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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. Our results show that only those individuals who are willing to contribute to the welfare of others and, in addition, feel that by working in the public sector they contribute to a good cause are significantly more likely to work in the public sector. Our results are most pronounced for highly educated employees.

Keywords: public service motivation, altruism, mission preferences, sorting.

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.

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. We show 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 a data set covering employees in a broad range of countries around the world. The existing literature almost exclusively uses data from countries with a well developed

public sector, 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 data on more than 30,000 respondents 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 odds 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 odds 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 37% higher odds as compared to the average worker. 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. In contrast, workers with low altruism and weak confidence are significantly less likely to work in the public sector; the odds are up to 21% lower as compared to the average worker.

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.

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 data set 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 (Francois 2000 and 2007, Glazer 2004, Besley and Ghatak 2005, Prendergast 2007, Delfgaauw and Dur 2008, Nyborg and Brekke 2010, Buurman and Dur 2010, and Ghatak and Mueller 2011). A common finding in this rapidly growing literature is that public sector organizations optimally set relatively low wages and provide weak monetary incentives 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. Buurman et al. (2009) and Jacobsen et al. (2011) 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 in the not-for-profit sector are more likely to donate labour in the form of unpaid overtime as compared to their for-profit counterparts. 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, Smith and Cowley (2011) 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.

3 Theory

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.¹ Both γ and β can take positive and negative values. A negative γ implies that a worker is spiteful; such a worker would rather harm than serve others.² A negative β 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.

The economy consists of two sectors: a public sector and a private sector. The private sector is perfectly competitive and neither γ nor β matters in any way, such that people who choose to work in the private sector obtain the

¹Note that altruism is impure: Individuals enjoy their personal contribution to the public interest, as in Besley and Ghatak (2005) and Delfgaauw and Dur (2008); see Tonin and Vlassopoulos (2010) for field-experimental evidence supporting this assumption. A key difference with Besley and Ghatak (2005)’s 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.

²Lab 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).

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 γ and β . 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 ($\beta_i > 0$).³ The stochastic term ε_i captures all other possible characteristics that may influence an individual's relative preference for the public sector. It is drawn from a distribution with CDF $F(\varepsilon) = \Pr(\varepsilon_i \leq \varepsilon)$ 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 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 ($\beta = 0$).

³We 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 (2010) 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).

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 (γ) 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 (β) 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. 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 will be 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 wave⁴

⁴Previous waves are excluded from the analysis because these waves do not contain questions on altruism and sector of employment.

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.⁵ The range of countries is very diverse, ranging from wealthy OECD countries to developing countries in South America, Asia, Africa, and the Middle East.

The key variables of interest are stated altruism, confidence in political parties, and sector of employment. Respondents faced the question "It is important to this person to help the people nearby; to care for their well-being" and 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.⁶ 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.⁷ Note that our data do not allow us to distinguish spiteful from indifferent workers as both types of people will answer "not at all like me" to the question on altruism. Nor can we really distinguish workers with conflicting mission preferences from workers with a more neutral stance towards the public sector's mission, as both will most likely 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

⁵With the exception of Japan and Australia, where paper-and-pencil questionnaires were administered.

⁶Ideally, 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 important to me."

⁷We readily admit that this is not an ideal measure of mission alignment, as political parties are an important but not the sole determinant of the public sector's mission. 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.

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-for-profit organizations, as it is not obvious how to classify these.⁸ These restrictions result in a sample of 30.652 workers in 50 different countries,⁹ of whom 9.002 (29.4%) work in the public sector. The number of observations per country ranges from 436 to 1.394.

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 regression¹⁰ to estimate the odds that an individual with given characteristics works in the public sector. We control for several demographics D_k , such as age, gender, and education level of a worker. We include country fixed effects α_j to control for unobserved heterogeneity between countries. The specification of our regression equation is:

$$\ln \left(\frac{\Pr(\textit{public})}{\Pr(\textit{private})} \right) = \lambda A + \kappa C + \psi (A \times C) + \sum \delta_k D_k + \alpha_j + \varepsilon, \quad (1)$$

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

⁸In 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.

⁹Countries 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.

¹⁰We 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).

against the one sided alternative that it is positive. Our theory provides little guidance regarding the signs of λ and κ . However, following prediction 1, the sum of λ and ψ should be positive for sufficiently high values of C . Likewise, following prediction 2, the sum of κ and ψ 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.¹¹ Both altruism and confidence in political parties are slightly higher among public sector workers as compared to private sector workers. This can also be seen in Figures 2 and 3. There are some remarkable 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 exponent of the regression estimates $\exp(b)$. The exponent of the regression estimate minus one gives the estimated marginal change in odds given a unit change in the independent variable. 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 8% higher odds of working in the public sector instead of the private sector.¹² This implies a substantial difference in the odds of working in the public sector instead of the private sector of 47% ($1.080^5 = 1.469$) between the least altruistic people and the most altruistic people in our sample. This 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

¹¹Compared to the original data, scales of altruism and confidence in political parties are reversed for interpretational purposes.

¹²We also tested for nonlinear effects of altruism, but these turn out to be insignificant and add little explanatory power.

of altruism decreases from 8% to 7%, but remains highly significant. We find strong evidence for the influence of the demographic control variables on sector choice. Consistent with earlier studies (e.g. Lewis and Frank 2002, Buurman et al. 2009), we find that the likelihood of being employed in the public sector is higher for females and increases with age and education.¹³ 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 6,4%, given average confidence in political parties. The control variables remain significant with similar magnitudes and signs as compared to the second estimation. 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 9,4% higher odds to work 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 2,4%. 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 well be due to the fact that we cannot distinguish spiteful workers and workers with conflicting mission preferences from workers with a more neutral stance.

Figure 4 depicts for each possible combination of altruism and confidence in political parties, the estimated difference in odds (and its 95% confidence interval in transparent planes) to work in the public sector as compared to people with average altruism and confidence in political parties. Clearly,

¹³Wald tests show that the educational dummies differ significantly from each other ($p < 0.01$; level 5 and 6 at $p < 0.10$).

highly altruistic workers with strong confidence in political parties are very likely to work in the public sector, with a positive and significant total effect of up to 37% on the odds as compared to the average worker. In contrast, a non-altruistic worker with weak confidence shows a significant lower likelihood of working in the public sector (total effect up to -21% on the odds). 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.

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.¹⁴ Table 4 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 full sample and highly significant ($p < 0.01$). Our hypothesis that altruism and mission alignment are mutually reinforcing thus finds strong support among the highly educated workers. Table 5 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 ($p = 0.11$). While remarkable, this is fully consistent with our model if many of the people in the lowest altruism category are spiteful.

Figure 5 plots the estimated difference in odds to work in the public sector

¹⁴The 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).

for the subsample of highly educated workers. Highly educated workers with high altruism and strong confidence in political parties face up to 71% higher odds of working in the public sector as compared to the average worker. 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 altruism and alignment of mission preferences with the mission of the public sector are mutually reinforcing forces. Simply put, our theory predicts 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, particularly among highly educated workers. 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 adaption 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. 2009). Future research should provide insight into whether the same holds for confidence in political parties.

