Job Security and Housing Credits

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Kurmaş AKDOĞAN
Ayşe TATAR
Ayşe Arzu YAVUZ

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Kurmaş Akdoğan[1]   Ayşe Tatar[2]   Ayşe Arzu Yavuz[3,4]

Abstract:

This paper is concerned with the relationship between employment security and housing credits. It is argued that higher employment protection might result in higher demand for housing due to its mitigating impact on the uncertainty about the future income stream of the workers. The results of the empirical analysis using yearly data for 23 countries from 1990 to 2013 suggest a positive relationship between job security and housing credits at the aggregate level. This evidence emphasizes potential negative effects of reducing job protection on aggregate demand. Moreover, considering the propagation mechanism linked with housing demand, this negative impact could be higher and longer than expected.

Keywords: Labour markets, job security, credit demand, panel data.
JEL Codes: C23, J28, J65, R21.

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[1] Central Bank of the Republic of Turkey, Structural Economic Research Department, kurmas.akdogan@tcmb.gov.tr
[2] Economist, ay.tat2015@gmail.com
[3] Central Bank of the Republic of Turkey, Research and Monetary Policy Department, arzu.yavuz@tcmb.gov.tr

I. Introduction

Housing decision is one of the most important and complex investment decisions that the individual faces through his life-cycle. The complexity stems from comprising a wide range of determinants as well as constraints, both with demand and supply side features. The supply side factors vary from the housing stock and prices, along with the financial constraints. On the demand side, housing consumption decision intrinsically depends on the preferences of the household, including his attitude towards risk. As the argument goes, buying a house is typically a long-term investment where the decision-making process includes uncertainty about the future income stream of the individual. Regarding this income uncertainty; the literature states one of the factors that would insure the household against income fluctuations as *employment security* (Pissarides, 2001).

This study postulates that higher employment protection in an economy would reveal itself with higher demand for housing loans, at the aggregate level. From this standpoint, the relationship between housing credits and employment protection is empirically explored. We propose two ratios provided by OECD as proxies for employment security*: ratio of involuntary part-time workers to labour force*, and *union density*. The results of our panel study comprising twenty-three countries suggest that higher job security indeed results in higher level of housing credits.

Our study contributes to the literature in a number of ways. First, provided that higher job security means higher housing demand, policymakers could consider higher protection in jobs as a means of boosting economy in a medium-term framework. Note that, in political terms the employment protection issue is the subject of an ongoing debate depending on alternative economic approaches. [5,6] On the one hand, the advocators of job flexibility argue that, if it is hard to dismiss workers, then the firms would be reluctant to hire at the first instance.[7] Hence, flexibility is suggested as a remedy to a stagnant economy that experiences unemployment problem. [8] In contrast to this view, another part of the literature suggests that a certain degree of job protection is important both for employment and production. [9,10] We argue that, in addition to the aforementioned supply side

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[5] Skedinger (2011) provides an extensive review of this literature focusing on cross-country as well as within-country studies.

[6] OECD's Job Study (1994) recommends higher flexibility in labour market by reducing employment protection to overcome the notorious unemployment sclerosis problem of date, in line with the former approach. Later on, a reconsideration of the issue by OECD (1999) suggests that there is no significant association between the strictness of the labour market and mean unemployment in its member countries.

[7] Hence, the motivation of unions which would bargain for higher employment security for their members (insiders) might, in fact, would be in conflict with that of the unemployed (outsiders), who would benefit from a more flexible market. Also, See Lazear (1990), Scarpetta (1996), Elmeskov et al. (1998).

[8] According to the widely accepted and implemented *flexicurity* framework, job security could be partially forgiven in return for a certain degree of flexibility, which is associated with lower unemployment and higher growth. Flexicurity (a combination of the words flexibility and security) is a strategy that emerged in Netherlands in 1990s, suggesting a blend of labour market flexibility to meet the challenges of a globalized economy and employment security to protect the workers. The concept is incorporated into the European Employment Strategy 2007 by European Commission (European Commission, 2013).

[9] Pissarides (2001) argues that in the absence of perfect insurance markets, job creation is not necessarily reduced in the presence of job protection, which is defined by the inclusion of an advance notice of dismissal and severance payments. He develops a framework where, through higher job security, risk-neutral firms offer a contact to the risk-averse workers that would insure them against income fluctuations. In equilibrium, workers would accept a lower wage in return for protection when the job is productive and would be compensated with higher income when the productivity of the job goes down. Also see Bassalini and Duval (2006), Baccaro and Rei (2007).

