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Public employment and homeownership dynamics

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Abstract

Using micro data from the Italian Survey on Household Income and Wealth, we examine a previous undocumented dimension in which outcomes between public- and private-sector workers differ: homeownership. We show that public employees are more often homeowners than private employees are, and that this difference has widened after the Great Recession. We disentangle the effect of workers' characteristics from the role of public-sector jobs characteristics, such as higher wages or job security, on homeownership differences across sectors. We find that demographic characteristics are important in explaining the historical difference, but cannot explain the widening gap across sectors. The higher job security, reflected in higher share of permanent contracts in the public sector in Italy, explains most of the divergence among sectors after the Great Recession. Part of the mechanism works through the financial system, with permanent contracts workers being less likely to be refused a loan.

JEL classification: E24, J45, R21

Keywords: public employment, homeownership, income risk, wage gap.

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1 Introduction

The 2020 worldwide pandemic highlighted the dichotomy between the private and public sectors that the 2008 Great Recession exposed. First, the types of jobs done in the two sectors are different, with many public-sector jobs essential for a well-functioning society. Second, decisions regarding employment and wages are determined by different entities, with different objectives. While firms respond strongly to market forces, governments less so, generating a well-documented asymmetry in access to jobs (Chassamboulli and Gomes, 2020; Garibaldi et al., 2021; Krueger, 1988), wage rates (Christofides and Michael, 2013; Michael and Christofides, 2020) but also in other non-pecuniary compensating benefits, such as lower hours (Gomes and Kuehn, 2019), better health care or pension plans (Danzer and Dolton, 2012). Third, workers in the two sectors have different exposure to aggregate or idiosyncratic shocks. The predominant dimension is employment protection, with public-sector workers having one-half to one-third of the probability of becoming unemployed (Fontaine et al., 2020). Other forms of insurance are the lower fluctuations of wages over the business cycle (Quadrini and Trigari, 2007), or less wage dispersion (Hörner et al., 2007).

This dichotomy in types of jobs, access, compensation and insurance has two implications. On the one hand, people that get jobs in the public sector are different from those who work in the private sector, both in observable and non-observable characteristics. On the other hand, ex-ante similar people that work in the two sectors will be different ex-post. Understanding the sources of the dichotomy across sectors, how they affect the selection of workers and how they combine to drive different outcomes among workers, is important to improve human resource management in the public sector and their macro-economic employment and wage policies.

In this paper we uncover another previous undocumented dimension in which outcomes between public- and private-sector workers differ: homeownership. We use micro data from the Italian *Survey on Household Income and Wealth* (SHIW) to document several facts about differences in homeownership across sectors. We find that public employees are more often homeowners than private employees, and that this difference has widened over time. In 1996, 70 per cent of public-sector workers owned their house, compared to 67 per cent of private-sector workers. By the end of the sample, homeownership rate stayed the same for private-sector workers but increased to 80 per cent for public-sector workers. The widening of the gap accelerated during the Great Recession.

Our aim is to understand why public employees are more likely to be homeowners and why the housing dynamics between public and private workers diverged from 2008. With regards to the first question, we use Linear Probability Models, as well as Logit estimations to disentangle the effect of worker characteristics, like education, gender, age or where they live, from a role of the characteristics of public-sector jobs. On the second question, we disentangle whether it is related to higher job instability in the private sector, widening of wage differentials, unemployment or because of asymmetric treatment from banks. We also inspect the role of wealth in determining selection into public employment. Understanding the homeownership gap is important from a public choice perspective. [Andrews and Caldera Sanchez \(2017\)](#) show how being owner of the main residence implies a series of advantages for households and society. In particular, the literature has identified three main reasons for favoring homeownership: (i) for myopic households, homeownership may result in a higher rate of wealth accumulation ([OECD, 2003](#)); (ii) homeownership has been related to better outcomes for children in terms of test scores and behavior ([Haurin et al., 2001](#)); and (iii) homeownership tends to be associated with more active and informed citizens ([DiPasquale and Glaeser, 1999](#)).

Italy is an interesting case study. The Italian case is prominent in the literature on public employment because of its size, the regional variation and the widely studied dichotomy with the private sector. An influential paper by [Alesina et al. \(2002\)](#), argues that half of public employment in the South of Italy is a redistributive device from the North. [Scoppa \(2009\)](#) provides suggestive evidence that hiring in Italian public sector relies more on nepotism than the private sector. [Caponi \(2017\)](#) documents that the public sector sets geographically homogeneous wages across regions with different productivity. The same public-sector wage in Milan and Naples imply very different public-private differentials, which is also supported by evidence by [Dell’Aringa et al. \(2007\)](#). [Ghinetti \(2007\)](#) documents differences in satisfaction for six non-pecuniary job attributes between Italian public and private sector workers. He finds that public-sector workers evaluate their satisfaction with job security, consideration by colleagues, and safety and health job features, higher than private-sector workers, and conclude these features work as added benefits. More recently [Auricchio et al. \(2020\)](#) find that exogenous reductions in regional public employment stimulate the growth of private jobs.

Moreover, real estate is the most important element of households’ portfolio in Italy, constituting more than 60 per cent of total assets held. The homeownership rate in Italy is among the highest in Europe, above 70 per cent since the 1990s, while the share of households with

a mortgage is below 20 per cent, one of the lowest in Europe (Camilli and Giagheddu, 2020). Real estate investment has a preferential tax treatment (e.g. mortgage interest payments deductibility), implying that the cost of housing services is different if obtained through ownership than through renting and can also serve as collateral for loans (Diaz and Luengo-Prado, 2008). Since housing wealth dynamics affect many aspects of the Italian economy, it is important to understand the determinants of households' housing demand.

Methodologically, our paper is related to the large literature that measures the public-private wage differentials. The literature has been surveyed by Bender (2002). Recent examples include Christofides and Michael (2013), Michael and Christofides (2020), Castro et al. (2013) or Campos et al. (2017) for cross-country studies, or Guiso et al. (1996), Dell'Aringa et al. (2007), Depalo and Giordano (2011), or Depalo and Pereda-Fernandez (2020) for Italy. In particular, we do not try to isolate a causal effect on home-ownership, but simply document the differences across sectors and inspect the possible mechanisms behind the divergence.

Finally, our paper is related to the extensive literature on housing. A first strand of the literature has found that housing tenure choice depends on housing prices, the availability of mortgages and on housing market conditions (Andrews and Caldera Sanchez, 2017; Greenwald, 2018), but also on income uncertainty (Camilli, 2020; Davidoff, 2006; Diaz-Serrano, 2005; Haurin, 1991). In particular, Gathergood (2011) finds that unemployment risk at the household level reduces the probability that a renter becomes homeowner. Attanasio et al. (2012), using a life-cycle model, find that individuals delay the purchase of their first residence when incomes are low or uncertain. We think the uncertainty regarding wages and employment is lower in the public sector, which might explain part of the asymmetry in homeownership across sectors. Another strand of the literature has found other elements that influenced the increasing trend in homeownership in Italy and other European countries since the 1960s: changes in demographics, taxation on property and successions (Andrews and Caldera-Sánchez, 2011) and financial markets development (Chambers et al., 2009; Chiuri and Jappelli, 2003; Ortalo-Magne and Rady, 2006). Our paper is also related to a third strand of the housing literature that focuses on the effect of high homeownership levels on labor outcomes, like unemployment spells and labor mobility. This literature has found that a higher level of homeownership is associated with lower labor mobility and longer unemployment spells (Bajari et al., 2013; Battu et al., 2008; Henley, 1998; Oswald, 1996; Rupert and Wasmer, 2012; Sterk, 2015).

2 Descriptive Statistics

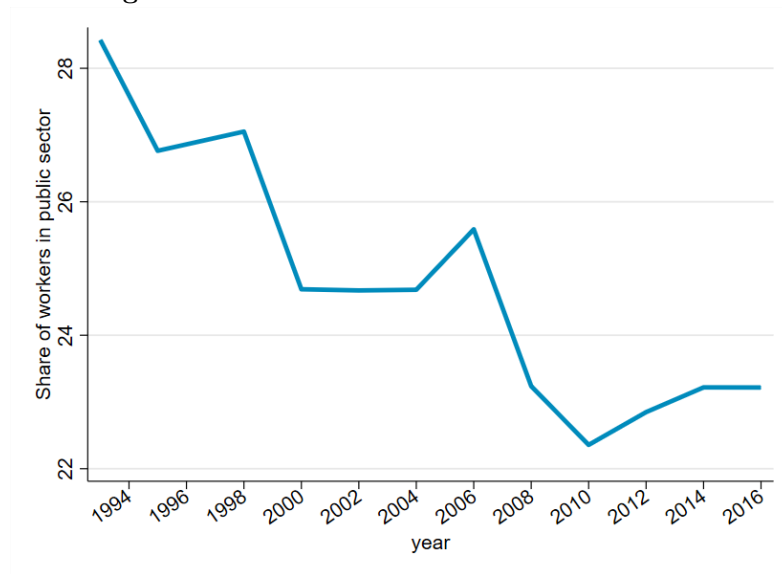
We use data from the [Survey on Household Income and Wealth \(SHIW\)](#), collected by the Bank of Italy. We combine information from the Historical database and from the biannual waves. The SHIW data are representative of the Italian resident population, and contain information regarding households' characteristics (age, gender, marital status, educational level, region of residency, risk aversion, parents' education), consumption, occupational status, disposable income, real and financial wealth. This database has been used to investigate households' wealth and disposable income dynamics, but also to estimate wage differentials between public and private employees ([Depalo and Giordano, 2011](#); [Depalo and Pereda-Fernandez, 2020](#); [Guiso et al., 1996](#)). A detailed description of the characteristic of the SHIW dataset is in [Appendix](#).

We limit the analysis to the period between 1993 and 2016 (the latest available year) and we restrict our sample to non-unemployed individuals aged between 15 and 65, the standard labor force participation range. The total number of observations is 88,762 after sample restrictions. For our main analysis, we create a dummy variable that takes value 1 whenever at least one individual of the household is in public employment, defined as being employed in “*public administration, defense, education, health and other public service*”, using the variable *settp11=9*, as done in [Depalo and Pereda-Fernandez \(2020\)](#) and [Garibaldi and Gomes \(2021\)](#). To assess the robustness of our results, we use an alternative definition of public employment, based on the variable *dimaz=7* defined as: “*Size of the firm according to number of regular employees: NA (public-sector employees)*”, as done in [Depalo and Giordano \(2011\)](#).¹

Figure 1 shows that the share of public workers in Italy has declined since 1993 onward, with a larger drop between 2006 and 2010. The overall reduction was 5 percentage points, from 28 to 23 per cent. As it has been extensively documented in the literature, the incidence of public employment varies substantially by demographic characteristics like education, region, gender and age ([Garibaldi and Gomes, 2021](#)). Table A.1 in [Appendix](#) presents descriptive statistics (mean and standard deviations) of the variables used in our main analysis. The data show that public-sector workers are on average five years older and are more educated. One third of public-sector workers have at least a college degree, while only 10 per cent of private-sector workers have one. We also observe gender differences. The majority – about 55 per cent -

¹For robustness we also performed our analyses using a definition of public workers which includes only the household's head and one which considers only public workers not-head of the households. We obtain very similar results both qualitatively and quantitatively.

Figure 1: Evolution of the Share of Public Workers



of public-sector workers are women, while they only represent 40 per cent of all private-sector employees. Moreover, public-sector employees are more likely to live in the South or in the Islands. Public workers are more likely to be native and live in the region where they were born. They have more often a parent who worked (or is working) in the public sector and, perhaps surprisingly, they are slightly less risk averse than private-sector workers.

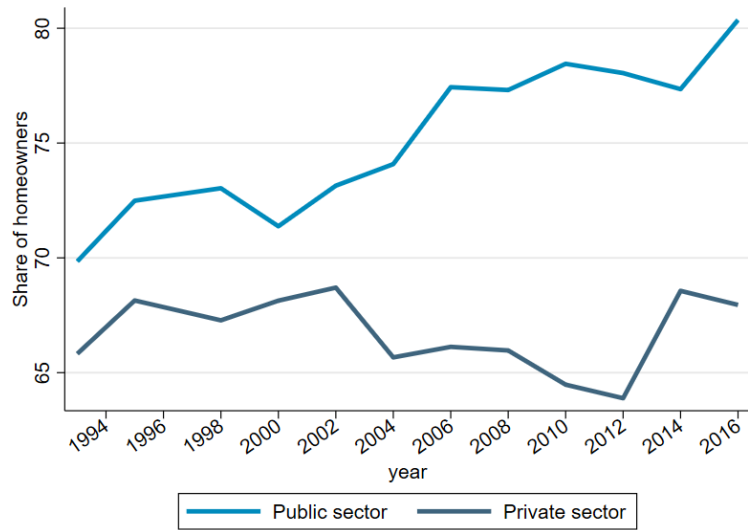
3 The Evolution of Homeownership

3.1 Homeownership Dynamics: an Unconditional Analysis

Figure 2 shows the (unconditional) evolution of homeownership rate over time for workers in the two sectors. Homeownership rate among public employees has a positive trend, increasing from 70 to 80 per cent, while it is constant for private-sector workers at about 67 per cent.

In [Appendix](#) we reproduce the graphs for different sub-groups of workers, to inspect which dimensions might be driving the change in ownership rates. We do not find significant differences, either by gender or by region. In all subgroups, we observe an increase in homeownership for public-sector workers, but not in the private. The widening of the gap is slightly larger for older workers. We find larger differences for workers without college. At the beginning of the sample, about 67 per cent owned their house, a percentage similar to private-sector workers. By the end of the sample, it had risen to 80 per cent, making the homeownership rates of non-college public-sector workers equal to the rates of their peers with a college degree.

Figure 2: Homeownership Rate Among Public and Private Workers



We then look at two other dimensions, wealth and income. These are different dimensions because they are endogenous to the sector of work. Homeownership rates increase with the wealth quintile, but there are no visible differences across public and private sectors. When looking at homeownership rates by income quintile, again we find little differences across sectors, except perhaps in the third quintile. This suggests that wealth and income might be important dimensions to understand the differences across sectors.

Another aspect that we analyze is the access to credit by public- and private sector workers. Figure 3 shows the percentage of workers that have been refused a loan, for the two sectors. While the percentage is similar in the first four years of the sample, dropping from 1.5 to 0.5 per cent, we observe a large divergence since. The divergence peaked in 2012, when private-sector workers were four times more likely to see their request for loan rejected. Figure 4 shows the evolution of the share of homeowners with a mortgage by sector. The private sector has a larger share of homeowners with a mortgage, with respect to the public sector. While about 17 per cent of private-sector homeowners have a mortgage, only 7 per cent of public-sector homeowners have one. The Italian mortgage market did not experience significant legal innovations in the last decades, apart from the Bersani Reform of 2007² that slashed down the mortgage refinancing costs, facilitating the change of bank to refinance or prepay an existing mortgage loan (Brunetti et al., 2015).

²The goal of Bersani Reform was opening up the mortgage market in Italy. It eliminated any penalties for early termination of mortgage contracts and allowed households to transfer their existing mortgage from one credit institution to another without penalties.