References

- [1] Andreoni, James and John Miller (2002), Giving according to GARP: An Experimental Test of the Consistency of Preferences for Altruism, *Econometrica*, 70(2): 737-753.
- [2] Beckman, Steven R., John P. Formby, W. James Smith and Buhong Zheng (2002), Envy, Malice, and Pareto Efficiency: An Experimental Examination, *Social Choice and Welfare*, 19(2): 349-367.
- [3] Besley, Timothy and Maitreesh Ghatak (2005), Competition and Incentives with Motivated Agents, *American Economic Review*, 95(3): 616-636.
- [4] Blau, Peter M. (1960), Orientation toward Clients in a Public Welfare Agency, *Administrative Science Quarterly*, 5(3): 341-361.
- [5] Brewer, Gene A. (2003), Building Social Capital: Civic Attitudes and Behavior of Public Servants, *Journal of Public Administration Research and Theory*, 13(1): 5-26.
- [6] Bright, Leonard (2008), Does Public Service Motivation Really Make a Difference on the Job Satisfaction and Turnover Intentions of Public Employees?, *American Review of Public Administration*, 38(2): 149-166.
- [7] Buurman, Margaretha and Robert Dur (2010), Incentives and the Sorting of Altruistic Agents into Street-Level Bureaucracies, *Scandinavian Journal of Economics*, forthcoming.
- [8] Buurman, Margaretha, Robert Dur and Seth Van den Bossche (2009), Public Sector Employees: Risk Averse and Altruistic?, Tinbergen Institute Discussion Paper 2009-067/1.
- [9] Crewson, Philip E. (1997), Public-Service Motivation: Building Empirical Evidence of Incidence and Effect, *Journal of Public Administration Research and Theory*, 7(4): 499-518.
- [10] De Cooman, Rein, Sara De Gieter, Roland Pepermans, Sabrina Hermans, Cindy Du Bois, Ralf Cears and Marc Jegers (2009), Person-Organisation Fit: Testing Socialization and Attraction-Selection-Attrition Hypotheses, *Journal of Vocational Behaviour*, 74(1): 102-107.

- [11] Delfgaauw, Josse and Robert Dur (2008), Incentives and Workers' Motivation in the Public Sector, *Economic Journal*, 118: 171-191.
- [12] Falk, Armin, Ernst Fehr and Urs Fischbacher (2005), Driving Forces Behind Informal Sanctions, *Econometrica*, 73(6): 2017-2030.
- [13] Fehr, Ernst, Daniela Rützler and Matthias Sutter (2011), The Development of Egalitarianism, Altruism, Spite, and Parochialism in Childhood and Adolescence. IZA Discussion Paper No. 5530.
- [14] Francois, Patrick (2000), Public Service Motivation as an Argument for Government Provision, *Journal of Public Economics*, 78(3): 275-299.
- [15] Francois, Patrick (2007), Making a Difference, *RAND Journal of Economics*, 38(3): 714-732.
- [16] Francois, Patrick and Michael Vlassopoulos (2008), Pro-social Motivation and the Delivery of Social Services, *CESifo Economic Studies*, 54(1): 22-54.
- [17] Ghatak, Maitreesh and Hannes Mueller (2011), Thanks for Nothing? Not-for-profits and Motivated Agents, *Journal of Public Economics*, 95(1-2): 94-105.
- [18] Glazer, Amihai (2004), Motivating Devoted Workers, *International Journal of Industrial Organization*, 22(3): 427-440.
- [19] Gregg, Paul, Paul Grout, Anita Ratcliffe, Sarah Smith and Frank Windmeijer (2011), How Important Is Pro-Social Behavior in the Delivery of Public Services?, *Journal of Public Economics*, 95(7-8): 758-766.
- [20] Houston, David J. (2000), Public-Service Motivation: A Multivariate Test, *Journal of Public Administration Research and Theory*, 10(4): 713-727.
- [21] Houston, David J. (2006), "Walking the Walk" of Public Service Motivation: Public Employees and Charitable Gifts of Time, Blood, and Money, *Journal of Public Administration Research and Theory*, 16(1): 67-86.

- [22] Houston, David J. (2011), Implications of Occupational Locus and Focus for Public Service Motivation: Attitudes Toward Work Motives across Nations, *Public Administration Review*, 71(5): 761-771.
- [23] Jacobsen, Karin, Kari H. Eika, Leif Helland, Jo Thori Lind and Karine Nyborg (2011), Are Nurses More Altruistic than Real Estate Brokers?, *Journal of Economic Psychology*, 32(5): 818-831.
- [24] Kristof, Amy L. (1996), Person-Organization Fit: An Integrative Review of its Conceptualizations, Measurement, and Implications, *Personnel Psychology*, 49(1): 1-49.
- [25] Leisink, Peter and Bram Steijn (2009), Public Service Motivation and Job Performance of Public Sector Employees in the Netherlands, *International Review of Administrative Sciences*, 75(1): 35-52.
- [26] Lewis, Gregory B. and Sue A. Frank (2002), Who Wants to Work for the Government? *Public Administration Review*, 62(4): 395-404.
- [27] Moynihan, Donald P. and Sanjay K. Pandey (2007), The Role of Organizations in Fostering Public Service Motivation, *Public Administration Review*, 67(1): 40-53.
- [28] Norris, Pippa (2003), Is There Still a Public Service Ethos? Work Values, Experience, and Job Satisfaction among Government Workers, In John D. Donahue and Joseph S. Nye Jr. (Eds.), *For the People; Can We Fix Public Service?*, pp. 72-89. Washington, D.C.: Brookings Institution Press.
- [29] Nyborg, Karin and Kjell A. Brekke (2010), Selfish Bakers, Caring Nurses? A Model of Work Motivation, *Journal of Economic Behaviour & Organization*, 75(3): 377-394.
- [30] Perry, James L. and Lois R. Wise (1990), The Motivational Bases of Public Service, *Public Administration Review*, 50(3): 367-373.
- [31] Perry, James L., Annie Hondeghem, and Lois R. Wise (2010), Revisiting the Motivational Bases of Public Service: Twenty Years of Research and an Agenda for the Future, *Public Administration Review*, 70(5): 681-690.

- [32] Prendergast, Canice (2007), The Motivation and Bias of Bureaucrats, *American Economic Review*, 97(1): 180-196.
- [33] Rainey, Hal G. (1982), Reward Preferences among Public and Private Managers: In Search of the Service Ethic, *American Review of Public Administration*, 16(4): 288-302.
- [34] Rainey, Hal G. and Paula Steinbauer (1999), Galloping Elephants: Developing Elements of a Theory of Effective Government Organisations, *Journal of Public Administration Research and Theory*, 9(1): 1-32.
- [35] Serneels, Pieter, Magnus Lindelow, Jose G. Montalvo and Abigail Barr (2007), For Public Service or Money: Understanding Geographical Imbalances in the Health Workforce, *Health Policy and Planning*, 22(3): 128-138.
- [36] Serra, Danila, Pieter Serneels and Abigail Barr (2011), Intrinsic Motivations and the Non-Profit Health Sector: Evidence from Ethiopia, *Personality and Individual Differences*, 51(3): 309-314.
- [37] Smith, Sarah and Edd Cowley (2011), Who Works in the Public Sector? Evidence from the World Values Survey, CMPO working paper 11/268.
- [38] Steijn, Bram (2008), Person-Environment Fit and Public Service Motivation, *International Public Management Journal*, 11(1): 13-27.
- [39] Taylor, Jeannette (2008), Organizational Influences, Public Service Motivation and Work Outcomes: An Australian Study, *International Public Management Journal*, 11(1): 67-88.
- [40] Tonin, Mirco and Michael Vlassopoulos (2010), Disentangling the Sources of Pro-socially Motivated Effort: A Field Experiment, *Journal of Public Economics*, 94(11-12): 1086-1092.
- [41] Vandenabeele, Wouter and Steven Van de Walle (2008), International Difference in Public Service Motivation: Comparing Regions Across the World. In J.L. Perry and A. Hondeghem (Eds.), *Motivation in Public Management: The Call of Public Service*, pp. 223-244. Oxford: Oxford University Press.

