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# Working for a Good Cause

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# Working for a Good Cause\*

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## Abstract

A rich literature in public administration has shown that public sector employees have stronger altruistic motivations than private sector employees. Recent economic theories stress the importance of mission preferences, and predict that altruistic people sort into the public sector when they subscribe to its mission. This paper uses data from a representative survey among more than 30.000 employees from 50 countries to test this prediction. We find strong evidence for a mutually reinforcing role of altruism and mission alignment in sorting to the public sector, particularly among highly educated workers and among workers in less-developed countries.

**Keywords:** public service motivation, altruism, mission preferences, sorting, World Values Survey.

**JEL:** H1, J45, M5

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# 1 Introduction

Many jobs in the public sector involve tasks that help people in need or contribute to society at large. Such jobs are presumably attractive to people with strong altruistic motivations. A rich literature in public administration has provided empirical evidence in line with this idea. Using a variety of data and methods, it has been shown that public sector employees are more inclined to help others or serve the public interest as compared to private sector employees (see Perry et al. 2010 for a recent overview of the literature).

Inspired by these findings, a theoretical literature has recently emerged in economics studying the sorting of differently motivated people into the public sector and the consequences of this for optimal pay policies and organizational design (see Francois and Vlassopoulos 2008 for a survey). A prominent study in this field is Besley and Ghatak (2005). In their model, workers are heterogeneous in ‘mission preferences’; that is, workers differ in what they consider to be a good cause. Besley and Ghatak show that there is a premium on matching of mission preferences, implying that workers will sort to organizations they share a mission with.

Concurrently and independently, a new strand in the public administration literature has emerged that, like Besley and Ghatak (2005), stresses ‘mission matching’ or ‘value congruence’. Inspired by the organizational psychology literature on person-organization fit (Kristof 1996), several recent studies show that public sector employees who have a strong willingness to do something useful to society and, in addition, find the work that they do valuable for society report higher job satisfaction and a stronger willingness to exert high effort (see Bright 2008, Steijn 2008, Taylor 2008, Wright and Pandey 2008, and Leisink and Steijn 2009).

This paper contributes to these literatures in two ways. First, building on Besley and Ghatak (2005), we develop a simple model of sorting into the public sector in an economy populated by agents who differ in both altruism and mission preferences. We examine how an individual’s altruism and the alignment of his mission preferences with the public sector’s mission affect the likelihood of being employed in the public sector. Our model predicts that altruism and mission alignment are mutually reinforcing. When a worker’s mission preferences are well in line with the mission of the public

sector, the likelihood of working in the public sector increases in the worker's altruism. The reverse holds when a worker's mission preferences conflict with the mission of the public sector. Altruism does not affect sorting of people who feel that the public sector neither serves nor damages the public interest. Likewise, mission alignment increases the likelihood of working in the public sector for altruistic people, but decreases it for spiteful people.

Our second contribution is to test these predictions using survey data covering employees in both the public sector and the private sector in a broad range of countries around the world. The existing studies that we mentioned above on person-organization fit have used survey data on public sector employees only and have been restricted to well-developed countries, in particular the United States and Western European countries. We use data from the World Values Survey conducted between 2005 and 2008. Our sample contains representative data on more than 30,000 workers from 50 countries, ranging from wealthy countries in North America and Europe to developing countries in Asia, South America, Africa, and the Middle East. Such a broad range of countries and corresponding public sector missions is particularly well suited to test our predictions on the mutually reinforcing relationship between worker's altruism and mission alignment. We measure a worker's altruism by his response to the survey question: "It is important to this person to help the people nearby; to care for their well-being". Mission alignment is proxied by the worker's stated confidence in political parties. Further, we observe each worker's sector of employment (either government and public institutions or private business and industry) and a rich set of individual characteristics (age, gender, education, and country of residence).

The results of our empirical analysis are well in line with our theoretical predictions. We find clear evidence that altruism and mission alignment are mutually reinforcing in determining a worker's likelihood of working in the public sector. The marginal effect of a worker's confidence in political parties on the probability of working in the public sector is insignificant and close to zero for workers in the lowest altruism categories, but significant and positive for workers in the highest altruism categories. In other words, mission alignment only affects sector choice when the worker is sufficiently altruistic. Likewise, the marginal effect of a worker's altruism on the probability of working in the public sector is strongly increasing in the worker's confidence in political parties. Together, these findings imply that only those workers who exhibit both sufficient altruism and sufficient confidence in political parties are significantly more likely to end up working in the public sector. The

total effect ranges up to an additional 6.5 percentage points as compared to the predicted probability of working in the public sector for an average worker of 25.5%. Neither workers with high altruism and weak confidence nor workers with low altruism and strong confidence show a significantly higher likelihood of working in the public sector as compared to an average worker. In contrast, workers with low altruism and weak confidence are significantly less likely to work in the public sector; the probability is up to 4.1 percentage points lower as compared to an average worker.

Our results differ to some extent between workers from well-developed countries as compared to workers from less-developed countries. In well-developed countries, altruism is somewhat more important and confidence in political parties is somewhat less important for the likelihood of working in the public sector. The interaction effect between altruism and confidence is slightly smaller as compared to the full sample estimation, indicating that the mutually reinforcing relation between a worker's altruism and confidence is slightly weaker in well-developed countries. In less-developed countries, confidence in political parties is more important than altruism for the likelihood of working in the public sector. Moreover, we find that the mutually reinforcing relation between altruism and confidence is especially strong in these countries, suggesting that the alignment of mission preferences is more important in less-developed countries as compared to well-developed countries.

Previous research has shown that altruism or 'public service motivation' is a better predictor of public sector employment for higher educated workers (Lewis and Frank 2002). We find the same pattern in our data for altruism and confidence and, particularly, for the interaction between these two. Interestingly, and in contrast to our full sample, we find some indications for spite among respondents in the lowest altruism category.

While our main motivation is to contribute to the body of knowledge about the nature of motivations of public sector employees,<sup>1</sup> we believe that our study (and studies like ours) serve a broader purpose. First, learning about the motivations of public sector employees can contribute to a better understanding of organizational performance in the public sector. Performance of public sector organizations depends considerably on the motivations

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<sup>1</sup>Note that we consider altruism as part of a worker's intrinsic motivation in the public sector. See Tonin and Vlassopoulos (2010) for experimental evidence supporting this assumption.

of their workforce because production is highly labour-intensive. Moreover, public sector organizations make relatively little use of extrinsic incentives for workers, such as pay-for-performance and steep wage-tenure profiles (see e.g. Burgess and Metcalfe 1999), rendering intrinsic motivations of workers even more important than in the private sector. Second, learning about public sector employees' intrinsic motivations can be useful for policy makers as this information may help to design more effective HR-policies. These policies may address moral-hazard issues, but also adverse-selection issues. For instance, the results of studies like ours may convince organizations to rely more on self-selection of workers and to spend less on the use of selection tools such as personality tests to filter out job candidates with undesirable motivations.

We proceed as follows. The next section gives a brief overview of related literature. In section 3, we develop a simple model and formally derive predictions. Section 4 describes the dataset and explains our empirical strategy. Section 5 describes and discusses the main results of the empirical analysis. Section 6 concludes.

