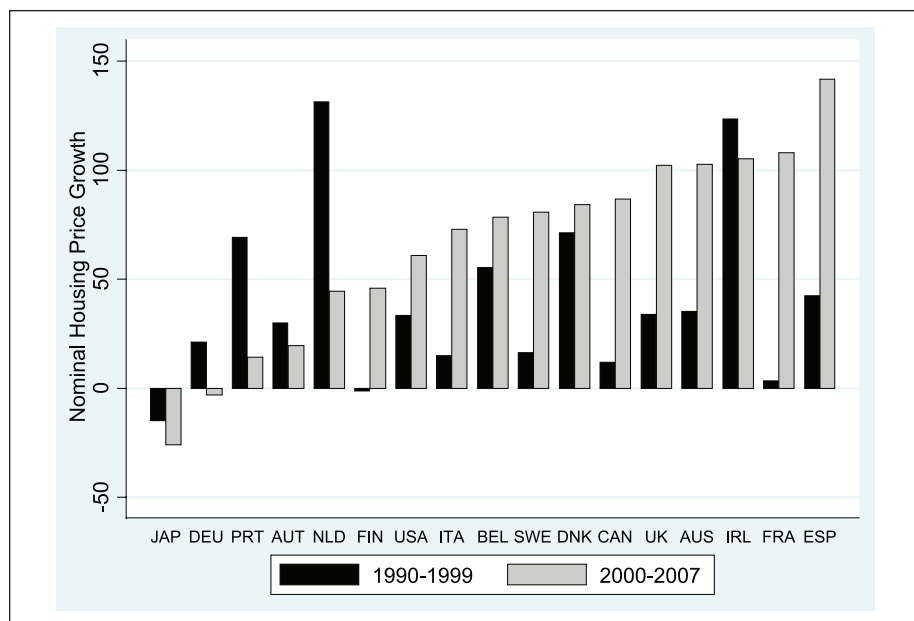
Figure 6. Nominal Housing Price Growth in the OECD.
Source: Nominal housing price data from the OECD, "Housing Price Indices"; Austria and Portugal housing price data from the BIS, "Residential Property Price Statistics."

interest rates on new residential loans.[71] Politically, both countries were governed by neoliberal-oriented, center-right coalitions throughout much of the 2000s.

Nor can differences in (mortgage) credit regulation and policies governing housing supply explain the divergence house price dynamics, as they suggest that housing inflation should have grown more rapidly in the Netherlands than in Ireland during the 2000s. The Netherlands has perhaps *the* most generous policies incentivizing mortgage accumulation in the OECD. In 2000, the Netherlands had the highest maximum loan-to-value ratio in the OECD: the maximum loan a buyer could take out in the Netherlands was 115 percent of the home's value, compared to 90 percent in Ireland.[72] Though maximum loan-to-value ratios may not suitably gauge credit generosity, as such values are limited to a country's least risky homebuyers, similar dynamics emerge when examining typical/average loan-to-value ratios. In 2002, the Dutch typical loan-to-value ratio was 90 percent, growing to 115 percent by 2008, well above Ireland's 66 percent ratio.[73] The Netherlands also witnessed almost double Ireland's increase in MBS issuances between 2000 and 2007, meaning that Dutch banks passed on greater amounts of mortgage risk to investors, which enabled them to significantly expand the country's mortgage credit supply.[74]

Further, the Netherlands also has the most generous tax relief on mortgage interest payments in the OECD. Rent control is stricter in the Netherlands than in Ireland, while housing supply and residential planning in the Netherlands is strongly

regulated, limiting potential new builds.[75] The country's spatial planning laws (in place since the 1965 Wet Ruimtelijke Ordening) are aimed at preserving landscapes, preventing urban sprawl, clustering people into urban areas, and limiting the size and height of dwellings, which placed constraints on land development and caused the housing supply to become highly inelastic during the 1990s and 2000s.[76] These generous credit regulatory policies and restrictive land/zoning regulations suggest that Dutch housing inflation should have continued to rise along levels seen in Ireland (if not more so) during the 2000s. Yet growth in Dutch housing prices waned considerably, while housing inflation in Ireland continued to outperform other OECD countries.