- [42] Van Maanen, John (1975), Police Socialization: A Longitudinal Examination of Job Attitudes in an Urban Police Department, *Administrative Science Quarterly*, 20(2): 207-228.
- [43] Wright, Bradley E. (2007), Public Service and Motivation: Does Mission Matter?, *Public Administration Review*, 67(1): 54-64.
- [44] Wright, Bradley E. and Sanjay K. Pandey (2008), Public Service Motivation and the Assumption of Person–Organization Fit Testing the Mediating Effect of Value Congruence, *Administration & Society*, 40(5): 502-521.
- [45] Wright, Bradley E. and Adam M. Grant (2010), Unanswered Questions about Public Service Motivation: Designing Research to Address Key Issues of Emergence and Effects, *Public Administration Review*, 70(5): 691-700.
- [46] World Values Survey 2005 Official Data File v.20090901 (2009), World Values Survey Association (www.worldvaluessurvey.org).

Tables

Table 1: Descriptive statistics

	obs.	Public	Private	Total
Altruism	30652			
Mean		4.78	4.68	4.71
Standard deviation		(1.08)	(1.11)	(1.11)
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	Exp(b)	b	Exp(b)	b	Exp(b)
Altruism	0.077 *** (0.012)	1.080	0.068 *** (0.013)	1.070	0.062 *** (0.014)	1.064
Female			0.476 *** (0.028)	1.609	0.457 *** (0.029)	1.579
Age			0.100 *** (0.007)	1.105	0.094 *** (0.007)	1.099
Age ²			-0.001 *** (0.000)	0.999	-0.001 *** (0.000)	0.999
Education=2			0.626 *** (0.139)	1.870	0.752 *** (0.160)	2.121
Education=3			1.092 *** (0.120)	2.980	1.183 *** (0.141)	3.264
Education=4			1.526 *** (0.125)	4.600	1.639 *** (0.144)	5.150
Education=5			2.033 *** (0.115)	7.637	2.142 *** (0.136)	8.516
Education=6			1.921 *** (0.124)	6.828	1.957 *** (0.145)	7.078
Education=7			2.167 *** (0.115)	8.732	2.249 *** (0.137)	9.478
Education=8			2.416 *** (0.120)	11.201	2.517 *** (0.141)	12.391
Education=9			2.946 *** (0.115)	19.030	3.074 *** (0.136)	21.628
Confidence					0.090 *** (0.019)	1.094
Confidence*Altruism					0.024 * (0.016)	1.024
Intercept	-0.879 *** (0.013)	0.415	-5.605 *** (0.215)	0.004	-5.534 *** (0.230)	0.004
Country Dummies	No		Yes		Yes	
Observations Dep=0	21650		21537		20196	
Observations Dep=1	9002		8926		8233	
Total Observations	30652		30463		28429	
McFadden R ²	0.001		0.124		0.119	
Log Likelihood	-18535		-16149		-15068	

Notes: Standard errors between parentheses.

*, **, *** indicate significance at respectively 0.10, 0.05, and 0.01 level.

Variables altruism and confidence are centered around their sample mean.

Table 3: Marginal effects (full sample)

Confidence in political parties	1	2	3	4
dln(odds)/dAltruism	0.037*	0.061***	0.085***	0.109***
	(0.021)	(0.014)	(0.021)	(0.035)

Altruism	1	2	3	4	5	6
dln(odds)/dConfidence	0.001	0.025	0.049	0.073***	0.097***	0.121***
	(0.064)	(0.048)	(0.034)	(0.023)	(0.019)	(0.027)

Notes: Standard errors between parentheses.

*, **, *** indicate significance at respectively 0.10, 0.05, and 0.01 level (based on Wald tests).

Table 4: Results of regression with sample split on educational level

Dependent variable: sector of employment							
	Group: Low		Intermediate		High		
	b	Exp(b)	b	Exp(b)	b	Exp(b)	
Altruism	0.056 (0.035)	1.058	0.047 ** (0.020)	1.048	0.077 *** (0.024)	1.080	
Female	0.200 *** (0.076)	1.221	0.364 *** (0.043)	1.440	0.693 *** (0.049)	2.000	
Age	0.058 *** (0.017)	1.060	0.087 *** (0.011)	1.091	0.129 *** (0.014)	1.138	
Age ²	0.000 ** (0.000)	1.000	-0.001 *** (0.000)	0.999	-0.001 *** (0.000)	0.999	
Education=2	0.391 ** (0.173)	1.478					
Education=3	0.576 *** (0.158)	1.779					
Education=4	0.982 *** (0.166)	2.670					
Education=5							
Education=6			-0.213 *** (0.076)	0.808			
Education=7			0.140 *** (0.050)	1.150			
Education=8							
Education=9					0.585 *** (0.058)	1.795	
Confidence	0.079 * (0.047)	1.082	0.104 *** (0.028)	1.110	0.114 *** (0.034)	1.121	
Confidence*Altruism	-0.012 (0.037)	0.989	-0.002 (0.023)	0.998	0.081 *** (0.029)	1.084	
Intercept	-3.820 *** (0.408)	0.022	-3.437 *** (0.328)	0.032	-3.894 *** (0.327)	0.020	
Country Dummies	Yes		Yes		Yes		
Observations Dep=0	6115		9357		4724		
Observations Dep=1	1004		3598		3631		
Total Observations	7119		12955		8355		
McFadden R ²	0.126		0.083		0.087		
Log Likelihood	-2531		-7020		-5220		

Notes: Standard errors between parentheses.

*, **, *** indicate significance at respectively 0.10, 0.05, and 0.01 level.

Variables altruism and confidence are centered around their sample mean.

Table 5: Marginal effects (high education subsample)

Confidence in political parties	1	2	3	4
dln(odds)/dAltruism	-0.005	0.076***	0.157***	0.238***
	(0.037)	(0.024)	(0.037)	(0.063)

Altruism	1	2	3	4	5	6
dln(odds)/dConfidence	-0.185	-0.104	-0.024	0.057	0.138***	0.219***
	(0.114)	(0.087)	(0.062)	(0.041)	(0.034)	(0.049)

Notes: Standard errors between parentheses.

*, **, *** indicate significance at respectively 0.10, 0.05, and 0.01 level (based on Wald tests).