## 2 Related literature

A formalization of intrinsic motivation to work in the public sector lies in the concept of public service motivation. Perry and Wise (1990) gave the first comprehensive overview of this concept and define public service motivation as “an individual’s predisposition to respond to motives grounded primarily or uniquely in public institutions and organizations” (p. 368). They propose that workers with high public service motivation are more likely to end up in a public sector job and will perform better in such a job. Public service motivation is often equated with a desire to serve the public interest or, more generally, with altruism. Rainey and Steinbauer (1999) define public service motivation as a “general altruistic motivation to serve the interests of a community of people, a state, a nation or humankind” (p. 23). We use their concept of public service motivation.

Recent theoretical research in economics builds on these ideas and assumes that some workers in the economy intrinsically care about serving the public interest. In these studies, worker’s care usually stems from altruism, be it pure or impure (Handy and Katz 1998, Francois 2000 and 2007, Glazer 2004, Besley and Ghatak 2005, Prendergast 2007, Delfgaauw and Dur 2008,

Nyborg and Brekke 2010, Ghatak and Mueller 2011, and Buurman and Dur 2012). A common finding in this rapidly growing literature is that public sector organizations optimally set relatively low wages so as to promote self-selection of altruistic workers.

Empirical studies on differences in workers' motivation between the public and private sector have mainly used data from the US and Western Europe. Studies using data on self-reported motivation and preferences almost invariably find that, as compared to private sector workers, public sector workers have a stronger willingness to serve the public interest, to help others, and to make personal sacrifices in order to do so (Rainey 1982, Crewson 1997, Houston 2000, and Lewis and Frank 2002). Other studies examine differences in self-reported pro-social actions. Brewer (2003) and Houston (2006) find that public sector workers are more inclined than private sector workers to participate in pro-social activities such as volunteering, donating blood, and taking part in nonpolitical civic affairs. Jacobsen et al. (2011) and Buurman et al. (2012) explore revealed preferences data and find that public sector workers are more likely to make a donation to charity than observationally equivalent private sector workers, particularly at the start of their career. Lastly, Gregg et al. (2011) use British panel data and find that workers who are more inclined to donate labour in the form of unpaid overtime are more likely to sort to the not-for-profit sector. This effect is strongest for industries with caring features such as health, education, and social care.

Few studies have examined whether these results generalize to less developed countries. Serneels et al. (2007) show that intrinsic motivation to 'help the poor' is among the most important determinants of nursing and medical student's willingness to work in the relatively underprivileged rural areas in Ethiopia. Serra et al. (2011) use both survey and lab-experimental data and show that pro-socially motivated health professionals in Ethiopia are more likely to work in the non-profit sector. Lastly, Norris (2003) and Vandenabeele and Van de Walle (2008) use survey data from the International Social Survey Program and show that public sector workers score higher on altruistic attitudes than their private sector counterparts in all world regions except Asia.

Our key innovation as compared to the existing literature is to treat altruism and mission alignment as distinct characteristics. A few empirical papers in public administration have studied 'mission motivation' of employees, but as a substitute rather than as a complement to altruism (Wright 2007). Closest to our paper are Bright (2008), Steijn (2008), Taylor (2008), Wright and



Pandey (2008), and Leisink and Steijn (2009). Inspired by the organizational psychology literature on person-organization fit (Kristof 1996), these studies show that public sector employees experience higher job satisfaction, have stronger willingness to exert effort on the job, and are more inclined to stay in their job if they find it important to do something useful to society and, in addition, find the work that they do useful to society. Unlike these studies, our data cover employees in both the public sector and the private sector, which allows us to study the issue of sorting to the public sector in a much more comprehensive way.

Upon completing the first draft of this paper, we became aware of two other closely related papers. First, Cowley and Smith (2013) use data from the same wave of the World Values Survey as we use to study the relation between corruption in a country and the sorting of intrinsically motivated workers to the public sector. They find evidence that the difference in intrinsic motivation between public and private sector workers in a country decreases with government corruption (appropriately instrumented). Second, Houston (2011) uses data from the International Social Survey Programme and shows that the desire to help others is significantly less prevalent among government workers in Anglo-Saxon welfare regimes as compared to Scandinavian welfare regimes. A key difference between these studies and our study is that we use an individual-level variable for a worker’s alignment with the public sector’s mission, rather than a nation-specific indicator for all workers in a country.

### 3 Theoretical framework

To fix ideas, we develop a simple model building on the influential paper by Besley and Ghatak (2005). In our model, people are heterogeneous in two ways: they differ in their willingness to serve the public interest (or altruism), denoted by  $\gamma_i \in [\underline{\gamma}, \bar{\gamma}]$ , and in their valuation of the mission of the public sector (or mission alignment), denoted by  $\beta_i \in [\underline{\beta}, \bar{\beta}]$ . Both characteristics are an individual’s private information and are drawn from a continuous distribution. Altruism is impure; that is, individuals care about their personal contribution to the public interest, not about the public interest per se.<sup>2</sup>

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<sup>2</sup>See Tonin and Vlassopoulos (2010) for field-experimental evidence supporting this assumption and Andreoni (1990) for an extensive discussion of pure and impure altruism. Piliavin and Charng (1990) provide a useful overview of the literature on altruism in all

Both  $\gamma$  and  $\beta$  can take positive and negative values. A negative  $\gamma$  implies that a worker is spiteful; such a worker would rather harm than serve others.<sup>3</sup> A negative  $\beta$  implies that a worker's mission preferences conflict with the mission of the public sector; that is, this worker feels that the mission of the public sector harms rather than serves the public interest.<sup>4</sup>

The economy consists of two sectors: a public sector and a private sector. The private sector is perfectly competitive and neither  $\gamma$  nor  $\beta$  matters in any way, such that people who choose to work in the private sector obtain the same utility, given by  $\bar{U}$ . The public sector offers a wage  $w$  and, in addition, yields some nonpecuniary payoff to workers depending on their  $\gamma$  and  $\beta$ . The utility from working in the public sector is given by:

$$U_i = w + \gamma_i \beta_i - \varepsilon_i.$$

The interaction term  $\gamma_i \beta_i$  parsimoniously captures the idea that altruistic workers ( $\gamma_i > 0$ ) only derive some additional nonpecuniary utility from working in the public sector when they feel that the public sector's mission contributes to the public interest ( $\beta_i > 0$ ).<sup>5</sup> The stochastic term  $\varepsilon_i$  captures all other possible characteristics that may affect an individual's relative preference for the public sector. We assume that  $\varepsilon$  is drawn from a distribution with CDF  $F(\varepsilon) = \Pr(\varepsilon_i \leq \varepsilon)$ , PDF  $f(\varepsilon) > 0$ , and boundaries  $\varepsilon \in [\underline{\varepsilon}, \bar{\varepsilon}]$ , such that there is some variation in most preferred sector for each worker type  $\gamma_i \beta_i$ .

A utility maximizing worker joins the public sector when the utility from

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branches of the social sciences.

<sup>3</sup>Lab experimental evidence shows that, while altruism is much more prevalent, a substantial fraction of people is spiteful (Andreoni and Miller 2002, Beckman et al. 2002, Falk et al. 2005, and Fehr et al. 2011).

<sup>4</sup>A key difference between Besley and Ghatak (2005)'s model and our model lies in the type space. While their economy consists of selfish and mission motivated workers, in our model workers are distributed continuously along two dimensions: altruism and mission alignment.