Figure 3: Evolution of the Percentage of Workers Who Have Been Refused a Loan

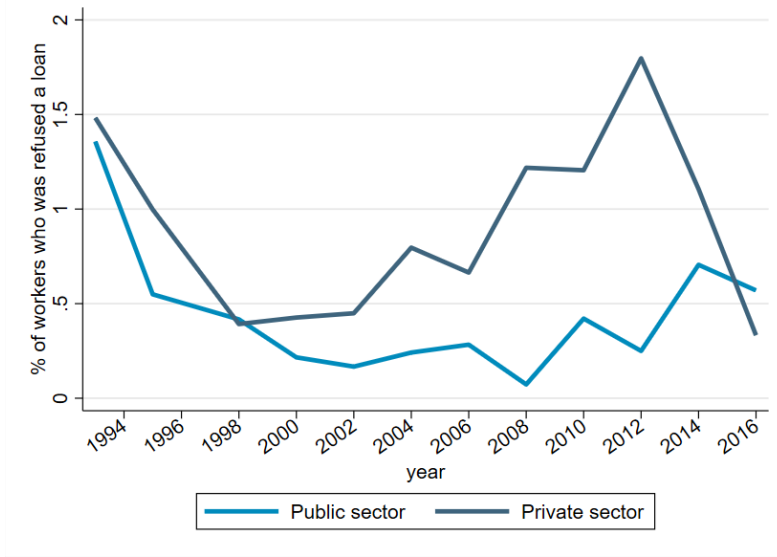
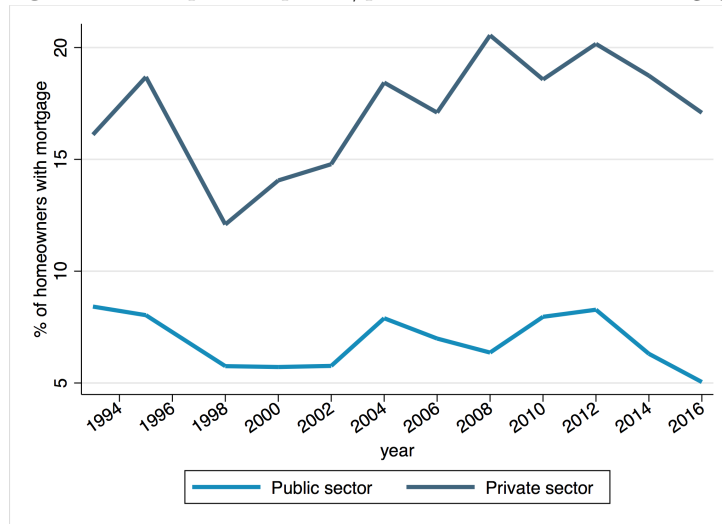


Figure 4: Comparison public/private workers with a mortgage



Finally, as shown Figure A.11 in the Appendix, among private and public workers who are homeowners, the share of home buyers was above 50 per cent for public workers, with an increase after 1998 and a decline after 2008. The share of homeowners who inherited the main residence instead was slightly above 30 per cent. On the other hand, among private workers, the share of home buyers was 50 per cent, and there was an increasing trend for the share of homeowners who inherited the main residence. The rest of homeowners obtained the main residence by building it.

3.2 Stylized facts and research question

From the observation of public and private workers' unconditional characteristics, we draw two stylized facts:

1. *Public employees are more often homeowners than private employees.*
2. *After the Great recession of 2008 homeownership rate remained constant among private workers, whereas it increased among public workers.*

Our aim is to understand why public employees are more likely to be homeowners and why we observe a divergence in terms of housing dynamics between public and private workers from 2008. We look at various mechanisms that might generate these differences. The first, and more natural, explanation is simply that workers in the public sector are different from those in the private. Two of such key characteristics, that are observable are education and age (Gomes, 2018). Government hires more qualified and more experienced workers, and they are more likely to be homeowners. Gender and region of work might also be relevant. Furthermore, there might be selection on other variables that are unobserved. For instance, there might be an endogenous selection on sector based on initial wealth. Gomes and Wellschmied (2020) argue that, as jobs in the public sector are attractive and rationed, the probability of getting a job is low, so only workers with high wealth can afford to queue for those jobs.

Another set of explanations relates not the characteristics of the worker, but the particular characteristics of public-sector jobs. One of such characteristics is more stable jobs and a lower probability of becoming unemployed. Losing a job or merely the higher probability of that happening, can deter workers from buying a house. Another possibility relates to differences in income rather than differences in probability of losing one's job. As extensively documented in the literature, the public sector pays a wage premium, specially for workers with lower qualification, which might feedback into higher homeownership rates. Finally, it is possible that financial markets treat workers of the two sectors differently. Our aim for the rest of the paper is to inspect whether there is evidence of these mechanisms, using multivariate regressions.

4 Regression Analysis

4.1 Baseline – Controlling For Demographics

Our baseline empirical strategy is to estimate Linear Probability Models (LPM). Compared with Limited Dependent Variable models, it has the advantage of having interpretable coefficients, although the predicted probability are not necessarily bounded between 0 and 1. We present the results with a Logit model used as robustness in a later section. Our baseline model reads:

$$homeowner_{i,t} = \alpha + \beta_1 public_{i,t} + \beta_2 public_{i,t} \# after\ 2008 + \beta_3 after\ 2008 + \gamma' \mathbf{X}_{i,t} + \varepsilon_{i,t}$$

The dependent variable $homeowner_{i,t}$ takes value equal to 1 if the any earner of household i at time t owns the main residence and 0 otherwise. $public_{i,t}$ is also a dummy variable and it is equal to 1 if any member of the family is working in the public sector. $after\ 2008$ is a dummy equal to 1 if the year is after 2008, when the Great Recession started. Finally, $\mathbf{X}_{i,t}$ is a vector of demographics controls for household i at time t .

Table 1 shows our first set of regressions only controlling for demographic characteristics that are related to both homeownership rate and employment in the public sector. Column (1) includes only a public-sector dummy that measures the average unconditional difference between the two sectors, depicted in Figure 2. Column (2) includes the demographic characteristics: gender, age, education and regional dummies, together with marital status and household size. Column (4) interacts the public sector dummy with a post-2008 dummy. Columns (3) and (5) include year fixed-effects and column (6) includes also a public sector specific time trend to take into account a possible structural trend in homeownership.

Being a public employee increases the probability of being homeowner, even controlling for demographic characteristics. The unconditional probability of about 8 per cent drops to 1.5. When we split into before and after 2008, the difference in probability is not statistically significant before 2008 but it is more than 5 per cent after 2008.

The importance of controlling for demographics is clear when we look at their coefficients. Men are one per cent less likely to own their house than women. Also workers age 41 to 50 and, specially, 51 to 65 are more likely to own their house than younger workers. Homeownership increases monotonically with the levels of education. Living in the North-East region also increases the probability of being a homeowner. The coefficient for the trend is positive and

Table 1: Conditional Analysis, the Role of Demographics

VARIABLES	(1) Homeowner	(2) Homeowner	(3) Homeowner	(4) Homeowner	(5) Homeowner	(6) Homeowner
Public employee	0.0852*** (0.00756)	0.0166** (0.00797)	0.0136* (0.00793)	-0.00858 (0.00948)	-0.00863 (0.00949)	-0.0262*** (0.00979)
After 2008				-0.0343*** (0.00845)	-0.0182 (0.0160)	-0.0193 (0.0159)
Public#After 2008				0.0538*** (0.0130)	0.0535*** (0.0130)	0.0540*** (0.0130)
Sex = Men		-0.0114** (0.00504)	-0.0122** (0.00503)	-0.0116** (0.00504)	-0.0117** (0.00503)	-0.0114** (0.00504)
Age group = 31–40		0.00679 (0.00976)	0.00934 (0.00974)	0.0109 (0.00974)	0.0110 (0.00974)	0.0113 (0.00973)
Age group = 41–50		0.0880*** (0.0101)	0.0931*** (0.0102)	0.0950*** (0.0102)	0.0952*** (0.0102)	0.0950*** (0.0102)
Age group = 51–65		0.196*** (0.0106)	0.203*** (0.0109)	0.203*** (0.0108)	0.204*** (0.0109)	0.203*** (0.0109)
Education = elementary		0.174*** (0.0458)	0.174*** (0.0451)	0.174*** (0.0450)	0.174*** (0.0449)	0.174*** (0.0450)
Education = middle-school		0.191*** (0.0449)	0.198*** (0.0442)	0.200*** (0.0440)	0.200*** (0.0439)	0.200*** (0.0441)
Education = high-school		0.318*** (0.0451)	0.326*** (0.0445)	0.328*** (0.0443)	0.329*** (0.0443)	0.328*** (0.0444)
Education = bachelor		0.364*** (0.0457)	0.374*** (0.0451)	0.375*** (0.0449)	0.375*** (0.0448)	0.375*** (0.0449)
Education = post-graduate		0.390*** (0.0544)	0.408*** (0.0540)	0.400*** (0.0539)	0.403*** (0.0539)	0.401*** (0.0541)
Married		-0.0328*** (0.00917)	-0.0343*** (0.00924)	-0.0348*** (0.00921)	-0.0346*** (0.00924)	-0.0353*** (0.00924)
Household size		0.0525*** (0.00351)	0.0518*** (0.00352)	0.0519*** (0.00351)	0.0518*** (0.00351)	0.0515*** (0.00351)
Geographical area = North-East		0.0262** (0.0120)	0.0281** (0.0120)	0.0277** (0.0120)	0.0282** (0.0120)	0.0277** (0.0120)
Geographical area = Centre		0.00377 (0.0122)	0.00477 (0.0122)	0.00457 (0.0122)	0.00501 (0.0122)	0.00580 (0.0122)
Geographical area = South		-0.0192 (0.0127)	-0.0170 (0.0127)	-0.0167 (0.0127)	-0.0165 (0.0127)	-0.0165 (0.0126)
Geographical area = Islands		0.00172 (0.0162)	0.00250 (0.0162)	0.00254 (0.0162)	0.00306 (0.0162)	0.00291 (0.0161)
Time trend						0.00472*** (0.00161)
Constant	0.667*** (0.00490)	0.206*** (0.0473)	0.195*** (0.0474)	0.210*** (0.0465)	0.197*** (0.0472)	0.200*** (0.0473)
Observations	88,762	88,762	88,762	88,762	88,762	88,762
R-squared	0.006	0.062	0.063	0.063	0.063	0.064
Year FE	X	X	✓	X	✓	✓

Note: the dependent variable, *Homeowner*, is a dummy equal to 1 if the head of the household owns the main residence. *Public employee* is a dummy variable equal to 1 if any household member is employed in the public sector. *After 2008* is a dummy variable equal to 1 if the year is ≥ 2008 . Column (1) shows the unconstrained model; columns (2)-(5) include demographic controls; columns (4)-(5) includes also the after 2008 dummy and its interaction with the public employee dummy. Columns (3) and (5) include time fixed effects. Column (6) includes also a public-sector specific time trend. Robust Standard errors in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

significant but the main result about the role of 2008 economic crisis is unchanged.³

4.2 Differences in Income and Insurance

Table 2 inspects the mechanisms behind the difference of ownership rates, after controlling for demographic characteristics. Starting from the specification of column (3) of Table 1, where we

³Figure 2 might suggest that the upward trend in homeownership in the public sector starts in 2002. In Appendix, we show the regressions with an additional dummy variable for the period 2002-2006, and its interaction with the public sector, but it is not significant at 5 per cent, so we think it is better captured by a sector-specific time trend.

controlled for demographic characteristics, we first add dummy variables for income quintiles, together with a group of variables, that have some endogeneity to the sector, namely, a dummy for foreign workers (who are less likely to work in the public sector), a dummy for having been born in a different region and a dummy for being self-employed. Being foreign or having migrated is negatively associated with the ownership rate, while manager and self-employment is positively associated. Including these variables (column 1), does no change the coefficient of the public-sector dummy. However, when we look at column (4), which included the public-sector dummy, interacted with post-2008, we see that size of the public-effect post-2008, decrease from 0.0538 in column (5) of Table 1 to 0.0231, meaning that widening of wage differentials between public and private workers during the great recession explain part of the divergence.

We then measure the importance of unemployment risk by including two variables. The first is whether the employment contract is permanent, which reflects a legal job security. Indeed,

Table 2: Conditional Analysis, the Role of Income and Insurance

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Homeowner	Homeowner	Homeowner	Homeowner	Homeowner	Homeowner	Homeowner
Public employee	-0.00296 (0.00820)	0.00586 (0.0101)	-0.00650 (0.00998)	-0.0125 (0.00982)	-0.0163 (0.0115)	-0.0151 (0.0115)	-0.0278** (0.0115)
After 2008				0.0487*** (0.0154)	-0.0381** (0.0170)	0.0218 (0.0166)	0.0211 (0.0166)
Public#after 2008				0.0228* (0.0126)	0.0518*** (0.0131)	0.0198 (0.0126)	0.0201 (0.0126)
Foreign born	-0.310*** (0.0232)		-0.308*** (0.0232)	-0.309*** (0.0232)		-0.307*** (0.0231)	-0.307*** (0.0231)
Migrated	-0.0513*** (0.0187)		-0.0515*** (0.0187)	-0.0515*** (0.0187)		-0.0517*** (0.0187)	-0.0515*** (0.0187)
Job qualification = office worker/school teacher	0.0770*** (0.00959)		0.0757*** (0.00958)	0.0771*** (0.00959)		0.0758*** (0.00958)	0.0760*** (0.00958)
Job qualification = junior manager/cadre	0.0746*** (0.0151)		0.0727*** (0.0151)	0.0746*** (0.0151)		0.0727*** (0.0151)	0.0735*** (0.0150)
Job qualification = manager, senior official, self-employed	0.0760*** (0.0194)		0.0753*** (0.0193)	0.0753*** (0.0194)		0.0747*** (0.0193)	0.0752*** (0.0192)
Job qualification = member of the arts or professions	0.132*** (0.0156)		0.135*** (0.0157)	0.131*** (0.0157)		0.135*** (0.0157)	0.135*** (0.0157)
Job qualification = sole proprietor	0.164*** (0.0194)		0.169*** (0.0194)	0.164*** (0.0194)		0.169*** (0.0194)	0.169*** (0.0194)
Job qualification = freelance	0.119*** (0.0115)		0.123*** (0.0115)	0.119*** (0.0115)		0.122*** (0.0115)	0.122*** (0.0115)
Job qualification = owner or member of a family business	0.191*** (0.0176)		0.193*** (0.0176)	0.190*** (0.0177)		0.192*** (0.0176)	0.192*** (0.0176)
Job qualification = active shareholder/partner	0.165*** (0.0176)		0.167*** (0.0175)	0.164*** (0.0176)		0.167*** (0.0175)	0.167*** (0.0175)
Net wage quintile = 2	0.00754 (0.0109)		-0.00903 (0.0114)	0.00745 (0.0109)		-0.00878 (0.0114)	-0.00866 (0.0114)
Net wage quintile = 3	0.0246** (0.0114)		0.00733 (0.0120)	0.0245** (0.0114)		0.00756 (0.0120)	0.00764 (0.0120)
Net wage quintile = 4	0.0831*** (0.0123)		0.0656*** (0.0127)	0.0830*** (0.0123)		0.0659*** (0.0127)	0.0653*** (0.0127)
Net wage quintile = 5	0.116*** (0.0132)		0.0979*** (0.0137)	0.116*** (0.0132)		0.0981*** (0.0137)	0.0969*** (0.0137)
High Unemployment region		-0.0275*** (0.00853)	-0.0236*** (0.00802)		-0.0277*** (0.00853)	-0.0236*** (0.00802)	-0.0237*** (0.00801)
High UR#public		0.00957 (0.0126)	0.00910 (0.0122)		0.0112 (0.0126)	0.00967 (0.0122)	0.0110 (0.0122)
Permanent contract		0.0257*** (0.00895)	0.0365*** (0.00922)		0.0246*** (0.00896)	0.0358*** (0.00923)	0.0357*** (0.00923)
Time trend							0.00323** (0.00158)
Constant	0.267*** (0.0449)	0.209*** (0.0478)	0.292*** (0.0454)	0.269*** (0.0449)	0.212*** (0.0477)	0.293*** (0.0453)	0.295*** (0.0455)
Observations	88,762	88,762	88,762	88,762	88,762	88,762	88,762
R-squared	0.125	0.063	0.126	0.125	0.064	0.126	0.126
Year FE	✓	✓	✓	✓	✓	✓	✓
Demographic controls	✓	✓	✓	✓	✓	✓	✓