Figures

Figure 1: Predicted probabilities of working in the public sector

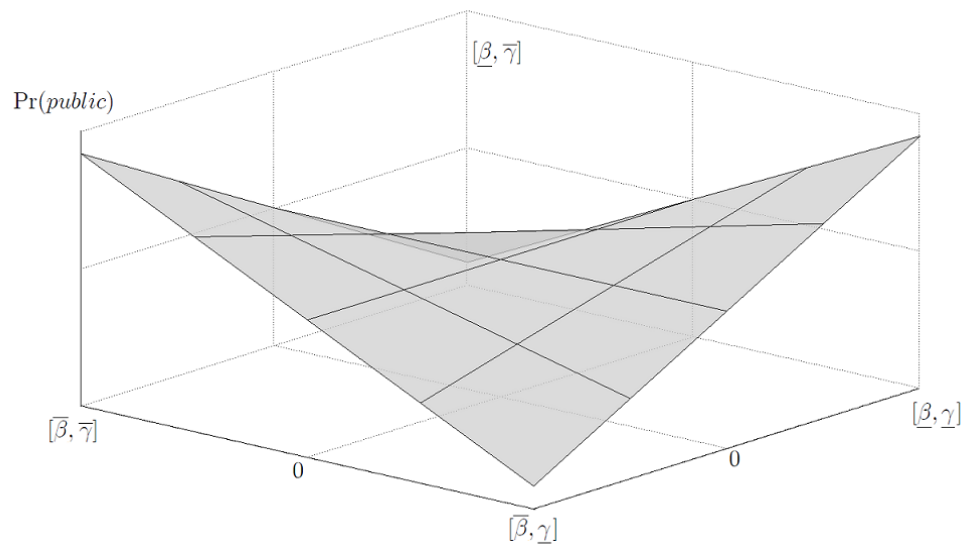


Figure 2: Density of altruism

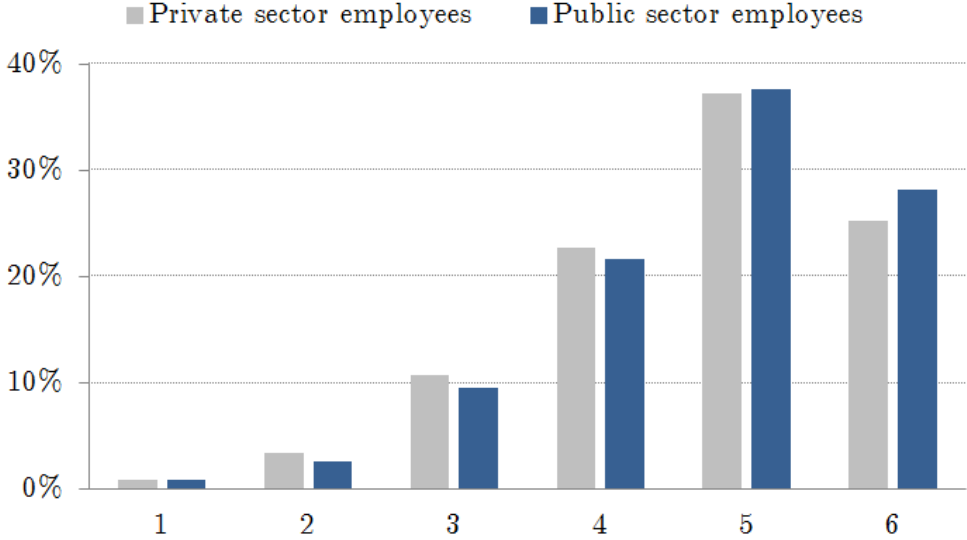


Figure 3: Density of confidence in political parties



Figure 4: Total effect on the odds of working in the public sector of altruism and confidence in political parties (full sample)

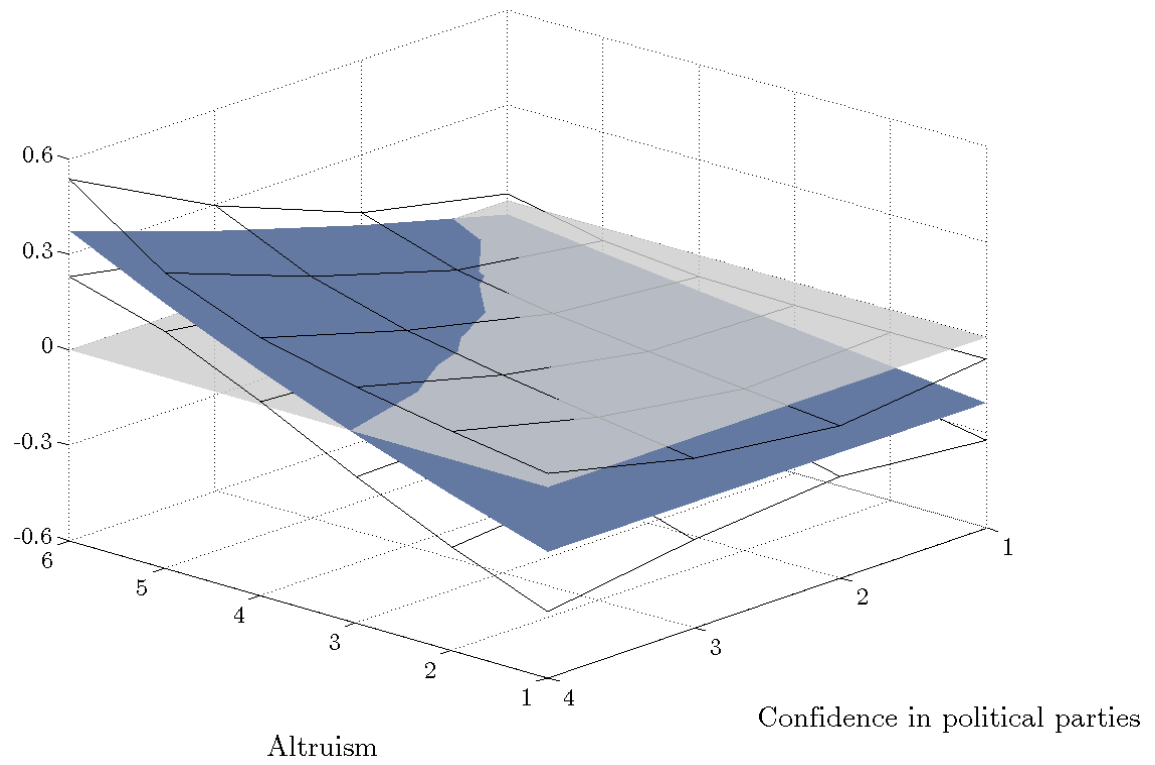
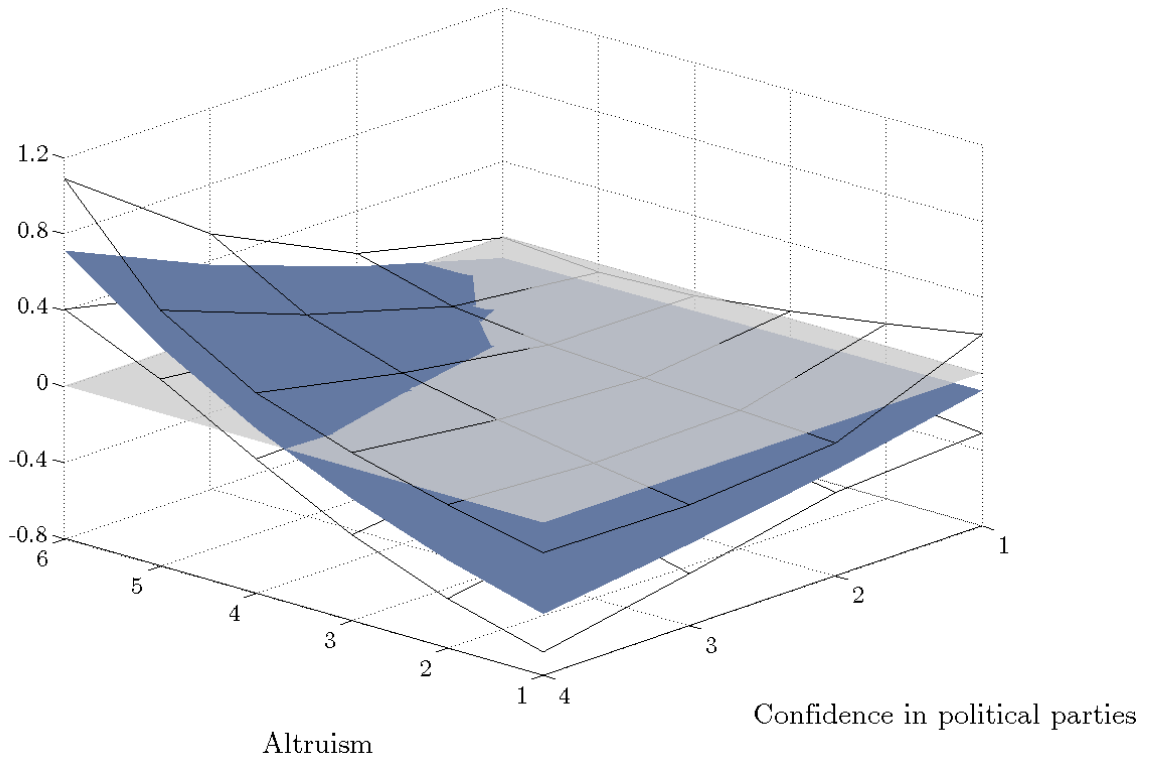


Figure 5: Total effect on the odds of working in the public sector of altruism and confidence in political parties (high education subsample)



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Working For a Good Cause*

Robert Dur[†] and Robin Zoutenbier[‡]

November 24, 2011

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. Our results show that only those individuals who are willing to contribute to the welfare of others and, in addition, feel that by working in the public sector they contribute to a good cause are significantly more likely to work in the public sector. Our results are most pronounced for highly educated employees.