[10] Another related line of the literature focuses on the relationship between the employment protection and productivity, providing two competing sets of explanations. A group of studies conjecture that stricter protection would slow down the adjustment in workforce that is required due to changes in production techniques and hence lead to a decline in productivity [Autor et al. (2007)]. Accordingly, Bentolila and Bertola (1990) argue that firing costs might lower productivity since firms would be reluctant to dismiss workers when their productivity is

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influences that is frequently emphasized by the advocators of higher flexibility in the labour market; the impact of increasing job flexibility on aggregate demand in the economy could be negative with a certain lag due to its negative impact on housing demand. Hence, the aggregate impact of a change in employment security on economy depends on the strength of these two counteracting factors. This outcome has important policy implications, especially in this post-crisis era when alternative demand-management measures are required to promote sustainable growth in global terms.

Second, considering the role of house prices in the *financial accelerator* mechanisms that are widely employed to explain crises [Kiyotaki and Moore (1997), Iocaviello (2005)], the positive relationship between perceived feeling of job security and housing demand has important policy implications. As widely documented in the literature, the era before the global financial crisis was mainly characterized by abundant liquidity and a remarkable increase in risk-taking behaviour for banks as well as loan-takers. Individuals that were previously credit-constrained had access to housing loans, usually with expectations of increasing house prices. Hence, once the financial system was hit by the financial shock, many individuals were struck by high levels of debt. On the production side, worsening expectations of aggregate demand led to dismissal of workers which, in turn, resulted in foreclosures since the borrowers who lost their jobs would not be able to repay their debt. These foreclosures would put further downward pressure on house prices, leading to a reduction in net worth of the banks as well as other investors which, in turn, would lead to a further decline in aggregate demand and a new wave of dismissals.

Along the aforementioned line of thought, Arestis and González-Martínez (2015) argue that higher job flexibility could increase the size and duration of the downturns in Spain. Our findings corroborate with this view, further indicating a negative relationship between higher flexibility and housing credit growth. Yet, our study differentiates with their study in a number of important aspects. First, in terms of the dependent variable, we focus on a financial variable, housing credit instead of residential housing investment. Second, in terms of the independent variables, we suggest alternative proxies for employment protection and third, in terms of the econometric technique, we propose a multi-country panel study rather than a single county estimation.

The outline of the paper is as follows. Next section defines our variables, data and model. Third section documents the results. The last section presents a policy discussion and concludes.

II. Data and Methodology
a. Data

Our econometric analysis explores the determinants of the housing credit. Yearly data from 1990 to 2013 for 23 countries is employed in our analysis. Firstly, the dependent and independent

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lower than their wages. However, others argue that the relationship could be positive for some cases due to accumulation of firm-specific human capital through time [Janiak and Wasmer (2014), Cingano et al. (2012)].

variables are introduced in the remaining of this first subsection. The next subsection demonstrates the model, the estimation methodology, some descriptive statistics as well as diagnostic tests.

Our dependent variable is the *housing credit.* Housing credit has a stronger relationship with demand for housing for consumption reasons rather than the investment (or speculative) demand for housing. Therefore, it helps us to capture the financially constrained households which are more severely affected from income shocks, as opposed to relatively wealthier ones who could smooth their risks by investing in alternative assets. Job security is obviously more important for those who could provide less than full collateral for buying a house and, hence, are subject to foreclosure during downturns, as suggested by the latest global financial crisis.

The data on housing credit provided by the aggregate banking sector is mainly derived from individual central bank statistical databases, in stock and net terms (i.e. the change in stock data gives the net value of newly extended credits and current payments of the credits that are taken in previous periods). *Housing credit* data is transformed in real terms, using the GDP deflator (taken from IMF-IFS database) and used in logarithm form. Hence, our dependent variable is the log difference of the real housing credit data which is a flow variable (Figure 1).