Note: the dependent variable, *Homeowner*, is a dummy variable equal to 1 if the head of the household owns the main residence. *Public employee* is a dummy variable equal to 1 if any household member is employed in the public sector. *After 2008* is a dummy variable equal to 1 if the year is ≥ 2008 . All specifications include demographic controls and time fixed effects. Columns (1), (3) and (6) include a set of additional individual characteristics and income level; columns (2), (3), (5) and (6) include controls for income risk. Column (7) includes the public-sector specific time trend. Robust Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

a *permanent contract* of employment in Italy continues until the employer or employee ends it with a motive. This is why it is also known as a contract of indefinite duration. Table A.12 in the Appendix provides evidence on the incidence of permanent contracts in Italy among public and private workers. The public sector has a relatively stable share around 90 per cent, whereas the private sector has only 50 per cent. The labor market duality and its implications have been extensively studied (Berton and Garibaldi, 2012). In Italy the 2014 labor reform called Jobs Act aimed at the expansion of permanent-type contracts among the private sector.

The second variable is interacting public-sector with a dummy that takes the value of 1 if the unemployment rate of the region in the year is above the median. These are shown in columns (2) and (5). Looking at column (5), these variables seem relevant to explain the increase in the homeownership rate after 2008. In particular, having a permanent contract increase the probability of owning a house by 2.5 per cent, with very high statistical significance. Column (6) includes both the income and unemployment risk channel, the public sector effect disappears. Having a permanent contract is strongly associated with homeownership, while the actual unemployment rate does not affect the two sectors asymmetrically. Finally, column (7) shows that our results are not affected by the introduction of a public-sector time trend. Its coefficient is still significant, suggesting that other structural factors have contributed to the widening gaps.

4.3 Selection into Public Employment Based on Wealth

The current wealth of workers depends on which sector they are working, and their employment history. Workers in the public sector might have different saving patterns because of different wage-tenure profiles or a lower risk of unemployment, and they might save differently for precautionary reasons or for retirement, if they have different pension schemes. In this sense, wealth is a consequence of both workers and job characteristics. Another mechanism which we think might be important, is wealth as a determinant of selection into public employment. If, conditional of observable characteristics, wealthier people are more likely to be selected to the public-sector, than naturally, they would be more likely to be homeowners. We cannot test this hypothesis directly, but we do so indirectly by running some regressions of the selection into public employment. We regress a dummy of being employed in the public sector, on a dummy whether they inherited their house. Individuals with wealthier families are more likely to have inherited their house. We want to test whether this increases the probability of being

Table 3: Conditional Analysis, the Role of Wealth

VARIABLES	(1)	(2)	(3)	(4)	(5)
	Public employee	Public employee	Public employee	Public employee	Public employee
Inherited main residence	0.0270*** (0.00758)	-0.00378 (0.00639)	0.00592 (0.00910)	-0.00460 (0.00853)	0.0193 (0.0130)
Risk aversion mid-low				-0.0527 (0.0388)	-0.0325 (0.0582)
Risk aversion mid-high				-0.0558 (0.0391)	-0.0376 (0.0579)
Risk aversion high				-0.0501 (0.0390)	-0.0223 (0.0576)
Log(Net Wealth)				0.00113 (0.00216)	-0.00510 (0.00317)
Father High ed.			-0.0319** (0.0126)		-0.0146 (0.0177)
Father public sector			0.123*** (0.0124)		0.114*** (0.0184)
Constant	0.278*** (0.00842)	-0.0366 (0.0494)	-0.0159 (0.0974)	0.0730 (0.127)	0.368 (0.257)
Observations	88,762	88,762	29,971	41,829	12,939
R-squared	0.002	0.176	0.160	0.171	0.158
Year FE	✓	✓	✓	✓	✓
Demographic controls	X	✓	✓	✓	✓

Note: the dependent variable, *Public employee*, is a dummy variable equal to 1 if any household member is employed in the public sector. *Inherited the main residence* is a dummy variable equal to 1 if the household inherited the main residence. *Risk aversion* is a categorical variable with support between 1 (low aversion) and 4 (high aversion). *Father High ed.* and *Father public sector* are dummy variables equal to 1 respectively when the father of the head of the household has a college degree or higher and if was a public sector worker. Robust Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

public-sector workers.

The results from this regression are shown in Table 3. Unconditionally, workers that inherited a house are 2.7 per cent more likely to work in the public sector, as shown in column (1). In column (2) we add demographic variables, in column (3) we add the education level of the father, in column (4) we add whether the father works in the public sector and in column (5) we add dummies for the worker's level of risk aversion. These last variables are sometimes used in regressions of selection into the public sector.⁴ In all regressions, the coefficient of having inherited a house is not statistically significant and with point estimates between 0.00 and 0.01. Hence, conditionally on controlling for demographic characteristics, we find that only having a parent in the public sector is a significant predictor for being a public employee.

4.4 The Role of the Financial Sector

The lower ownership rate of private-sector workers might be amplified by financial frictions. Even though the share of households with a mortgage is relatively low in Italy, credit availability can be an important determinant for housing demand, particularly in the private sector.

⁴Columns 3-4 have fewer observations because data about father's education and employment sector are available only for years between 1995 and 2012.

Table 4 shows the regression of a dummy variable of being refused a loan, on a public-sector dummy.⁵ Unconditionally, public-sector workers have a 0.5 percentage point lower probability of having a loan refused (as shown in Figure 3). This effect was stronger after 2008, as shown in column (2). Column (3) adds demographic characteristics, and the effect post-2008 drops from -0.0044 to -0.0039. When we include the variables related to income it further drops to -0.0034. However, when we include the variables related to unemployment risk, the coefficient is no longer significant. The coefficient of the dummy for permanent contract has the magnitude of -0.0067 and is strongly statistically significant. These results suggest that the income/job effect of the public-sector partially works through the financial sector.

Table 4: Conditional analysis, the role of financial constraints

VARIABLES	(1) Was refused a loan	(2) Was refused a loan	(3) Was refused a loan	(4) Was refused a loan	(5) Was refused a loan
Public employee	-0.00466*** (0.000972)	-0.00283** (0.00119)	-0.000188 (0.00136)	0.00121 (0.00135)	0.00133 (0.00120)
Public#after 2008		-0.00440** (0.00200)	-0.00391* (0.00205)	-0.00344* (0.00202)	-0.00289 (0.00198)
After 2008		-0.00972*** (0.00305)	-0.00714** (0.00309)	-0.00808*** (0.00309)	-0.00333 (0.00371)
Foreign born				0.00673 (0.00438)	0.00629 (0.00433)
Migrated				0.00138 (0.00286)	0.00140 (0.00286)
Self-employed				-0.00242 (0.00173)	-0.00319* (0.00178)
Net wage quintile = 2				-0.00497** (0.00235)	-0.00203 (0.00254)
Net wage quintile = 3				-0.00767*** (0.00219)	-0.00458* (0.00246)
Net wage quintile = 4				-0.00948*** (0.00228)	-0.00639** (0.00253)
Net wage quintile = 5				-0.0112*** (0.00220)	-0.00796*** (0.00234)
High Unemployment Region					0.000691 (0.00158)
High UR#public					-0.000745 (0.00196)
Permanent contract					-0.00672*** (0.00235)
Constant	0.0158*** (0.00274)	0.0153*** (0.00279)	0.00874 (0.00564)	0.0103* (0.00564)	0.00743 (0.00572)
Observations	88,762	88,762	88,762	88,762	88,762
R-squared	0.002	0.002	0.006	0.008	0.008
Year FE	✓	✓	✓	✓	✓
Demographic controls	X	X	✓	✓	✓

Note: the dependent variable, *Refused a loan*, is a dummy equal to 1 if the household was refused a loan for which applied. Column (1) controls only for time fixed effects; column (5) includes the full set of controls. Robust Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

⁵For our main analysis we use the variable *raz1*, which takes value equal to 1 if "a request for a loan was refused to the household". The results are robust to using an alternative proxy for access to credit is *raz2*, which takes value equal to 1 when "the request for a loan refused or just partially granted or even was the loan not requested the household thought the request would be refused".

5 Robustness

5.1 Logit Regressions

As robustness, we re-do our estimations now using Logit regressions that allow for a non-linear setting. The advantage of this methodology is to have the predicted probability naturally bounded between 0 and 1, but it has the disadvantage of having estimates with a more difficult interpretation. We present regression results as odds ratios in the Appendix C.

Our findings using the non-linear specification are in line with the LPM results. First, after controlling for demographic characteristics the coefficient of the public-sector dummy is still significant, specially after 2008. Second, the various income and insurance variables are statistically significant, but unlike the baseline regression, the coefficient of the public-sector dummy after 2008, remains statistically significant after including all the variables, suggesting that part of the effect remains unexplained. Third, after controlling for demographic characteristics, having inherited the main residence does increase the probability of selection into the public sector. Fourth, after controlling for demographics, income and insurance, public-sector workers do not have a lower probability of having their loan request rejected.

5.2 Alternative Definition of Public Employment

As an additional robustness check, we estimate the Linear Probability Model using an alternative definition of public-sector employee ($dimaz=7$) described in Section 2. Tables A.7-A.10 in Appendix E show the various results, which are similar to the baseline case both qualitatively and quantitatively. We do not observe differences in terms of statistical significance for most coefficients or in terms of exploratory power of the regressions. There are only two notable differences. First, like with the Logit estimation, after including the income and insurance variables, the coefficient of the public-sector dummy after 2008, falls from 0.076 to 0.03, but it is still statistically significant. Second, after controlling for these variables in the regression of being refused a loan, the coefficient of the public-sector dummies still remain statistically significant.

6 Conclusion

We document that Italian public-sector workers are more likely to be homeowners than private-sector workers, and that this gap widened during the Great Recession. We find that demographic characteristics are important in explaining the difference, but cannot explain the widening of homeownership rates across sectors. We find that, income differences between sector and more job-security in the public-sector, reflected in a higher share of permanent contracts, explains most of the widening gap. We find that part of the mechanism works through the financial system, with workers with permanent contracts being less likely to be refused a loan. We do not find strong evidence that people are selected or self-select into the public sector based on inherited wealth.

The 2008 Great Recession and the more recent pandemic have left a heavy toll on government finances. In European countries, in 2020, government debt has increased by 10 percentage points to an average of 95 per cent. The pressure on government services, together with a rise in government debt, poses a challenge that, bar higher taxes, can only be solved with a more efficient human resource management. [Gomes \(2015\)](#) highlights a principle of optimal public-sector wages that the value of the job in the public sector should be aligned with the value of a job in the private sector. This principle implies that other compensating benefits of public-sector jobs, for instance, job security should be properly valued and reflected in lower relative pay. We show that part of the value of job security arises because it comes with a higher likelihood of becoming a homeowner.

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Appendix

A Data description of SHIW database

The Bank of Italy Survey is conducted every two years and the sample size of each wave is about 8000 units each year. The unit of observation is at the household (family) level. A household includes all people resident in the same dwelling who are connected by blood, marriage or adoption. The SHIW has a two stages sample design and it is consistent with the one used by National Institute of Statistics (ISTAT). The first stage consists on the selection of municipalities, the second stage on the selection of households. From 1989 onward, each version of the SHIW includes a component of households from a previous survey. The panel component of the sampling procedure is determined by the selection of municipalities in the first stage, and by the re-interview of these households in the second stage.

We deflate the data using a monetary revaluation coefficient provided by the SHIW.⁶ Household net wealth is defined as the sum of real assets and financial assets, net of financial liabilities. Household disposable income is composed by the sum of payroll income, pensions and net transfers, net self-employed income and property income.

⁶We use the weighting procedure suggested by Gambacorta (2007) adopting as weight measure PESOPOP, introduced in version 9.1 of the dataset.

Table A.1: Descriptive statistics

	<i>Public</i>			<i>Private</i>		
	Mean	Std.Dev.	Obs	Mean	Std.Dev.	Obs
Age	45.10	9.77	23249	40.96	11.36	65513
Sex (male)	0.46	0.50	23249	0.65	0.48	65513
College educated	0.33	0.47	23249	0.10	0.29	65513
Married	0.71	0.45	23249	0.62	0.49	65513
Area of birth (1-3)	2.11	0.89	22596	1.91	0.89	61126
Household size	3.26	1.22	23249	3.31	1.24	65513
Homeowner	0.76	0.42	23249	0.68	0.46	65513
Housing acquisition (1-3)	1.56	0.69	19016	1.59	0.71	47972
Property value (100000 euro)	1.78	1.71	18899	1.70	1.66	47657
Housing surface area (in m^2)	112.34	63.54	17578	116.35	96.48	43810
Was refused a loan	0.00	0.06	23249	0.01	0.09	65513
Foreign born	0.03	0.17	23249	0.07	0.25	65513
Migrated	0.07	0.26	23249	0.10	0.30	65513
Self-employed	1.04	0.20	23249	1.28	0.45	65513
Permanent contract	0.61	0.49	23249	0.52	0.50	65513
Wage quintile	3.58	1.24	23249	2.80	1.43	65513
Father education (1-7)	2.61	1.24	22176	2.32	1.23	61398
Father public sector	0.28	0.45	7133	0.13	0.34	22960
Risk aversion (1-4)	3.24	0.77	10886	3.32	0.76	32787

Note: descriptive statistics of variables used in the main analyses, distinguishing between public and private workers. Data source: SHIW.

