Is income redistribution a form of insurance, a public good or both?

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Abstract

This paper is an empirical study of what motivates net contributors to support redistributive policies. While studies in the area have tended to consider broad measures of inequality and support for redistribution, we focus on a single, salient relationship between local unemployment rates and demand for spending on unemployment benefits. Using a particularity of the Spanish labour market we estimate how workers' stated 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 good nature of the redistribution. Our results suggest that increases in local unemployment rates lead to increased demand by workers for unemployment benefits spending. Moreover, our results are consistent with an insurance motive driving this relationship but provide little support for any public good component. Our results suggest that studies of the relationship between inequality and demand for redistribution might benefit from considering both the source and measure of the inequality and the instrument of redistribution.

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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, which will be reviewed in Section 2, 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 by using data from outside the lab to exam the relationship between inequality, as measured by changes to the unemployment rate, and stated preferences for redistribution, as measured by unemployment benefits. Using a newly constructed data set and a particularity of the Spanish labour market whereby public sector workers enjoy nearly inviolable job security, we extend the empirical work on redistributive preferences (e.g. Rueda and Pontusson, 2010; Dahlberg, Edmark and Lundqvist, 2012; Luttmer and Singhal, 2011; Guillaud, 2013) to disentangle the role of demand for insurance from the public good motive underlying the stated 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 good motive.

We focus on unemployment benefits for three reasons. First, unemployment rates and unemployment benefits are relevant to studying the relationship between broader conceptions of inequality and preferences for a broader conception of redistribution. Unemployment rate and broader measures of income inequality (e.g. Gini) are linked. Bover, Bentolila and Arellano (2002) show that higher rates of unemployment increase wage inequality. Castells-Quintana and Royuela (2012) show the positive relationship between unemployment rates and Gini coefficients between 1990 and 2007 for 39 countries.

Furthermore, as unemployment rates can be used as proxies for broader measures of the income distribution, unemployment benefits are a form of redistribution. 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, studying the unemployment rate/benefits relationship may provide deeper insight into preferences for redistribution given the saliency of the two. Gimpelson and Treisman (2015) find that there are systematic differences between the perceived and actual level of income inequality when considering income shares. 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. Atkinson (2015) also raises the issue of the saliency of changes in income distributions. He notes that a change of three percentage points may be necessary to be salient. Such a large change generally takes years if not decades to be realized, perhaps reducing the salience of the overall change. Ashok, Kuziemo and Washington (2015) use broad questions about redistributive preferences[1] and inequality[2] and find little evidence that rising inequality in the US has led to increased demand for redistribution over the past 40 years. It is arguable that the absence of any effect in their study is due to the in-salient nature of changes to measures like the Gini.

Focusing on unemployment addresses this issue of salience though at the cost of 'generality'.

[1] Using, for example, the question from the US General Social Survey that asks respondents if they agree with the statement that "The government should guarantee basic standard of living".
[2] They use changes in the income share of the top 1% of earners.

The level of unemployment 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. Moreover, 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. This may not be the case with more general measures of inequality.

Lastly, as Piketty (1996) notes 'individuals 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). General survey questions about the role of government in the redistribution of income may neglect heterogeneity of the preferences over the source of inequality and the instrument of redistribution and may therefore fail to measure the relationship of interest. Again, we pay a cost of 'generality', but gain an advantage insofar as our conclusions apply to a particular policy in a clear and direct way.

In summary, using unemployment and unemployment benefits to study redistributive preferences allows us to focus on a single, salient measure of inequality and a specific, well-defined instrument through which income inequality is redressed. 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 Section 5.

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, 2010) 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 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 on the incomes of other people, entering the utility function (Thurow, 1971; Pauly, 1973; Mankiw, 2010). 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 good' motive in addition to the insurance motive.[4]

An illustrative model of redistributive preferences

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

[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.

[4] 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 good motives.

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 $0 < t < 1$.[5] 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 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.[6] 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.

[5] 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. To make up the difference, 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.

[6] 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 $t = \bar{t^*}$.