One crucial difference between Ireland and the Netherlands is how sectoral politics influenced income dynamics in both countries. Both Ireland and the Netherlands entered EMU with labor market shortages, and these shortages placed upward pressures on wages. By 2001, both countries arrived at a price spiral juncture; Ireland possessed the highest inflation rate in EMU, and the Netherlands possessed the third highest.[77] In the Netherlands, high inflation precipitated an acute sense of crisis. Export-sector trade unions and employers initiated three wage pacts that introduced a national wage ceiling in late 2002, and wage freezes for 2004 and 2005. Although these wage pacts were not created to address rising housing prices, but rather national inflation, their imposition delivered considerable wage moderation across the entire economy in general, and the public sector in particular.[78] Nominal hourly wage growth in the public sector declined from 5.3 percent in 2001 to 1.7 percent by 2005.[79] Such dynamics correlated with the lull in Dutch housing price growth in the same period.

In Ireland, the opposite occurred. In the early 2000s, public sector unions in Ireland were effective at securing notable pay gains from the government. Unlike what occurred in the Netherlands, nominal wage growth in the public sector increased from 7.4 percent in 2001 to 11.4 percent in 2003, reaching 9.5 percent in 2005.[80] We argue that such income dynamics initiated the rapid expansion of mortgage credit, which funded Ireland's housing bubble from 2005 onward. Both countries experienced credit expansion and liberal regulatory regimes in the 2000s. Yet Dutch wage setters delivered wage restraint during this period, while Irish wage setters produced wage inflation. This difference, we suggest, can be traced to the fact that the export sector dominated national wage setting in the Netherlands during this time, while it did not in Ireland.

Export Political Coalitions' Deflationary Effects on the Dutch Housing Market

After the Netherlands' EMU entry was secured, the Dutch Federation of Trade Unions (FNV) embarked on a wage-push campaign that led to the doubling of inflation within a year. This wage push was initiated by the public sector union, Abva-Kabo, which at the time represented almost 30 percent of FNV's membership.[81] Abva-Kabo's wage push efforts were in response to public sector wage freezes that were imposed by center-right governments in the early 1990s in order to comply with the Maastricht fiscal criteria. In the late 1990s Abva-Kabo declared that it would seek wage gains to

compensate for these developments.[82] Although unions in the export sector affiliated to FNV called for a moderate 3.5 percent target in the 1998 bargaining round, Abva-Kabo encouraged its affiliates to push higher, especially in the public sector.[83]

Abva-Kabo's wage push campaign did not confine itself to the public sector. Given the union's representative power within FNV, its leaders successfully pressured FNV's leadership to increase their general wage targets and abandon their traditional wage formula of setting wage increases equal to inflation and productivity growth.[84] Agreements concluded in 2001 provided for an average annual pay increase of 4.5 percent (higher than FNV's 4 percent target); in the wider services sector the average increase was 5.3 percent.[85]

By 2001, it was apparent to the Dutch export sector that wage inflation was leading the country to competitive decline. Export union and employers within FNV began to directly challenge Abva-Kabo's dominance over wage setting. Prime Minister Jan-Peter Balkenende[86] used his welfare reform agenda as a crucial negotiating tool, enabling government to assist FNV's export-sector affiliates in persuading public sector unions to agree to wage restraint via three inflation-stabilizing wage pacts.

In November, 2002, a centrally agreed wage ceiling of 2.5 percent was implemented by the major Dutch union confederations.[87] In 2003, all unions agreed to a second (export-led) national wage pact, in return for several concessions from government on its social policy reform proposals. These concessions were not cheap; they cost the Dutch government €1.2 billion.[88] However, Finance Minister Gerrit Zalm deemed these concessions, which pushed the Dutch budget deficit over EMU's 3 percent deficit rule, as a necessary trade-off to stabilize inflation.[89] In October 2003, Dutch public sector unions agreed to a further two year wage freeze in 2004 and 2005.[90] These three national incomes policies facilitated considerable downward adjustments in domestic demand. By 2001, Dutch nominal hourly wage growth was 5.3 percent, the highest level since 1982. After the imposition of the 2.5 percent nominal wage ceiling in 2003, and wage freezes in 2004 and 2005, nominal hourly wage growth declined to 1.68 percent in 2005, its *lowest level* since 1984.[91]