<sup>5</sup>We implicitly assume that workers have little or no discretion on the job and so take the public sector's mission as given. Prendergast (2007) and Buurman and Dur (2012) study sorting when workers have more leeway, which may result in bifurcated self-selection. Further note that endogenous effort choice by workers need not change any of our conclusions. For instance, a model where utility from working in the public sector is given by  $U_i = w + \gamma_i \beta_i e_i - \frac{1}{2} e_i^2 - \varepsilon_i$  (where  $e_i$  is worker  $i$ 's effort choice) produces exactly the same predictions as long as the public sector imposes a strictly positive minimum effort requirement (which seems reasonable).

doing so is higher than the utility from working in the private sector. The proportion of workers of type  $\gamma_i\beta_i$  choosing public sector employment is given by:

$$\Pr[\varepsilon_i \leq w - \bar{U} + \gamma_i\beta_i] = F(w - \bar{U} + \gamma_i\beta_i).$$

It immediately follows that the likelihood of public sector employment increases in workers' altruism for workers who feel that the public sector serves the public interest ( $\beta > 0$ ):

$$\frac{\partial F(\cdot)}{\partial \gamma_i} = \beta_i f(w - \bar{U} + \gamma_i\beta_i).$$

Conversely, for workers who feel that the public sector harms the public interest ( $\beta < 0$ ), the likelihood of working in the public sector decreases in the workers' altruism. Altruism has no effect for workers who are indifferent about the public sector's mission ( $\beta = 0$ ).

Likewise, it follows that an increase in workers' mission alignment increases the likelihood of working in the public sector for altruistic workers ( $\gamma > 0$ ), decreases it for spiteful workers ( $\gamma < 0$ ), and leaves it unaffected for selfish workers ( $\gamma = 0$ ):

$$\frac{\partial F(\cdot)}{\partial \beta_i} = \gamma_i f(w - \bar{U} + \gamma_i\beta_i).$$

Summarizing, our model thus yields the following key predictions:

**Prediction 1** *An increase in workers' altruism ( $\gamma$ ) increases the likelihood of working in the public sector for workers who feel that the public sector serves the public interest ( $\beta > 0$ ), decreases it for workers who feel that the public sector harms the public interest ( $\beta < 0$ ), and leaves it unaffected for indifferent workers ( $\beta = 0$ ).*

**Prediction 2** *An increase in workers' mission alignment ( $\beta$ ) increases the likelihood of working in the public sector for altruistic workers ( $\gamma > 0$ ), decreases it for spiteful workers ( $\gamma < 0$ ), and leaves it unaffected for selfish workers ( $\gamma = 0$ ).*

The resulting predicted probabilities of working in the public sector are depicted in Figure 1.<sup>6</sup> The model predicts that workers who are highly altruistic and whose mission preferences are strongly aligned with the public sector’s mission are overrepresented in the public sector. The same is true for workers who are highly spiteful and feel that the public sector damages the public interest. Highly altruistic workers with mission conflict and highly spiteful workers with mission alignment are underrepresented in the public sector.

## 4 Data and empirical strategy

We test our key predictions using data from the World Values Survey, conducted by the World Values Survey Organization (2009). This survey consists of several waves, starting in 1981. We use data from the 2005-2008 wave<sup>7</sup> that contains one year of observations for each country. The total number of respondents is 82,992. Respondents answered questions on a wide range of topics, including social, cultural, and political attitudes and a large set of demographics. Questionnaires were carried out face-to-face with the exception of Japan and Australia where paper-and-pencil questionnaires were administered. The range of countries is very diverse, ranging from wealthy OECD countries to less-developed countries in South America, Asia, Africa, and the Middle East.

Our key variables of interest are stated altruism, confidence in political parties, and sector of employment. The survey contains the statement "It is important to this person to help the people nearby; to care for their well-being" and respondents were asked to score themselves on a six point scale ranging from "very much like me" to "not at all like me". We use this as a measure of altruism.<sup>8</sup> Unfortunately, our dataset does not allow us to

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<sup>6</sup>In Figure 1 the stochastic term  $\varepsilon$  is assumed to follow a continuous uniform distribution. The figure looks similar with other distributions as long as second-order effects through  $f'(\cdot)$  are not dominant.

<sup>7</sup>Previous waves are excluded from the analysis because these waves do not contain questions on altruism and sector of employment.

<sup>8</sup>Ideally, the question would not refer to “people nearby” but, more generally, to “people”. Care for people nearby is a good proxy for care for people more generally if these measures for altruism are positively correlated. We examined data from the General Social Survey and indeed find a strong positive correlation between “I would rather suffer myself than let the one I love suffer.” and “Personally assisting people in trouble is very

construct a multi-item measure of altruism that would be psychometrically preferable (see Gosling et al. 2003 for a discussion of pros and cons of single-item measures).

Furthermore, respondents were asked to score their confidence in political parties on a four point scale ranging from "a great deal" to "none at all". We use this as a proxy for the worker's valuation of the mission he contributes to when working in the public sector. Thus, we assume that workers with high confidence in political parties feel that they contribute to a good cause by working in the public sector, while this holds to a smaller extent for workers with less confidence. We readily admit that this is not an ideal measure of mission alignment, as political parties are an important but certainly not the sole determinant of the public sector's mission. Miller (1974a and 1974b) provides an interesting discussion of the relation between public policy and political trust. Quite close to our premise, he describes political trust (of which confidence in political parties is an important component) as "the belief that the government is operating according to one's normative expectations of how a government should function." (Miller 1974b: 989).<sup>9</sup>

Note that our data do not allow us to distinguish spiteful ( $\gamma < 0$ ) from selfish workers ( $\gamma = 0$ ) as both types of people likely answer "not at all like me" to the question on altruism. Nor can we be sure that we can distinguish workers with conflicting mission preferences ( $\beta < 0$ ) from workers with a neutral stance towards the public sector's mission ( $\beta = 0$ ), as we cannot rule out that both answer "none at all" to the question on confidence in political parties. Hence, the variation in our data mainly stems from workers who are at least to some extent altruistic and who have a relatively positive attitude towards the public sector's mission. Nevertheless, as we shall see, we find some indication for spite among highly educated workers in the lowest altruism category.

We restrict our analysis to respondents with a job (either full time, part time, or self employed) who work either in government and public institutions or in private business and industry. We omit all workers from private not-

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important to me."

<sup>9</sup>To our knowledge, a dataset covering workers in both the public and private sector and containing both a measure of altruism and a better measure of mission alignment does not exist. In addition to the question on confidence in political parties, the World Values Survey also contains a question on confidence in parliament. Performing our empirical analysis using this measure instead of confidence in political parties gives similar but slightly weaker results.

for-profit organizations, as it is not obvious how to classify them.<sup>10</sup> These restrictions result in a sample of 30.652 workers in 50 different countries,<sup>11</sup> of whom 9.002 (29.4%) work in the public sector. The number of observations per country ranges from 436 to 1.394. Our data contain between 60 and 460 workers in the public sector for each country.

The sector of employment variable is recoded to a dichotomous variable scoring one when public sector and zero when private sector. We use binary logistic regression<sup>12</sup> to estimate the odds that an individual with given characteristics works in the public sector. We control for several demographics  $D$ , such as age, gender, and education level of a worker.<sup>13</sup> We include country fixed effects  $\alpha_j$  to control for unobserved heterogeneity between countries. The specification of our regression equation is:

$$\ln \left( \frac{\Pr(\text{public})}{\Pr(\text{private})} \right) = \lambda A + \kappa C + \psi (A \times C) + D' \delta + \alpha_j + \varepsilon, \quad (1)$$

where  $A$  is our measure of altruism,  $C$  measures confidence in political parties, and  $\varepsilon$  is the error term. For ease of interpretation of the coefficients,  $A$  and  $C$  are both mean-centred. Our key parameter of interest is  $\psi$ , which should be positive when altruism and confidence in political parties are mutually reinforcing, as our theory suggests. We perform a test whether  $\psi = 0$

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<sup>10</sup>In some countries, not-for-profit organizations are highly subsidized and under control of the public sector. In others, not-for-profit organizations are much more autonomous and sometimes function as a substitute for public goods provision by the government.