The budget constraint of the unemployment benefit system is:

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

Rearranging yields

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

where $\partial c_u/\partial t > 0$ and $\partial c_u/\partial u < 0$.[7] That is, β varies with t and u to ensure the budget constraint holds with equality.[8]

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

$$\begin{array}{lccc} & \text{Marginal benefit} & & \text{Marginal cost} \\ t_i^*: & \frac{1-u}{u}\left[p_i U'_u + \theta_i \tilde{U}'_u\right] & = & (1-p_i)U'_e \end{array} \tag{4}$$

where primes stand for partial derivatives of a single variable; and assume utility is an increasing, concave function of consumption such that, $U''(.) < 0 < U'(.)$.[9] 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:

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

where $\varepsilon^i_{p_i,u} \equiv \frac{\partial p_i}{\partial u}\frac{u}{p_i} \geq 0$ is the sensitivity of i's own probability of employment to changes in u, $RA \equiv -\frac{U''_u}{U'_u}c^i_u \geq 0$ is a measure of relative 'risk aversion' *à la* Arrow-Pratt (Arrow, 1965) and, similarly, $IA \equiv -\frac{\tilde{U''}_u}{\tilde{U'}_u}c^j_u \geq 0$ 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

[7] 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.

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

[9] Note that fixed beliefs about the level of 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.

and Meyer, 2005).

The first two terms in the numerator $\left((1-u)\varepsilon^i_{p_i,u}\left[U'_u+\theta_i\tilde{U}'_u\right]+p_iU'_u\left[RA-1\right]\right)$ 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 good motive. This motive is a function of the degree to which i is public good orientated, θ_i, and her inequality aversion (i.e., the larger the increase in i's marginal utility from changes to c^j_u, again due to the binding budget constraint of the system).

Note that our interest is not in the determinants of the level t^* but in estimating an analogue of $\frac{dt^*_i}{du}$, the responsiveness of t^* to changes in u, and to decompose the result into an insurance and a public good component. Such a decomposition requires one of the motives to be held constant. The degree to which agents are public good orientated (θ_i) is unobservable. Our strategy therefore is to control for the risk of unemployment, p_i, and thus the insurance motive by exploiting an institutional feature of the Spanish labour market.

In Spain most public sector workers hold civil servant status. These workers, known as *funcionarios*, hold life-long appointments and are thus shielded from the vagaries of the labour market .[10] This institutionalized job security can be used to hold the insurance motive for redistribution via unemployment benefits constant, as these workers face almost no risk of unemployment, i.e. $p \approx 1$ and $\varepsilon_{p,u} \approx 0$. Given this feature of the Spanish labour market, we consider two cases from the above framework:

Case I: Private sector worker ($p_i > 0$, $\varepsilon^i_{p_i,u} > 0$, $\theta_i \geq 0$)

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 $\frac{dt^*}{du}\Big|_{private} > 0$, 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.

Case II: Public sector worker ($p_i \approx 0$, $\varepsilon^i_{p_i,u} \approx 0$, $\theta_i \geq 0$)

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 good motive, i.e. $\theta_i > 0$, present in i's utility function. Conversely, if $\frac{dt^*}{du}\Big|_{public} = 0$,

[10] Although de jure *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).

it would be consistent with the absence of a public good 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.

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. This direct link arguably makes the cost of increasing unemployment benefits more salient as it would require an increase in Social Security contributions.

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 Sociológicas (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 stated 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.[11] We add information at the municipal level including unemployment 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 Estadística (INE) in Spain. Comparable data are not available for Navarra and Pais Vasco and so these

[11] 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.

Autonomous Communities (ACs) are excluded from the analysis. We are left with a sample of 5,741 workers residing in 1,139 municipalities.

Table 1 presents descriptive statistics for worker-level and municipal-level variables by sector 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. Though we are unable to identify those with *funcionario* status, and thus virtually inviolable job security, most public sector workers are in fact *funcionarios*. Between 2002 and 2011 the share of public workers who are "civil servants" (*funcionarios*, in Spanish) has ranged between two-thirds and three-quarters.[12] However, it is important to note as well that even those that do not have *funcionario* status (that is, their labor relationship with the public sector is through a temporary or private contract) enjoy a higher degree, albeit not as high as the *funcionarios*, of job security than workers in the private sector (Sánchez-Motos, 2007). 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.[13] We have excluded those who are unsure or refuse to answer (16 percent of respondents).