Our proxies for employment security[11] - *ratio of involuntary part-time workers to labour force, and union density* - are derived from OECD database. The latest global crisis marked a sharp increase in the feeling of employment insecurity around the world, with possible negative impacts in working and living standards of the employed. [12] This phenomenon could partially be understood by the positive trend in the fraction of the workforce with part-time employment. *The ratio of involuntary part-time workers in the labour force* is broadly defined as "persons who declare to work part-time because they could not find a full-time job" (OECD, June 2016, Table 4).[13] An increase in this ratio lowers job security for different reasons.[14] First, on-the-job training opportunities are less common for part-time workers. This reduces their rate of pay and worsens their career advancement prospects (OECD, 1999). Second, as suggested by a survey on Australian part-time workers (Baird, 2010) the number of work hours and time schedules of part-time workers are subject to change without any notice for part-time workers. Moreover, part-time workers can be dismissed without any notice or

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[11] Alternative employment security proxies are employed, however, we were not able to find a significant relationship for these proxies. One of the proxies is the *Employment Protection Legislation Index (EPL)*. EPL index is a synthetic indicator measuring the strictness of regulation on dismissals and the use of temporary contracts for OECD countries. The first problem with this index is that it displays relatively infrequent changes over time. Besides, the data coverage and measurement methodology is modified by OECD over years. Similarly, we employ an increase in the ratio of temporary workers to total employment as an indicator of lower job security and expect a negative relationship between this ratio and housing credit; however, the relationship was not significant. Also, *the share of discouraged workers in labour force* and *unemployment duration* are not employed in our empirical analysis because of their possible correlation with unemployment, and hence GDP which is employed as an explanatory variable in our estimations.

[12] Exploring the impact of the crisis on working conditions in Europe, Eurofound (2014) study shows that in 17 out of 27 European countries, the feeling of job insecurity has increased significantly from 2007 to 2012, with certain consequences on well-being and health. Also, see the results of European Working Conditions Survey (in Eurofound, 2007, 2012, 2015) for a comparison on the employment security before and after the crisis.

[13] The definitions of both items change among OECD countries for a number of reasons such as the survey design, timing or the coverage. National definitions are provided in detail by last update of OECD statistical documentation (OECD, June 2016, Table 4).
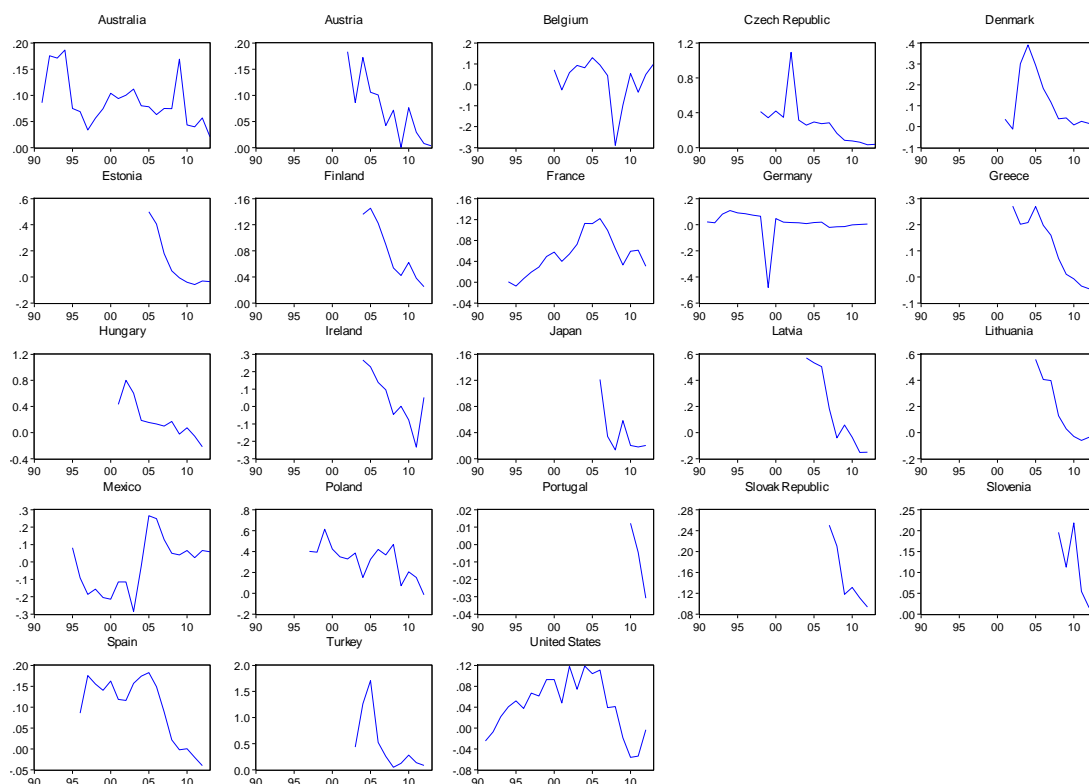
[14] Fagan et al. (2013) provides a comparative analysis of the employment conditions of part-time versus full-time workers for a range of countries.

reason. Third, the union membership rates are much lower for part-time workers compared to full-time workers (OECD, 2010). Fourth, an increase in this ratio might lead full-time workers feel that their position could be substituted with a part-time alternative in the future. Correspondingly, we expect a negative relationship between this ratio and housing credit.