Table A.2: Descriptive statistics before and after the 2008 economic crisis

	<i>Public pre-2008</i>			<i>Public post-2008</i>			<i>Private pre-2008</i>			<i>Private post-2008</i>		
	Mean	Std.Dev.	Obs	Mean	Std.Dev.	Obs	Mean	Std.Dev.	Obs	Mean	Std.Dev.	Obs
Age	43.48	9.42	15073	48.08	9.69	8176	39.52	11.29	40308	43.25	11.09	25205
Sex (male)	0.49	0.50	15073	0.41	0.49	8176	0.66	0.47	40308	0.64	0.48	25205
College educated	0.29	0.45	15073	0.40	0.49	8176	0.08	0.26	40308	0.13	0.33	25205
Married	0.73	0.44	15073	0.69	0.46	8176	0.63	0.48	40308	0.59	0.49	25205
Area of birth (1-3)	2.12	0.89	14782	2.09	0.90	7814	1.89	0.88	38673	1.94	0.89	22453
Household size	3.37	1.21	15073	3.06	1.20	8176	3.42	1.21	40308	3.14	1.25	25205
Homeowner	0.74	0.44	15073	0.80	0.40	8176	0.68	0.47	40308	0.69	0.46	25205
Housing acquisition (1-3)	1.58	0.71	12101	1.53	0.65	6915	1.61	0.73	29456	1.57	0.67	18516
Property value (100000 euro)	1.49	1.35	11997	2.28	2.11	6902	1.45	1.45	29177	2.10	1.87	18480
Housing surface area (in m^2)	112.99	65.95	11064	111.24	59.22	6514	117.14	105.02	26517	115.14	81.65	17293
Was refused a loan	0.00	0.07	15073	0.00	0.06	8176	0.01	0.08	40308	0.01	0.11	25205
Foreign born	0.02	0.14	15073	0.04	0.21	8176	0.04	0.20	40308	0.11	0.31	25205
Migrated	0.06	0.24	15073	0.09	0.28	8176	0.07	0.26	40308	0.14	0.34	25205
Self-employed	1.03	0.18	15073	1.05	0.22	8176	1.30	0.46	40308	1.24	0.43	25205
Permanent contract	0.47	0.50	15073	0.86	0.35	8176	0.41	0.49	40308	0.70	0.46	25205
Wage quintile	3.59	1.21	15073	3.56	1.28	8176	2.80	1.43	40308	2.82	1.42	25205
Father education (1-7)	2.56	1.28	14475	2.70	1.15	7701	2.28	1.31	38133	2.40	1.08	23265
Father public sector	0.28	0.45	4439	0.29	0.45	2694	0.13	0.34	14105	0.14	0.35	8855
Risk aversion (1-4)	3.14	0.78	2710	3.27	0.77	8176	3.24	0.77	7582	3.35	0.75	25205

Note: descriptive statistics of variables used in the main analyses, distinguishing between public and private workers and pre- and post-2008. Data source: SHIW.

B Additional graphs

Figure A.1: Homeownership comparison between public and private workers by sex & age



Figure A.2: Homeownership comparison public-private workers, by marital status & education



Figure A.3: Homeownership comparison between public & private workers, by macro-area & origin

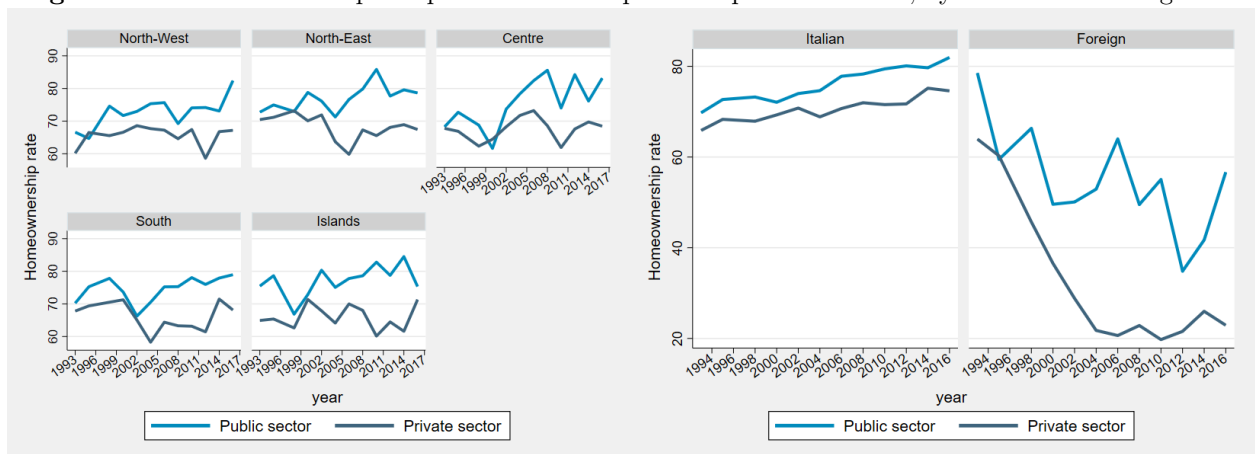


Figure A.4: Homeownership comparison between public and private workers, by region



Figure A.5: Comparison between public and private workers

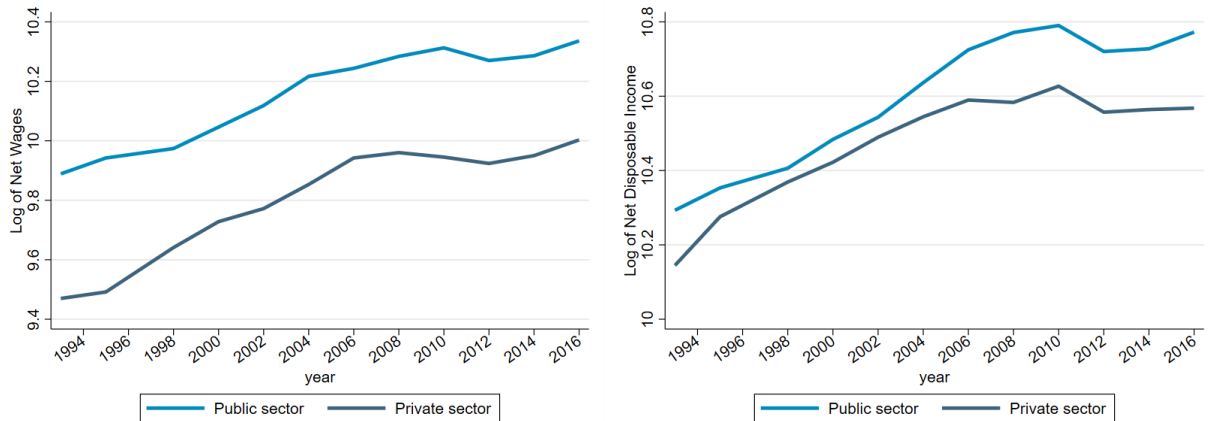


Figure A.6: Homeownership comparison between public and private workers, by wealth

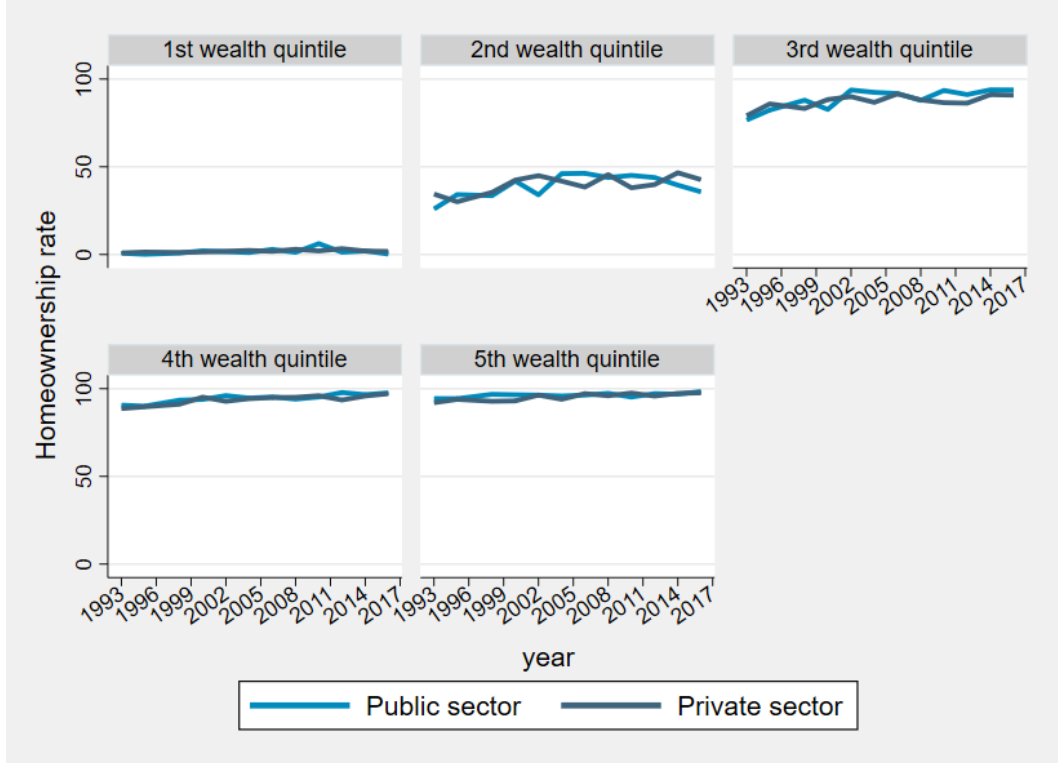


Figure A.7: Homeownership comparison between public and private workers, by income



