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Tax Systems' Analysis

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IS INCOME REDISTRIBUTION A FORM OF INSURANCE, A PUBLIC GOOD OR BOTH? [*]

Peter Backus, Alejandro Esteller-Moré

ABSTRACT: This paper is an empirical study of redistributive preferences. Our interest is what motivates net contributors to support redistributive policies. Using instrumental variable estimation and exploiting a particularity of the Spanish labour market we estimate how workers' declared preferences for unemployment benefits spending respond to changes in the local unemployment rate. We then decompose this response into the part explained by risk aversion, and thus demand for insurance, and the part explained by the public goods nature of redistribution. Our results suggest that the declared preferences of workers for unemployment benefits spending are driven by demand for insurance rather than any public goods component. We show how these results suggest that preferences for redistribution in the form of unemployment benefits are driven by insurance considerations rather than by any public goods consideration.

MAIN RESULT: Workers' demand for unemployment benefits (UB) responds positively to changes in the local unemployment rate.
However, the origin of this demand is not due to workers' concern for the unemployed, but to a demand for insurance, as the relationship between the unemployment rate and demand for UB is present only for those workers who face a risk of becoming unemployed.
The estimation of this self-insurance motivation is reinforced by the fact that only cyclical unemployment is relevant to cause the demand of UB.

JEL Codes: D64, H53, H77
Keywords: Redistribution, Preference formation, Public goods

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1 Introduction

The redistribution of income is one of the primary activities of modern governments. Nearly every OECD country has a degree of progressiveness in their income tax system (OECD, 2008, p. 112) designed to redistribute income from the better off to the worse off indicating a preference among the population for redistribution. However, it remains unclear as to why, precisely, such systems are supported by the populace (Boeri, Börsch-Supan and Tabellini, 2001). Why do people support redistributive policies?

For net recipients of any redistribution, the answer may seem trivial, as such people materially benefit. Where the median voter is a net recipient we would expect to see redistributive policies in place (Meltzer and Richard, 1981) though this condition is not always met. For example, between 1979 and 2001, less than 45 percent of households in the United Kingdom, a country with a large and growing welfare state (Browne and Hood, 2012), were net recipients of redistribution (Bourne, 2012). This suggests that net contributors do not unanimously oppose redistributive policies. The interesting question is then, why not? Why do net contributors demand redistribution that imposes a cost on themselves?

Economists have identified a number of possible reasons why net contributors support redistributive policies including the demand for insurance, demand for redistribution as a public good, individual beliefs and social norms. Alesina and Giuliano (2009) note that the empirical disentanglement of these motives is difficult, albeit not 'fatally' so.

In this paper, we address this challenge directly and test for social preferences using data from outside the lab. Using a newly constructed data set, instrumental variables and a particularity of the Spanish labour market whereby public sector workers enjoy nearly inviolable job security, we disentangle the role of insurance from the public goods motive underlying the expressed preferences of net contributors, i.e. the employed, for public spending on unemployment benefits. We estimate the effect of individual unemployment risk and of the local unemployment rate on workers' declared preferences for redistribution via one instrument: unemployment benefits. We then decompose that effect into the part explained by risk aversion and demand for insurance and the part explained by the public good nature of redistribution. Our results suggest that in this case it is demand for insurance that drives declared preferences for redistribution. We find no evidence for the public goods motive.

We focus on unemployment benefits for five reasons. First, as Boadway and Oswald (1983) argue, 'casual observation suggests that policy-makers have in mind redistribution of income as at least one rationale for unemployment insurance' (p. 195). That is, unemployment benefits are, at least in part, an instrument for redistributing income.

Second, Kuzienko, Norton, Saez and Stantcheva (2013) argue that demand for general redistribution might not be too intense because people are unlikely to be aware of the level and changes in some more general inequality metric. The level of unemployment, however, is a clearly visible, often reported and simple to comprehend variable making it more likely that individuals will recognise any change and respond, assuming that they respond at all.

Third, in the case of unemployment, the instrument (unemployment benefits) and the target of the redistribution (the unemployed) are inextricably linked making it simpler to analyse the relationship between the two.

Fourth, unemployment benefits make up a significant amount of social spending. In 2010, expenditure on unemployment benefits by the 17 Euro area countries was about 6.1 per cent of total 'social protection' expenditure.[1]

Lastly, while Cowell and Schokkaert (2001) recommend that studies of preferences for redistribution be done in the laboratory and there is indeed a sizable experimental literature in this area (e.g. Fehr and Schmidt, 1999; Charness and Rabin, 2002; Durante, Putterman and van der Weele, 2013; and see Fehr and Schmidt (2006) for a survey). Those studies using survey data have tended to be based on very general questions about redistribution.[2] The constraint on lab experiments using an artificial setting to study redistributive preferences and studies using survey questions about redistribution in general is that they are limited in what they can say about particular redistributive policies and any attempt to make policy recommendations must consider the instrument through which redistribution occurs. As Piketty (1996) notes 'individuals

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[1] Based on the authors' calculations using data obtained from Eurostat (http://epp.eurostat.ec.europa.eu/portal/pls/portal/). The tables used in this calculation are available from the authors upon request. According to Eurostat the 'social protection' expenditure includes eight categories of spending: Sickness/Health care, Disability, Old age, Survivors, Family/children, Unemployment, Housing and Social exclusion not elsewhere classified.

[2] For example, studies using the World Values Survey (Alesina and Giuliano, 2009; Kerr, 2011) tend to use the question:
"Some people think that the government in Washington should do everything to improve the standard of living of all poor Americans (they are at point 1 on this card). Other people think it is not the government's responsibility, and that each person should take care of himself (they are at point 5). Where would you place yourself on this scale or haven't you made up your mind on this?". The question in the International Social Survey Programme (used by Corneo and Grüner, 2002) is "It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes.' Respondents can choose among 'strongly agree', 'agree', 'neither agree nor disagree', 'disagree', 'strongly disagree"'.

might well share the same "values" as far as distributive justice is concerned, but...they disagree about the way actual inequality between individuals is generated.' (p. 8). Such disagreement is also found in McCall and Kenworthy (2009) who show that while people object to increasing inequality and support government intervention to address the problem, they disagree about the appropriate instrument to do so. Thus, the relative importance of different motives underlying redistributive preferences may depend on the choice of redistributive instrument under consideration (Husted, 1990).

The rest of the paper is as follows: in Section 2, we outline a theoretical framework in which we interpret our results. In Section 3, we describe our data and discuss our identification strategy. Results are discussed in Section 4 Results are discussed and conclusions are drawn in Section56.

