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**Working Paper**

## Public sector employees: Risk averse and altruistic?

CESifo Working Paper, No. 3851

**Provided in Cooperation with:**

Ifo Institute – Leibniz Institute for Economic Research at the University of Munich

*Suggested Citation:* Buurman, Margaretha; Delfgaauw, Josse; Dur, Robert; van den Bossche, Seth (2012) : Public sector employees: Risk averse and altruistic?, CESifo Working Paper, No. 3851, Center for Economic Studies and ifo Institute (CESifo), Munich

This Version is available at:

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Public Sector Employees: Risk Averse  
and Altruistic?

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CESIFO WORKING PAPER NO. 3851  
CATEGORY 13: BEHAVIOURAL ECONOMICS  
JUNE 2012

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# Public Sector Employees: Risk Averse and Altruistic?

## Abstract

We assess whether public sector employees have a stronger inclination to serve others and are more risk averse than employees in the private sector. A unique feature of our study is that we use revealed rather than stated preferences data. Respondents of a large-scale survey were offered a substantial reward and could choose between a widely redeemable gift certificate, a lottery ticket, or making a donation to a charity. Our analysis shows that public sector employees are significantly less likely to choose the risky option (lottery) and, at the start of their career, significantly more likely to choose the pro-social option (charity). However, when tenure increases, this difference in pro-social inclinations disappears and, later on, even reverses. Further, our results suggest that quite a few public sector employees do not contribute to charity because they feel that they already contribute enough to society at work for too little pay.

JEL-Code: H100, J450, M520.

Keywords: public service motivation, risk aversion, revealed preferences data.

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May 30, 2012

We gratefully acknowledge comments and suggestions by two anonymous referees, Paul Grout, seminar participants at IZA Bonn, and by participants to the 2009 CMPO Workshop 'Public Services and Worker Motivation' in Bristol, the 2009 CEPR / ECARES meeting on 'The Role of Incentives, Information and the Private Sector in the Delivery of Public Services' in Brussels, and the 2010 Thurgau Experimental Economics Meeting at the University of Konstanz.

# 1 Introduction

It is often argued that preferences and work motivations of public sector employees differ from those of private sector employees. Some of these differences stem from sectoral differences in the nature of jobs. Many jobs in the public sector involve helping people in need or contributing to society at large, rendering these jobs attractive to people who have a strong willingness to serve others or the public interest.<sup>1</sup> Another, less honorable motivation for seeking a job in the public sector is avoidance of risk. In most countries, employers in the public sector offer higher job security and less volatile wage compensation than employers in the private sector (Bonin et al. 2007, Clark and Postel-Vinay 2009). As a result, highly risk-averse people may find it attractive to opt for a job in the public sector (Bellante and Link 1981).

This paper employs a unique dataset to assess whether public sector employees have a stronger inclination to serve others and are more risk averse than people employed in the private sector. In contrast to previous empirical studies, we explore revealed preferences rather than stated preferences. Our data come from a questionnaire held in 2000 covering more than 2600 employees in The Netherlands. Upon completing the questionnaire, each participant was offered a reward worth 25 guilders (11,34 euro; about 15% of daily disposable household income in 2000). Participants could choose between receiving a widely redeemable gift certificate, receiving a national lottery ticket, or donating the reward to a charity of their choice. We hypothesize that, as compared to private sector employees, public sector employees more likely choose to donate to charity (the safe and pro-social choice) and less likely choose the lottery ticket (the risky choice) rather than choose the gift certificate (the safe and selfish choice).

Our results lend strong support to the hypothesis that public sector employees are more risk averse than private sector employees. People holding a public sector job are much less likely to choose the lottery ticket. This holds both before and after controlling for income, gender, age, and several other observable characteristics. The difference is substantial: Our estimation results imply that the predicted probability for a public sector worker of choosing the lottery ticket is about seven percentage points below the predicted probability for a private sector worker after controlling for observables.

We find only weak evidence for the hypothesis that public sector employ-

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<sup>1</sup>See the large literature in public administration on ‘public service motivation’ (e.g. Perry and Wise 1990, Perry 1996, Rainey and Steinbauer 1999, Wright 2001) and several recent theoretical studies in economics (e.g. Dixit 2001, Besley and Gathak 2005, Francois 2007, Delfgaauw and Dur 2008, and Nyborg and Brekke 2010). Perry et al. (2010) and Francois and Vlassopoulos (2008) provide overviews of these literatures.

ees are more likely to choose the pro-social option of donating to charity. On average, the marginal effect of working in the public sector on the probability of donating to charity is small, and not significantly different from zero. Behind this average figure is a remarkable relation between inclinations to donate to charity and employees' tenure in a public sector organization. Employees who have just started a job in the public sector are significantly *more* likely than their private sector counterparts to donate to charity. However, after several years, this difference disappears and later on even reverses. Importantly, we find no tenure effects for private sector workers' inclination to donate to charity, nor does tenure significantly affect the likelihood of choosing the risky option in either sector. Moreover, the tenure effect for public sector workers' inclination to donate to charity remains intact when we allow for public-sector specific age effects.