<sup>11</sup>Countries included in the analysis are: Andorra, Argentina, Australia, Brazil, Bulgaria, Burkina Faso, Canada, Chile, China, Cyprus, Egypt, Ethiopia, Finland, France, Georgia, Germany, Ghana, India, Indonesia, Iran, Japan, Malaysia, Mali, Mexico, Moldova, Morocco, Netherlands, Norway, Peru, Poland, Romania, Russia, Rwanda, Slovenia, South Africa, South Korea, Serbia, Spain, Sweden, Switzerland, Taiwan, Thailand, Trinidad and Tobago, Turkey, Ukraine, United Kingdom, United States, Uruguay, Vietnam, and Zambia.

<sup>12</sup>We prefer binary logistic regression over probit regression because it simplifies the interpretation of results. Running the analysis with binary logistic regression gives a slightly better fit than probit (based on McFadden  $R^2$ ).

<sup>13</sup>A referee noted that a worker's risk preferences can also be an important determinant of sorting to the public sector, since the public sector commonly offers relatively secure jobs. Not controlling for such risk preferences biases our results if altruism and risk preferences are correlated. While it is not possible to control for risk preferences with the current dataset, we checked whether risk preferences and altruism are correlated in another dataset, the German Socio-Economic Panel, and found a very small and insignificant correlation (see Table 2 in Dur and Zoutenbier 2012).

against the one sided alternative that it is positive. Our theory provides little guidance regarding the signs of  $\lambda$  and  $\kappa$ . However, following prediction 1, the sum of  $\lambda$  and  $\psi$  should be positive for sufficiently high values of  $C$ . Likewise, following prediction 2, the sum of  $\kappa$  and  $\psi$  should be positive for sufficiently high values of  $A$ . We shall test these predictions by computing the marginal effects and the corresponding standard errors for all possible values of  $A$  and  $C$ .

Table 1 shows the descriptive statistics of the sample.<sup>14</sup> Both altruism and confidence in political parties are slightly but significantly higher among public sector workers as compared to private sector workers ( $p < 0.01$ ). This can also be seen in Figures 2 and 3. Kolmogorov-Smirnov tests confirm that these distributions are significantly different between public sector and private sector workers ( $p < 0.01$ ). There are some substantial differences in demographics between public and private sector workers. Public sector workers are more likely female, higher educated, and slightly older as compared to private sector workers. In the empirical analysis we shall control for these differences in observables.

## 5 Results

Table 2 shows the results of the binary logistic regressions for the full sample of workers. We report both the regression estimates  $b$  and the average marginal effect on the probability *ame*. The average marginal effect on the probability gives the average of the marginal effects evaluated for all observations. Following most previous studies, our first estimation includes only altruism as explanatory variable. Clearly, workers with higher levels of altruism are more likely to be employed in the public sector. This effect is both economically and statistically significant. A marginal increase by one from the mean of the altruism variable results in a 1.6 percentage points higher probability of working in the public sector instead of the private sector.<sup>15</sup> This implies a substantial difference in the probability of working in the public sector instead of the private sector of 7.6 percentage points between the least altruistic people and the most altruistic people in our sample. This

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<sup>14</sup>Compared to the original data, scales of altruism and confidence in political parties are reversed for interpretational purposes.

<sup>15</sup>We also tested for nonlinear effects of altruism, but these turn out to be insignificant and add little explanatory power.

result is well in line with the earlier empirical studies discussed in section 2.

Next we control for demographic characteristics and country dummies. The effect of altruism is robust in sign and significance; the marginal effect of altruism decreases from 1.6 to 1.2 percentage points, but remains highly significant. The demographic control variables turn out to be important for sorting to the public sector. Consistent with earlier studies (e.g. Lewis and Frank 2002, Buurman et al. 2012), we find that the likelihood of being employed in the public sector is higher for females and increases with age and education. Wald tests show that the education level dummies differ significantly from each other. The country dummies, which control for unobserved differences across countries, are jointly highly significant ( $p < 0.01$ ).

Column 3 of Table 2 includes confidence in political parties and the interaction with altruism as explanatory variables. The conditional marginal effect of altruism remains economically and statistically significant. The marginal effect of altruism is 1.1 percentage points, given average confidence in political parties (recall that altruism and confidence in political parties are mean-centred). The control variables remain significant with similar magnitudes and signs. The marginal effect of confidence in political parties conditional on average altruism is also significant and positive; an increase of confidence in political parties results in a 1.6 percentage points higher probability of working in the public sector instead of the private sector. We find evidence in support of our key prediction, the one-sided test for a positive interaction effect between altruism and confidence in political parties is significant ( $p = 0.066$ ). A unit increase of confidence in political parties leads to an additional marginal effect of altruism of 0.5 percentage points.<sup>16</sup> Table 3 shows in more detail how the marginal effect of altruism changes with confidence in political parties, and also how the marginal effect of confidence in political parties changes with altruism. Well in line with our predictions, the marginal effect of a worker's altruism is strongly increasing in the worker's confidence in political parties. Similarly, we find no significant marginal effect of confidence in political parties for low values of altruism and positive and significant effects for high values. In contrast to our predictions, we do not find negative marginal effects of altruism and confidence at the lower ends of the scales. As discussed in the previous section, this may be due to the

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<sup>16</sup>The marginal effect of the interaction term is calculated according to the method proposed in Ai and Norton (2003). We find a consistently positive interaction effect for all observations in our sample.



fact that we cannot distinguish spiteful workers and workers with conflicting mission preferences from workers with a more positive stance.

Figure 4 depicts for each possible combination of altruism and confidence in political parties, the predicted probability (and its 95% confidence interval in transparent planes) of working in the public sector as compared to people with average altruism and confidence in political parties (depicted by the light grey plane). Clearly, highly altruistic workers with strong confidence in political parties are more likely to work in the public sector, with a positive and significant difference in probability of up to 6.5 percentage points as compared to an average worker (note that the predicted probability of working in the public sector for an average worker is 25,5%). In contrast, a non-altruistic worker with weak confidence shows a significantly lower likelihood of working in the public sector (total effect up to  $-4.1$  percentage points lower probability). Altruistic workers with weak confidence and non-altruistic workers with strong confidence are not significantly more or less likely to work in the public sector as compared to an average worker.

Our dataset includes both well-developed countries and less-developed countries. We examine heterogeneity between these two groups of countries by estimating equation (1) for two subsamples; well-developed countries (as measured by their OECD membership) and less-developed countries (without OECD membership). Table 4 shows that the differences in results between these two groups of countries are small but remarkable. The conditional marginal effect of a worker's altruism on the likelihood of working in the public sector is stronger in well-developed countries as compared to less-developed countries. The marginal effect of altruism, given average confidence in political parties, is 1.5 percentage points for workers in well-developed countries and 0.7 percentage points for workers in less-developed countries. Conversely, the conditional marginal effect of a worker's confidence in political parties is less important in well-developed countries as compared to less-developed countries. The marginal effect of an increase in confidence in political parties, given average altruism, is 1.1 percentage points for workers in well-developed countries and 1.8 percentage points for workers in less-developed countries. The interaction between altruism and confidence in political parties is also lower in well-developed countries as compared to less-developed countries. A unit increase in confidence results in an additional marginal effect of altruism of 0.3 percentage points for workers in well-developed countries and in an additional marginal effect of altruism of 0.5 percentage points for workers

in less-developed countries.<sup>17</sup> These results are reasonably well in line with the results of our full sample estimations.