Keywords: public service motivation, altruism, mission preferences, sorting.

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.

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. We show 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 a data set covering employees in a broad range of countries around the world. The existing literature almost exclusively uses data from countries with a well developed

public sector, 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 data on more than 30,000 respondents 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 odds 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 odds 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 37% higher odds as compared to the average worker. 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. In contrast, workers with low altruism and weak confidence are significantly less likely to work in the public sector; the odds are up to 21% lower as compared to the average worker.

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.

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 data set 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 (Francois 2000 and 2007, Glazer 2004, Besley and Ghatak 2005, Prendergast 2007, Delfgaauw and Dur 2008, Nyborg and Brekke 2010, Buurman and Dur 2010, and Ghatak and Mueller 2011). A common finding in this rapidly growing literature is that public sector organizations optimally set relatively low wages and provide weak monetary incentives 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. Buurman et al. (2009) and Jacobsen et al. (2011) 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 in the not-for-profit sector are more likely to donate labour in the form of unpaid overtime as compared to their for-profit counterparts. 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, Smith and Cowley (2011) 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.

3 Theory

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.¹ Both γ and β can take positive and negative values. A negative γ implies that a worker is spiteful; such a worker would rather harm than serve others.² A negative β 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.

The economy consists of two sectors: a public sector and a private sector. The private sector is perfectly competitive and neither γ nor β matters in any way, such that people who choose to work in the private sector obtain the

¹Note that altruism is impure: Individuals enjoy their personal contribution to the public interest, as in Besley and Ghatak (2005) and Delfgaauw and Dur (2008); see Tonin and Vlassopoulos (2010) for field-experimental evidence supporting this assumption. A key difference with Besley and Ghatak (2005)’s 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.

²Lab 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).

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 γ and β . 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 ($\beta_i > 0$).³ The stochastic term ε_i captures all other possible characteristics that may influence an individual's relative preference for the public sector. It is drawn from a distribution with CDF $F(\varepsilon) = \Pr(\varepsilon_i \leq \varepsilon)$ 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 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 ($\beta = 0$).

³We 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 (2010) 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).

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 (γ) 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 (β) 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. 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 will be 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 wave⁴

⁴Previous waves are excluded from the analysis because these waves do not contain questions on altruism and sector of employment.

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.⁵ The range of countries is very diverse, ranging from wealthy OECD countries to developing countries in South America, Asia, Africa, and the Middle East.

The key variables of interest are stated altruism, confidence in political parties, and sector of employment. Respondents faced the question "It is important to this person to help the people nearby; to care for their well-being" and 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.⁶ 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.⁷ Note that our data do not allow us to distinguish spiteful from indifferent workers as both types of people will answer "not at all like me" to the question on altruism. Nor can we really distinguish workers with conflicting mission preferences from workers with a more neutral stance towards the public sector's mission, as both will most likely 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

⁵With the exception of Japan and Australia, where paper-and-pencil questionnaires were administered.

⁶Ideally, 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 important to me."

⁷We readily admit that this is not an ideal measure of mission alignment, as political parties are an important but not the sole determinant of the public sector's mission. 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.

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-for-profit organizations, as it is not obvious how to classify these.⁸ These restrictions result in a sample of 30.652 workers in 50 different countries,⁹ of whom 9.002 (29.4%) work in the public sector. The number of observations per country ranges from 436 to 1.394.

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 regression¹⁰ to estimate the odds that an individual with given characteristics works in the public sector. We control for several demographics D_k , such as age, gender, and education level of a worker. We include country fixed effects α_j to control for unobserved heterogeneity between countries. The specification of our regression equation is:

$$\ln \left(\frac{\Pr(\textit{public})}{\Pr(\textit{private})} \right) = \lambda A + \kappa C + \psi (A \times C) + \sum \delta_k D_k + \alpha_j + \varepsilon, \quad (1)$$

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

⁸In 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.

⁹Countries 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.

¹⁰We 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).

against the one sided alternative that it is positive. Our theory provides little guidance regarding the signs of λ and κ . However, following prediction 1, the sum of λ and ψ should be positive for sufficiently high values of C . Likewise, following prediction 2, the sum of κ and ψ 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.¹¹ Both altruism and confidence in political parties are slightly higher among public sector workers as compared to private sector workers. This can also be seen in Figures 2 and 3. There are some remarkable 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 exponent of the regression estimates $\exp(b)$. The exponent of the regression estimate minus one gives the estimated marginal change in odds given a unit change in the independent variable. 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 8% higher odds of working in the public sector instead of the private sector.¹² This implies a substantial difference in the odds of working in the public sector instead of the private sector of 47% ($1.080^5 = 1.469$) between the least altruistic people and the most altruistic people in our sample. This 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

¹¹Compared to the original data, scales of altruism and confidence in political parties are reversed for interpretational purposes.

¹²We also tested for nonlinear effects of altruism, but these turn out to be insignificant and add little explanatory power.

of altruism decreases from 8% to 7%, but remains highly significant. We find strong evidence for the influence of the demographic control variables on sector choice. Consistent with earlier studies (e.g. Lewis and Frank 2002, Buurman et al. 2009), we find that the likelihood of being employed in the public sector is higher for females and increases with age and education.¹³ 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 6,4%, given average confidence in political parties. The control variables remain significant with similar magnitudes and signs as compared to the second estimation. 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 9,4% higher odds to work 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 2,4%. 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 well be due to the fact that we cannot distinguish spiteful workers and workers with conflicting mission preferences from workers with a more neutral stance.

Figure 4 depicts for each possible combination of altruism and confidence in political parties, the estimated difference in odds (and its 95% confidence interval in transparent planes) to work in the public sector as compared to people with average altruism and confidence in political parties. Clearly,

¹³Wald tests show that the educational dummies differ significantly from each other ($p < 0.01$; level 5 and 6 at $p < 0.10$).

highly altruistic workers with strong confidence in political parties are very likely to work in the public sector, with a positive and significant total effect of up to 37% on the odds as compared to the average worker. In contrast, a non-altruistic worker with weak confidence shows a significant lower likelihood of working in the public sector (total effect up to -21% on the odds). 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.

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.¹⁴ Table 4 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 full sample and highly significant ($p < 0.01$). Our hypothesis that altruism and mission alignment are mutually reinforcing thus finds strong support among the highly educated workers. Table 5 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 ($p = 0.11$). While remarkable, this is fully consistent with our model if many of the people in the lowest altruism category are spiteful.

Figure 5 plots the estimated difference in odds to work in the public sector

¹⁴The 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).

for the subsample of highly educated workers. Highly educated workers with high altruism and strong confidence in political parties face up to 71% higher odds of working in the public sector as compared to the average worker. 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 altruism and alignment of mission preferences with the mission of the public sector are mutually reinforcing forces. Simply put, our theory predicts 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, particularly among highly educated workers. 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. 2009). Future research should provide insight into whether the same holds for confidence in political parties.