We define our dependent variable as equal to 1 if the respondent says 'too little' is spent on unemployment benefits and 0 otherwise.[14] 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 respon-

[12] See the 2013 data released by the *Boletín Estadística del Personal al servicio de las Administraciones Públicas*.

[13] 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.

[14] We use a binary dependent variable defined in this way for expositional expediency. We also estimate a multiple outcome model as a robustness check though.

dents 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 worker's 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 willfully, 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

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

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[15], industry of employment[16] 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 ($\bar{p}_i|public = 0.06$), but it is about half that faced by private sector workers ($\bar{p}_i|private = 0.12$). 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. $\varepsilon_{p_i,u} \approx 0$. Official employment statistics tell a similar story.[17] In 2005, total public sector employment stood at 2.3 million workers with 16.4 million in the private sector. While both sectors grew over the following years, in 2008 they diverged rather dramatically. Between 2008

[15] Based on the 1979 National Classification of Occupations
[16] Based on the two-digit National Classification of Economic Activities.
[17] Employment numbers were obtained from the INE.

and 2010, private sector employment fell from 18.1 million to 16.1 million whereas public sector employment grew from 2.5 million to 2.6 million. We plot indexed employment by sector in Figure 2.

As for the other individual-level characteristics (Panel A, Table 1), public sector workers are three years older on average, less likely to be male and more likely to be a household's primary earner. Public sector workers tend to be more educated. 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).

3.2 Estimation

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

$$d_{ikt} = x_{ikt}^{'}\beta_1 + \pi_i x_{ikt}^{'}\beta_{1\pi} + m_{kt}^{'}\beta_2 + \pi_i m_{kt}^{'}\beta_{2\pi} + \\ +\beta_3 u_{kt} + \beta_{3\pi}\pi_i u_{kt} + e_{ikt} \tag{7}$$

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, π_i is a dummy equal to 1 if i is employed in the public sector, x_{ikt} is a vector of worker characteristics including age, gender, estimated 'unemployment risk' ($\hat{p_i}$), a dummy for the presence of children in the household, marital status, a series of dummies indicating the political party the respondent voted for in

the most recent election to capture more general political ideologies and a series of dummies controlling for home ownership distinguishing between a homeowner with no mortgage, a homeowner with partially paid mortgage, a renter and a residual 'other' category to help control for workers' mobility (discussed further below), β_1 is the corresponding vector of coefficients to be estimated, m_{kt} is a vector of municipality k's characteristics at time t including log population, the log number of foreign residents, as there is evidence to suggest that ethnic fractionalisation can affect redistributive preferences (Dahlberg et al. 2012) and the log mean income to help control for income as we do not observe individual level income (discussed further below). We also include the log number of crimes, though at the provincial level. 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 $sign\left(\beta_3\right) = sign\left(\partial t*/\partial u\right)$ and e_{ikt} is an error term. Note that given this fully interacted specification β_j $(j = 1, 2, 3)$ is interpreted as the effect for private sector workers and $\beta_j + \beta_{j\pi}$ as the effect for public sector workers. A formal test of whether the effect differs for the two groups is a simple $t-$test of $H_0 : \beta_{j\pi} = 0$. The effect will be statistically different for the two groups if and only if $\beta_{j\pi} \neq 0$.

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.

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 Autonomous Community fixed effects. We also check the robustness of the results to the inclusion of provincial fixed effects. We also include year fixed effects to control common shocks affecting the Spanish economy. 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. We also check the robustness of our results to the inclusion of provincial fixed effects.

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 positively biased. However, while such sorting may be a concern in theory, we note above that internal labour mobility in Spain is in fact very low (Bentolila and Jimeno, 1998) so it is less likely to be a problem in practice. Even so, we include the homeownership status of individuals as a regressor the argument being that homeowners are less mobile and thus are less likely to have migrated for work. We also estimate the model using only workers who own their own homes as a robustness check.