While the Netherlands' continued to have generous policies toward mortgage debt accumulation during the 2000s, the implementation of mass wage restraint corresponded with a prominent decline in mortgage demand. In reclaiming control over national wage setting in 2002, the Netherlands' export-led political coalition was able to deliver nationwide wage moderation, which depressed domestic demand and (temporarily) reduced households' consumption of mortgages, resulting in slowing housing prices.

Fueling a Housing Bubble: Domestic-Demand Led Political Coalitions in Ireland

From the late 1980s to 1990s Ireland instituted a centralized wage bargaining regime aimed at generating national competitiveness via coordinated public and private sector wage restraint.[92] The 1987 Programme for National Recovery drove this competitive realignment, and was approved by public sector unions in the ICTU who

were demoralized by Ireland's economic stagnation. By 1999, in a context of rapid economic and employment growth, unions in the health, administrative and educational sectors, launched a wage push campaign. Their campaign gathered popular support after various teaching, nursing and police officer strikes. Public sector unions argued that Ireland's entry to the EMU was increasing domestic inflation and house prices, and that this needed to be compensated with wage increases.

The populist center-right Fianna Fáil (FF) government sympathized with public sector unions. In 1999 they negotiated a three-year centralized wage pact with the ICTU, the Programme for Prosperity and Fairness (PPF). PPF granted a 15.5 percent wage increase that averaged 5.5 percent per annum from 1999 to 2002. It also granted a one-off "catch up" increase of 3 percent to senior civil servants and "guaranteed" that net take-home pay of all workers would increase by 25 percent after cuts in income tax.[93]

Most controversial, the PPF established a Public Service Benchmarking Body (PSBB), designed to review public sector pay and assess whether there was a growing wage differential between the public and private sector. It was explicitly framed against a discussion on whether wages should compensate for house price increases. The effect of the PSBB, however, was to turn centralized wage setting into a sheltered-sector pay deal. Exposed-sector interests in the ICTU could not directly oppose this trend, because Ireland's main export firms (US-based multinational corporations) are largely non-unionized. The PSBB granted an additional 9–11 percent pay increase to *all* public sector workers. In 2003 the government and social partners negotiated another national wage pact called "*Sustaining Progress*" (SP). SP granted an additional 13 percent increase to be paid within the 2003–5 period. In the same year, a special review body for higher-paid public sector employees granted *additional* increases to senior civil servants, the judiciary, and government ministers.[94] The domestic political interests of the nontraded sectors were firmly in control of centralized wage bargaining, a situation that was quite unlike the export-oriented regime of the 1990s.

The outcome of the two public sector wage pacts, the PSBB, and the special review body was a substantial increase in public sector pay during the period 2001–5, particularly for high earners. In 2006 the public sector wage premium, *after* controlling for all relevant characteristics such as age and education, grew from 7.7 percent in 2001 (before PSBB was paid) to 23.5 percent.[95] All of this increase in income (further driven by tax cuts) overlaps with the spike in Irish house prices from 2003–5 onward. This rapid increase in take-home pay for over a quarter of the labor force helped to rapidly drive up demand for prime mortgages.

Most analyses[96] assume that bank lending, and credit-market policies alone explain the Irish housing bubble. But this supply-side analysis misses where the income-demand for credit is coming from. The rapid increase in (public sector) wages *complemented* Ireland's 2005 credit boom. If credit expansion alone explains the house price bubble, it would imply that had the government intervened to restrict loan-to-value ratios it could have been avoided. But the Dutch case contradicts this possibility. From 2001 to 2005 private sector credit, as a ratio of GDP, was higher in the Netherlands than in Ireland,[97] and yet Dutch housing prices stabilized.