Summarizing, we find some remarkable differences between well-developed and less-developed countries in the effect of altruism, confidence, and the interaction between altruism and confidence on the likelihood of working in the public sector. One possible explanation for why altruism matters more for sorting in well-developed countries as compared to less-developed countries lies in the stronger need to get any job in less-developed countries, resulting in stronger competition for public sector jobs. We would expect to see a diluted effect of altruism in less-developed countries if selfish workers are more successful in acquiring a job under such strong competition than altruistic workers, as in e.g. Lazear (1989). We also find that a worker's confidence and the mutually reinforcing relation between a worker's altruism and confidence are somewhat less important for sorting in well-developed countries as compared to less-developed countries. A possible explanation for these results is that there is more variation in quality of the public sector within the group of less-developed countries making it easier to identify an effect of confidence. Alternatively, public sector jobs may be less secure in less-developed countries, depending on which parties are ruling the country.

Previous research has shown that public service motivation is a more important determinant of sector of employment for higher educated workers (Lewis and Frank 2002). To assess differences between education levels in our sample, we estimate equation (1) for three subsamples: a low, intermediate, and high level of education subsample.<sup>18</sup> Table 5 reports the estimation results for these subsamples. Well in line with Lewis and Frank (2002), we find relatively weak effects for workers with low and intermediate education, while for highly educated workers we find very strong effects on sector of employment of altruism, confidence in political parties, and, in particular, for the interaction between these two. The coefficient for the interaction term is more than three times as large as compared to the regression using the

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<sup>17</sup>As in the full sample, the interaction effect calculated according to the method of Ai and Norton (2003) is consistently positive for all observations in both subsamples.

<sup>18</sup>The low subsample includes all workers who have less than secondary education (categories 1 to 4 in the dataset), the intermediate subsample includes all workers with at least secondary education and at most university preparatory (categories 5 to 7), and the high subsample includes all workers with more than university preparatory education (category 8 and 9).

full sample and highly significant ( $p < 0.01$ ).<sup>19</sup> Our hypothesis that altruism and mission alignment are mutually reinforcing thus finds strong support among the highly educated workers. Table 6 reports the corresponding marginal effects for the subsample of highly educated workers. In line with our predictions, we find no significant marginal effect of altruism for low values of confidence in political parties, while the marginal effect is positive and highly significant for high values of confidence. Likewise, we find a positive and significant marginal effect of confidence in political parties on public sector employment for highly altruistic workers. For the middle altruism categories, we find no significant marginal effect of confidence. Lastly, for the lowest altruism category, we find a sizeable but insignificant negative marginal effect ( $p = 0.103$ ). This is fully consistent with our model if many of the people in the lowest altruism category are spiteful.

Figure 5 plots the predicted probabilities to work in the public sector for the subsample of highly educated workers. Highly educated workers with high altruism and strong confidence in political parties are up to 13.2 percentage points more likely to work in the public sector as compared to the average highly educated worker, who faces a predicted probability of 42.5%. Highly altruistic workers with weak confidence and non-altruistic workers with strong confidence show a significant lower likelihood of working in the public sector. All three findings are consistent with our model, with the latter two indicative of conflict of mission preferences and spite among the highly educated workforce, respectively.

## 6 Conclusion

We have studied how a worker’s altruism and mission preferences jointly affect his likelihood of working in the public sector rather than taking a job in the private sector. We built a very simple model that predicts that a worker’s altruism and the alignment of his mission preferences with the mission of the public sector are mutually reinforcing forces. Simply put, our theory predicts

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<sup>19</sup>The interaction effect is computed according to the method described in Ai and Norton (2003) and shows a consistently positive and significant interaction across all observations in the subsample of highly educated workers. In the subsamples of workers with low and intermediate levels of education, we find the interaction effect to be consistently insignificant over all observations, without a clear prediction on the sign of the interaction in the intermediate subsample.

that alignment of mission preferences matters more when a worker's altruism is higher and that altruism matters more when mission preferences are more closely aligned. We have tested these predictions using data from the World Values Survey, containing data on over 30,000 workers, covering their sector of employment, their willingness to help other people (altruism), and their confidence in political parties (which we take as a proxy for alignment with the public sector's mission). We find strong evidence for a mutually reinforcing role of altruism and mission alignment in sorting to the public sector, particularly among highly educated workers and among workers in less-developed countries. Our results show that only those workers who are highly altruistic as well as have strong confidence in political parties have a significantly higher likelihood of working in the public sector, while workers with low altruism and weak confidence are significantly less likely to work in the public sector. The size of these effects is substantial. Highly altruistic workers with weak confidence and non-altruistic workers with strong confidence are neither more nor less likely to sort to the public sector in the full sample. Among highly educated workers, the latter two groups have a significantly lower likelihood of working in the public sector. These results indicate that conflict of mission preferences and spite discourages some highly educated workers to sort into the public sector.

A caveat of our analysis (that we share with most previous studies) is that we cannot distinguish whether our results originate from (self-)selection of workers or from preference adaptation (see Wright and Grant 2010 for an interesting discussion of this issue). For instance, we cannot rule out that the patterns that we find in our data are non-existent for workers who just started their career and so entirely arise from adaptation of preferences since workers have started a job in a particular sector. Following this interpretation of our results, employees acquire higher confidence in political parties and become more altruistic when working in the public sector. While this interpretation may have some intuitive appeal, the available empirical evidence points in the opposite direction for public sector workers' altruism. That is, when tenure increases, workers in the public sector tend to experience a decrease rather than an increase in altruistic motivations (see Blau 1960, Van Maanen 1975, Moynihan and Pandey 2007, De Cooman et al. 2009, and Buurman et al. 2012). Future research should provide insight into whether the same holds for confidence in political parties.

Much remains to be done to better understand sorting of workers to the public sector. An interesting refinement of our study would be to examine

how sorting relates to other, psychometrically sound measures of altruism and mission alignment, taking into account the complex nature of these concepts. In future research it would also be interesting to look closer at the differences in sorting patterns across countries. For instance, differences between countries in the size of the public sector may lead to different sorting patterns when motivated workers are a scarce resource, as in Jones (2012). However, the size of the public sector might also be endogenous to the supply of motivated workers in a country. Differences between countries in the supply of motivated workers may stem from cultural differences. An interesting new direction for research would be to examine how such cultural differences affect the supply and sorting of motivated workers.