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 $\frac{\partial redistribution}{\partial income} < 0$, i.e. higher income earners will tend to prefer less redistribution. 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. We attempt to mitigate this bias by including the mean income in each municipality, though within municipality variation will clearly still remain. We further control for a number of individual characteristics correlated with income and potentially redistributive preferences, such as age as well as education, occupation, sector, and industry of employment via the 'unemployment risk' variable, though the omission of individual income will negatively bias the coefficient on 'unemployment risk'.

Differences between public and private sector workers

We adopt an estimation strategy where the sector of employment (public vs. private) can be thought of as the 'treatment' and our interest is in whether the treatment changes how the unemployment rate affects stated redistributive preferences. This 'treatment' is, of course, not randomly assigned. Selection into one sector or another will be the function of any number of factors, many of which will be unobservable. Therefore, we cannot consider the sector of

employment as a random, or even as a conditionally random, 'treatment'. This selection into sectors will be problematic if workers 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 will limit any claims we might make about causality, but it may not render the qualitative conclusions we draw from the sign and significance of results. As we are not able to model selection into the sectors explicitly for lack of an identifying instrument, we must then 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. All estimates presented in Table 2 are obtained via OLS and standard errors are clustered at the municipal level. In column (1) we present the results obtained from estimating the model for all workers while interacting all the regressors with a dummy equal to 1 if i is employed in the public sector in period t (see Equation 7). Such a specification allows for a simple statistical test of any difference in the effect of unemployment between public and private sector workers by testing the significance of the interaction of the unemployment rate and a dummy for being in the public sector.

The coefficient on 'unemployment risk' ($\beta = 0.69$) indicates that private sector workers facing

greater 'unemployment risk' are more likely to support increased spending on unemployment benefits. The coefficient on the interaction term of public sector worker and 'unemployment risk' is negative and statistically significant, though only at the 10 percent level ($p-value=0.090$), indicating that the effect of risk differs for public and private sector workers. The effect of this risk for public sector workers is close to zero ($\beta = 0.69 + (-.58) = 0.11$) and not statistically significant ($p-value=0.727$).

Similar variation over public and private sector workers is present in the effect of the local unemployment rate. The effect is positive ($\beta = 1.22$) and statistically significant ($p-value=0.003$) for private sector workers. Note that this is likely a lower bound given the selection bias discussed above. This suggests that increases in the unemployment rate lead to increases in a private sector worker's support for increased spending on unemployment benefits. For public sector workers, the effect ($\beta = 1.22 + (-1.63) = -0.41$) is not statistically different from 0 ($p-value=0.553$). Again, this estimate is likely an upper bound given the selection bias discussed above. These results suggest that while increases in the local unemployment rate lead those working in the private sector to prefer increased spending on unemployment benefits, the stated preferences of those enjoying the relative job security of the public sector do not change. The analogous results obtained by estimating equation 7 separately for public and private sector workers can be seen in columns (2) and (3), respectively.

Our main result suggests that changes in the local unemployment rate do affect the stated preferences for spending on unemployment benefits, but only for private sector workers, i.e. those workers with an insurance motive. In the absence of this motive, i.e. for public sector workers, changes in the local unemployment rate do not affect stated preference for redistribution via unemployment benefits.

We test the robustness of this results in a number of ways and present the results from these checks in Table 3. In column (1) we re-estimate the fully interactive model but include provincial rather than AC fixed effects.[18] The effect of the unemployment rate and the difference in the effect for public and private sector workers maintains. The effect of unemployment rates on the stated preferences of public sector workers is not statistically different from zero. In columns (2) and (3) we present the marginal effects from a probit and logit estimator, respectively. The

[18] While there are more provinces, and thus the fixed effects will capture more of the variaiton in unemployment rates, provinces are purely geographical units and do not have any administrative role in Spain.

magnitude and significance of the effects are very close to those in Table 2. We also collapse the data at the municipal level and estimate a model using the municipal means of the relevant variables in column (4) and again, the magnitude and significance of the effects maintain. In column (5) we estimate the model using a sub-sample of individuals who own their homes in an attempt to address possible bias arising from the sorting of workers (see Section 3.2). And again the magnitude and significance of the effect maintains.