Figure 1

Housing Credits

(Aggregate banking sector, log difference of billions of national currency,1990-2013)

Another proxy that we suggest for labour market insecurity is the *union density* which shows a very strong decline starting with 1990s. [15] Workers can jointly struggle against unjust dismissals if they are a part of a union. Moreover, unions can push for higher skill investments for their members through on-the-job training and life-long learning policies in order to ensure their long-term employability (Edlund and Grönlund, 2008). Correspondingly, an increase in union density would increase the perceived feeling of job security for the workers. In an empirical study using survey data for 19 countries, Esser and Olsen (2011) shows that union density has a positive impact on job security. Clark (2005) also shows that a fall in trade union density indicates lower job quality using survey data for OECD countries. Hence, we postulate that an increase in trade density would lead to an increase in housing credits in our analysis.

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[15] Union density is defined as the ratio of wage and salary earners that are union members, divided by the total number of wage and salary earners (See OECD statistics in https://stats.oecd.org).

One of the control variables is the interest rates that represent the cost of funding and expected to have a negative relationship with the level of housing credit. Our first choice was the interest rates on the loans extended by monetary and financial institutions to the household sector for housing purposes, where available. Yet, for most countries, including European ones, the series on the rates on housing loans starts in 2003. Hence, in order to extend the series to 1990s for these countries, we preferred the short-term interest rate series from the OECD database. Furthermore, the correlation between the short-term interest rate series and rates on housing loans are high for almost all of the countries. The real interest rate series are calculated using Consumer Price Index (CPI) data, which is taken from IMF/IFS database.

Regarding the housing prices, our first choices were the residential property price indices from OECD database and house price data from BIS database. Similar to interest rates on housing loans data, both databases provide relatively short data; hence, we employed *CPI* in alternative specifications. CPI is an important control variable in terms of its effect on house prices. The increase in house prices could have two counteracting effects on the demand for housing credit. Obviously, due to the transaction motive, when the price of houses goes down, the demand for housing would go up, ceteris paribus. Yet, an increase in house price could boost speculative demand for housing. Moreover, provided that the household acquires a house; increase in house prices might have a positive wealth effect on demand for housing loans.

Another control variable is the *real GDP growth*. Theoretically, we expect a positive relationship between the real housing credit and the real GDP. The growth of the economy would result in growth of both demand for and supply of housing credit. The former, demand side, could be motivated by the increase in household income. Regarding the supply side, an increase in economic activity and positive expectations would also lead to an increase in the capacity and willingness of the financial intermediaries to extend new loans. GDP data is taken from OECD database, turned into real values using GDP deflator and used in log difference form as a flow variable.[16]

b. Methodology

An unbalanced robust fixed-effects panel analysis is specified to control for country effects and time effects. The estimated equation is as follows:

$$H_{it} = \alpha_i + \beta_1 L_{it} + \tau X_{it} + \vartheta_i + u_t + \varepsilon_{it} \qquad (1)$$

where H_{it} is the log difference of the real housing credit; L_{it} are the labor market security variables; X_{it} denotes the control variables; ϑ_i is the country-specific residuals which differs between

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[16] Several other control variables are employed such as volatility index, the ratio of bank deposits to GDP, demographic variables, non-food energy prices, house prices, rent prices; price to income ratio, household savings, household dwellings, and homeownership. However, statistically significant results cannot be reached. The results are not provided due to space limitations but are available upon request.

countries but remains constant for any particular country while u_t is the time effect that differs across years but is constant for all countries in a particular year; ε_{it} is the remainder idiosyncratic error term.

The unbalanced panel data which is used for the analysis is constructed for 23 countries over the period 1990-2013. Table 1A in the Appendix provides the complete list of countries. In addition, descriptive statistics of the variables and the correlation matrix for the independent variables that have a significant relationship with log difference of the real housing credit in the estimations are provided in the Appendix[17] (Table 2A and Table 3A). The Fisher type ADF unit root test with 1 lag is used as the Fisher test allows unbalanced panel. According to the results, some of the variables are used in log difference forms. The results from the unit root tests are listed in the Appendix (Table 4A). The test results clearly reject the null that all panels contain a unit root.