2   Preferences for redistribution

Economists have identified a number of reasons why net contributors support redistributive policies. First, demand for insurance may underlie preferences for redistribution. Net contributors may support redistributive polices in case they themselves become net recipients at some point. This explanation fits comfortably with standard notions of economic self-interest and redistribution as insurance has been studied extensively by economists (Barr, 1992; Sinn, 1995; Wright, 1996; Casamatta, Cremer and Pestieau 2000; Iversen and Soskice 2001; Moene and Wallerstein, 2001, 2003; De Donder and Hindricks, 2003; Boadway, Leite-Monteiro, Marchand and Pestieau, 2006; Zweifel, 2013). However, self interest manifested as demand for insurance is insufficient to fully describe preferences for redistribution (Fong, 2001)

Economists have therefore considered a second component to preferences for redistribution whereby net contributors derive utility from the welfare of others, directly or indirectly. Reasons why individuals might derive utility from the welfare of others are manifold. People may be inequality averse (Fehr and Schmidt, 1999), they may be altruistic (Rueda and Pontusson, 2010a) or their self-interest may be of the 'enlightened' variety.[3] While each of these characteristics have distinguishing features and separate, albeit related, development, generally an individual

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[3] For example, Alesina and Giuliano (2009) note that 'the level of inequality may affect crime and some people may be more or less subject to the risk of criminal activities' (p 1). So net contributors may be concerned with the level of inequality or the welfare of the poor but only insofar as it reduces the the exposure of the contributor to crime.

with any of them can be described as behaving as if their utility is a function of others' welfare to some degree.

The presence or absence of such argument in i's utility function has implications for the nature of redistribution. Redistribution has long been thought of as a public good. However, its status as a public good is contingent on the distribution of income, and implicitly the incomes of other people, entering the utility function (Thurow, 1971; Pauly, 1973; Mankiw, 2010).[4] That is redistribution is a public good if and only if, demand for it is driven by something other than risk aversion and demand for insurance alone. We therefore consider a 'public goods' motive in addition to the insurance motive.[5]

A simple model of redistributive preference formation

Our primary interest is in empirically estimating the responsiveness of declared preferences of workers for unemployment benefit spending to changes in the unemployment rate. To aid in the interpretation of our results and to give structure to the decomposition of the effect, we outline a simple theoretical model. We assume a continuum of agents normalised to 1. Of these agents, share $(1-u)$ will be employed and u will be unemployed and eligible for unemployment benefits where $0 < u < 1$. We are interested in the preferences of the employed agents. All employed agents earn the same (gross) labour income, y, and consume $c_e = (1-t)y$, where t is a payroll tax used to fund the unemployment benefit system and $0 < t < 1$.[6] Unemployed agents receive benefits, which allows them to consume $c_u = \beta y$, where β is the replacement rate, $0 \leq \beta < (1-t)$. That is, the effect of the choice variable, t, on the consumption of the unemployed is realised via β. A representative agent i derives utility from her own of consumption and we allow her

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[4] 'As long as people care about others to some degree, antipoverty programs are a type of public good.' (Mankiw, 2010, p 296)

[5] Preferences may also have a fixed component. For example, individual beliefs have been shown to be important. Such beliefs likely exhibit a degree of persistence. For example, religious beliefs are found to be important (Neustadt, 2011) in the formation of redistributive preferences. An individual's beliefs about potential socio-economic mobility (Piketty, 1995) and/or the relative roles of 'luck' and effort in determining outcomes (Fong, 2001; Alesina, Glaeser and Sacerdote, 2001; Alesina and Angeletos, 2005; Francon and Guillaud, 2011) have also been shown to be predictive of that individual's preferences for redistribution. There is evidence that these beliefs are formed early in life, a product of parental indoctrination (Esping-Andersen, 1999; Alesina and Giuliano, 2009) and the economic conditions one is raised in (Giuliano and Spilimbergo, 2014). While such beliefs can play a role in determining the level of demand for redistribution via unemployment benefits, our interest is in the responsiveness of this demand to changes in the level of unemployment, so any fixed component of preferences will drop out in the derivative. We therefore exclude fixed beliefs from our analysis and focus instead on the insurance and public goods motives.

[6] Until 2009, unemployment benefits were essentially fully funded out of social security contributions, but since then, due to the severity of the crisis and the high unemployment rate, those contributions fund about 50% of the unemployment benefit system (TC, 2012). To make up the diffference, the central government transfers resources - funded out of general taxes. For simplicity, though, we use a single tax to fund the unemployment benefits system in our model.

to possibly derive utility from the consumption of unemployed people as well, where $\theta_i \geq 0$ captures the degree to which i derives utility from j's consumption. Note the consumption of the unemployed as captured by, c_u^j, is non-rivalrous and non-excludable, i.e. a public good.

The timing of the model is as follows. We impose a veil of ignorance (Rawls, 1971) on agents such that, *ex ante*, they observe x, know that share u of all agents will be unemployed. The veil conceals the agents' *ex post* employment status, although each knows the probability that she will be unemployed, $p_i = p_i(x_i, u)$, where x_i is a vector of i's employment characteristics (e.g. education, occupation, industry of employment and sector of employment), $\partial p_i / \partial u \geq 0$ and $\bar{p} = u$. *Ex ante*, agents declare their preferred level of redistribution via unemployment benefits, t_i^*, given x_i, u and thus p_i.[7] While this set-up is highly artificial it provides an analogue to the situation where workers have a preferred level of benefits spending in the face of uncertainty about their continued employment and the prevailing level of unemployment.

The expected utility of agent i is:

$$E[U_i] \equiv (1 - p_i)U(c_e^i) + p_i U(c_u^i) + \theta_i \tilde{U}(c_u^j) \tag{1}$$

where there first term is the utility i derives from her own consumption if she is employed, the second term is the utility i derives from consumption if she is unemployed and the third term is the utility i derives from the consumption of others when they are unemployed.

The budget constraint of the unemployment benefit system is:

$$ty(1 - u) = \beta y u \tag{2}$$

Rearranging yields

$$\frac{1 - u}{u} t = \beta \tag{3}$$

where $\partial c_u / \partial t > 0$ and $\partial c_u / \partial u < 0$.[8] That is, β varies with t and u to ensure the budget constraint

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[7] We are interested in the declared preferences of workers and do not consider a political equilibrium though a simple approach would be for each agent reveals t_i^* at which point the veil is lifted, each agents' unemployment status is revealed and the realised $t = \bar{t^*}$.

[8] Changes in β occur in practice as budget constraints becomes binding. For example, before July 2012 $\beta = 0.7$ in Spain. At that time the Spanish government enacted a law such that the replacement rate remained at 70% only for the first six months of being unemployed, but from then on decreased from 60% till 50% (up to a maximum of 24 months). This constituted a change in β resulting from increased u and falling tax revenue (t remained constant). See http://www.fedeablogs.net/economia/?p=23617.

holds with equality.[9]

Substituting Equation 3 into Equation 1 and maximising it with respect to t yield the FOC:

$$\text{Marginal benefit} \qquad \text{Marginal cost} \qquad\qquad (4)$$

$$t_i^*: \quad \frac{1-u}{u}\left[p_i U_u' + \theta_i \tilde{U}_u'\right] \quad = \quad (1-p_i)U_e'$$

where primes stand for partial derivatives of a single variable; and assume utility is an increasing, concave function of consumption such that, $U''(.) < 0 < U'(.)$.[10] We assume that the marginal utility from i's own consumption when unemployed, U_u', is at least as large as the marginal utility i derives from j's consumption when j is unemployed, i.e. $U_u' \geq \tilde{U}_u' > 0$.