In our primary analysis we use a binary dependent variable equal to one if the respondent believes 'too little' is spent on unemployment benefits. This is based on a survey question with multiple responses however. We therefore use a multinomial logit and allow for three responses: 'too little', 'just right' and 'too much'. In columns (5) and (6) we present the marginal effects obtained from the multinomial logit where the reference group is that spending on unemployment benefits is 'just right'. The coefficients in column (5) are the effect of each variable on the probability of reporting 'just right' relative to reporting 'too much'. Here the coefficient on the local unemployment rate is negative as higher rates of unemployment reduce the probability a respondent believes 'too much' is spent on unemployment benefits relative to reporting that unemployment benefits spending is 'just right'. The effect for public sector workers ($\beta = -0.51 + (-0.70) = 0.19$) is not statistically different from zero ($p - value = 0.435$). In column (6) the coefficients are the effect on the probability of believing 'too little' is spent relative to the unemployment benefits spending being 'just right'. The results are again consistent with the unemployment rate increase demand for unemployment benefits spending by private sector workers and not affecting the stated preferences of public sector workers.

We also carry out 'placebo tests' as 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.

The placebo tests allow 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 good. 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: health, education, the justice system, policing and infrastructure. 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 stated preferences for the public provision of these other goods/services is insignificant in every case save for workers stated preferences for infrastructure spending where it is significant at the 10 percent level ($p - value = 0.082$). The coefficient on the interaction term is never significant indicating there is no difference in the effect. These results suggest that we are measuring a particular relationship between the unemployment rate and stated preferences for unemployment benefits and not a more general relationship between the state of the economy and preferences for public expenditure.

We extend the analysis in two ways. First, we consider whether the type of unemployment, cyclical or structural, matters. Second, we consider whether the effect of changes in the local unemployment rate varies not just between the public and private sector workers but more generally with the degree of 'unemployment' risk within the private, but not the public, sector. This is consistent with the insurance motive underlying demand for unemployment benefits spending.

4.1 Does the type of unemployment matter?

Our first extension is in distinguishing between the effects of structural and cyclical unemployment. The type of unemployment may matter for two reasons. First, the public good 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 good motive may only be a function of cyclical unemployment.

Second, the nature of unemployment benefits may depend on the nature of the unemploy-

ment. 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 good motive. The impact of cyclical shocks on redistributive preferences conflate the insurance and public good 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:

$$d_{ikt} = x_{ikt}^{'}\beta_1 + \pi_i x_{ikt}^{'}\beta_{1\pi} + m_{kt}^{'}\beta_2 + \pi_i m_{kt}^{'}\beta_{2\pi} + \\ +\beta_3 u_{kt} + \beta_{3\pi}\pi_i u_{kt} + \beta_4 \bar{u}_k + e_{ikt} \tag{8}$$

which is the same as Equation 7 with the additional regressor $\bar{u}_k$ which is the time mean of the unemployment rate in each municipality. We interpret β_3 in equation 8 as the impact of cyclical unemployment for private sector workers ($\beta_3+\beta_{3\pi}$ for public sector workers) and β_4 as the impact of structural unemployment rate on stated preferences. In column (1) of Table 5 we present results from estimating equation 8. We find the effect of cyclical unemployment is significant and larger than the effect from column (1) of Table 2 for private sector workers. The effect of cyclical unemployment is absent for public sector workers. As for structural unemployment the coefficient is negative and statistically insignificant indicating that stated preferences for unemployment benefits spending respond to cyclical changes in unemployment, they do not vary with persistent, structural levels of unemployment. We then introduce an additional interaction $\pi_i\bar{u}_k$ to allow the impact of structural unemployment to vary with the sector of employment. This washes out the significance of the interaction between public and the local unemployment rate, though the size and sign of the coefficient is maintained. The coefficients on the new interaction term is insignificant. Furthermore, the effect of structural unemployment on the stated preferences of private sector works remains negative and insignificant. The results suggest that the stated preferences for unemployment benefits spending of public sector workers do not respond to structural or cyclical unemployment. The stated preferences of private sector workers, while responsive to cyclical variation in local unemployment rates, do not vary with structural levels of local unemployment in their municipality. We take this as further evidence in support

of the insurance motive underlying demand for redistribution via unemployment benefits. 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.