References

- [1] Andreoni, James and John Miller (2002), Giving according to GARP: An Experimental Test of the Consistency of Preferences for Altruism, *Econometrica*, 70(2): 737-753.
- [2] Beckman, Steven R., John P. Formby, W. James Smith and Buhong Zheng (2002), Envy, Malice, and Pareto Efficiency: An Experimental Examination, *Social Choice and Welfare*, 19(2): 349-367.
- [3] Besley, Timothy and Maitreesh Ghatak (2005), Competition and Incentives with Motivated Agents, *American Economic Review*, 95(3): 616-636.
- [4] Blau, Peter M. (1960), Orientation toward Clients in a Public Welfare Agency, *Administrative Science Quarterly*, 5(3): 341-361.
- [5] Brewer, Gene A. (2003), Building Social Capital: Civic Attitudes and Behavior of Public Servants, *Journal of Public Administration Research and Theory*, 13(1): 5-26.
- [6] Bright, Leonard (2008), Does Public Service Motivation Really Make a Difference on the Job Satisfaction and Turnover Intentions of Public Employees?, *American Review of Public Administration*, 38(2): 149-166.
- [7] Buurman, Margaretha and Robert Dur (2010), Incentives and the Sorting of Altruistic Agents into Street-Level Bureaucracies, *Scandinavian Journal of Economics*, forthcoming.
- [8] Buurman, Margaretha, Robert Dur and Seth Van den Bossche (2009), Public Sector Employees: Risk Averse and Altruistic?, Tinbergen Institute Discussion Paper 2009-067/1.
- [9] Crewson, Philip E. (1997), Public-Service Motivation: Building Empirical Evidence of Incidence and Effect, *Journal of Public Administration Research and Theory*, 7(4): 499-518.
- [10] De Cooman, Rein, Sara De Gieter, Roland Pepermans, Sabrina Hermans, Cindy Du Bois, Ralf Cears and Marc Jegers (2009), Person-Organisation Fit: Testing Socialization and Attraction-Selection-Attrition Hypotheses, *Journal of Vocational Behaviour*, 74(1): 102-107.

- [11] Delfgaauw, Josse and Robert Dur (2008), Incentives and Workers' Motivation in the Public Sector, *Economic Journal*, 118: 171-191.
- [12] Falk, Armin, Ernst Fehr and Urs Fischbacher (2005), Driving Forces Behind Informal Sanctions, *Econometrica*, 73(6): 2017-2030.
- [13] Fehr, Ernst, Daniela Rützler and Matthias Sutter (2011), The Development of Egalitarianism, Altruism, Spite, and Parochialism in Childhood and Adolescence. IZA Discussion Paper No. 5530.
- [14] Francois, Patrick (2000), Public Service Motivation as an Argument for Government Provision, *Journal of Public Economics*, 78(3): 275-299.
- [15] Francois, Patrick (2007), Making a Difference, *RAND Journal of Economics*, 38(3): 714-732.
- [16] Francois, Patrick and Michael Vlassopoulos (2008), Pro-social Motivation and the Delivery of Social Services, *CESifo Economic Studies*, 54(1): 22-54.
- [17] Ghatak, Maitreesh and Hannes Mueller (2011), Thanks for Nothing? Not-for-profits and Motivated Agents, *Journal of Public Economics*, 95(1-2): 94-105.
- [18] Glazer, Amihai (2004), Motivating Devoted Workers, *International Journal of Industrial Organization*, 22(3): 427-440.
- [19] Gregg, Paul, Paul Grout, Anita Ratcliffe, Sarah Smith and Frank Windmeijer (2011), How Important Is Pro-Social Behavior in the Delivery of Public Services?, *Journal of Public Economics*, 95(7-8): 758-766.
- [20] Houston, David J. (2000), Public-Service Motivation: A Multivariate Test, *Journal of Public Administration Research and Theory*, 10(4): 713-727.
- [21] Houston, David J. (2006), "Walking the Walk" of Public Service Motivation: Public Employees and Charitable Gifts of Time, Blood, and Money, *Journal of Public Administration Research and Theory*, 16(1): 67-86.

- [22] Houston, David J. (2011), Implications of Occupational Locus and Focus for Public Service Motivation: Attitudes Toward Work Motives across Nations, *Public Administration Review*, 71(5): 761-771.
- [23] Jacobsen, Karin, Kari H. Eika, Leif Helland, Jo Thori Lind and Karine Nyborg (2011), Are Nurses More Altruistic than Real Estate Brokers?, *Journal of Economic Psychology*, 32(5): 818-831.
- [24] Kristof, Amy L. (1996), Person-Organization Fit: An Integrative Review of its Conceptualizations, Measurement, and Implications, *Personnel Psychology*, 49(1): 1-49.
- [25] Leisink, Peter and Bram Steijn (2009), Public Service Motivation and Job Performance of Public Sector Employees in the Netherlands, *International Review of Administrative Sciences*, 75(1): 35-52.
- [26] Lewis, Gregory B. and Sue A. Frank (2002), Who Wants to Work for the Government? *Public Administration Review*, 62(4): 395-404.
- [27] Moynihan, Donald P. and Sanjay K. Pandey (2007), The Role of Organizations in Fostering Public Service Motivation, *Public Administration Review*, 67(1): 40-53.
- [28] Norris, Pippa (2003), Is There Still a Public Service Ethos? Work Values, Experience, and Job Satisfaction among Government Workers, In John D. Donahue and Joseph S. Nye Jr. (Eds.), *For the People; Can We Fix Public Service?*, pp. 72-89. Washington, D.C.: Brookings Institution Press.
- [29] Nyborg, Karin and Kjell A. Brekke (2010), Selfish Bakers, Caring Nurses? A Model of Work Motivation, *Journal of Economic Behaviour & Organization*, 75(3): 377-394.
- [30] Perry, James L. and Lois R. Wise (1990), The Motivational Bases of Public Service, *Public Administration Review*, 50(3): 367-373.
- [31] Perry, James L., Annie Hondeghem, and Lois R. Wise (2010), Revisiting the Motivational Bases of Public Service: Twenty Years of Research and an Agenda for the Future, *Public Administration Review*, 70(5): 681-690.

- [32] Prendergast, Canice (2007), The Motivation and Bias of Bureaucrats, *American Economic Review*, 97(1): 180-196.
- [33] Rainey, Hal G. (1982), Reward Preferences among Public and Private Managers: In Search of the Service Ethic, *American Review of Public Administration*, 16(4): 288-302.
- [34] Rainey, Hal G. and Paula Steinbauer (1999), Galloping Elephants: Developing Elements of a Theory of Effective Government Organisations, *Journal of Public Administration Research and Theory*, 9(1): 1-32.
- [35] Serneels, Pieter, Magnus Lindelow, Jose G. Montalvo and Abigail Barr (2007), For Public Service or Money: Understanding Geographical Imbalances in the Health Workforce, *Health Policy and Planning*, 22(3): 128-138.
- [36] Serra, Danila, Pieter Serneels and Abigail Barr (2011), Intrinsic Motivations and the Non-Profit Health Sector: Evidence from Ethiopia, *Personality and Individual Differences*, 51(3): 309-314.
- [37] Smith, Sarah and Edd Cowley (2011), Who Works in the Public Sector? Evidence from the World Values Survey, CMPO working paper 11/268.
- [38] Steijn, Bram (2008), Person-Environment Fit and Public Service Motivation, *International Public Management Journal*, 11(1): 13-27.
- [39] Taylor, Jeannette (2008), Organizational Influences, Public Service Motivation and Work Outcomes: An Australian Study, *International Public Management Journal*, 11(1): 67-88.
- [40] Tonin, Mirco and Michael Vlassopoulos (2010), Disentangling the Sources of Pro-socially Motivated Effort: A Field Experiment, *Journal of Public Economics*, 94(11-12): 1086-1092.
- [41] Vandenabeele, Wouter and Steven Van de Walle (2008), International Difference in Public Service Motivation: Comparing Regions Across the World. In J.L. Perry and A. Hondeghem (Eds.), *Motivation in Public Management: The Call of Public Service*, pp. 223-244. Oxford: Oxford University Press.