Figure A.8: Homeownership comparison between public and private workers

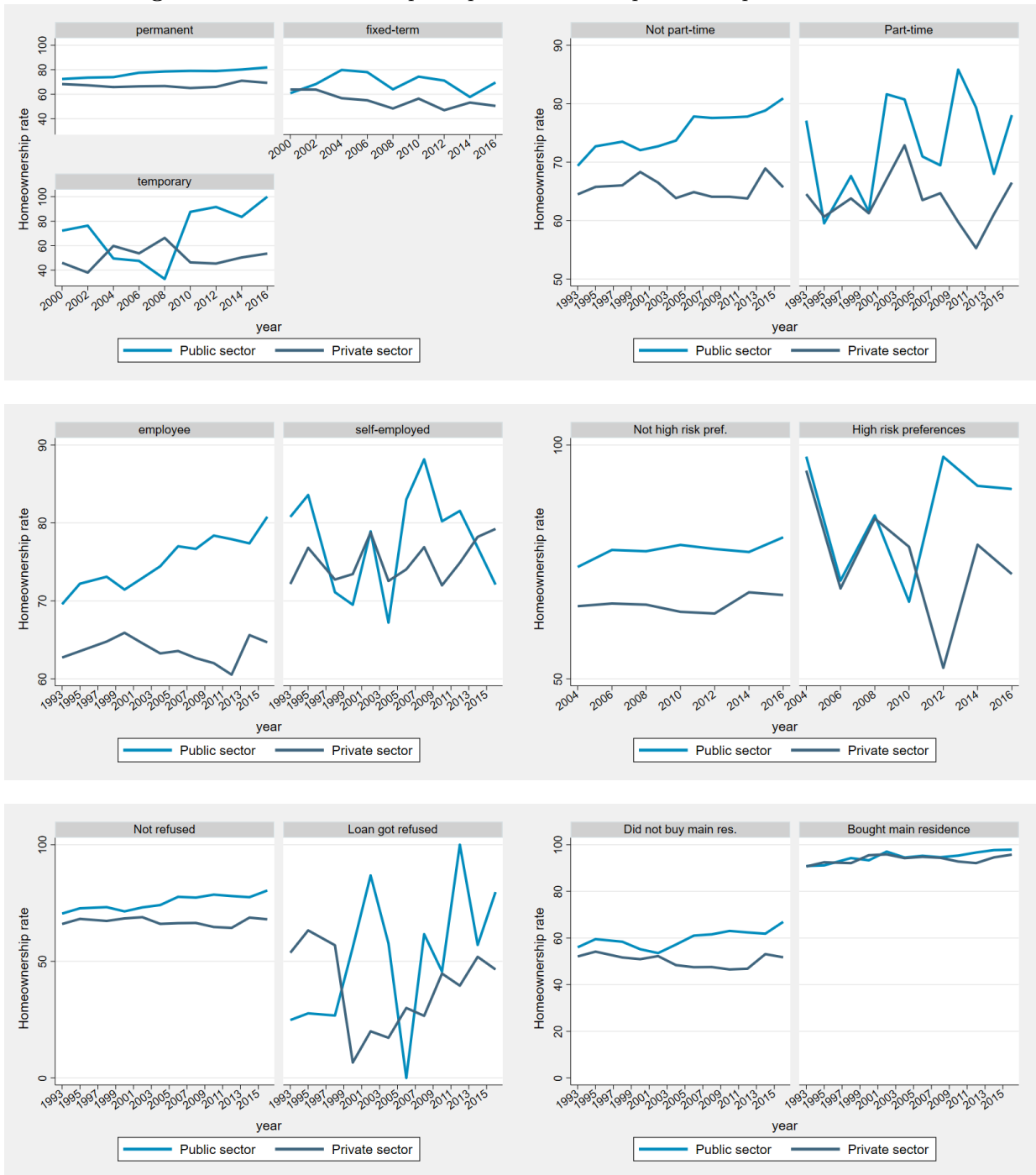


Figure A.9: Homeownership comparison between public & private workers

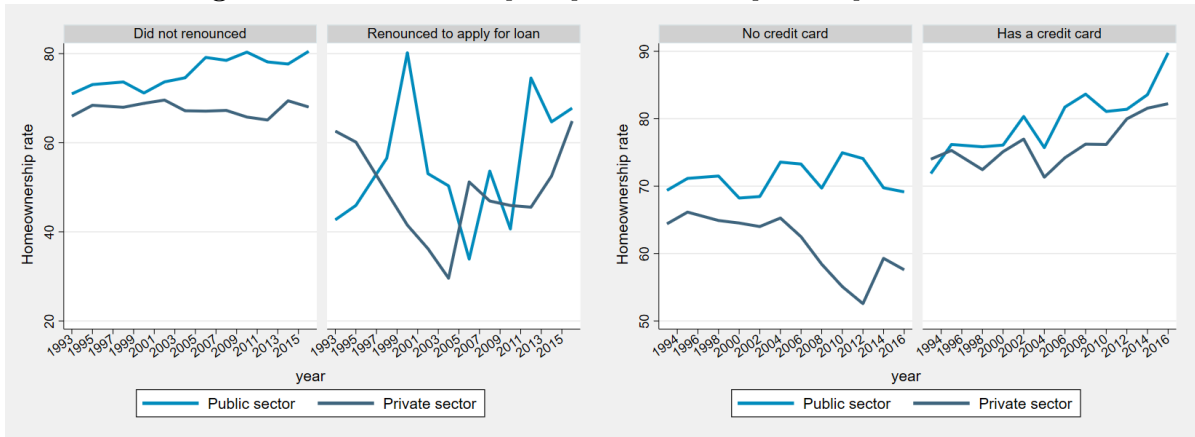


Figure A.10: % "Who Have renounced to a Loan" or "Have a Credit Card", by sector

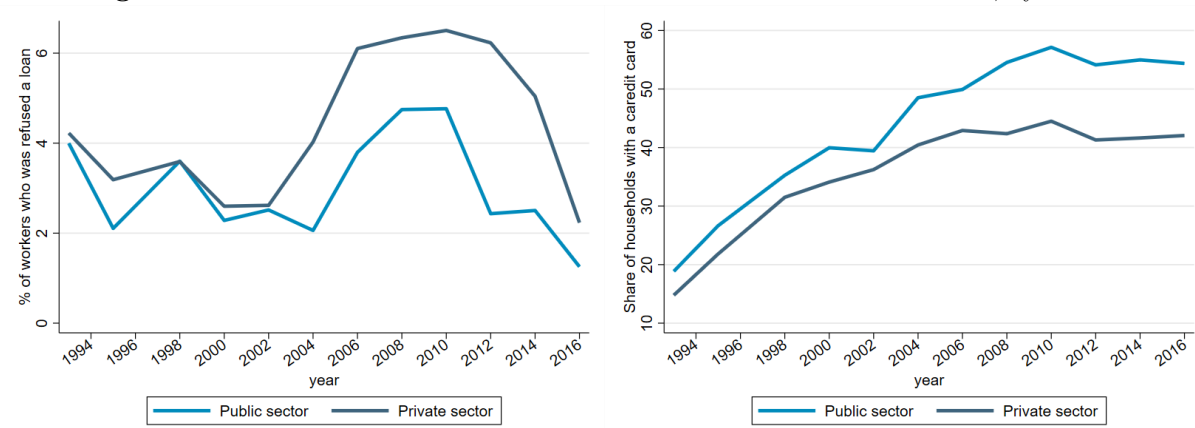
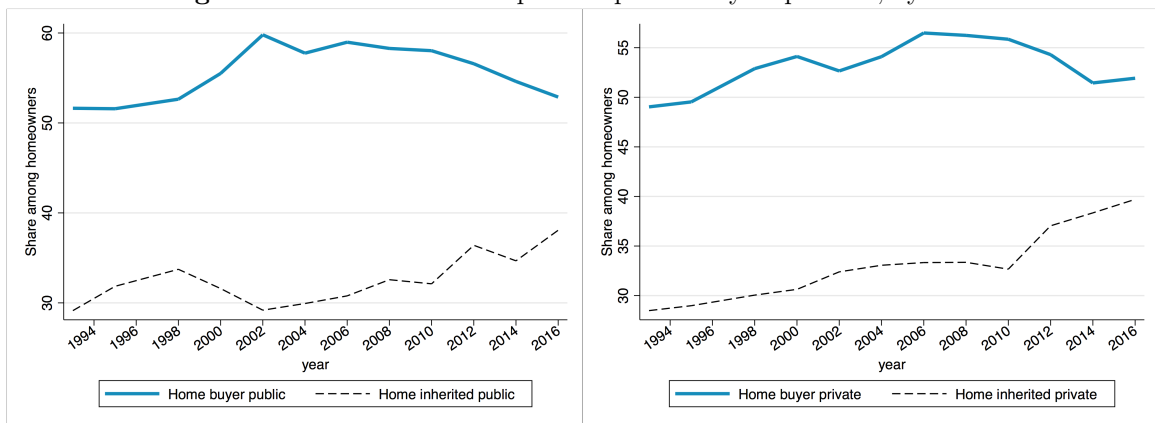


Figure A.11: Homeownership decomposition by acquisition, by sector



Note: The left panel shows the evolution of housing acquisition among public workers. The right panel shows the evolution of housing acquisition among private workers. Source: SHIW.

Figure A.13: Unemployment comparison, by sector

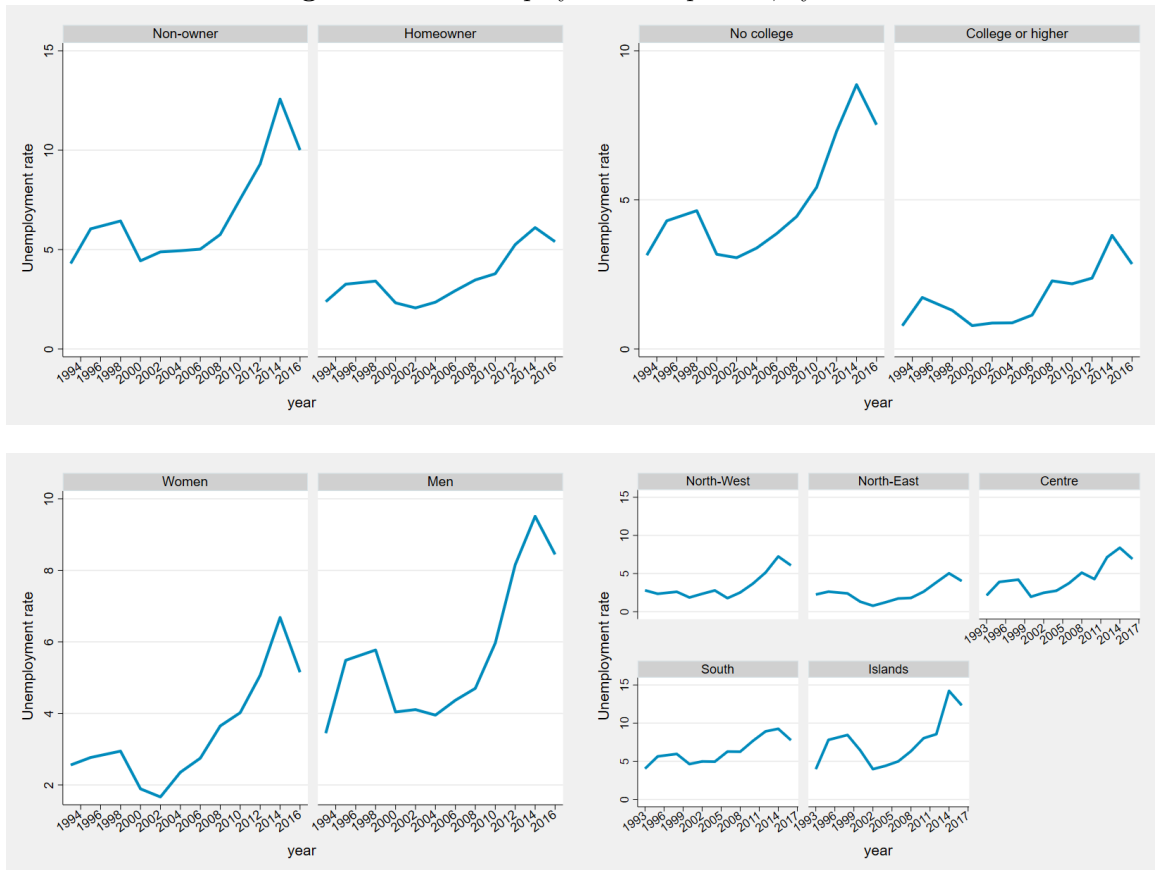
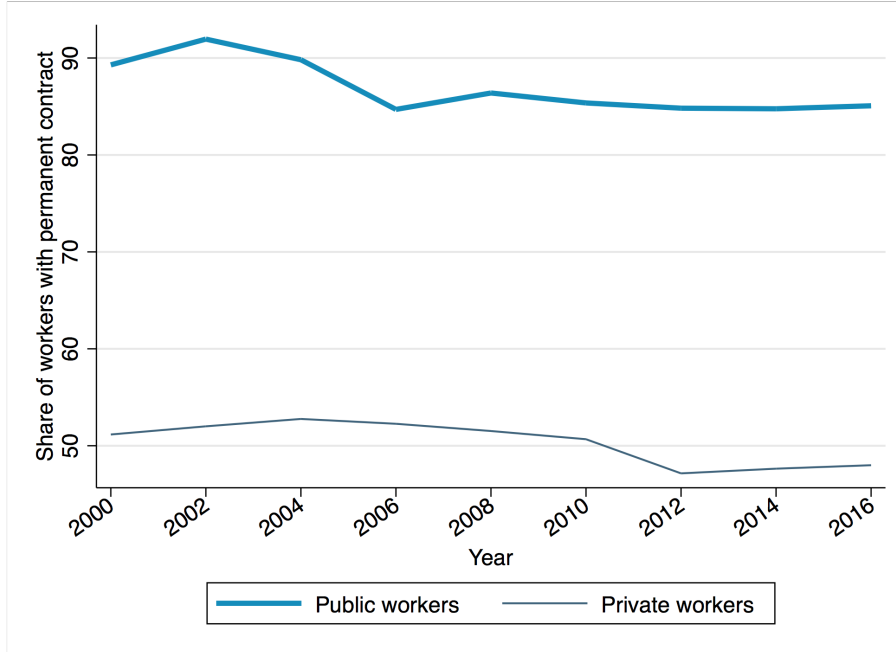


Figure A.12: Share with a permanent contract, by sector (data only from 2000)



C Results from Logit regressions

Table A.3: Conditional Logit Analysis, the Role of demographics

VARIABLES	(1) odds ratio	(2) odds ratio	(3) odds ratio	(4) odds ratio	(5) odds ratio	(6) odds ratio
Public employee	1.515*** (0.0586)	1.100** (0.0460)	1.084* (0.0452)	0.965 (0.0470)	0.965 (0.0471)	0.861*** (0.0454)
After 2008				0.847*** (0.0341)	0.917 (0.0722)	0.911 (0.0717)
Public#After 2008				1.342*** (0.0966)	1.341*** (0.0965)	1.350*** (0.0968)
Sex = 1, Men		0.951** (0.0237)	0.948** (0.0236)	0.951** (0.0237)	0.950** (0.0237)	0.952** (0.0237)
Age group = 31–40		1.031 (0.0455)	1.044 (0.0460)	1.052 (0.0463)	1.052 (0.0464)	1.053 (0.0463)
Age group = 41–50		1.515*** (0.0715)	1.556*** (0.0743)	1.568*** (0.0745)	1.570*** (0.0749)	1.567*** (0.0747)
Age group = 51–65		2.754*** (0.150)	2.853*** (0.160)	2.851*** (0.159)	2.856*** (0.160)	2.849*** (0.159)
Education = elementary		2.126*** (0.414)	2.137*** (0.409)	2.137*** (0.409)	2.142*** (0.409)	2.141*** (0.411)
Education = middle-school		2.407*** (0.458)	2.494*** (0.467)	2.515*** (0.471)	2.523*** (0.471)	2.517*** (0.473)
Education = high-school		4.435*** (0.857)	4.620*** (0.879)	4.665*** (0.887)	4.684*** (0.889)	4.668*** (0.890)
Education = bachelor		5.807*** (1.151)	6.113*** (1.195)	6.124*** (1.196)	6.153*** (1.200)	6.127*** (1.201)
Education = 6, post-graduate		6.861*** (1.899)	7.503*** (2.073)	7.220*** (1.996)	7.322*** (2.025)	7.298*** (2.029)
Married		0.858*** (0.0377)	0.852*** (0.0378)	0.850*** (0.0376)	0.851*** (0.0377)	0.848*** (0.0376)
Household size		1.300*** (0.0241)	1.296*** (0.0241)	1.296*** (0.0241)	1.296*** (0.0241)	1.294*** (0.0240)
Geographical area = North-East		1.139** (0.0676)	1.150** (0.0680)	1.148** (0.0680)	1.151** (0.0681)	1.148** (0.0679)
Geographical area = Centre		1.016 (0.0612)	1.021 (0.0614)	1.021 (0.0613)	1.023 (0.0615)	1.027 (0.0616)
Geographical area = South		0.907 (0.0563)	0.917 (0.0570)	0.918 (0.0571)	0.919 (0.0571)	0.920 (0.0571)
Geographical area = Islands		1.008 (0.0817)	1.013 (0.0819)	1.013 (0.0820)	1.015 (0.0820)	1.015 (0.0818)
Time trend						1.033*** (0.0117)
Constant	2.002*** (0.0441)	0.226*** (0.0464)	0.214*** (0.0441)	0.230*** (0.0466)	0.216*** (0.0446)	0.220*** (0.0455)
Observations	88,762	88,762	88,762	88,762	88,762	88,762
Year FE	X	X	✓	X	✓	✓

Note: the dependent variable is a dummy variable equal to 1 if the head of the household owns the main residence. Public employee is a dummy variable equal to 1 if the worker is employed in the public sector. After 2008 is a dummy variable equal to 1 if the year is ≥ 2008 . The table reports the odds ratio for each regressor. Column (1) shows the unconstrained model; columns (2)-(5) include demographic controls; columns (4)-(5) includes also the after 2008 dummy and its interaction with the public employee dummy. Columns (3) and (5) include time fixed effects. Column (6) includes also a public sector specific time trend. Robust Standard errors in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.4: Conditional Logit analysis, the role of income and insurance

VARIABLES	(1) odds ratio	(2) odds ratio	(3) odds ratio	(4) odds ratio	(5) odds ratio	(6) odds ratio	(7) odds ratio
Public employee	0.990 (0.0449)	1.048 (0.0569)	0.976 (0.0555)	0.931 (0.0488)	0.933 (0.0564)	0.922 (0.0584)	0.845*** (0.0542)
After 2008				1.284*** (0.105)	0.831** (0.0694)	1.111 (0.0981)	1.106 (0.0976)
Public#After 2008				1.172** (0.0862)	1.329*** (0.0959)	1.154* (0.0851)	1.159** (0.0852)
Foreign born	0.252*** (0.0299)		0.255*** (0.0302)	0.253*** (0.0301)		0.256*** (0.0303)	0.256*** (0.0304)
Migrated	0.763*** (0.0730)		0.761*** (0.0727)	0.762*** (0.0731)		0.760*** (0.0728)	0.761*** (0.0728)
Job qualification = office worker/school teacher	1.441*** (0.0695)		1.431*** (0.0691)	1.442*** (0.0696)		1.433*** (0.0692)	1.434*** (0.0692)
Job qualification = junior manager/cadre	1.432*** (0.124)		1.419*** (0.123)	1.433*** (0.124)		1.419*** (0.123)	1.427*** (0.124)
Job qualification = manager, senior official, self-employed	1.541*** (0.209)		1.535*** (0.208)	1.535*** (0.208)		1.531*** (0.207)	1.533*** (0.207)
Job qualification = member of the arts or professions	1.943*** (0.175)		1.996*** (0.182)	1.942*** (0.175)		1.994*** (0.182)	1.994*** (0.182)
Job qualification = sole proprietor	2.303*** (0.262)		2.379*** (0.273)	2.301*** (0.262)		2.375*** (0.272)	2.373*** (0.272)
Job qualification = freelance	1.782*** (0.104)		1.826*** (0.108)	1.776*** (0.104)		1.820*** (0.107)	1.818*** (0.107)
Job qualification = owner or member of a family business	2.707*** (0.296)		2.743*** (0.299)	2.691*** (0.294)		2.728*** (0.298)	2.724*** (0.297)
Job qualification = active shareholder/partner	2.328*** (0.244)		2.373*** (0.249)	2.318*** (0.243)		2.363*** (0.248)	2.361*** (0.248)
Net wage quintile = 2	1.061 (0.0589)		0.976 (0.0562)	1.061 (0.0588)		0.977 (0.0562)	0.978 (0.0563)
Net wage quintile = 3	1.140** (0.0667)		1.045 (0.0636)	1.139** (0.0666)		1.046 (0.0637)	1.046 (0.0636)
Net wage quintile = 4	1.528*** (0.0982)		1.399*** (0.0927)	1.526*** (0.0981)		1.401*** (0.0928)	1.395*** (0.0922)
Net wage quintile = 5	1.915*** (0.144)		1.745*** (0.135)	1.914*** (0.144)		1.747*** (0.135)	1.734*** (0.133)
High Unemployment region		0.875*** (0.0357)	0.885*** (0.0368)		0.874*** (0.0357)	0.885*** (0.0368)	0.884*** (0.0367)
High Unemployment reg.#Public		1.041 (0.0706)	1.039 (0.0720)		1.048 (0.0713)	1.043 (0.0724)	1.053 (0.0727)
Permanent contract		1.135*** (0.0490)	1.218*** (0.0584)		1.129*** (0.0488)	1.212*** (0.0582)	1.212*** (0.0582)
Time trend							1.023** (0.0115)
Constant	0.262*** (0.0559)	0.229*** (0.0479)	0.296*** (0.0640)	0.263*** (0.0562)	0.232*** (0.0484)	0.297*** (0.0643)	0.301*** (0.0653)
Observations	88,762	88,762	88,762	88,762	88,762	88,762	88,762
Year FE	✓	✓	✓	✓	✓	✓	✓
Demographic controls	✓	✓	✓	✓	✓	✓	✓