4.2 Does the preference response to the unemployment rate depend on 'unemployment risk'?

Our primary analysis exploits a peculiarity of the Spanish labour market where by many public sector workers enjoy virtually inviolable job security. But some private sector workers may also enjoy a high degree of job security. The argument put forth in the Section 2 can be applied to private sector workers with a high degree of job security. That is, we can relax the dichotomy assumed until now (that public sector workers have job security and private sector workers do not) and allow the job security to vary over individuals. To do so we allow the effect of the local unemployment rate to vary with the individual 'unemployment risk' faced by an individual. We expect the stated preferences for unemployment spending of those workers facing higher levels of 'unemployment risk' will be more responsive to changes in the local unemployment rate.

To test this we include a further interaction term. Results are presented in the second two columns in Table 5. In column (3) we include an additional interaction between the 'unemployment risk' variable and the municipal unemployment rate. The coefficient on this new interaction term is positive but statistically insignificant ($p - value = 0.160$) suggesting there is no interaction between the individual unemployment risk and the responsiveness of stated preferences for unemployment benefit spending.

This model however, may be overly restrictive in that it forces the interaction of 'unemployment risk' and the local unemployment rate to be the same for public and private sector workers. To relax this we introduce a further interaction between the local unemployment rate, 'unemployment risk' and the dummy for public sector workers in column (4). The coefficients on the new interaction terms are both statistically significant at the 10 percent level. At the mean 'unemployment risk' for private sector workers ($r = \bar{0}.133$), the effect of local unemployment for private sector workers is statistically significant 0.99 ($p - value = 0.009$) and is increasing in 'unemployment risk'. For public sector workers, however, the effect of the local unemployment rate (calculated at the mean of 'unemployment risk' for public sector workers, $\bar{r} = 0.065$) is 0.31 and is not statistically different from zero ($p - value = 0.479$). The point estimate of the

interaction between 'unemployment risk' and the local unemployment rate is actually negative (-0.07) though it statistically insignificant ($p - value = 0.782$).

The stated redistributive preferences of those private sector workers in industries and occupations with less job security are more sensitive to changes in the local unemployment rate than those with more secure jobs. Such variation is not present for public sector workers since, even those workers in relatively less secure industries and occupations, enjoy the security of being in the public sector. This result reinforces the implications of the primary analysis and is consistent with the theoretical framework outlined in Section 2.

5 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 are not fully understood. In this paper we have set out to test the motivations underlying individuals' stated 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 if and how this stated preference responds to changes in the local unemployment rate and what motivates that response: demand for insurance and/or a public good motive. To do so we use data on workers in Spain, a country with an institution of near inviolable job security for public sector workers.

We have shown that changes in the local rate of unemployment have a significant and economically relevant effect on workers' stated preferences for spending on unemployment benefits. We attempt to empirically disentangle the roles of demand for insurance and a public good mo-

tive in forming preferences for redistribution. We find support for an insurance motive but none for a public goods motive. From an economic point of view, it is important to know whether individual preferences for redistribution via unemployment benefits incorporate a public good 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, via this particular instrument, 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 good component. This does not mean that all forms of redistribution are viewed as equal and that public good motivations do not drive demand for other forms of redistribution (e.g. food stamps, progressive income tax, social housing). The evidence presented here suggests the absence of a public good motive underlying demand for redistribution via unemployment benefits. However, there is evidence in favour of a public good motive, in some form, underlying demand for redistribution in general (e.g. Corneo and Grüner, 2002). We hope our result motivates future work focusing on the formation of redistributive preferences with respect to particular redistributive instruments rather than preferences for redistribution in some general sense to gain deeper insight into the complex nature of redistributive preferences.