Hausman specification test is run in order to choose the appropriate estimation among fixed or random effect estimations. The null hypothesis of uncorrelated effects is rejected in the first two models, and thus fixed-effect specification is chosen. For the last model, Hausman test suggests the random model (also Breusch-Pagan Lagrange multiplier test also points random effect); however, the coefficients are not really different (see Appendix Table 5A). Thus, fixed effect estimation is given for all models.[18]

III.   Empirical Results

The results of the fixed effect panel data analysis are reported in Table 1. We use two different proxies for employment security in the estimations, which are the *ratio of involuntary part-time workers to labour force* and *the union density.* Regression results suggest statistically significant relationship between job security and housing credit for both estimations.

Estimation number (1) reveals that the coefficient for the ratio of involuntary part-time workers to labour force has the expected *negative* sign when modelling for housing credit. Since the employees are working less than they would prefer, they would be reluctant to demand for housing loans. The model showed that 1 percentage point increase in the ratio of involuntary part-time workers to labour force leads to 0.02 percentage points decrease in the growth rate of real housing credit.

Similarly, estimation number (2), which includes *union density* as a proxy for employment security, suggests that an increase in union density *increases* the housing credit demand. While ratio of involuntary part-time workers to labour force is a negative indicator for employment security, higher union density means higher job safety. Thus, the positive relationship validates our postulate that workers feeling higher security in their jobs demand for more housing credit. The estimation indicates

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[17] Macro panels require cross sectional independence with long time series over 20-30 years. Common unobserved effects might be influential on the pattern of the time series. The rationale behind using fixed effects estimation is that unobserved country-specific fixed characteristics that might affect housing credit are controlled. As this panel is not that long for the cross-sectional dependence to show accurate results, it is not tested.

[18] Time fixed effects are not found to be statistically significant.

that if the union density increases by 1 percentage points, the real housing credit growth upsurges by *0.02* percentage points.

Table 1
Main results - fixed effect panel data analysis

	Log Difference of Real Housing Credit	
Variables	(1)	(2)
Involuntary Part-time Workers	*-0.0188**	
	[0.010]	
Union Density		*0.0189**
		[0.011]
Log real interest rate	-0.0209*	-0.0263*
	[0.012]	[0.015]
Log difference in Prices	-2.2603**	-3.4907**
	[0.798]	[1.398]
Lag of log difference in Prices	1.9926**	1.7326*
	[0.727]	[0.914]
Change in log real GDP	1.1709***	2.3912**
	[0.162]	[0.874]
Lag of log difference of real GDP	0.2390	1.0781**
	[0.139]	[0.459]
Lag 2 of log difference of real GDP	1.1165***	1.5938***
	[0.201]	[0.486]
Observations	134	177
Constant	Yes	Yes
Time dummies	No	No
R-squared	0.2770	0.2570
Number of countries [1920]	16	20

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

The coefficient of the log real interest rate has a negative sign. This result is expected, since a surge in the interest rates increases the cost of credit and hence, results in a decline in credit demand. While, the coefficient of CPI has a negative sign for contemporaneous relationship, it has a positive sign for the first lag of CPI with housing credit. This result suggests that the transaction motive is dominant in the contemporaneous relationship, while speculative demand is leading in the lagged relationship. Additionally, GDP has a positive effect on housing credit since an increase in economic activity would both increase the demand for and supply of credit. The results are significant with two

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[19] Although we include 23 countries in the data set originally, due to data availability regarding the job security measures, the resulting models contain smaller number of countries.

lags for GDP in the estimations. This makes sense since GDP is a structural variable, which could have a delayed effect on housing credit. The impacts of economic slacks or booms on the credit decisions of households could be seen more significantly in the following periods. Besides, housing is a costly and long-time decision thus the probability of increasing housing credit increases with observing two economically good years. Comparing the magnitudes of coefficients between real interest rate, CPI and GDP, it seems that overall the prices have the most important effect on housing credit.

To check for the robustness of our results, the ratio of economic short-term workers in labour force is also employed as an employment security proxy. Similar results are obtained with the involuntary part-time workers to labour force estimation (See Appendix 6A).

IV.   Discussion

This study suggests a positive relationship between job security and housing credit, using a yearly panel data analysis covering years 1990-2013 for 23 countries. One important policy conclusion is that while considering the pros and cons of employment security, policymakers should take into account the negative medium term effects of reducing protection on the aggregate demand.