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# Tables

Table 1: Descriptive statistics

	obs.	Public	Private	Total
Altruism	30652			
Mean		4.77	4.68	4.71
Standard deviation		(1.08)	(1.11)	(1.10)
Confidence in Political Parties	28429			
Mean		2.09	2.03	2.05
Standard deviation		(0.82)	(0.80)	(0.81)
Gender: % Female	30463			
Mean		0.49	0.39	0.42
Standard deviation		(0.50)	(0.49)	(0.49)
Age: Years	30463			
Mean		40.49	38.45	39.05
Standard deviation		(11.33)	(12.34)	(12.08)
Education: % Level	30463			
None		0.01	0.07	0.05
Incomplete Primary		0.02	0.05	0.04
Primary		0.05	0.12	0.10
Incomplete Secondary		0.05	0.07	0.06
Secondary		0.22	0.22	0.22
Incomplete University Preparatory		0.05	0.06	0.06
University Preparatory		0.17	0.17	0.17
University: no degree		0.10	0.07	0.08
University		0.34	0.15	0.21
Countries	50			
Observations		9002	21650	30652

Table 2: Results of the binary logistic regression (full sample)

Dependent variable: sector of employment						
	(1)		(2)		(3)	
	b	ame	b	ame	b	ame
Altruism	0.077*** (0.012)	0.016	0.068*** (0.013)	0.012	0.062*** (0.014)	0.011
Female			0.476*** (0.028)	0.086	0.457*** (0.029)	0.082
Age			0.100*** (0.007)	0.018	0.094*** (0.007)	0.017
Age <sup>2</sup>			-0.001*** (0.000)	-0.000	-0.001*** (0.000)	-0.000
Education:						
-Incomplete Primary			0.626*** (0.139)	0.042	0.752*** (0.161)	0.047
-Primary			1.092*** (0.120)	0.088	1.183*** (0.141)	0.089
-Incomplete Secondary			1.526*** (0.125)	0.145	1.639*** (0.144)	0.148
-Secondary			2.033*** (0.115)	0.231	2.142*** (0.136)	0.232
-Incompl. University Prep.			1.921*** (0.124)	0.210	1.957*** (0.145)	0.199
-University Preparatory			2.167*** (0.115)	0.256	2.249*** (0.137)	0.252
-University: no degree			2.416*** (0.120)	0.307	2.517*** (0.141)	0.306
-University			2.946*** (0.115)	0.424	3.074*** (0.136)	0.429
Confidence					0.090*** (0.019)	0.016
Confidence × Altruism					0.024* (0.016)	0.005
Intercept	-0.879*** (0.013)		-5.605*** (0.215)		-5.535*** (0.231)	
Country Fixed Effects	No		Yes		Yes	
Observations Dep=0	21650		21537		20196	
Observations Dep=1	9002		8926		8233	
Total Observations	30652		30463		28429	
McFadden R <sup>2</sup>	0.001		0.124		0.119	
Log Likelihood	-18535		-16149		-15068	

Notes: Standard errors between parentheses. Variables altruism and confidence are centered around their sample mean. For factor variables the column ame shows the effect for a discrete change from the base level. \*, \*\*, \*\*\* indicate significance at respectively 0.10, 0.05, and 0.01 level.

Table 3: Average marginal effects (full sample)

Confidence in political parties	Altruism		Altruism	Confidence in political parties	
	ame	Std. Err.		ame	Std. Err.
1	0.006*	(0.004)	1	0.000	(0.010)
2	0.011***	(0.002)	2	0.004	(0.008)
3	0.015***	(0.004)	3	0.008	(0.006)
4	0.020***	(0.006)	4	0.013***	(0.004)
			5	0.017***	(0.003)
			6	0.022***	(0.005)

Notes: Column ame shows the average marginal effect on the probability given the value of the other independent variable. Standard errors are calculated using the delta method. \*, \*\*, \*\*\* indicate significance at respectively 0.10, 0.05, and 0.01 level.

Table 4: Results of regression for OECD and non-OECD member countries

Dependent variable: sector of employment				
	Countries:		non-OECD	
	OECD			
	b	ame	b	ame
Altruism	0.080*** (0.023)	0.015	0.042** (0.018)	0.007
Female	0.719*** (0.046)	0.134	0.274*** (0.038)	0.048
Age	0.096*** (0.012)	0.017	0.091*** (0.009)	0.016
Age <sup>2</sup>	-0.001*** (0.000)	-0.000	-0.001*** (0.000)	-0.000
Education:				
-Incomplete Primary	0.193 (0.495)	0.025	0.683*** (0.173)	0.041
-Primary	0.070 (0.457)	0.009	1.139*** (0.152)	0.082
-Incomplete Secondary	0.292 (0.459)	0.038	1.727*** (0.157)	0.158
-Secondary	0.522 (0.452)	0.073	2.380*** (0.143)	0.273
-Incompl. University Prep.	0.662 (0.458)	0.097	1.978*** (0.160)	0.199
-University Preparatory	0.870* (0.452)	0.134	2.346*** (0.145)	0.266
-University: no degree	0.994** (0.453)	0.158	2.743*** (0.154)	0.349
-University	1.595*** (0.450)	0.286	3.257*** (0.145)	0.464
Confidence	0.057* (0.035)	0.011	0.106*** (0.023)	0.018
Confidence × Altruism	0.014 (0.031)	0.003	0.028* (0.019)	0.005
Intercept	-4.268*** (0.530)		-5.986*** (0.248)	
Country Fixed Effects	Yes		Yes	
Observations Dep=0	7813		12383	
Observations Dep=1	3088		5145	
Total Observations	10901		17528	
McFadden R <sup>2</sup>	0.091		0.143	
Log Likelihood	-5909		-9088	

Notes: Standard errors between parentheses. Variables altruism and confidence are centered around their sample mean. For factor variables the column ame shows the effect for a discrete change from the base level. \*, \*\*, \*\*\* indicate significance at respectively 0.10, 0.05, and 0.01 level.

Table 5: Results of regression with sample split on educational level

Dependent variable: sector of employment							
	Group:	Low		Intermediate		High	
		b	ame	b	ame	b	ame
Altruism		0.056 (0.035)	0.006	0.047** (0.020)	0.009	0.078*** (0.024)	0.017
Female		0.200*** (0.076)	0.022	0.364*** (0.043)	0.067	0.693*** (0.049)	0.153
Age		0.058*** (0.017)	0.006	0.087*** (0.011)	0.016	0.129*** (0.014)	0.028
Age <sup>2</sup>		-0.000** (0.000)	-0.000	-0.001*** (0.000)	-0.000	-0.001*** (0.000)	-0.000
Education:							
-Incomplete Primary		0.391** (0.173)	0.033				
-Primary		0.576*** (0.158)	0.051				
-Incomplete Secondary		0.982*** (0.166)	0.100				
-Secondary							
-Incompl. University Prep.				-0.213*** (0.076)	-0.036		
-University Preparatory				0.140*** (0.050)	0.026		
-University: no degree							
-University						0.585*** (0.058)	0.126
Confidence		0.079* (0.047)	0.009	0.104*** (0.028)	0.019	0.112*** (0.034)	0.025
Confidence × Altruism		-0.012 (0.037)	-0.001	-0.002 (0.023)	0.000	0.081*** (0.029)	0.018
Intercept		-3.823*** (0.431)		-3.438*** (0.328)		-3.894*** (0.327)	
Country Fixed Effects		Yes		Yes		Yes	
Observations Dep=0		6115		9357		4724	
Observations Dep=1		1004		3598		3631	
Total Observations		7119		12955		8355	
McFadden R <sup>2</sup>		0.126		0.083		0.087	
Log Likelihood		-2531		-7020		-5220	

Notes: Standard errors between parentheses. Variables altruism and confidence are centered around their subsample mean. For factor variables the column ame shows the effect for a discrete change from the base level. \*, \*\*, \*\*\* indicate significance at respectively 0.10, 0.05, and 0.01 level.



Table 6: Average marginal effects (high education subsample)

Confidence in political parties	Altruism		Altruism	Confidence in political parties	
	ame	Std. Err.		ame	Std. Err.
1	-0.001	(0.008)	1	-0.039	(0.024)
2	0.017***	(0.005)	2	-0.022	(0.019)
3	0.035***	(0.008)	3	-0.005	(0.013)
4	0.052***	(0.013)	4	0.012	(0.009)
			5	0.030***	(0.007)
			6	0.048***	(0.011)

Notes: Column ame shows the average marginal effect on the probability given the value of the other independent variable. Standard errors are calculated using the delta method. \*, \*\*, \*\*\* indicate significance at respectively 0.10, 0.05, and 0.01 level.