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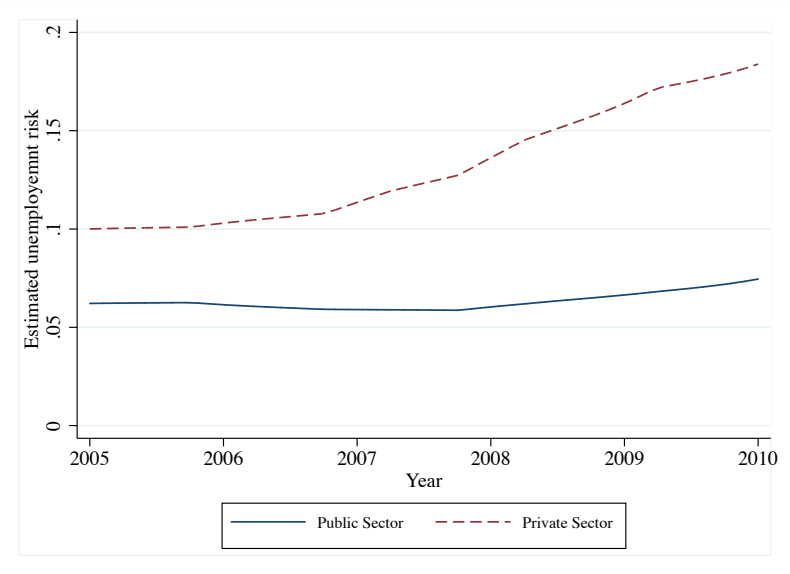
Tables and Figures

Table 1: Descriptive statistics

	(1)	(2)	(3)
Panel A: Individual characteristics			
	Sector		
	Private	**Public**	**Difference**
Prefers more UB^d	0.426	0.350	0.077***
	(0.495)	(0.477)	(0.017)
Unemployment risk ($\widehat{p_i}$)	0.123	0.061	0.062***
	(0.084)	(0.072)	(0.003)
High school only^d	0.357	0.287	0.069***
	(0.479)	(0.453)	(0.016)
Post-High school^d	0.210	0.537	-0.327***
	(0.408)	(0.499)	(0.014)
Married^d	0.548	0.582	-0.034*
	(0.498)	(0.493)	(0.017)
Young child^d	0.446	0.477	-0.031
	(0.497)	(0.500)	(0.017)
Age	38.318	41.162	-2.844***
	(11.419)	(10.775)	(0.384)
Male^d	0.598	0.514	0.084***
	(0.490)	(0.500)	(0.017)
Primary earner^d	0.671	0.740	-0.069***
	(0.470)	(0.439)	(0.016)
Homeowner^d	0.136	0.150	-0.014
	(0.342)	(0.357)	(0.012)
Panel B: Municipal characteristics			
Municipal unemployment	0.084	0.090	-0.006***
	(0.037)	(0.038)	(0.001)
Municipal population	475.341	475.583	-0.242
	(924.523)	(913.781)	(31.367)
Foreign residents	783.454	792.640	-9.186
	(621.540)	(558.409)	(20.753)
Provincial crimes ('000)	87.597	87.250	0.347
	(113.156)	(112.746)	(3.845)
Mean municipal income (€'000)	17.367	17.293	0.074
	(5.847)	(5.910)	(0.199)
Workers	5741	1139	

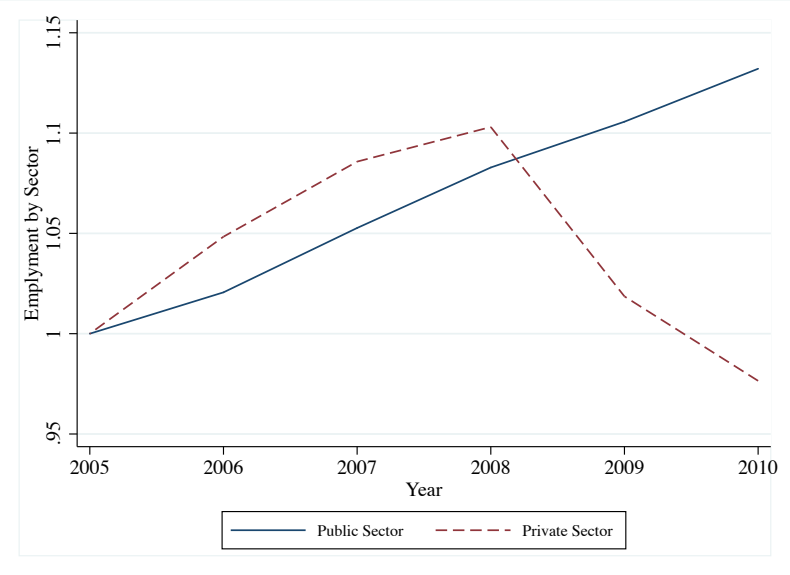
Notes: The superscript (^{d}) indicates that the variable is a dummy. The bracketed values are standard deviations in the first two columns and the standard error of the difference between the means in the third column. Stars indicate statistical significant difference between the mean value for the 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.