Note: the dependent variable, *Homeowner*, is a dummy variable equal to 1 if the head of the household owns the main residence. *Public employee* is a dummy variable equal to 1 if the worker is employed in the public sector. *After 2008* is a dummy variable equal to 1 if the year is ≥ 2008 . All specifications include demographic controls and time fixed effects. The table reports the odds ratio for each regressor. Columns (1), (3) and (6) include a set of additional individual characteristics and income level; columns (2), (3), (5) and (6) include controls for income risk. Column (7) includes a public sector specific time trend. Robust Standard errors in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.5: Conditional Logit analysis, the role of wealth

VARIABLES	(1) odds ratio	(2) odds ratio	(3) odds ratio	(4) odds ratio	(5) odds ratio
Inherited main residence	1.154*** (0.0454)	0.984 (0.0399)	1.046 (0.0618)	0.978 (0.0534)	1.145 (0.0980)
Sex = Men		0.443*** (0.0161)	0.463*** (0.0291)	0.422*** (0.0211)	0.472*** (0.0428)
Age group = 31–40		2.022*** (0.112)	2.112*** (0.195)	1.578*** (0.143)	1.745*** (0.275)
Age group = 41–50		3.268*** (0.197)	3.450*** (0.319)	2.550*** (0.232)	2.520*** (0.383)
Age group = 51–65		4.978*** (0.324)	4.666*** (0.465)	4.576*** (0.440)	4.388*** (0.690)
Education = elementary		0.961 (0.523)	0.762 (0.695)	0.362 (0.370)	0.0536** (0.0636)
Education = middle-school		3.752** (2.035)	2.395 (2.183)	1.405 (1.417)	0.362 (0.416)
Education = high-school		9.345*** (5.070)	4.766* (4.345)	3.428 (3.455)	0.735 (0.844)
Education = bachelor		26.73*** (14.54)	13.22*** (12.08)	10.13** (10.21)	2.087 (2.405)
Education = post-graduate		46.00*** (26.24)	18.33*** (17.56)	18.75*** (19.20)	2.699 (3.235)
Married		1.225*** (0.0564)	1.211*** (0.0864)	1.249*** (0.0787)	1.216* (0.133)
Household size		0.998 (0.0164)	0.972 (0.0219)	0.982 (0.0239)	0.987 (0.0367)
Geographical area = North-East		0.967 (0.0575)	0.993 (0.0840)	0.940 (0.0717)	0.937 (0.116)
Geographical area = Centre		1.244*** (0.0746)	1.323*** (0.109)	1.141 (0.0953)	1.182 (0.150)
Geographical area = South		1.975*** (0.119)	2.064*** (0.171)	1.835*** (0.146)	1.772*** (0.229)
Geographical area = Islands		2.196*** (0.178)	2.093*** (0.217)	2.203*** (0.245)	1.999*** (0.310)
Risk aversion = 2				0.733 (0.148)	0.798 (0.265)
Risk aversion = 3				0.722 (0.146)	0.776 (0.254)
Risk aversion = 4				0.747 (0.151)	0.866 (0.282)
Log(Net Wealth)				1.010 (0.0162)	0.965 (0.0227)
Father High ed.			0.847** (0.0649)		0.943 (0.102)
Father public sector			1.966*** (0.132)		1.893*** (0.191)
Constant	0.384*** (0.0160)	0.0340*** (0.0186)	0.0475*** (0.0446)	0.0801** (0.0846)	0.469 (0.571)
Observations	88,762	88,762	29,971	41,829	12,939
Year FE	✓	✓	✓	✓	✓

Note: the dependent variable, *Public employee*, a dummy variable equal to 1 if the worker is employed in the public sector. *Inherited the main residence* is a dummy variable equal to 1 if the household inherited the main residence. *Risk aversion* is a categorical variable with support between 1 (low aversion) and 4 (high aversion). *Father High ed.* and *Father public sector* are dummy variables equal to 1 respectively when the father of the head of the household has a college degree or higher and if was a public sector worker. The table reports the odds ratio for each regressor. Robust Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

Table A.6: Conditional Logit analysis, the role of financial constraints

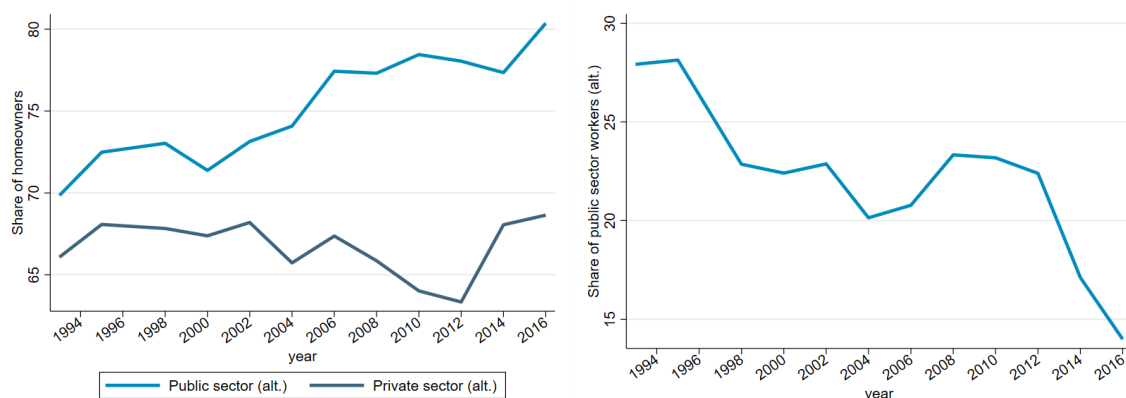
VARIABLES	(1) odds ratio	(2) odds ratio	(3) odds ratio	(4) odds ratio	(5) odds ratio
Public employee	0.484*** (0.0830)	0.619** (0.131)	0.888 (0.202)	1.170 (0.287)	0.867 (0.261)
After 2008		0.278*** (0.102)	0.375*** (0.142)	0.335*** (0.130)	0.489* (0.199)
Public#After 2008		0.574 (0.210)	0.651 (0.243)	0.662 (0.248)	0.749 (0.279)
Sex = Men			1.187 (0.152)	1.224 (0.164)	1.217 (0.162)
Age group = 31–40			1.500* (0.315)	1.376 (0.292)	1.421* (0.303)
Age group = 41–50			0.868 (0.190)	0.862 (0.183)	0.889 (0.188)
Age group = 51–65			0.723 (0.175)	0.787 (0.178)	0.817 (0.185)
Education = elementary			2.049 (1.361)	2.415 (1.621)	2.394 (1.604)
Education = middle-school			1.542 (1.005)	2.070 (1.359)	2.082 (1.367)
Education = high-school			0.730 (0.484)	1.252 (0.843)	1.264 (0.852)
Education = bachelor			0.348 (0.245)	0.724 (0.521)	0.705 (0.507)
Married			0.729* (0.127)	0.765 (0.136)	0.771 (0.137)
Household size			1.067 (0.0721)	1.155** (0.0706)	1.153** (0.0700)
Geographical area = North-East			1.108 (0.266)	1.066 (0.254)	1.084 (0.260)
Geographical area = Centre			1.304 (0.296)	1.198 (0.274)	1.153 (0.273)
Geographical area = South			1.943*** (0.422)	1.553** (0.345)	1.406 (0.342)
Geographical area = Islands			2.740*** (0.824)	2.169*** (0.633)	1.960** (0.633)
Foreign born				1.538 (0.704)	1.454 (0.662)
Migrated				1.243 (0.506)	1.254 (0.512)
Job qualification = office worker/school teacher				0.885 (0.182)	0.920 (0.190)
Job qualification = junior manager/cadre				0.306** (0.159)	0.318** (0.166)
Job qualification = manager, senior official, self-employed				0.811 (0.494)	0.838 (0.512)
Job qualification = member of the arts or professions				0.475 (0.223)	0.424* (0.202)
Job qualification = sole proprietor				0.753 (0.233)	0.668 (0.212)
Job qualification = freelance				0.969 (0.196)	0.883 (0.187)
Job qualification = owner or member of a family business				1.100 (0.390)	1.030 (0.363)
Job qualification = active shareholder/partner				0.324** (0.158)	0.293** (0.144)
Net wage quintile = 2				0.711* (0.135)	0.916 (0.187)
Net wage quintile = 3				0.542*** (0.112)	0.708 (0.162)
Net wage quintile = 4				0.408*** (0.109)	0.535** (0.155)
Net wage quintile = 5				0.181*** (0.0730)	0.244*** (0.0987)
High Unemployment region					1.067 (0.205)
High Unemployment reg.#Public					1.376 (0.483)
Permanent contract					0.490*** (0.0950)
Constant	0.0172*** (0.00329)	0.0165*** (0.00326)	0.00723*** (0.00533)	0.00694*** (0.00506)	0.00596*** (0.00434)
Observations	88,762	88,762	88,055	88,055	88,055
Year FE	✓	✓	✓	✓	✓

Note: the dependent variable, *Refused a loan*, is a dummy equal to 1 if the household was refused a loan for which applied. Column (1) controls only for time fixed effects; column (5) includes all controls. The table reports the odds ratio for each regressor. Robust Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

D Alternative specification of public workers

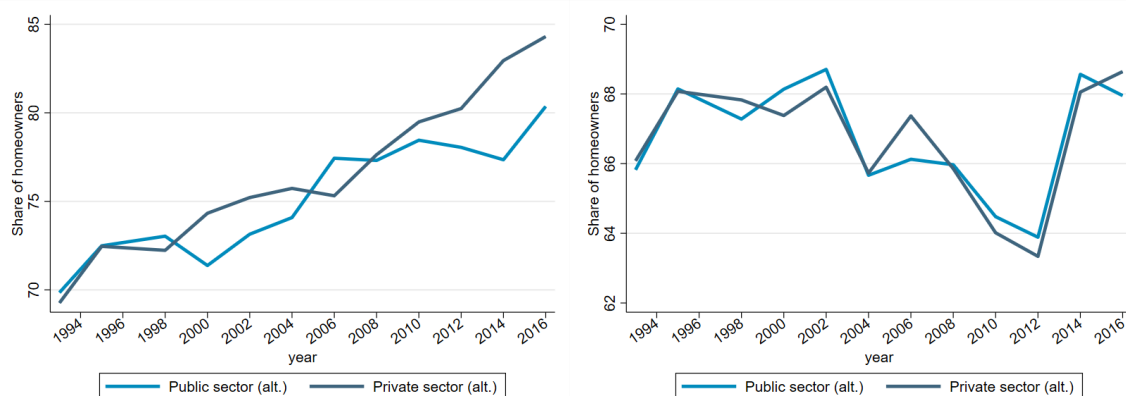
Figure A.15 show that the dynamics over time of homeownership rate among public and private workers is very similar using the main and the alternative definition of public sector worker from the SHIW database. The left panel of Figure A.14 instead, shows that the divergence in terms of homeownership rate between public and private workers is clear also using the alternative definition of public worker, even though the divergence seems to start already from 2004. Finally, the right panel of A.14 presents the evolution of public workers' share, using the alternative definition of public worker. This measure presents some differences with respect to the same measure with the main variable.

Figure A.14: Homeownership rate & public workers dynamics (alternative public worker definition)



Note: The left panel show the dynamics of homeownership share among public and private workers, using the alternative specification of public worker. Households are defined as homeowners if they own the main residence. The right panel shows the evolution of public workers' share, using the alternative specification of public worker. Source: SHIW.

Figure A.15: Homeownership rate comparison (alternative public worker definition)



Note: The left panel compares the evolution of homeowners' share among public workers with the main and alternative specification for defining public workers. The right panel compares the evolution of homeowners' share among private workers with the main and alternative specification for defining public workers. Source: SHIW.

D.0.1 LPM results using the alternative definition of public employee

Table A.7: Conditional Analysis, the role of demographics

VARIABLES	(1) Homeowner	(2) Homeowner	(3) Homeowner	(4) Homeowner	(5) Homeowner	(6) Homeowner
Public employee (alt.)	0.0947*** (0.00821)	0.0332*** (0.00826)	0.0313*** (0.00825)	0.000792 (0.0102)	0.000577 (0.0102)	-0.00560 (0.00971)
After 2008				-0.0358*** (0.00843)	-0.0145 (0.0158)	-0.0147 (0.0158)
Public (alt)#After 2008				0.0739*** (0.0142)	0.0757*** (0.0142)	0.0759*** (0.0142)
Sex = Men		-0.0120** (0.00493)	-0.0125** (0.00493)	-0.0123** (0.00493)	-0.0123** (0.00492)	-0.0109** (0.00497)
Age group = 31-40		0.00650 (0.00973)	0.00862 (0.00970)	0.0107 (0.00970)	0.0107 (0.00970)	0.0102 (0.00970)
Age group = 41-50		0.0867*** (0.0101)	0.0910*** (0.0102)	0.0933*** (0.0101)	0.0931*** (0.0102)	0.0920*** (0.0101)
Age group = 51-65		0.194*** (0.0105)	0.200*** (0.0108)	0.201*** (0.0106)	0.200*** (0.0107)	0.198*** (0.0108)
Education = elementary		0.172*** (0.0462)	0.173*** (0.0455)	0.174*** (0.0454)	0.174*** (0.0453)	0.175*** (0.0455)
Education = middle-school		0.189*** (0.0452)	0.195*** (0.0446)	0.198*** (0.0444)	0.198*** (0.0443)	0.197*** (0.0446)
Education = high-school		0.314*** (0.0455)	0.321*** (0.0449)	0.324*** (0.0447)	0.325*** (0.0447)	0.322*** (0.0449)
Education = bachelor		0.359*** (0.0460)	0.367*** (0.0454)	0.370*** (0.0452)	0.370*** (0.0451)	0.366*** (0.0455)
Education = post-graduate		0.384*** (0.0544)	0.399*** (0.0541)	0.393*** (0.0539)	0.394*** (0.0539)	0.389*** (0.0541)
Married		-0.0334*** (0.00917)	-0.0347*** (0.00924)	-0.0353*** (0.00921)	-0.0348*** (0.00923)	-0.0354*** (0.00924)
Household size		0.0522*** (0.00351)	0.0515*** (0.00352)	0.0517*** (0.00351)	0.0516*** (0.00351)	0.0515*** (0.00351)
Geographical area = North-East		0.0264** (0.0120)	0.0282** (0.0120)	0.0276** (0.0120)	0.0281** (0.0120)	0.0279** (0.0120)
Geographical area = Centre		0.00325 (0.0122)	0.00420 (0.0122)	0.00407 (0.0122)	0.00453 (0.0122)	0.00487 (0.0121)
Geographical area = South		-0.0208* (0.0126)	-0.0188 (0.0126)	-0.0186 (0.0126)	-0.0184 (0.0126)	-0.0190 (0.0126)
Geographical area = Islands		-0.000184 (0.0162)	0.000425 (0.0162)	0.000840 (0.0162)	0.00133 (0.0162)	0.000534 (0.0162)
Time trend						0.00305** (0.00136)
Constant	0.667*** (0.00483)	0.209*** (0.0476)	0.197*** (0.0478)	0.213*** (0.0469)	0.200*** (0.0475)	0.202*** (0.0478)
Observations	88,762	88,762	88,762	88,762	88,762	88,762
R-squared	0.007	0.062	0.063	0.064	0.064	0.064
Year FE	X	X	X	X	X	✓