What differed between the two countries during this period was not credit supply policies but income demand. The delivery of nationwide wage restraint via three coordinated wage freezes in the Netherlands corresponded with a lull in Dutch housing price growth during the 2000s, while Ireland's public sector-driven income boom corresponded with its housing bubble. The Dutch case demonstrates that income booms can be contained via wage-setting institutions amid a housing boom, refuting a reverse causality critique. A countercyclical incomes policy was made possible in the Netherlands because of coordinated wage-setting institutions that prioritized an export-led political coalition. The opposite occurred in Ireland. The politics of wage bargaining became decoupled from the export economy, which is dominated by the nonunionized US multinational sector. Domestic banking interests dominated employer associations while the construction industry was closely connected to the Fianna Fáil government.[98] Simultaneously, the public sector increasingly dominated the trade union movement. The outcome was an economic regime shaped by a domestic-led political coalition, which failed to deliver wage moderation, thereby helping to fuel the country's credit-mortgage boom.

Conclusion

Our results suggest that income demand and the sectoral-class labor politics that govern this are an important factor in explaining housing price growth. Both IPE analyses that focus on credit liberalization, and CPE analyses that focus on cross-national differences in mortgage lending, correctly emphasize the important role of credit expansion on housing booms. Our findings suggest, however, that they need to be coupled with a political analysis on the demand side, namely household incomes. Our core argument is not that credit expansion does not matter in explaining housing price dynamics, but rather that mortgage demand is amplified if it is accompanied by an income shock.

In the midst of international financial integration and cross-border capital flows, countries with wage-setting regimes led by political coalitions in the export-sector experienced moderated housing price growth. This implies that the "old" corporatist debate on how labor politics and producer group interests shape variation in macroeconomic outcomes is still very much alive, and has manifested itself in capital markets. Our contribution is to illustrate how the dynamics of sectoral wage-setting politics affect the determinants of housing prices. This effect is likely to become more important in a context where house prices, and their associated wealth effects, increasingly shape electoral preferences toward capital-asset policies and the welfare state.

International financialization has granted significant power to banks in extending mortgage credit. But contrary to these broader trends, demand for borrowing, which revolves around income growth, remains deeply ingrained in domestic politics. Labor markets with collective bargaining structures that favor the export sector has blunted the impact of international credit-liberalizing trends on housing markets. While capital has proven more politically resilient than labor over the past decades, labor market institutions continue to provide crucial countercyclical constraints on the worst effects of global financial integration.

Appendix A. Sectoral Wage Coordination Regimes for Seventeen OECD Countries (1980–2007).

Country	Pattern Bargaining	State-Imposed Coordination	Export-Led Wage Pacts	Peak Bargaining (Export-Dominated)	Peak Bargaining (Sheltered-Dominated)	Sheltered-Led Wage Pacts	Uncoordinated
Australia	1981–1982, 1984–2007	1980	1983–1992	1993–1996			1997–2007
Austria				1980–1983			
Belgium		1982–1985, 1994–2007			1980, 1986–1993	1981	
Canada							1980–2007
Denmark	1981–1982	1980, 1985–1987, 1998	2000	1983–1984, 1988–1997, 1999, 2001–2007			
Finland			1981–1982, 1989–1993, 1995–2000, 2002–2006	1983–1988, 2001, 2007			1980, 1994
France		1980–2007					
Germany	1980–1985, 1987–1999, 2001–2007			1986, 2000			
Ireland					1981–1986	1980, 1987–2007	
Italy		1985			1980–1982, 1986–1988, 1990–1991, 1994–2007	1983–1984, 1989, 1992–1993	
Japan	1980–2007						
The Netherlands		1980–1981	1982–1984, 1993–1995, 2002–2004	1985–1992, 1996–2001, 2005–2007			
Portugal		1980–1981			1982–1985, 1989, 1991, 1993–1995, 1998–2005, 2007	1986–1988, 1990, 1992, 1996–1997, 2006	
Spain					1980–1981, 1986–2007	1982–1985	
Sweden	1999–2007			1980–1994			1995–1998
United Kingdom							1980–2007
United States							1980–2007

Source: Data are from Brandl, "Successful Wage Concertation," and Johnston, *From Convergence to Crisis.*

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Declaration of Conflicting Interests

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Notes

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