Figure 2: Trends in employment for public and private sectors



Notes: Both series are indexed to 2005 emplyment figures. Employment figures were obtained from the INE.

Table 2: Main results

	(1)	(2)	(3)
	All	Public	Private
Unemployment risk	0.686***	0.110	0.686***
	(0.201)	(0.291)	(0.200)
Public*Risk	-0.576*		
	(0.338)		
Unemployment rate	1.223***	-0.409	1.223***
	(0.408)	(0.700)	(0.407)
Public*Unemployment	-1.632**		
	(0.758)		
Workers	5741	1059	4682
R^2	0.050	0.075	0.041
Municipal controls	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
AC FE	Yes	Yes	Yes

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

Table 3: Robustness checks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
						Mulitnomial logit MFX	
	Province FE	Probit MFX	Logit MFX	Municipal Means	Homeowners only	'Too much' to 'Just right'	'Just right' to 'too little'
Unemployment rate	1.026**	1.212***	1.203***	1.906***	1.122**	-0.513***	0.902**
	(0.447)	(0.398)	(0.397)	(0.412)	(0.522)	(0.199)	(0.378)
Public*Unemployment	-2.154***	-1.597**	-1.594**	-2.560**	-2.088**	0.703*	-2.112*
	(0.815)	(0.794)	(0.803)	(1.103)	(0.898)	(0.425)	(0.936
Workers	5741	5741	5741	1139	3665	5741	
(Pseudo-)R^2	0.065	0.035	0.035	0.068	0.061	0.074	
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	No	Yes	Yes	Yes	Yes	Yes	
Provincial FE	Yes	No	No	No	No	No	

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. Bootstrapped standard errors (in brackets) are clustered at the provincial level. Stars indicate statistical significance according to the following schedule: *** 1%, ** 5% and * 10%.

Table 4: Placebo tests

	(1)	(2)	(3)	(4)	(5)
	Health	Education	Justice	Security	Infrastructure
Unemployment rate	-0.071	-0.173	-0.179	0.508	0.458*
	(0.458)	(0.425)	(0.433)	(0.454)	(0.263)
Public*Unemployment	0.613	-1.484	-0.219	-0.107	-0.513
	(0.823)	(0.921)	(0.896)	(0.868)	(0.553)
Workers	5741	5741	5741	5741	5741
R^2	0.084	0.074	0.078	0.085	0.043
Municipal controls	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
AC FE	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. Bootstrapped standard errors (in brackets) are clustered at the provincial level. Stars indicate statistical significance according to the following schedule: *** 1%, ** 5% and * 10%.

Table 5: Analytical extensions

	(1)	(2)	(3)	(4)
	Type of Unemployment		Interaction with risk	
Cyclical Unemployment	1.678***	1.613**	0.475	0.35
	(0.631)	-0.675	-0.539	-0.565
Public*Unemployment	-1.640**	-1.257	-0.454**	-0.056
	(0.758)	(1.251)	(0.220)	(0.301)
Structural unemployment	-0.500	-0.428		
	(0.538)	(0.601)		
Public*Structural		-0.428		
		(1.132)		
Risk*Unemployment			4.441	5.335*
			(2.868)	(3.094)
Risk*Unemployment*Public				-5.799*
				(3.24)
Workers	5741	5741	5741	5741
R^2	0.050	0.05	0.042	0.043
Municipal controls	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
AC FE	Yes	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. Bootstrapped standard errors (in brackets) are clustered at the provincial level. Stars indicate statistical significance according to the following schedule: *** 1%, ** 5% and * 10%.