We the totally differentiate Equation 4 with respect to u, and substitute the FOC into it, yielding:

$$\frac{dt_i^*}{du} = \frac{t_i^*}{u}\left\{\frac{(1-u)\varepsilon_{p_i,u}^i \left[U_u' + \theta_i \tilde{U}_u'\right] + p_i U_u'\left[RA_i - 1\right] + \theta_i \tilde{U}_u'\left[IA_i - 1\right]}{(1-u)\left[\left(p_i U_u' RA + \theta_i \tilde{U}_u' IA\right]\right)}\right\} \geq 0 \qquad (5)$$

where $\varepsilon_{p_i,u}^i \equiv \frac{\partial p_i}{\partial u}\frac{u}{p_i} \geq 0$ is the sensitivity of i's own probability of employment to changes in u, $RA \equiv -\frac{U_u''}{U_u'}c_u^i \geq 0$ is a measure of relative 'risk aversion' à la Arrow-Pratt (Arrow, 1965) and, similarly, $IA \equiv -\frac{\tilde{U}_u''}{\tilde{U}_u'}c_u^j \geq 0$ accounts for i's 'inequality aversion' (Atkinson, 1970). Note that the sign of Equation 5 is unambiguously non-negative when $IA > 1$ and $RA > 1$ (Meyer and Meyer, 2005).

The first two terms in the numerator $\left((1-u)\varepsilon_{p_i,u}^i\left[U_u' + \theta_i\tilde{U}_u'\right] + p_i U_u'\left[RA - 1\right]\right)$ capture the insurance motive. Given an increase in u, i is more likely to be unemployed, and consume c_u, leading to a higher t_i^*. The more risk averse i is, the greater her demand for insurance. The last term $\left(\theta_i\tilde{U}_u'\left[IA - 1\right]\right)$ describes the public goods motive. This motive is a function of the degree to which i is public goods orientated, θ_i, and her inequality aversion (i.e., the larger the increase in i's marginal utility from changes to c_u^j, again due to the binding budget constraint of the system).

Our aim is to empirically estimate an analogue of $\frac{dt_i^*}{du}$ and to decompose the result into an insurance and a public goods component. Such a decomposition requires one of the motives to be held constant. The degree to which agents are public goods orientated (θ_i) is unobservable.

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[9] Moene and Wallerstein (2001) develops a more sophisticated model in which both t and β can be chosen and a political equilibrium is obtained.

[10] Note that fixed beliefs about t^* could be introduced here in the form of a constant on the left hand side, but, as noted above, we exclude fixed beliefs from the model for the sake of simplicity as their inclusion here would not change the predictions of the model we are interested in.

Our strategy therefore is to control for the risk of unemployment, p_i, and thus the insurance motive. To do so we exploit an institutional feature of the Spanish labour market.

In Spain public workers can hold civil servant status. These workers, known as *funcionarios*, formed three-quarters of the public sector work force in 2004[11] and their appointments are, by definition, life-long.[12] Other public sector workers on contracts (*personal laboral*) also enjoy a high degree of job security (Sanchez-Motos, 2007). This institutionalized job security can be used to hold the insurance motive underlying preferences for redistribution via unemployment benefits, as these workers face almost no risk of unemployment, $p \approx 1$ and $\varepsilon_{p,u} \approx 0$[13]. Then, we can consider two cases from the above framework:

These workers face a positive probability of becoming unemployed, $p_i > 0$ and this probability is a function of exogenous economic conditions, i.e. the unemployment rate, so $\varepsilon^i_{p_i,u} < 0$. As we cannot observe θ_i, if we estimated $\left.\frac{dt^*}{du}\right|_{private} > 0$, we would not be able to conclude anything about the underlying motives. As suggested above, to disentangle the motives we must hold one of them constant. We do this by considering the case of public sector workers.

These workers have no reason to demand redistribution as insurance as they cannot lose their job. Therefore, if we estimate a positive value of $\frac{dt^*}{du}$, then we would conclude that there is a public goods motive, i.e. $\theta_i > 0$, present in i's utility function. Conversely, if $\left.\frac{dt^*}{du}\right|_{public} = 0$, it would be consistent with the absence of a public goods motive, $\theta_i = 0$, a conclusion that could be generalised to all workers provided $\theta|_{public} \geq \theta|_{private}$. We discuss this final point in detail below.

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[11] According to 2013 data released by the *Boletín Estadística del Personal al servicio de las Administraciones Públicas*, they account for 64% of public workers.

[12] Although de iure *funcionarios* can be fired for insufficient performance (article 63, of the Law 7/2007, April 12th, Basic Statute of the Public Worker), de facto this is extremely rare (Sanchez-Motos, 2007).

[13] We also present empirical evidence on this below

3 Data and estimation

3.1 Data

We use survey and administrative data from Spain. Spain is an ideal setting for our study as unemployment benefits are homogenous across the country, labour mobility is low (Bentolila and Jimeno, 1998) and unemployment benefits are tied directly to a particular tax in the form of social security contributions. In Spain, Social Security contributions are collected from earned income and this revenue must be used to fund unemployment benefits.[14] This direct link arguably makes the cost of increasing unemployment benefits more salient as it would require an increase in Social Security tax.

Information on individuals' declared preferences for public spending, including on unemployment benefits, as well as individual level socio-economic characteristics are taken from the 2006-2010 waves of the Centro de Investigaciones Sociológica (CIS) survey. This annual survey in Spain is based on a nationally representative repeated cross section of 2,500 individuals and focuses on subjective perceptions of the tax system and publicly provided goods and services. Our interest is primarily in the expressed preferences for spending on unemployment benefits by *employed* respondents, 50.4% of the full sample. Respondents who are retired, studying, unemployed or out of the labour force are excluded from the main analysis.

In addition to the socio-economic characteristics, we observe the municipality of residence for each individual in the sample.[15] We add information at the municipal level including unemployment rates, home ownership rates, population, mean income for municipalities with at least 1,000 residents covering 98% of the population (detailed data are not available for the smaller municipalities). We also add information on crimes at the provincial level as these are not available at the municipal level. These data are collected from La Caixa and from the Instituto Nacional de Estatística (INE) in Spain. Comparable data are not available for Navarra and Pais Vasco and so these Autonomous Communities (ACs) are excluded from the analysis. We are left with a sample of 4,751 workers residing in 661 municipalities.