- [42] Van Maanen, John (1975), Police Socialization: A Longitudinal Examination of Job Attitudes in an Urban Police Department, *Administrative Science Quarterly*, 20(2): 207-228.
- [43] Wright, Bradley E. (2007), Public Service and Motivation: Does Mission Matter?, *Public Administration Review*, 67(1): 54-64.
- [44] Wright, Bradley E. and Sanjay K. Pandey (2008), Public Service Motivation and the Assumption of Person–Organization Fit Testing the Mediating Effect of Value Congruence, *Administration & Society*, 40(5): 502-521.
- [45] Wright, Bradley E. and Adam M. Grant (2010), Unanswered Questions about Public Service Motivation: Designing Research to Address Key Issues of Emergence and Effects, *Public Administration Review*, 70(5): 691-700.
- [46] World Values Survey 2005 Official Data File v.20090901 (2009), World Values Survey Association (www.worldvaluessurvey.org).

Tables

Table 1: Descriptive statistics

	obs.	Public	Private	Total
Altruism	30652			
Mean		4.78	4.68	4.71
Standard deviation		(1.08)	(1.11)	(1.11)
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	Exp(b)	b	Exp(b)	b	Exp(b)
Altruism	0.077 *** (0.012)	1.080	0.068 *** (0.013)	1.070	0.062 *** (0.014)	1.064
Female			0.476 *** (0.028)	1.609	0.457 *** (0.029)	1.579
Age			0.100 *** (0.007)	1.105	0.094 *** (0.007)	1.099
Age ²			-0.001 *** (0.000)	0.999	-0.001 *** (0.000)	0.999
Education=2			0.626 *** (0.139)	1.870	0.752 *** (0.160)	2.121
Education=3			1.092 *** (0.120)	2.980	1.183 *** (0.141)	3.264
Education=4			1.526 *** (0.125)	4.600	1.639 *** (0.144)	5.150
Education=5			2.033 *** (0.115)	7.637	2.142 *** (0.136)	8.516
Education=6			1.921 *** (0.124)	6.828	1.957 *** (0.145)	7.078
Education=7			2.167 *** (0.115)	8.732	2.249 *** (0.137)	9.478
Education=8			2.416 *** (0.120)	11.201	2.517 *** (0.141)	12.391
Education=9			2.946 *** (0.115)	19.030	3.074 *** (0.136)	21.628
Confidence					0.090 *** (0.019)	1.094
Confidence*Altruism					0.024 * (0.016)	1.024
Intercept	-0.879 *** (0.013)	0.415	-5.605 *** (0.215)	0.004	-5.534 *** (0.230)	0.004
Country Dummies	No		Yes		Yes	
Observations Dep=0	21650		21537		20196	
Observations Dep=1	9002		8926		8233	
Total Observations	30652		30463		28429	
McFadden R ²	0.001		0.124		0.119	
Log Likelihood	-18535		-16149		-15068	

Notes: Standard errors between parentheses.

*, **, *** indicate significance at respectively 0.10, 0.05, and 0.01 level.

Variables altruism and confidence are centered around their sample mean.

Table 3: Marginal effects (full sample)

Confidence in political parties	1	2	3	4
dln(odds)/dAltruism	0.037*	0.061***	0.085***	0.109***
	(0.021)	(0.014)	(0.021)	(0.035)

Altruism	1	2	3	4	5	6
dln(odds)/dConfidence	0.001	0.025	0.049	0.073***	0.097***	0.121***
	(0.064)	(0.048)	(0.034)	(0.023)	(0.019)	(0.027)

Notes: Standard errors between parentheses.

*, **, *** indicate significance at respectively 0.10, 0.05, and 0.01 level (based on Wald tests).

Table 4: Results of regression with sample split on educational level

Dependent variable: sector of employment							
	Group: Low		Intermediate		High		
	b	Exp(b)	b	Exp(b)	b	Exp(b)	
Altruism	0.056 (0.035)	1.058	0.047 ** (0.020)	1.048	0.077 *** (0.024)	1.080	
Female	0.200 *** (0.076)	1.221	0.364 *** (0.043)	1.440	0.693 *** (0.049)	2.000	
Age	0.058 *** (0.017)	1.060	0.087 *** (0.011)	1.091	0.129 *** (0.014)	1.138	
Age ²	0.000 ** (0.000)	1.000	-0.001 *** (0.000)	0.999	-0.001 *** (0.000)	0.999	
Education=2	0.391 ** (0.173)	1.478					
Education=3	0.576 *** (0.158)	1.779					
Education=4	0.982 *** (0.166)	2.670					
Education=5							
Education=6			-0.213 *** (0.076)	0.808			
Education=7			0.140 *** (0.050)	1.150			
Education=8							
Education=9					0.585 *** (0.058)	1.795	
Confidence	0.079 * (0.047)	1.082	0.104 *** (0.028)	1.110	0.114 *** (0.034)	1.121	
Confidence*Altruism	-0.012 (0.037)	0.989	-0.002 (0.023)	0.998	0.081 *** (0.029)	1.084	
Intercept	-3.820 *** (0.408)	0.022	-3.437 *** (0.328)	0.032	-3.894 *** (0.327)	0.020	
Country Dummies	Yes		Yes		Yes		
Observations Dep=0	6115		9357		4724		
Observations Dep=1	1004		3598		3631		
Total Observations	7119		12955		8355		
McFadden R ²	0.126		0.083		0.087		
Log Likelihood	-2531		-7020		-5220		

Notes: Standard errors between parentheses.

*, **, *** indicate significance at respectively 0.10, 0.05, and 0.01 level.

Variables altruism and confidence are centered around their sample mean.

Table 5: Marginal effects (high education subsample)

Confidence in political parties	1	2	3	4
dln(odds)/dAltruism	-0.005	0.076***	0.157***	0.238***
	(0.037)	(0.024)	(0.037)	(0.063)

Altruism	1	2	3	4	5	6
dln(odds)/dConfidence	-0.185	-0.104	-0.024	0.057	0.138***	0.219***
	(0.114)	(0.087)	(0.062)	(0.041)	(0.034)	(0.049)

Notes: Standard errors between parentheses.

*, **, *** indicate significance at respectively 0.10, 0.05, and 0.01 level (based on Wald tests).