# Figures

Figure 1: Predicted probabilities of working in the public sector

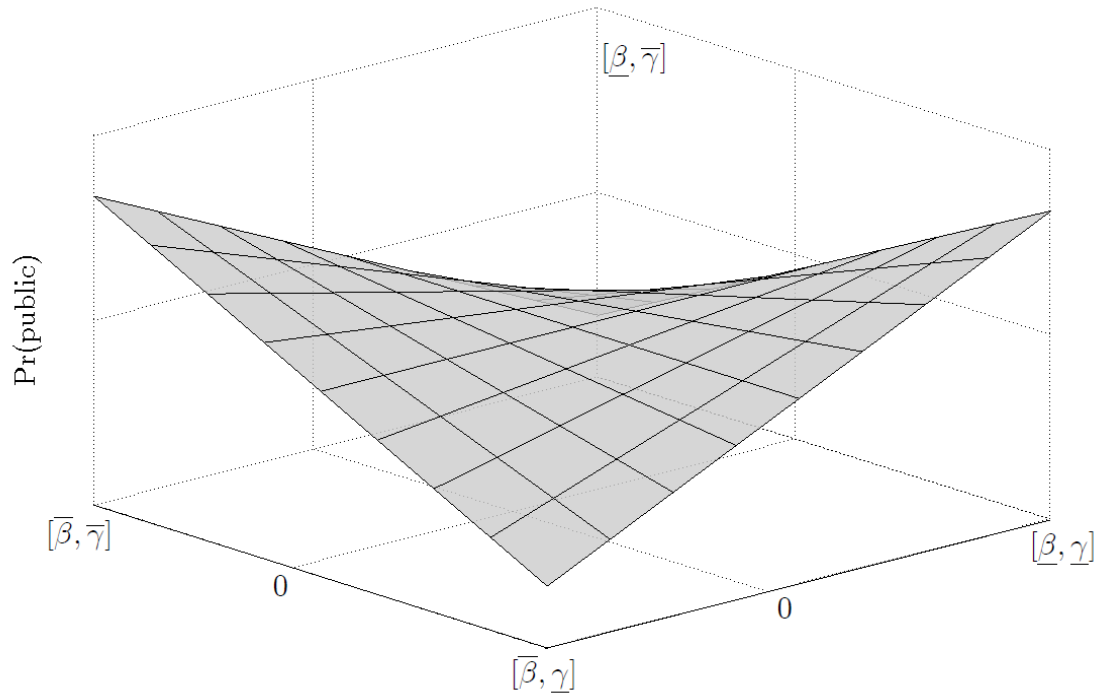
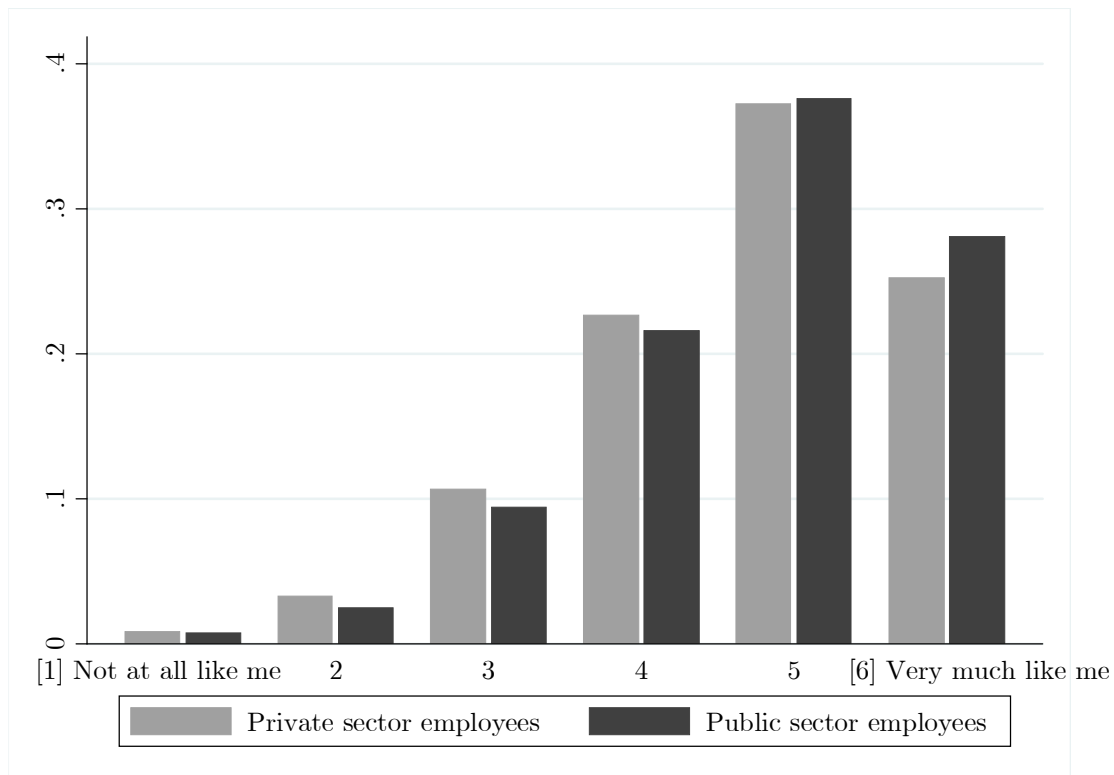
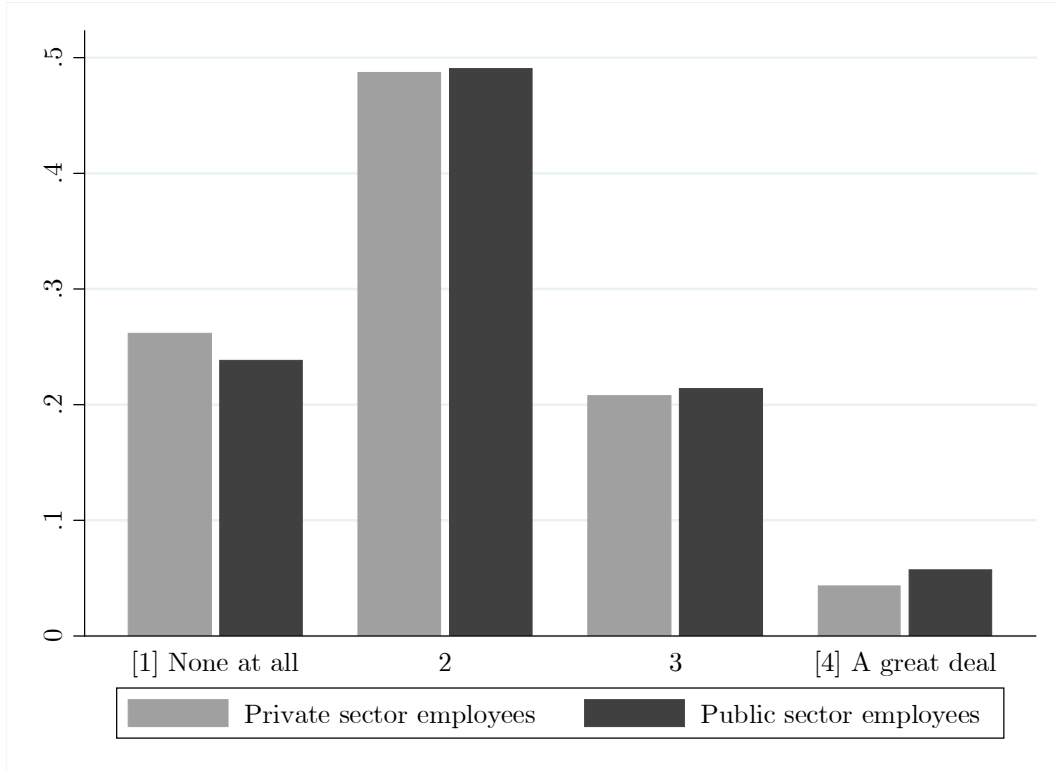