Table 1 presents descriptive statistics for worker-level and municipal-level variables by sector

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[14] Though as noted above unemployment benefits can be funded by general taxes as well

[15] Spain has three levels on sub-national administration. There are 17 Autonomous Communities (analogous to US sates) which nest 50 provinces (analogous to US counties) which nest 8,119 municipalities.

of employment.

In Panel A we present the descriptive statistics for the workers and in Panel B we present these for the municipal-level data. In column (1) we present the means and standard deviations (in brackets) for private sector workers and in column (2) we present the same for public sector workers. The final column shows the results of a t-test for the difference in the means with standard errors in brackets.

The first variable in Panel A of Table 1 (Prefers more UB) is our dependent variable. This dummy is based on a survey question on respondents' feeling about the current level of spending on unemployment benefits. The question allows for five possible (mutually exclusive) responses: 'too much', 'too little', 'just the right amount', 'unsure' and refusal to answer.[16] We have excluded those who are unsure or refuse to answer.

We define our dependent variable as equal to 1 if the respondent says 'too little' is spent on unemployment benefits and 0 otherwise. We take it as given that this means that they would prefer more money to be spent on unemployment benefits. We assume that respondents are aware of the mechanism through which unemployment benefits are funded (note that respondents are reminded that greater expenditure is funded via taxation), that is we assume that respondents know that there is no costless increase in public spending.

The second variable in Panel A, 'unemployment risk', is an estimate of each worker's probability of transitioning to unemployment based on their labour market characteristics. It is, in effect, an estimate of a workers idiosyncratic risk of unemployment; p_i, defined in Section 2, independent of the unemployment rate. To obtain this, we use the CIS sample of employed individuals (those in Table 1) plus the sample of individuals who are unemployed but previously had worked (i.e. those eligible for benefits or who left their job wilfully, but not retired people) as we observe the characteristics for current jobs (if employed) and for previous jobs (if unemployed). Using this sample we can estimate

$$p_i = w_i'\omega + \eta_i \tag{6}$$

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[16] In Spanish, the survey question reads as follows: "*Como Ud. sabe, el Estado destina el dinero que en España pagamos en impuestos a financiar los servicios públicos y prestaciones de las que venimos hablando. Dígame, por favor, si cree que el Estado dedica demasiados, los justos o muy pocos recursos a cada uno de los servicios que le voy a mencionar*". In English: "As you know, the state spends the money that we pay in taxes in Spain to finance public services and benefits about which we are speaking. Tell me, please, if you think the state spends too much, the right amount or too little on each of the services we will mention." One of the several publicly provided goods and services that is asked about is unemployment benefits.

where p_i is a dummy variable equal to 1 if i is currently unemployed and 0 if i is employed, w is a vector of i's employment characteristics including occupation[17], industry of employment[18] and level of education all interacted with the sector of employment and year effects, ω is a vector of parameters to be estimated and η_i is a well-behaved error term. We estimate Equation 6 via a probit and the predicted probabilities, $\widehat{p_i}$, constitute the 'unemployment risk' variable.

The probability of a public sector worker transitioning to unemployment is positive ($\bar{p}_i^{public} = 0.08$), but it is less than half that faced by private sector workers ($\bar{p}_i^{private} = 0.19$). Note that not all public sector workers will have *funcionario* status and thus lifetime employment. Importantly, the 'unemployment risk' for those in the public sector does not vary with the unemployment rate. Figure 1 plots the mean annual estimated unemployment risk for the public and private sectors and the official Spanish unemployment rate over time.

As the economy fell into recession and unemployment rose, the risk of transitioning to unemployment from a private sector job increased while that risk remained relatively constant for those in the public sector. The risk of becoming unemployed while working in the public sector is not only much lower, but is also not sensitive to changes in the unemployment rate, i.e. $\varepsilon_{p_i,u} \approx 0$.

As for the other individual-level characteristics (Panel A, Table 1), public sector workers are three years older, less likely to be male and more likely to be a household's primary earner. Public sector are more likely to have post-secondary education and less likely to have less than secondary education. Public sector workers are also more likely to identify themselves as left-leaning politically.

In Panel B of Table 1 we consider the characteristics of the municipalities where the public and private sector workers reside. The first variable in Panel B is the municipal unemployment rate, our regressor of interest. On average, private sector workers live in municipalities with slightly lower (half a percentage point) rates of unemployment. Otherwise public and private sector workers do not live in systematically different municipalities, at least as measured by the characteristics presented here. Note that no measure of individual or household income, shown to be important determinant of redistributive preferences (e.g. Alesina and Giuliano, 2009), is reported in the CIS, so we use mean municipal income, obtained from tax records, as a proxy for household income (more on this below).

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[17] Based on the 1979 National Classification of Occupations
[18] Based on the two-digit National Classification of Economic Activities.

The final variable in Panel B is the municipal home ownership rate which provides us with an instrument to aid identification of our model (discussed in detail below). Unfortunately, these rates are available only from census data in 2001 and 2011. We predict the homeownership rates in the intervening years regressing the homeownership rates from the two years we do observe them on the number of homes in each municipality annually, the log of total provincial mortgages (in Euros) annually and provincial fixed effects.[19]

3.2   Estimation

Our analysis aims to determine to what degree changes in the municipal unemployment rate are driving changes in expressed preferences for spending on unemployment benefits, other things being equal. To do so, we specify the following model of preferences for redistribution via unemployment benefits:

$$d_{ikt} = x'_{ikt}\beta_1 + m'_{kt}\beta_2 + \beta_3 u_{kt} + e_{ikt} \tag{7}$$

where d_{ikt} is the binary indicator for worker i in municipality k at time t which equals 1 if that worker believes 'too little' is spent on unemployment benefits, x_{ikt} is a vector of worker characteristics (age, gender, estimated 'unemployment risk', religion, presence of children in the household, marital status and whether or not the individual is household's primary earner) and β_1 is the corresponding vector of coefficients to be estimated, m_{kt} is a vector of municipality k's characteristics at time t (log population, log crimes (provincial), the log number of foreign residents, the home ownership rate and the log mean income), β_2 is the corresponding vector of coefficients to be estimated, u_{kt} is the unemployment rate in municipality k at time t, β_3 is the impact of the local unemployment rate on preferences for unemployment benefits where $sign\,(\beta_3) = sign\,(\partial t* / \partial u)$ and e_{ikt} is an error term.

OLS estimation of Equation 7 and the interpretation of the results is complicated by four factors: the presence of fixed effects, possible geographical sorting by workers, potential omitted variable bias caused by unobserved income at the individual level and possible sorting into sectors on unobservables.

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[19] The results from the regression used to obtain these predicted values is presented in the Appendix

There may be systematic regional differences in redistributive preferences. For example, regional social norms have been found to be important in the formation of redistributive preferences (Kuhn, 2011). If these norms vary across regions, then we must control for them. To do so we include AC fixed effects. We also include year fixed effects to control common shocks. This aids the identification of the effect of the unemployment rate rather than the effect of general macroeconomic changes that would correlate with the local unemployment rate.