Figures

Figure 1: Predicted probabilities of working in the public sector

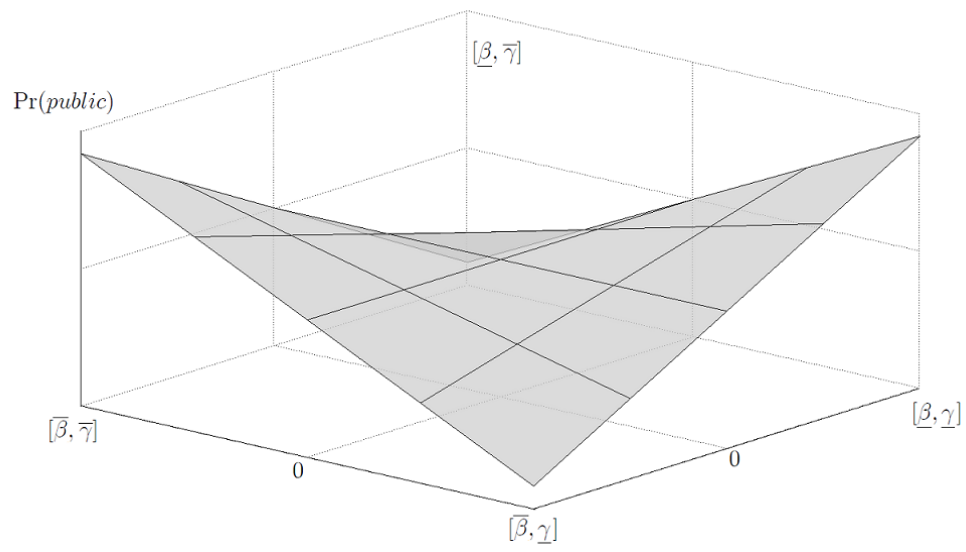


Figure 2: Density of altruism

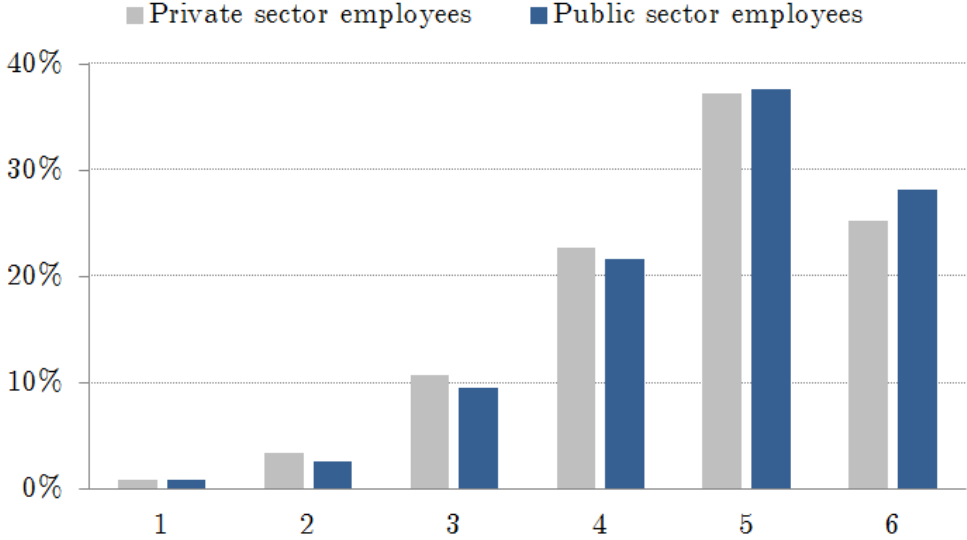


Figure 3: Density of confidence in political parties

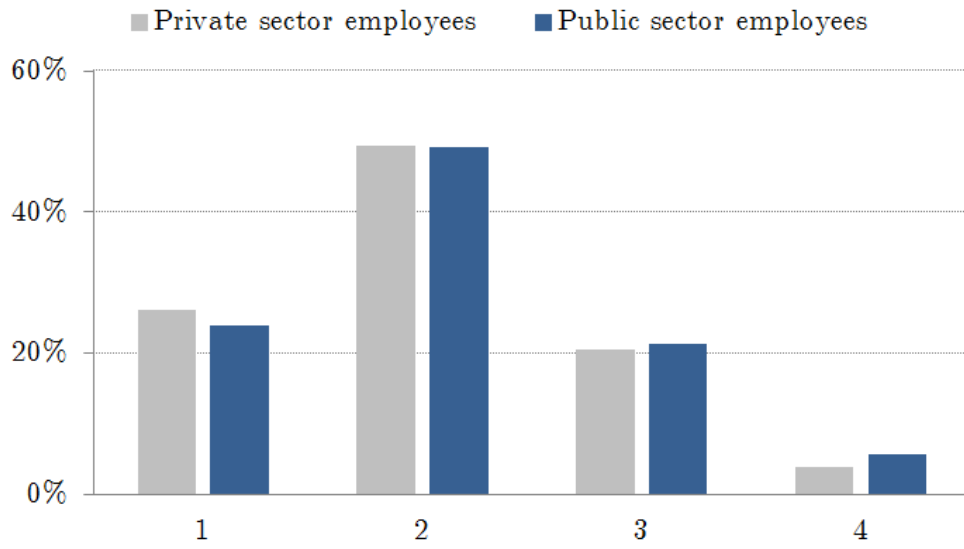


Figure 4: Total effect on the odds of working in the public sector of altruism and confidence in political parties (full sample)

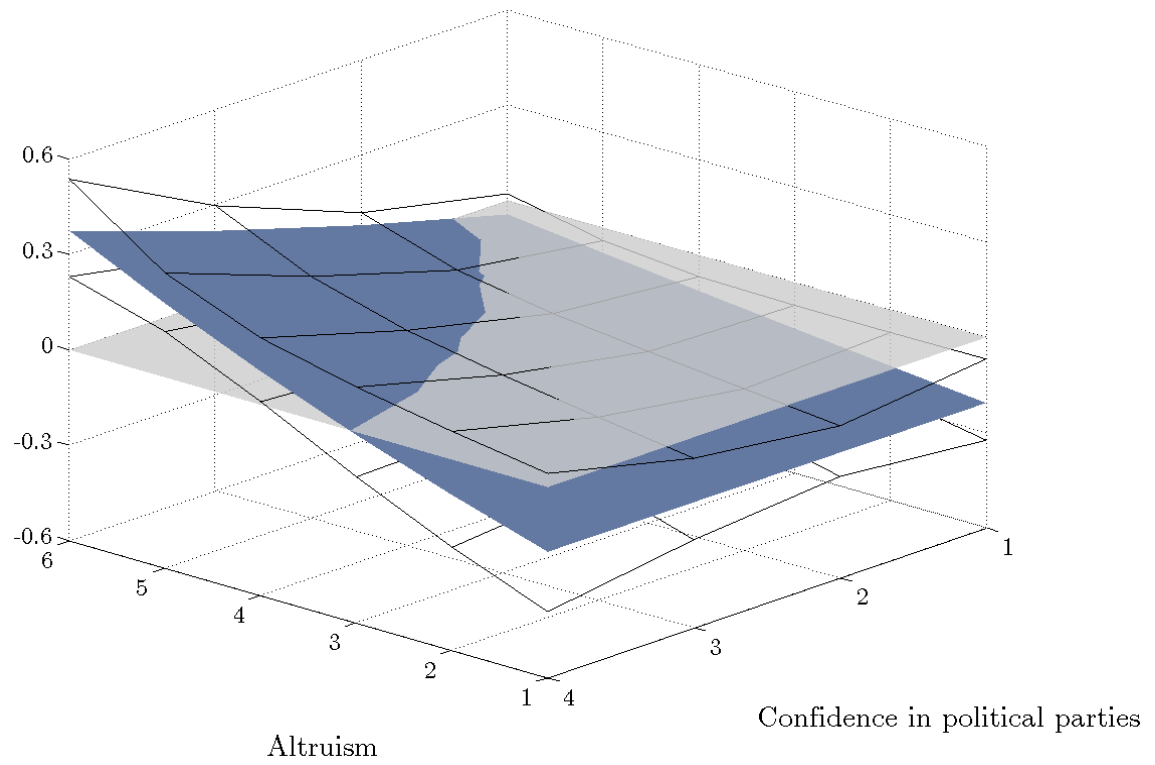


Figure 5: Total effect on the odds of working in the public sector of altruism and confidence in political parties (high education subsample)