Note: the dependent variable, *Homeowner*, is a dummy variable equal to 1 if the head of the household owns the main residence. *Public employee (alt.)* is a dummy variable equal to 1 if the worker is employed in the public sector, as defined by the variable *dimaz=7*. *After 2008* is a dummy variable equal to 1 if the year is ≥ 2008 . Column (1) shows the unconstrained model; columns (2)-(5) include demographic controls; columns (4)-(5) includes also the after 2008 dummy and its interaction with the public employee dummy. Columns (3) and (5) include time fixed effects. Robust Standard errors in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.8: Conditional analysis, the role of income and insurance

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Homeowner	Homeowner	Homeowner	Homeowner	Homeowner	Homeowner	Homeowner
Public employee (alt)	0.00875 (0.00820)	0.0240** (0.0108)	9.70e-05 (0.0106)	-0.00416 (0.0101)	-0.00730 (0.0124)	-0.0121 (0.0122)	-0.0153 (0.0116)
After 2008				0.0504*** (0.0153)	-0.0316* (0.0170)	0.0238 (0.0166)	0.0235 (0.0166)
Public (alt)#After 2008				0.0320** (0.0137)	0.0731*** (0.0142)	0.0285** (0.0138)	0.0287** (0.0138)
Foreign born	-0.310*** (0.0232)		-0.308*** (0.0232)	-0.308*** (0.0232)		-0.306*** (0.0231)	-0.306*** (0.0231)
Migrated	-0.0514*** (0.0188)		-0.0516*** (0.0187)	-0.0514*** (0.0188)		-0.0516*** (0.0187)	-0.0515*** (0.0187)
Job qualification =office worker/school teacher	0.0742*** (0.00937)		0.0733*** (0.00936)	0.0741*** (0.00937)		0.0732*** (0.00935)	0.0720*** (0.00943)
Job qualification = junior manager/cadre	0.0728*** (0.0151)		0.0711*** (0.0150)	0.0726*** (0.0151)		0.0709*** (0.0150)	0.0706*** (0.0151)
Job qualification = manager, senior official, self-employed	0.0730*** (0.0192)		0.0728*** (0.0192)	0.0724*** (0.0192)		0.0723*** (0.0192)	0.0712*** (0.0192)
Job qualification = member of the arts or professions	0.131*** (0.0156)		0.135*** (0.0157)	0.131*** (0.0157)		0.135*** (0.0157)	0.135*** (0.0157)
Job qualification = sole proprietor	0.164*** (0.0193)		0.168*** (0.0193)	0.164*** (0.0193)		0.168*** (0.0193)	0.169*** (0.0194)
Job qualification = freelance	0.119*** (0.0114)		0.122*** (0.0114)	0.118*** (0.0114)		0.122*** (0.0115)	0.123*** (0.0115)
Job qualification = owner or member of a family business	0.191*** (0.0176)		0.193*** (0.0176)	0.191*** (0.0176)		0.192*** (0.0176)	0.193*** (0.0176)
Job qualification = active shareholder/partner	0.165*** (0.0176)		0.167*** (0.0175)	0.164*** (0.0175)		0.166*** (0.0175)	0.167*** (0.0175)
Net wage quintile = 2	0.00609 (0.0110)		-0.0105 (0.0115)	0.00602 (0.0110)		-0.0101 (0.0115)	-0.00984 (0.0115)
Net wage quintile = 3	0.0228** (0.0116)		0.00551 (0.0121)	0.0227* (0.0116)		0.00588 (0.0121)	0.00609 (0.0121)
Net wage quintile = 4	0.0816*** (0.0124)		0.0641*** (0.0128)	0.0815*** (0.0124)		0.0646*** (0.0128)	0.0644*** (0.0128)
Net wage quintile = 5	0.115*** (0.0134)		0.0963*** (0.0138)	0.114*** (0.0134)		0.0964*** (0.0138)	0.0960*** (0.0138)
High Unemployment region		-0.0271*** (0.00850)	-0.0250*** (0.00803)		-0.0270*** (0.00850)	-0.0250*** (0.00803)	-0.0250*** (0.00803)
High Unemployment reg.#Public (alt)		0.00796 (0.0140)	0.0159 (0.0136)		0.0173 (0.0140)	0.0173 (0.0135)	0.0173 (0.0135)
Permanent contract		0.0228** (0.00905)	0.0362*** (0.00924)		0.0206** (0.00907)	0.0351*** (0.00927)	0.0353*** (0.00927)
Time trend							0.00177 (0.00135)
Constant	0.269*** (0.0453)	0.211*** (0.0482)	0.295*** (0.0457)	0.270*** (0.0452)	0.214*** (0.0480)	0.295*** (0.0457)	0.296*** (0.0458)
Observations	88,762	88,762	88,762	88,762	88,762	88,762	88,762
R-squared	0.125	0.064	0.126	0.125	0.065	0.126	0.126
Year FE	✓	✓	✓	✓	✓	✓	✓
Demographic controls	✓	✓	✓	✓	✓	✓	✓

Note: the dependent variable, *Homeowner*, is a dummy variable equal to 1 if the head of the household owns the main residence. *Public employee (alt.)* is a dummy equal to 1 if the worker is employed in the public sector, as defined by *dimaz=7*. *After 2008* is a dummy variable equal to 1 if the year is ≥ 2008 . All specifications include demographic controls and time fixed effects. Columns (1), (3) and (6) include a set of additional individual characteristics and income level; columns (2), (3), (5) and (6) include controls for income risk. Robust Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

Table A.9: Conditional analysis, the role of wealth

VARIABLES	(1)	(2)	(3)	(4)	(5)
	Public employee (alt.)	Public employee (alt.)	Public employee (alt.)	Public employee (alt.)	Public employee (alt.)
Inherited main residence	0.0380*** (0.00751)	0.0102 (0.00656)	0.0218** (0.00947)	0.00231 (0.00882)	0.0113 (0.0134)
Risk aversion = mid-low				-0.0474 (0.0416)	-0.0759 (0.0656)
Risk aversion = mid-high				-0.0468 (0.0420)	-0.0826 (0.0656)
Risk aversion = high				-0.0412 (0.0419)	-0.0645 (0.0654)
Log(Net Wealth)				0.00639*** (0.00198)	0.00816*** (0.00298)
Father High edu.			-0.0327*** (0.0125)		-0.0107 (0.0179)
Father public sector			0.178*** (0.0130)		0.181*** (0.0188)
Constant	0.271*** (0.00927)	-0.0875* (0.0449)	-0.0710 (0.0959)	0.00379 (0.121)	0.376** (0.183)
Observations	88,762	88,762	29,971	41,829	12,939
R-squared	0.010	0.122	0.131	0.116	0.134
Year FE	✓	✓	✓	✓	✓
Demographic controls	X	✓	✓	✓	✓

Note: the dependent variable is *Public employee (alt.)* is a dummy equal to 1 if the worker is employed in the public sector, as defined by the variable *dimaz=7*. *Inherited the main residence* is a dummy variable equal to 1 if the household inherited the main residence. *Risk aversion* is a categorical variable with support between 1 (low aversion) and 4 (high aversion). *Father High ed.* and *Father public sector* are dummy variables equal to 1 respectively when the father of the head of the household has a college degree or higher and if was a public sector worker. Robust Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

Table A.10: Conditional analysis, the role of financial constraints

VARIABLES	(1)	(2)	(3)	(4)	(5)
	Was refused a loan	Was refused a loan	Was refused a loan	Was refused a loan	Was refused a loan
Public employee (alt.)	-0.00396*** (0.00109)	-0.00131 (0.00138)	0.000697 (0.00149)	0.00223 (0.00148)	0.00300** (0.00145)
Public (alt.)#after 2008		-0.00651*** (0.00222)	-0.00583*** (0.00226)	-0.00490** (0.00221)	-0.00432** (0.00216)
After 2008		-0.00987*** (0.00303)	-0.00707** (0.00305)	-0.00790*** (0.00305)	-0.00314 (0.00368)
Foreign born				0.00666 (0.00436)	0.00627 (0.00431)
Migrated				0.00135 (0.00286)	0.00137 (0.00286)
Self-employed				-0.00238 (0.00170)	-0.00311* (0.00176)
Net wage quintile = 2				-0.00502** (0.00236)	-0.00210 (0.00254)
Net wage quintile = 3				-0.00774*** (0.00221)	-0.00467* (0.00247)
Net wage quintile = 4				-0.00954*** (0.00230)	-0.00649** (0.00254)
Net wage quintile = 5				-0.0112*** (0.00223)	-0.00803*** (0.00237)
High Unemployment Region					0.000813 (0.00155)
High UR#public (alt.)					-0.00164 (0.00215)
Permanent contract					-0.00667*** (0.00236)
Constant	0.0156*** (0.00272)	0.0148*** (0.00275)	0.00859 (0.00564)	0.0103* (0.00564)	0.00738 (0.00571)
Observations	88,762	88,762	88,762	88,762	88,762
R-squared	0.002	0.002	0.006	0.008	0.008
Year FE	✓	✓	✓	✓	✓
Demographic controls	X	X	✓	✓	✓

Note: the dependent variable is a dummy variable equal to 1 if the household was refused a loan for which applied. *Public employee (alt.)* is a dummy variable equal to 1 if the worker is employed in the public sector, as defined by the variable *dimaz=7*. The first column controls only time fixed effects. Robust Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

E Other results

Table A.11 presents our analyses considering three possible definitions of public employee: (i) one includes both the household's head and also members not-head of the household; (ii) another including only the household's head; (iii) finally a third which includes only members not-head of the household. The results for the interaction coefficient are very similar and we decided to adopt the broader definition that includes all members employed in public sector.

As additional robustness, we introduced a placebo dummy equal to 1 between 2002 and

Table A.11: Comparison of conditional analysis between public employee definiton

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Homeowner	Homeowner	Homeowner	Homeowner	Homeowner	Homeowner
Public employee (all)	0.0852*** (0.00756)			0.0535*** (0.0130)		
Public HH head		0.0313*** (0.00893)			-0.0663*** (0.0104)	
Public not HH head			0.122*** (0.00776)			0.0307*** (0.00966)
public (all)#after_2008				0.0534*** (0.0129)		
public.head#after_2008					0.0548*** (0.0157)	
public_not head#after_2008						0.0395*** (0.0136)
After 2008				-0.0194 (0.0159)	-0.0165 (0.0156)	-0.00725 (0.0155)
Sex = Men				-0.0114** (0.00503)	-0.00803 (0.00503)	-0.00597 (0.00527)
Age group = 31-40				0.0116 (0.00973)	0.0138 (0.00973)	0.0102 (0.00970)
Age group = 41-50				0.0951*** (0.0102)	0.0991*** (0.0102)	0.0936*** (0.0101)
Age group = 51-65				0.203*** (0.0109)	0.209*** (0.0109)	0.203*** (0.0107)
Education = elementary				0.175*** (0.0449)	0.175*** (0.0444)	0.174*** (0.0450)
Education = middle-school				0.200*** (0.0440)	0.202*** (0.0435)	0.196*** (0.0441)
Education = high-school				0.328*** (0.0443)	0.331*** (0.0438)	0.322*** (0.0444)
Education = bachelor				0.375*** (0.0449)	0.381*** (0.0443)	0.365*** (0.0448)
Education = post-graduate				0.402*** (0.0540)	0.415*** (0.0536)	0.399*** (0.0539)
Married				-0.0353*** (0.00923)	-0.0360*** (0.00923)	-0.0367*** (0.00925)
Household size				0.0515*** (0.00352)	0.0504*** (0.00352)	0.0505*** (0.00353)
Geographical area = North-East				0.0278** (0.0120)	0.0281** (0.0120)	0.0282** (0.0120)
Geographical area = Centre				0.00577 (0.0122)	0.00713 (0.0121)	0.00523 (0.0121)
Geographical area = South				-0.0164 (0.0126)	-0.0147 (0.0126)	-0.0180 (0.0126)
Geographical area = Islands				0.00297 (0.0161)	0.00538 (0.0161)	0.00121 (0.0161)
Time trend				0.00490*** (0.00154)	0.00672*** (0.00138)	0.00228 (0.00144)
Constant	0.667*** (0.00490)	0.684*** (0.00455)	0.674*** (0.00452)	0.200*** (0.0472)	0.197*** (0.0468)	0.198*** (0.0474)
Observations	88,762	88,762	88,762	88,762	88,762	88,762
R-squared	0.006	0.001	0.007	0.064	0.064	0.064
Year FE	X	X	X	✓	✓	✓

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

2006 together with the original after 2008 dummy, to test for possible structural break happening earlier in 2002. We find that the coefficient for the dummy and for its interaction with being public worker are statistically significant, but not at 5% level and the result for our original regressor of interest is not affected. Results replicating original Table (1) and (2) are reported in Table A.12 below:

Table A.12: Conditional Analysis, the Role of Demographics (2002-2006 and 2008 dummy)