Workers possibly sort themselves geographically according to their level of human capital. Those with larger endowments of human capital are more mobile than others (Stambøl, 2003) and may migrate towards the areas with better job opportunities, i.e. lower unemployment, such that $\frac{\partial Human\,capital}{\partial unemployment} < 0$. Such individuals, those with more education for example, have generally been found to prefer less redistribution (Alesina and Giuliano, 2009) so $\frac{\partial redistribution}{\partial Human\,capital} < 0$. As a result, OLS estimates of β_3 may be biased upwards. However, while such sorting may be a concern in theory, we note above that internal labour mobility in Spain is in fact very low. Nevertheless, such sorting is possible and must be appropriately considered.

A further bias may result from the fact that we do not observe $i's$ income. Income is a key variable in determining demand for redistribution in Meltzer–Richard model, though empirical results have been mixed. Some find little evidence of income forming redistributive preferences (Fong, 2001; Corneo and Grüner, 2002) while others (Alesina and Giuliano, 2009) find that it is important. By the Meltzer–Richard model, we expect $\frac{\partial redistribution}{\partial income} < 0$. We further expect a negative relationship between individual income and local unemployment rate $\frac{\partial income}{\partial unemployment} < 0$, as higher rates of unemployment will exert downward pressure on wages (Blanchflower and Oswald, 1994). Therefore OLS estimates of β_3 may be positively biased. This bias may be mitigated by the fact that we do control for a number of individual characteristics correlated with income, such as age, education, sector of employment, occupation and industry of employment (via $\widehat{p_w}$) as well as the mean income in each municipality.

We consider the fourth potential problem, sorting into sectors, below.

Instrumenting the unemployment rate

We address the potential bias of our estimate arising from omitted variables by using two-stage least squares (2SLS) instrumental variable estimation. To use 2SLS correctly we need an instrument which is both relevant (correlated with the local unemployment rate) and valid (uncorrelated with e_{ijt}).

We find such an instrument in Oswald (1996) and Blanchflower and Oswald (2013) who show that there is a significant relationship between the home ownership rate in time $t - s$ and the unemployment rate in time t. The evidence for the relationship comes from both inter and intra-national data. The authors outline a number of possible channels through which this effect might operate (e.g. increased rigidities in the labour market, decreased investment in infrastructure due to NIMBY[20]-ism).

The use of home ownership rates as an instrument requires that the home ownership rates in $t - s$ do not affect an individual's declared preference for unemployment benefit spending at time t, i.e. orthogonal to e_{ijt}. This exclusion restriction appears to be rather plausible to us particularly as we control for the rate of home ownership in each municipality in time t.

Under this exclusion we can express the first and second stage 2SLS equations as

$$\text{First Stage}$$
$$U_{kt} = x'_{ikt}\alpha_1 + m'_{kt}\alpha_2 + \alpha_3 OWNERSHIP\ RATE_{kt-3} + \nu_{ikt} \tag{8}$$

$$\text{Second stage (main equation)}$$
$$d_{ikt} = x'_{ikt}\tilde{\beta}_1 + m'_{kt}\tilde{\beta}_2 + \tilde{\beta}_3 \hat{U}_{kt} + \mu_{ikt} \tag{9}$$

where, $OWNERSHIP\ RATE_{kt-3}$ is the home ownership rate in municipality k in time $t-3$, $\hat{U}_{kt}$ are the predicted unemployment rates from the first stage and $\tilde{\beta}$ is the 2SLS estimate of β. We use the three period lag as this is the shortest lag Blanchflower and Oswald (2013) find to be consistently significant.

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[20] Not In My Back Yard.

Selection into sectors

The empirical disentanglement of the motives underlying preferences for unemployment benefits requires us to estimate our model separately for those working in the private and public sectors. Workers may sort into those sectors based on relevant unobservable characteristics such as the degree to which they are concerned with redistribution as a public good (θ). Such selection would lead to a bias that may not be expunged via the $2SLS$ approach outlined above. As we are not able to model selection into the sectors explicitly for lack of an identifying instrument, we must carefully consider the direction of the possible selection biases.

The existing evidence on the relative 'pro-socialness' of public and private sector workers is mixed. Some studies have found public sector workers to be more 'pro-social' than private sector workers (Houston, 2000; Banuri and Keefer, 2013) which seems consistent with greater concern for redistribution as a public good, i.e. $\theta^{Public} > \theta^{Private}$. Tonin and Vlassopoulos (2014), however, find no difference in pro-sociality between sectors, i.e. $\theta^{Public} = \theta^{Private}$. We have no direct measure of θ in our data, though public sector workers are more likely to self-identify as politically left-leaning, the end of the political spectrum traditionally associated with greater support for redistribution (Alesina and Giuliano, 2009).

Given the existing evidence, we assume $\theta^{Public} \geq \theta^{Private}$ so that selection into the public sector produces a positive bias in estimates of β_3^{public} and selection into the private sector produces a negative bias in estimates of $\beta_3^{private}$. Thus our estimates of β_3^{public} can be seen as an upper bound and of $\beta_3^{private}$ as a lower bound.

4 Results

We present our main results in Table 2, estimating the model using employed individuals. In column (1) we present the results obtained from estimating the model for all workers using OLS and in column (2) using 2SLS. For public sector workers we present the OLS and 2SLS results in columns (3) and (4), respectively, and for private sector workers in columns (5) and (6), respectively.

Bootstrapped standard errors (150 replications, clustered at the municipal level) are used

as we include variables that are predicted from first stage regressions (unemployment risk and home ownership). Results for the individual and municipal controls and full first stage results are presented in the Appendix.

We first consider all workers taken together. The results in column (1) indicate that those workers at greater 'unemployment risk' are more likely to prefer more spending on unemployment benefits. Mean municipal income is negatively related to preferences for more redistribution. The coefficient on the municipal unemployment rate is positive and statistically significant. However, as noted above, this estimate may be subject to bias.

In column (2) we estimate the same model using 2SLS. A first-stage F-test returns a test statistic of 35.73 (p-value=0.000) indicating that the instrument is relevant. We also test formally for the exogeneity of the municipal unemployment rate via a Durbin-Wu-Hausman (DWH) test (see Davidson and MacKinnon (1993), pp 241-242). We fail to reject the null hypothesis (p-value=0.991) that any endogeneity in the regressors does not have detrimental effects on the OLS estimator, i.e. OLS is consistent. The 2SLS results are extremely similar to the OLS results though the 2SLS result is statistically insignificant, the result of inflated standard errors rather than the diminished magnitude of the estimated effect.[21]

The estimated effect of the unemployment rate in column (1) suggests that preferences of workers for redistribution via unemployment benefits do indeed respond to changes in the level of unemployment. This result is consistent with the findings in Kerr (2011) that 'growth in inequality is met with greater concern over inequality, greater support for government-led redistribution to the poor, and greater support for more-progressive taxation' (p. 2). The estimated coefficient of 0.974 in column (1) indicates that 1 standard deviation increase in the municipal unemployment rate will lead to a 3.6 percentage point increase in the probability that employed residents will prefer increased spending on unemployment benefits, on average and *ceteris paribus*. This is similar in magnitude to the effect of being male ($\beta = -0.041^{***}$), not reported the Table 2.