This tenure effect is well in line with the observations made by Blau (1960: 347-348) in his study of case workers in a public welfare agency. He finds that "the attitudes of most new case workers toward clients were strongly positive, if somewhat sentimental and idealistic (...) the new case worker was typically full of sympathy for clients' problems. But as he encountered clients who blamed him personally for not helping them enough, even though agency procedure limited him, and clients met his trusting attitude by cheating and lying, the newcomer tended to experience a 'reality shock' (...) This disillusioning experience might make a worker bitter and callous, or induce him to leave the job, and even those who did not have either of these extreme reactions tended to change their orientation to clients." "In sum, experience increased the case worker's ability to serve recipients but decreased his interest in doing so." (Blau 1960: 359). Likewise, Van Maanen (1975) reports swift declines in motivation among police recruits during their first year in a big-city department, which are partly accounted for by more pessimistic beliefs about the likelihood of receiving favorable responses from the community to 'working especially hard.' Similar findings are reported by De Cooman et al. (2009) using data from a repeated survey among Flemish teachers who just started their professional career. They find that, within two years time, "work values became somewhat less ideological and more self-oriented." Further, teachers "attached greater importance to extrinsic values, including rewards, security, career, and recognition, and less importance to altruistic values including social service, though these changes were relatively small." (p. 105-106).<sup>2</sup> A related, but somewhat different interpretation of the tenure

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<sup>2</sup>Similar patterns have been observed among volunteers (see Tschirhart et al. 2001 and references therein) and managers at primary health and human services agencies in the US (see Moynihan and Pandey 2007).

effect that we find is that public sector workers learn over time that their efforts are less effective in helping others than originally anticipated (Moynihan and Pandey 2007), which may make them question the effectiveness of charitable organizations as well.

It is important to note that our analysis gives an indication of people's *marginal* willingness to accept risk and to make charitable contributions; it does not reveal people's overall risk aversion or pro-social attitude. The two need not coincide. For instance, employees in the private sector may generally be more risk tolerant than public sector employees, but exhibit more risk averse behavior at the margin because in their professional life they are already exposed to more risk than public sector employees. Likewise, public sector employees may be less willing to donate their reward to charity as they already serve the public interest in their professional life on a day-to-day basis. Unfortunately, we lack data on how much risk people face and how much they contribute to the public interest in daily life. However, we do find some indirect evidence for the idea that public sector employees less likely donate to charity because they feel they already contribute a lot to society at work. One of the questions in the survey asked people whether they consider their salary to be sufficient for the work that they do. A much larger fraction of employees in the public sector responds negatively to this question (55% in the public sector as compared to 42% in the private sector). We find that people who feel underpaid are less likely to donate their reward to charity. Importantly, this effect is much stronger for employees in the public sector: Feeling underpaid reduces the probability of donating to charity on average by 5.5 percentage points for private sector workers and by 14.6 percentage points for public sector workers. The difference is both statistically and economically significant. This suggests that public sector employees consider the contributions they make on the job as a substitute for making charitable donations. Comparing dissatisfied employees in the public and private sector, we find no significant difference in the early stages of the career, while later on public sector employees are significantly less likely to donate. Satisfied public sector employees significantly more often choose to donate in the early stage of their career, while later on there is no significant difference with their private sector counterparts.

Although we can only assess people's risk and pro-social attitude at the margin, we do think our results are of great relevance for recent debates about remuneration of employees in the public sector (see, e.g., Burgess and Ratto 2003, National Commission on the Public Service 2003, OECD 2005 and 2008). First, measuring tolerance for additional risk of public sector employees gives some indication of the effects of introducing or strengthening pay-for-performance for workers in the public sector. Making employees' pay

more dependent of their performance usually increases the risks employees face, as their performance not only depends on their effort, but also on random events. Our results suggest that public sector employees have a stronger distaste for taking risks than private sector employees, implying that (with the current workforce) pay-for-performance is a more costly instrument to induce effort in the public sector than in the private sector. Second, measuring pro-social inclinations at the margin gives an idea about how much society can rely on public sector employees' altruistic motivations when additional helping opportunities arise. Our results give rise to some pessimism: Many public sector employees feel that they are underpaid relative to the contributions that they make, which makes them hesitant to provide further contributions.