Figure 2: Density of altruism



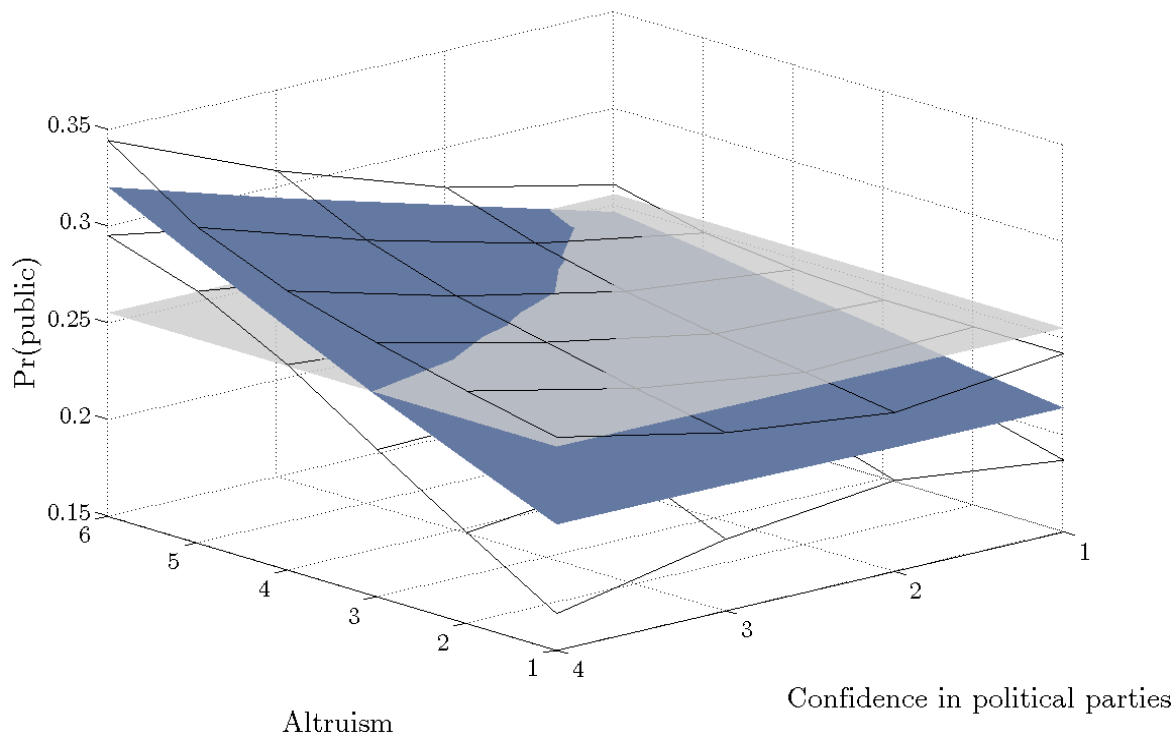
Notes: Altruism is measured by the response to the statement "It is important to this person to help the people nearby; to care for their well-being". The answer categories are [1] Not at all like me, [2] Not like me, [3] A little like me, [4] Somewhat like me, [5] Like me, and [6] Very much like me.

Figure 3: Density of confidence in political parties



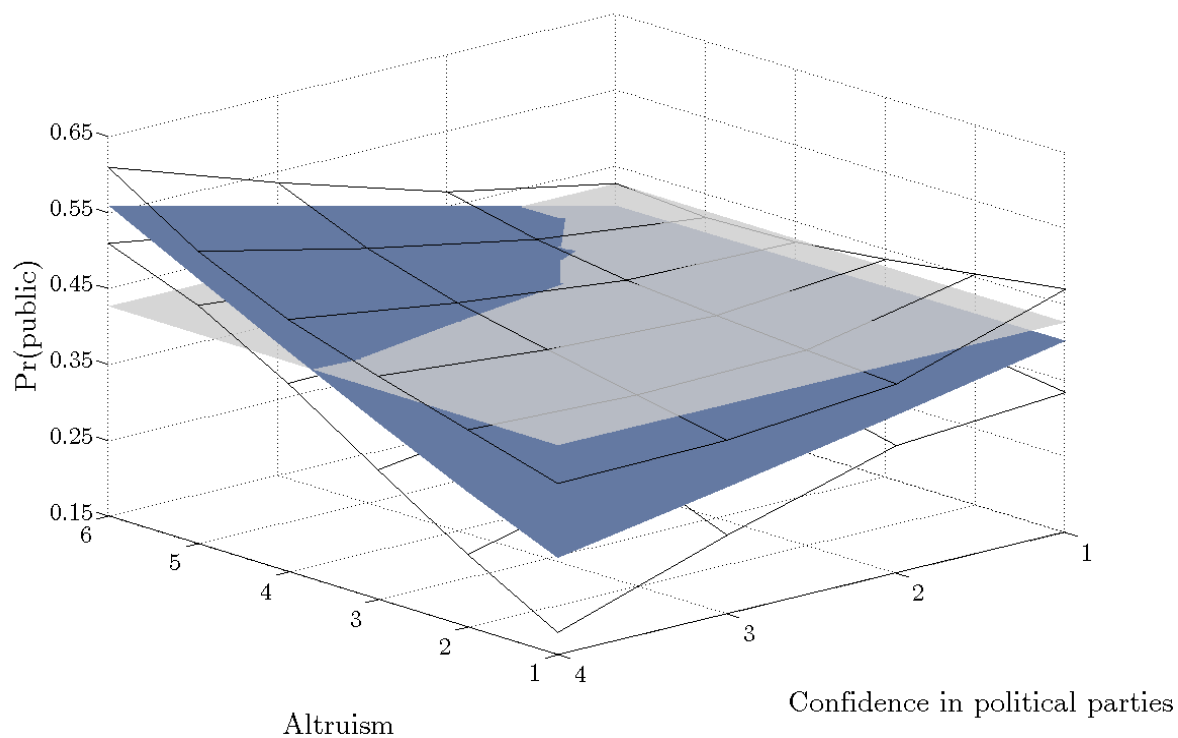
Notes: Confidence in political parties is measured by the response to the question "Could you tell me how much confidence you have in [Political parties]?" The answer categories are [1] None at all, [2] Not very much, [3] Quite a lot, and [4] A great deal.

Figure 4: Predicted probabilities of working in the public sector for each combination of altruism and confidence in political parties (full sample)



Notes: Transparent planes show the 95% confidence interval, and the light grey plane shows the predicted probability of working in the public sector for a worker with average altruism and confidence in political parties.

Figure 5: Predicted probabilities of working in the public sector for each combination of altruism and confidence in political parties (high education sample)



Notes: Transparent planes show the 95% confidence interval, and the light grey plane shows the predicted probability of working in the public sector for a worker with average altruism and confidence in political parties.