To disentangle the insurance and public goods motivations underlying this effect, we estimate the model for private sector workers and public sector workers, who have no insurance motive, separately.

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[21] We also estimated the 2SLS models using the three-year lagged log of total provincial mortgages as the instrument as we observe this in each year. The results were not materially different using this approach and are available from the authors. .

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In column (3) we present the OLS estimates for public sector workers. Changes in the 'unemployment risk' have no effect for public sector workers most likely because workers in the Spanish public sector tend to enjoy virtually inviolable job security, thus limiting the effect of working in a more vulnerable industry/occupation or having less education. As noted above, this job security also eliminates the insurance motive underlying the expressed preferences for unemployment benefits spending. The OLS estimate of the effect of the unemployment rate is -0.270 and is statistically insignificant at conventional levels. This result is further supported by the 2SLS estimates in column (4) where the estimated coefficient is not only statistically insignificant (note the inflated standard errors) but becomes slightly more negative. The direction of the bias is consistent with that resulting from selection into the public sector by those who have higher θ's, i.e. are more pro-social. The diagnostics from the 2SLS estimation (1st stage F-test and DWH) indicate that the instrument is again relevant and that OLS is consistent.

OLS estimates for those in the private sector are presented in column (5). We find a positive and statistically significant effect of the risk of unemployment. We also find a negative effect of income. The OLS estimate of the effect of unemployment is positive and well defined, indicating that for private sector workers, higher levels of unemployment lead to increased support for unemployment benefit spending. The 2SLS results, column (6), again support this result as the coefficient on the unemployment rate increases, though is statistically insignificant, again due to inflated standard error. The direction of the bias is again consistent with that resulting from selection into the private sector by those who are less risk averse and/or have lower θ. The 2SLS diagnostic tests again suggest the instrument is relevant, satisfaction of the orthogonality condition is supported and that OLS is consistent.

Does the type of unemployment matter?

We further the analysis by distinguishing between the effects of structural and cyclical unemployment. The type of unemployment may matter for two reasons. First, the public goods motive may only be a function of cyclical unemployment. Alesina and Angeletos (2005) find that views about the relative importance of 'luck' and 'effort' in determining outcomes matter in the formation of redistributive preferences. In our application it may be that the structurally

unemployed are viewed as being unemployed due to lack of effort whereas those that are cyclically unemployed may be seen as victims of the vagaries of the labour market, i.e. bad luck. It is conceivable that the public good in this instance is the welfare of those suffering misfortune rather than all unemployed people and thus the public goods motive may only be a function of cyclical unemployment.

Second, the nature of unemployment benefits may depend on the nature of the unemployment. For those who are persistently, structurally unemployed, unemployment benefits are purely redistributive. If workers are responsive to varying levels of structural unemployment, it would be suggestive of a public goods motive. The impact of cyclical shocks on redistributive preferences conflate the insurance and public goods motives. If workers respond to cyclical shocks it may be due the changes in the income distribution that they wish to ameliorate or it may be due to changes in the risk that they themselves become unemployed. Demand for insurance may be a function of cyclical rather than structural unemployment.

We therefore look to estimate the effects of structural and cyclical unemployment by specifying the following model:

$$d_{ijt} = x_{ijt}^{'}\beta_1 + m_{jt}^{'}\beta_2 + \beta_3 U_{jt} + \beta_4 \bar{U}_t + e_{ijt} \tag{10}$$

which is the same as Equation 7 with the additional regressor $\bar{U}_t$ which is the time mean of the unemployment rate in each municipality. We interpret β_3 in equation 10 as the impact of cyclical unemployment and β_4 as the impact of structural unemployment rate on expressed preferences. Results are presented in Table 3.

The results for all workers (column (1)) suggest that the estimated effect of the unemployment rate on declared preferences for unemployment benefits spending is driven entirely by cyclical changes in the local unemployment rate. For public sector workers (column (2)) neither cyclical nor structural unemployment are significant suggesting that the public goods motive is not a function of either. For private sector workers (column (3)), the impact of cyclical unemployment is positive and significant and the impact of structural unemployment is negative and insignificant. Thus the insurance motive is a function of cyclical unemployment but not structural. While our theoretical framework does not distinguish between cyclical and structural unemployment, the intuition is that changes in the demand for insurance must be driven by shocks in labour market conditions, rather than any persistent rate of unemployment.

A placebo test

It may be the case that private sector workers favour increased public spending in an effort to stimulate economic growth and thus improve their job prospects and reduce the risk that they become unemployed. In this case the change in declared preferences for increased spending on unemployment benefits would not necessarily reflect an increase in the demand for insurance, but rather than increased demand for public spending in general.

To test this we conduct a placebo test allowing us to consider the possibility that in times of recession, and thus higher unemployment, individuals prefer more public spending on all public services, not just unemployment benefits. The CIS survey asks respondents for their view not only on unemployment benefits spending but also on a number of other public goods. We model preferences for spending on each of these. We generate a series of dummies which take a value of one if the respondent thinks 'too little' is spent on four other publicly provided goods/services: education, justice, health and security. We then replace our primary dependent variable with these dummies and re-estimate the model. Results are presented in Table 4.

The impact of the unemployment rate on expressed preferences for the public provision of these other goods/services is insignificant in each case.[22] These results suggest that we are measuring a particular relationship between the unemployment rate and preferences for unemployment benefits and not a more general relationship between the state of the economy and preferences for public expenditure.

5   Discussion and Conclusion

The redistribution of wealth is one of the primary activities of the public sector, controversial though it may be. The services provided by the state are rarely apportioned according to the amount of tax paid by an individual. The reasons why people demand such redistribution even when they are net payers into the system is not fully understood. In this paper we have set out to

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[22] We also estimated these models for public sector workers. The effect is negative for Education and Justice but only significant at the 10% level. It is insignificant for Health and Security

test the motivations underlying individuals' expressed preferences for one form of redistribution, unemployment benefits, and explore the extent to which such redistribution is a public good. Unemployment rates and demand for unemployment benefits provide a very good opportunity to study the relationship between distribution and demand for redistribution. Both unemployment and unemployment benefits are clearly defined and readily measurable. Moreover, the benefit (transfers to the unemployed) and the need (unemployment) are directly linked to one another. This is not necessarily the case for other forms of redistribution. Poverty reduction, for example, can be addressed via a number of policy instruments making it more difficult to draw a direct link between benefit and need.