We believe that this evidence is timely and important, especially at this current post-crisis era when more flexibility is suggested as a means of boosting economic growth. The deregulation attempts in labour markets in 1980s were mainly rationalized with the popular conception that higher flexibility would lead to an increase in shorter-term contracts, which in turn, would increase mobility in the labour markets. This conjecture was accompanied with an important change in the mind set towards the social security, that is to say, a departure from the social protection ideas of the welfare state towards more individually-financed pension schemes. Nevertheless, it is quite disputable that this transformation, which goes along with an increase in precariousness, unemployment and job destruction, would find support among masses that bear the brunt of the financial crises. The latest protests in France against the labour law are remarkable examples of this discomfort, among many objections from the workers experienced in the past.

Consequently, our results corroborates with both Arestis and Gonzales (2015) in the sense that, increasing labour market flexibility might further strengthen the downturn and hence might be an inappropriate response to the crisis. Moreover, increasing job security might be considered as part of a Keynesian demand-management framework in a medium term, with its positive impacts on credit demand.

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Table 1A

Country list

Australia	Denmark	Germany	Japan	Poland	Spain
Austria	Estonia	Greece	Latvia	Portugal	Turkey
Belgium	Finland	Hungary	Lithuania	Slovak Rep.	USA
Czech Rep.	France	Ireland	Mexico	Slovenia	

Table 2A

Descriptive statistics for the variables

Variable	Obs.	Mean	Std. Dev.	Min	Max
Union Density	507	29.3	18.8	5.7	80.65
Involuntary Part-time Workers	307	2.76	1.73	0.49	8.08
Log D. of Real Housing Credit	290	0.11	0.20	-0.48	1.71
Log real interest rate	353	0.91	1.29	-4.62	4.45
Log Cpi inflation	550	0.07	0.23	-0.06	3.17
Lag of log Cpi inflation	525	0.074	0.23	-0.06	3.17
Change in Log Real GDP	559	0.03	0.06	-0.41	0.37
Lag of change in Log Real GDP	534	0.03	0.06	-0.41	0.37
Lag 2 of change in Log Real GDP	509	0.03	0.06	-0.41	0.37

Table 3A

Correlation matrix for the independent variables

	Involuntary Part-time Workers	Log real interest rate	Log Cpi inflation	Change in Log Real GDP
Involuntary Part-time Workers	1			
Log real interest rate	-0.22	1		
Log Cpi inflation	-0.34	0.06	1	
Change in Log Real GDP	-0.04	-0.12	0.17	1

	Union Density	Log real interest rate	Log Cpi inflation	Change in Log Real GDP
Union Density	1			
Log real interest rate	0.04	1		
Log Cpi inflation	-0.10	0.24	1	
Change in Log Real GDP	-0.04	0.02	0.27	1

Table 4A
Result of Augmented Dickey-Fuller Fisher-type panel unit root tests with 1 lag
(Inverse chi-squared)

Variable	P value
Union density	0.000
Involuntary Part-time Workers	0.014
Change in Log Real Housing Credit	0.000
Log real interest rate	0.085
Log Cpi inflation	0.000
Change in Log Real GDP	0.000

Table 5A: Model 1 Hausman test results

	Fixed	Random	Difference	S.E
Union Density	0.019	0.001	0.018	0.007
Log real interest rate	-0.026	0.001	-0.027	0.007
Log Cpi inflation	-3.490	-2.711	-0.779	0.389
Lag of log Cpi inflation	1.733	2.035	-0.303	0.236
Change in Log Real GDP	2.391	2.749	-0.358	0.204
Lag of Change in Log Real GDP	1.078	0.642	0.436	0.220
Lag of 2 Change in Log Real GDP	1.594	1.549	0.452	0.186

Test: Ho difference in coefficients not systematic

$chi2(19) =$ 24.06

$Prob>chi2 =$ 0.0011

Table 6A

Variables	Log Difference of Real Housing Credit
Log Difference of Sh. of Eco. Short-time W. in LF	*-0.0657**￼*
	[0.030]
Log real interest rate	-0.02018**
	[0.009]
Log difference in Prices	-2.339*
	[1.129]
Change in log real GDP	0.8178***
	[0.178]
Lag of log difference of real GDP	0.3763*
	[0.193]
Lag 2 of log difference of real GDP	1.8539***
	[0.152]
Observations	121
Constant	Yes

Time dummies	No
R-squared	0.3807
Number of countries	15

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

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