VARIABLES	(1) Homeowner	(2) Homeowner	(3) Homeowner	(4) Homeowner	(5) Homeowner	(6) Homeowner
Public employee	0.0852*** (0.00756)	0.0166** (0.00797)	0.0136* (0.00793)	-0.0225** (0.0115)	-0.0223* (0.0115)	-0.0379*** (0.0117)
Dummy 2002-2006				-0.0109 (0.00927)	0.000431 (0.0147)	-0.000111 (0.0147)
Public#2002-2006				0.0316** (0.0152)	0.0313** (0.0152)	0.0280* (0.0152)
After 2008				-0.0393*** (0.00996)	-0.0222 (0.0162)	-0.0229 (0.0162)
Public#After 2008				0.0677*** (0.0151)	0.0672*** (0.0151)	0.0663*** (0.0151)
Sex = Men		-0.0114** (0.00504)	-0.0122** (0.00503)	-0.0116** (0.00504)	-0.0116** (0.00504)	-0.0113** (0.00504)
Age group = 31-40		0.00679 (0.00976)	0.00934 (0.00974)	0.0117 (0.00974)	0.0116 (0.00974)	0.0118 (0.00973)
Age group = 41-50		0.0880*** (0.0101)	0.0931*** (0.0102)	0.0957*** (0.0102)	0.0957*** (0.0102)	0.0954*** (0.0102)
Age group = 51-65		0.196*** (0.0106)	0.203*** (0.0109)	0.204*** (0.0108)	0.204*** (0.0109)	0.203*** (0.0109)
Education = 2, elementary		0.174*** (0.0458)	0.174*** (0.0451)	0.175*** (0.0450)	0.175*** (0.0449)	0.175*** (0.0450)
Education = middle-school		0.191*** (0.0449)	0.198*** (0.0442)	0.202*** (0.0440)	0.202*** (0.0440)	0.201*** (0.0441)
Education = high-school		0.318*** (0.0451)	0.326*** (0.0445)	0.330*** (0.0444)	0.330*** (0.0443)	0.330*** (0.0444)
Education = bachelor		0.364*** (0.0457)	0.374*** (0.0451)	0.377*** (0.0449)	0.377*** (0.0448)	0.376*** (0.0450)
Education = post-graduate		0.390*** (0.0544)	0.408*** (0.0540)	0.402*** (0.0540)	0.404*** (0.0539)	0.403*** (0.0541)
Married		-0.0328*** (0.00917)	-0.0343*** (0.00924)	-0.0349*** (0.00922)	-0.0347*** (0.00923)	-0.0354*** (0.00923)
Household size		0.0525*** (0.00351)	0.0518*** (0.00352)	0.0518*** (0.00351)	0.0517*** (0.00351)	0.0515*** (0.00351)
Geographical area = North-East		0.0262** (0.0120)	0.0281** (0.0120)	0.0278** (0.0120)	0.0282** (0.0120)	0.0278** (0.0120)
Geographical area = Centre		0.00377 (0.0122)	0.00477 (0.0122)	0.00469 (0.0122)	0.00513 (0.0122)	0.00587 (0.0122)
Geographical area = South		-0.0192 (0.0127)	-0.0170 (0.0127)	-0.0164 (0.0127)	-0.0162 (0.0127)	-0.0162 (0.0126)
Geographical area = Islands		0.00172 (0.0162)	0.00250 (0.0162)	0.00250 (0.0162)	0.00291 (0.0162)	0.00279 (0.0161)
Time trend						0.00458*** (0.00162)
Constant	0.667*** (0.00490)	0.206*** (0.0473)	0.195*** (0.0474)	0.213*** (0.0466)	0.200*** (0.0472)	0.202*** (0.0474)
Observations	88,762	88,762	88,762	88,762	88,762	88,762
R-squared	0.006	0.062	0.063	0.063	0.063	0.064
Year FE	X	X	✓	X	✓	✓

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.13: Conditional Analysis, the Role of Income and Insurance (2002-2006 and 2008 dummy)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Homeowner	Homeowner	Homeowner	Homeowner	Homeowner	Homeowner
Public employee	0.0852*** (0.00756)	0.0166** (0.00797)	0.0136* (0.00793)	-0.0225** (0.0115)	-0.0223* (0.0115)	-0.0379*** (0.0117)
Dummy 2002-2006				-0.0109 (0.00927)	0.000431 (0.0147)	-0.000111 (0.0147)
Public#2002-2006				0.0316** (0.0152)	0.0313** (0.0152)	0.0280* (0.0152)
After 2008				-0.0393*** (0.00996)	-0.0222 (0.0162)	-0.0229 (0.0162)
Public#After 2008				0.0677*** (0.0151)	0.0672*** (0.0151)	0.0663*** (0.0151)
Sex = Men		-0.0114** (0.00504)	-0.0122** (0.00503)	-0.0116** (0.00504)	-0.0116** (0.00504)	-0.0113** (0.00504)
Age group = 31-40		0.00679 (0.00976)	0.00934 (0.00974)	0.0117 (0.00974)	0.0116 (0.00974)	0.0118 (0.00973)
Age group = 41-50		0.0880*** (0.0101)	0.0931*** (0.0102)	0.0957*** (0.0102)	0.0957*** (0.0102)	0.0954*** (0.0102)
Age group = 51-65		0.196*** (0.0106)	0.203*** (0.0109)	0.204*** (0.0108)	0.204*** (0.0109)	0.203*** (0.0109)
Education = 2, elementary		0.174*** (0.0458)	0.174*** (0.0451)	0.175*** (0.0450)	0.175*** (0.0449)	0.175*** (0.0450)
Education = middle-school		0.191*** (0.0449)	0.198*** (0.0442)	0.202*** (0.0440)	0.202*** (0.0440)	0.201*** (0.0441)
Education = high-school		0.318*** (0.0451)	0.326*** (0.0445)	0.330*** (0.0444)	0.330*** (0.0443)	0.330*** (0.0444)
Education = bachelor		0.364*** (0.0457)	0.374*** (0.0451)	0.377*** (0.0449)	0.377*** (0.0448)	0.376*** (0.0450)
Education = post-graduate		0.390*** (0.0544)	0.408*** (0.0540)	0.402*** (0.0540)	0.404*** (0.0539)	0.403*** (0.0541)
Married		-0.0328*** (0.00917)	-0.0343*** (0.00924)	-0.0349*** (0.00922)	-0.0347*** (0.00923)	-0.0354*** (0.00923)
Household size		0.0525*** (0.00351)	0.0518*** (0.00352)	0.0518*** (0.00351)	0.0517*** (0.00351)	0.0515*** (0.00351)
Geographical area = North-East		0.0262** (0.0120)	0.0281** (0.0120)	0.0278** (0.0120)	0.0282** (0.0120)	0.0278** (0.0120)
Geographical area = Centre		0.00377 (0.0122)	0.00477 (0.0122)	0.00469 (0.0122)	0.00513 (0.0122)	0.00587 (0.0122)
Geographical area = South		-0.0192 (0.0127)	-0.0170 (0.0127)	-0.0164 (0.0127)	-0.0162 (0.0127)	-0.0162 (0.0126)
Geographical area = Islands		0.00172 (0.0162)	0.00250 (0.0162)	0.00250 (0.0162)	0.00291 (0.0162)	0.00279 (0.0161)
Time trend						0.00458*** (0.00162)
Constant	0.667*** (0.00490)	0.206*** (0.0473)	0.195*** (0.0474)	0.213*** (0.0466)	0.200*** (0.0472)	0.202*** (0.0474)
Observations	88,762	88,762	88,762	88,762	88,762	88,762
R-squared	0.006	0.062	0.063	0.063	0.063	0.064
Year FE	X	X	✓	X	✓	✓

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

We did the time dummy placebo test using also the alternative definition of public workers. In this case the interaction between the 2006-2006 dummy and being public employee is not significant, whereas our regressor of interest remain significant.

Table A.14: Conditional Analysis, the Role of Demographics (2002-2006 and 2008 dummy) , alt. public

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Homeowner	Homeowner	Homeowner	Homeowner	Homeowner	Homeowner
Public employee (alt.)	0.0947*** (0.00821)	0.0332*** (0.00826)	0.0313*** (0.00825)	-0.0115 (0.0120)	-0.0112 (0.0120)	-0.0169 (0.0117)
After 2002-2006				-0.00904 (0.00923)	0.00296 (0.0146)	0.00259 (0.0146)
Public (alt)#After 2002-2006				0.0290* (0.0173)	0.0283 (0.0174)	0.0272 (0.0173)
After 2008				-0.0401*** (0.00996)	-0.0179 (0.0160)	-0.0179 (0.0160)
Public (alt)#After 2008				0.0862*** (0.0161)	0.0875*** (0.0161)	0.0873*** (0.0161)
Sex = Men		-0.0120** (0.00493)	-0.0125** (0.00493)	-0.0122** (0.00493)	-0.0122** (0.00492)	-0.0109** (0.00498)
Age group = 31-40		0.00650 (0.00973)	0.00862 (0.00970)	0.0115 (0.00972)	0.0113 (0.00971)	0.0108 (0.00971)
Age group = 41-50		0.0867*** (0.0101)	0.0910*** (0.0102)	0.0939*** (0.0101)	0.0935*** (0.0102)	0.0923*** (0.0101)
Age group = 51-65		0.194*** (0.0105)	0.200*** (0.0108)	0.201*** (0.0107)	0.200*** (0.0107)	0.199*** (0.0108)
Education = elementary		0.172*** (0.0462)	0.173*** (0.0455)	0.175*** (0.0454)	0.175*** (0.0453)	0.175*** (0.0455)
Education = middle-school		0.189*** (0.0452)	0.195*** (0.0446)	0.200*** (0.0444)	0.199*** (0.0444)	0.198*** (0.0446)
Education = high-school		0.314*** (0.0455)	0.321*** (0.0449)	0.326*** (0.0447)	0.325*** (0.0447)	0.323*** (0.0450)
Education = bachelor		0.359*** (0.0460)	0.367*** (0.0454)	0.371*** (0.0452)	0.371*** (0.0452)	0.367*** (0.0455)
Education = post-graduate		0.384*** (0.0544)	0.399*** (0.0541)	0.394*** (0.0539)	0.395*** (0.0539)	0.390*** (0.0541)
Married		-0.0334*** (0.00917)	-0.0347*** (0.00924)	-0.0354*** (0.00922)	-0.0349*** (0.00923)	-0.0355*** (0.00923)
Household size		0.0522*** (0.00351)	0.0515*** (0.00352)	0.0517*** (0.00351)	0.0516*** (0.00351)	0.0514*** (0.00351)
Geographical area = North-East		0.0264** (0.0120)	0.0282** (0.0120)	0.0278** (0.0120)	0.0283** (0.0120)	0.0280** (0.0120)
Geographical area = Centre		0.00325 (0.0122)	0.00420 (0.0122)	0.00424 (0.0122)	0.00469 (0.0122)	0.00502 (0.0121)
Geographical area = South		-0.0208* (0.0126)	-0.0188 (0.0126)	-0.0183 (0.0126)	-0.0182 (0.0126)	-0.0187 (0.0126)
Geographical area = Islands		-0.000184 (0.0162)	0.000425 (0.0162)	0.000903 (0.0162)	0.00130 (0.0162)	0.000517 (0.0162)
Time trend						0.00300** (0.00136)
Constant	0.667*** (0.00483)	0.209*** (0.0476)	0.197*** (0.0478)	0.216*** (0.0470)	0.203*** (0.0476)	0.204*** (0.0479)
Observations	88,762	88,762	88,762	88,762	88,762	88,762
R-squared	0.007	0.062	0.063	0.064	0.064	0.064
Year FE	X	X	X	X	X	X

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.15: Conditional Analysis, the Role of Income and Insurance (2002-2006 and 2008 dummy), alt. public

VARIABLES	(1) Homeowner	(2) Homeowner	(3) Homeowner	(4) Homeowner	(5) Homeowner	(6) Homeowner	(7) Homeowner
Public employee	0.00875 (0.00820)	0.0240** (0.0108)	9.70e-05 (0.0106)	-0.00846 (0.0121)	-0.0176 (0.0142)	-0.0140 (0.0142)	-0.0168 (0.0138)
After 2002-2006				0.0406*** (0.0144)	-0.0144 (0.0159)	0.0133 (0.0157)	0.0129 (0.0157)
Public (alt)#After 2002-2006				0.0102 (0.0168)	0.0252 (0.0174)	0.00442 (0.0169)	0.00369 (0.0168)
After 2008				0.0491*** (0.0155)	-0.0341** (0.0171)	0.0234 (0.0167)	0.0232 (0.0167)
Public (alt)#After 2008				0.0363** (0.0159)	0.0837*** (0.0162)	0.0304* (0.0161)	0.0302* (0.0161)
Foreign born	-0.310*** (0.0232)		-0.308*** (0.0232)	-0.308*** (0.0232)		-0.306*** (0.0231)	-0.306*** (0.0231)
Migrated	-0.0514*** (0.0188)		-0.0516*** (0.0187)	-0.0514*** (0.0188)		-0.0516*** (0.0187)	-0.0516*** (0.0187)
Job qualification = office worker/school teacher	0.0742*** (0.00937)		0.0733*** (0.00936)	0.0741*** (0.00937)		0.0732*** (0.00936)	0.0720*** (0.00943)
Job qualification = junior manager/cadre	0.0728*** (0.0151)		0.0711*** (0.0150)	0.0726*** (0.0151)		0.0709*** (0.0150)	0.0706*** (0.0151)
Job qualification = manager, senior official, self-employed	0.0730*** (0.0192)		0.0728*** (0.0192)	0.0724*** (0.0192)		0.0723*** (0.0192)	0.0713*** (0.0192)
Job qualification = member of the arts or professions	0.131*** (0.0156)		0.135*** (0.0157)	0.131*** (0.0157)		0.135*** (0.0157)	0.135*** (0.0157)
Job qualification = sole proprietor	0.164*** (0.0193)		0.168*** (0.0193)	0.163*** (0.0193)		0.168*** (0.0193)	0.169*** (0.0194)
Job qualification = freelance	0.119*** (0.0114)		0.122*** (0.0114)	0.118*** (0.0114)		0.122*** (0.0114)	0.122*** (0.0115)
Job qualification = owner or member of a family business	0.191*** (0.0176)		0.193*** (0.0176)	0.190*** (0.0176)		0.192*** (0.0176)	0.193*** (0.0176)
Job qualification = active shareholder/partner	0.165*** (0.0176)		0.167*** (0.0175)	0.164*** (0.0175)		0.166*** (0.0175)	0.167*** (0.0175)
Net wage quintile = 2	0.00609 (0.0110)		-0.0105 (0.0115)	0.00595 (0.0110)		-0.0100 (0.0115)	-0.00980 (0.0115)
Net wage quintile = 3	0.0228** (0.0116)		0.00551 (0.0121)	0.0227* (0.0116)		0.00597 (0.0121)	0.00616 (0.0121)
Net wage quintile = 4	0.0816*** (0.0124)		0.0641*** (0.0128)	0.0814*** (0.0124)		0.0646*** (0.0128)	0.0644*** (0.0128)
Net wage quintile = 5	0.115*** (0.0134)		0.0963*** (0.0138)	0.114*** (0.0134)		0.0965*** (0.0138)	0.0961*** (0.0138)
High Unemployment region		-0.0271*** (0.00850)	-0.0250*** (0.00803)		-0.0269*** (0.00849)	-0.0250*** (0.00803)	-0.0249*** (0.00803)
High Unemployment reg.#Public (alt)		0.00796 (0.0140)	0.0159 (0.0136)		0.0114 (0.0140)	0.0173 (0.0135)	0.0174 (0.0135)
Permanent contract		0.0228** (0.00905)	0.0362*** (0.00924)		0.0200** (0.00910)	0.0349*** (0.00931)	0.0351*** (0.00930)
Time trend							0.00177 (0.00135)
Constant	0.269*** (0.0453)	0.211*** (0.0482)	0.295*** (0.0457)	0.271*** (0.0453)	0.216*** (0.0481)	0.296*** (0.0457)	0.297*** (0.0459)
Observations	88,762	88,762	88,762	88,762	88,762	88,762	88,762
R-squared	0.125	0.064	0.126	0.125	0.065	0.126	0.126
Year FE	✓	✓	✓	✓	✓	✓	✓
Demographic controls	✓	✓	✓	✓	✓	✓	✓

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1