In Table 1 we saw that about two-fifths of all workers would prefer to increase spending on unemployment benefits. The question we address is what underlies this preference? We set out to disentangle the insurance and the public goods motives. To do so we use data on workers in Spain, a country with an institution of near inviolable job security for public sector workers.

When considering all workers taken together we find that those facing greater idiosyncratic job insecurity are more likely to prefer increased spending on unemployment benefits. We also find a positive and significant relationship between the local unemployment rate and the preferred level of unemployment benefits spending. This suggests that preferences for redistribution do indeed respond to changes in the actual distribution of interest but does little to reveal the motivations underlying these preferences which we disentangle by estimating the model for public and private sector workers separately.

For public sector workers we are able to hold the insurance motive constant as the probability that they transition to unemployment, while not strictly 0, is not a function of the unemployment rate. If the preferences of public sector workers are responsive to changes in the unemployment rate, it would be due to demand for redistribution as a public good rather than by demand for insurance. Our results suggest that the preferences of public sector workers for unemployment spending are not a function of either their idiosyncratic risk of unemployment nor of local unemployment rates. While the absence of evidence in favour of a public goods motive may not, in this case, constitute compelling evidence of its absence, our result is consistent with absence

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of a public goods motive.[23]

When we estimate the model for private sector workers there is a positive effect of both the idiosyncratic unemployment risk and of the unemployment rate on preferences for unemployment benefits spending. Under the condition that public sector workers are at least as public goods orientated ('pro-social') as private sector workers, we can interpret this result, in conjunction with the absent effect for the public sector workers, as evidence of an insurance motive underlying preferences for redistribution via unemployment benefits. We find additional support for this finding when we consider varying effects of cyclical versus structural unemployment.

We have shown that changes in the local rate of unemployment have a significant and economically relevant effect on workers' expressed preferences for spending on unemployment benefits. We attempt to empirically disentangle the roles of fixed beliefs, demand for insurance and a public goods motive in forming preferences for redistribution. We outline a descriptive theoretical framework in which demand for redistribution is driven by three separate motives: beliefs, insurance and public goods. Workers may demand more generous unemployment benefits as a form of insurance against their own unemployment. Workers may also demand more generous unemployment benefits due to the potential public goods nature of redistribution. The existence of this last motivation is particularly important as it reveals information about how redistribution as a good is consumed by individuals. From an economic point of view, it is important to know whether individual preferences for redistribution via unemployment benefits incorporate a public goods component as failure to account for such motives may lead to an 'under-provision' of redistribution. The absence of such a motive has implications for the conception of redistribution as a public good (Thurow, 1971; Pauly, 1973; Ashworth et al., 2002; Dorsch and Graham, 2009). Therefore the identification of the motive underlying redistributive preferences is more than an academic exercise but can have policy implications as well.

It is important to note that while the results are consistent with the dominance of the insurance motive in determining preferences for redistribution via unemployment benefits, we cannot readily generalise to all redistributive instruments. It may be true that individuals view unemployment benefits as a type of insurance with little or no public goods component.

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[23] That public sector workers express a preference for any unemployment benefits spending at all, though not responding to changes in local unemployment, suggests that some form of 'fixed beliefs' or social norms underlie their redistributive preferences. Unfortunately, we cannot say to what extent these beliefs represent some for of altruism, adherence to social norms, beliefs about the relative importance of luck and effort or about social mobility. This second-order decomposition is beyond the scope of the current paper.

This does not mean that all forms of redistribution are viewed as equal and that public goods motivations do not drive demand for other forms of redistribution (e.g. food stamps, progressive income tax, social housing). That the evidence presented here suggests the absence of a public goods motive in preferences for redistribution and in light of the fact that there is evidence in favour of a public goods motive, in some form, underlying preferences for redistributive in general (e.g. Corneo and Grüner, 2002) suggests that future work may focus on study formation of redistributive preferences with respect to particular instruments rather than preferences for redistribution in general.

Appendix

First-stage results

	(1)	(2)	(3)	(4)
		First-stage results		
Log total mortgages	0.065***			
	(0.013)			
Log municipal homes	-0.016***			
	(0.006)			
Primary earner		-0.001	-0.001	-0.000
		(0.001)	(0.002)	(0.001)
Catholic		0.001	0.001	0.001*
		(0.001)	(0.001)	(0.001)
Married		-0.000	-0.001	-0.000
		(0.001)	(0.002)	(0.001)
Children under 23		0.002***	0.001	0.002***
		(0.001)	(0.002)	(0.001)
Log age		-0.002*	-0.000	-0.002*
		(0.001)	(0.003)	(0.001)
Male		0.001	0.001	0.000
		(0.000)	(0.001)	(0.001)
Politically Left		0.000	-0.002	0.000
		(0.001)	(0.002)	(0.001)
Unemployment Unemployment risk		0.008	0.013	0.005
		(0.005)	(0.012)	(0.006)
Log income		-0.001	0.003	-0.001
		(0.002)	(0.004)	(0.001)
Log municipal pop.		0.002**	0.002**	0.002**
		(0.001)	(0.001)	(0.001)
Log foreign residents		0.001	0.001	0.001
		(0.001)	(0.001)	(0.001)
Log provincial crimess		0.003***	0.002	0.003***
		(0.001)	(0.001)	(0.001)
Log municipal area		-0.002*	-0.003*	-0.002
		(0.001)	(0.002)	(0.001)
Home ownership (t-3)		0.974***	0.880***	1.002***
		(0.164)	(0.190)	(0.175)
Observations	92	4751	907	3844
R^2	0.751	0.101	0.117	0.098
Municipal controls	No	Yes	Yes	Yes
Individual controls	No	Yes	Yes	Yes
Year FE	No	Yes	Yes	Yes
AC FE	No	Yes	Yes	Yes
Provincial FE	Yes	No	No	No

Note: In column (1) we present the results from the model used to predict home ownership rates. In columns (2)-(4) we present the first-stage results from our instrumental variable estimation. Standard errors are clustered at the municipal level. Stars indicate statistical significance according to the following schedule: *** 1%, ** 5% and * 10%.

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Tables and Figures

Table 1: *Descriptive statistics*

	(1)	(2)	(3)
Panel A: Individual characteristics			
	Sector		
	Private	**Public**	**Difference**
Prefers more UB^d	0.422	0.346	0.076***
	(0.494)	(0.476)	(0.018)
Unemployment risk ($\widehat{p_w}$)	0.185	0.079	0.106***
	(0.087)	(0.075)	(0.003)
Catholic^d	0.681	0.677	0.004
	(0.466)	(0.468)	(0.017)
Married^d	0.546	0.579	-0.033
	(0.498)	(0.494)	(0.018)
Child under 23^d	0.443	0.459	-0.015
	(0.497)	(0.499)	(0.018)
Age	38.454	41.279	-2.825***
	(11.384)	(10.961)	(0.418)
Male^d	0.592	0.509	0.083***
	(0.491)	(0.500)	(0.018)
Primary earner^d	0.672	0.725	-0.054**
	(0.470)	(0.447)	(0.017)
High school only^d	0.363	0.287	0.077***
	(0.481)	(0.452)	(0.018)
Post-High school^d	0.214	0.537	-0.323***
	(0.410)	(0.499)	(0.016)
Politically leftist^d	0.230	0.283	-0.053***
	(0.420)	(0.452)	(0.016)
Panel B: Municipal characteristics			
Municipal unemployment	0.089	0.094	-0.005***
	(0.037)	(0.038)	(0.001)
Population	479.687	491.446	-11.760
	(931.746)	(928.067)	(34.331)
Foreign residents	785.898	787.032	-1.135
	(632.901)	(555.099)	(22.846)
Provincial crimes ('000)	84.728	84.976	-0.248
	(114.790)	(112.895)	(4.213)
Mean income (€'000)	17.700	17.511	0.189
	(5.812)	(5.806)	(0.214)
Home ownership rate	0.823	0.819	0.003
	(0.066)	(0.063)	(0.002)
Workers	3844	907	

Notes: The superscript (^{d}) indicates that the variable is a dummy. The bracketed values are standard deviations in the first two columns and the standard error of the difference between the means in the third column. Stars indicate statistical significant difference between the mean value for the private sector and for the public sector according to the following schedule: *** 1%, ** 5% and * 10%.

Figure 1: Unemployment and unemployment risk $(\widehat{p_w})$ over time
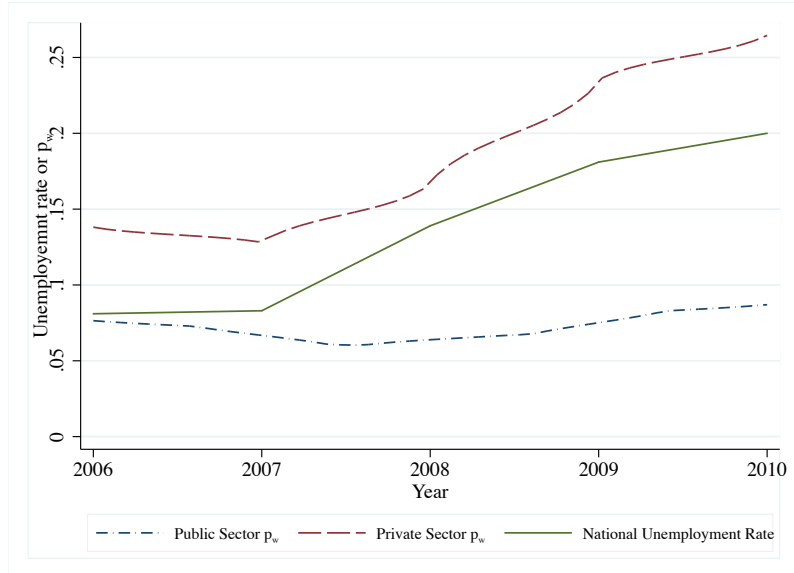
Notes: The 'unemployment risk' variable is not directly comparable to the unemployment rate as the 'unemployment risk' for the public and private sectors is the probability that a worker in either sector becomes unemployed. The official unemployment rate is obtained from the INE.

Table 2: Baseline results

	(1)	(2)	(3)	(4)	(5)	(6)
	All workers		Public Sector		Private Sector	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
Unemployment risk ($\hat{p_w}$)	0.520***	0.451***	0.326	0.331	0.530***	0.529***
	(0.082)	(0.097)	(0.223)	(0.236)	(0.115)	(0.126)
Log income	-0.035	-0.035	-0.002	-0.001	-0.038*	-0.037
	(0.025)	(0.026)	(0.057)	(0.075)	(0.020)	(0.024)
Municipal Unemployment	0.974**	1.156	-0.270	-0.593	1.299***	1.824
	(0.441)	(2.080)	(0.882)	(5.088)	(0.461)	(2.108)
Workers	4751	4751	907	907	3844	3844
R^2	0.042	0.017	0.067	0.028	0.040	0.014
First Stage of 2SLS						
Home ownership$_{t-3}$		0.975***		0.881***		1.000***
		(0.163)		(0.177)		(0.192)
1st stage F-test		35.416		21.498		32.748
p-value		0.000		0.000		0.000
Durbin-Wu-Hausman		0.008		0.005		0.066
p-value		0.931		0.943		0.797
First stage R^2		0.056		0.064		0.056
Workers	4,751	4,751	907	907	3,844	3,844
R^2	0.039	0.017	0.067	0.028	0.038	0.013
Municipal controls	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
AC FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The dependent variable in the main equation is a dummy equal to 1 if the respondent say 'too little' is spent on unemployent benefits and 0 otherwise. All regressors in the main stage (main equation) include in the first stage. Bootstrapped standard errors (in brackets) are clustered at the municipal level. Stars indicate statistical significance according to the following schedule: *** 1%, ** 5% and * 10%.

Table 3: Cyclical and structural unemployment

	(1)	(2)	(3)
	All workers	Public Sector	Private Sector
Unemployment risk	0.520***	0.328	0.530***
	(0.083)	(0.235)	(0.112)
Cyclical Unemployment	1.202	-0.079	1.493**
	(0.735)	(1.340)	(0.742)
Structural unemployment	-0.267	-0.264	-0.219
	(0.643)	(1.193)	(0.607)
Workers	4751	907	3844
R^2	0.042	0.067	0.040
Municipal controls	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
AC FE	Yes	Yes	Yes

Note: All estimates obtained via OLS. The dependent variable is a dummy equal to 1 if the respondent believes 'too little' is spent on each publicly provided good/service, in turn, and 0 otherwise. Standard errors are clustered at the municipal level. Stars indicate statistical significance according to the following schedule: *** 1%, ** 5% and * 10%.

Table 4: Placebo tests

	(1)	(2)	(3)	(4)	(5)	(6)
	Social		Police		Infrastructure	
	Private	Public	Private	Public	Private	Public
Municipal unemployment	0.233	-0.271	0.636	0.683	0.590*	0.413
	(0.433)	(0.829)	(0.494)	(0.830)	(0.306)	(0.590)
Workers	3657	882	3750	889	3818	902
R^2	0.046	0.078	0.052	0.076	0.034	0.061
Municipal controls	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
AC FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: The number of observations varies as we condition inclusion in these models on being included in the sample used in our primary estimation in Table to ensure we are starting with the same base sample and then exclude those who are unsure or refuse to answer in each case. All estimates obtained via OLS using private sector workers. The dependent variable is a dummy equal to 1 if the respondent believes 'too little' is spent on each publicly provided good/service, in turn, and 0 otherwise. Standard errors are clustered at the municipal level. Stars indicate statistical significance according to the following schedule: *** 1%, ** 5% and * 10%.

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