We proceed as follows. The next section briefly describes earlier studies on differences in preferences and motivations between public and private sector employees. Section 3 describes the data. Section 4 presents the main results and Section 5 concludes.

## 2 Related literature

A rich literature in public administration and a growing number of studies in economics have examined differences in preferences and motivations between public and private sector employees. Existing empirical studies can be divided into two groups: those that use stated preferences or motivations (e.g., by asking respondents how important job security or helping other people is to them) and those that infer preferences and motivations from stated behavior (e.g., self-reported donations to charity, self-reported purchase of insurance, stated willingness to pay for a hypothetical lottery, et cetera). Our study is the first using revealed preferences data rather than stated preferences data; that is, we use data on what people actually do, not on what they say they do (or have done), or what they claim is important to them. This has some clear and well-known advantages. In particular, stated preferences data may be vulnerable to self-stereotyping, self-serving biases, lack of attention by respondents, and strategic motives (Roszkowski and Grable 2007, Dohmen et al. 2011). For instance, it has been shown that in experiments with hypothetical payments subjects appear more generous and more risk-preferring than when real money is at stake (Camerer and Hogarth 1999). On the other hand, surveys asking respondents about past behavior are prone to recall error, which typically leads to underreporting (Sudman and Bradburn 1973, Clarke et al. 2008). For charitable giving, Rooney et al. (2004) and Bekkers and Wiepking (2006) find that when the survey asks more detailed

questions about charitable giving, respondents recall that they have donated more often and larger amounts.

Most studies comparing public and private sector workers have assessed in how far public sector workers have a particular willingness to serve the public interest, to help others, and to make personal sacrifices in order to do so. For instance, Rainey (1982) and Lewis and Frank (2002) find that public sector workers more often rate work attributes such as ‘Useful to society’ and ‘Help others’ as (very) important (see also Kilpatrick et al. 1964, Buchanan 1975, Crewson 1997, Houston 2000, and Steijn 2008 among others). Houston (2006) uses data on self-reported pro-social behavior, such as volunteering, donating blood, and making charitable contributions. He finds that nonprofit and public sector employees are more likely to report being a volunteer and blood donor, while no such relation is found for charitable contributions. Likewise, Brewer (2003) shows that public sector employees report higher levels of participation in nonpolitical civic affairs. Recently, Gregg et al. (2011) exploit British panel data and find that individuals who are more inclined to donate labor (as measured by stated unpaid overtime) select into the non-profit sector.

Other studies have examined whether public and private sector workers differ in risk preferences. Studies using stated preferences about job security find mixed evidence (see e.g. Rainey 1982, Crewson 1997, Houston 2000, and Lewis and Frank 2002). By contrast, Bellante and Link (1981) use answers to questions like the condition and insurance of cars owned, the use of seat belts, the extent of medical coverage, and smoking and drinking habits to construct a measure of risk aversion. They find that, thus defined, risk-averse people are more likely to be employed in the public sector than in the private sector. Likewise, Roszkowski and Grable (2009) use data on clients of financial planners who had completed a test of financial risk tolerance. They find that public sector employees score significantly lower than private sector employees, even after controlling for a rich set of observables. Similar results are obtained by Hartog et al. (2002) for The Netherlands and by Guiso and Paiella (2008) for Italy using large-scale survey data on people’s willingness to pay for a hypothetical lottery and for a hypothetical risky security, respectively. Several recent papers in economics have added to this body of evidence using the 2004 wave of the German Socio-Economic Panel data, which contains questions on people’s attitude towards risk-taking. Bonin et al. (2007) show that working in the public sector implies a significantly lower earnings risk than working in the private sector and that individuals who are less risk tolerant are more likely to end up working in an occupation with low earnings risk. Using the same data, Luechinger et al. (2007), Dohmen and Falk (2010), and Pfeifer (2011) directly estimate the effect of self-reported



risk attitude on sector of employment and report similar findings: people who are less willing to take risk are more likely to be employed in the public sector.

### 3 Data and empirical strategy

We use data from the TNO Work Situation Survey (TAS), a Dutch survey developed by TNO (an independent research organization, partly funded by the Dutch government) in cooperation with the Dutch Ministry of Social Affairs and Employment. The survey was conducted in 2000 among about 8000 employees and self-employed persons in all sectors of the economy. The response rate was 53%, resulting in 4334 respondents (see Smulders et al. 2001 and Bakhuys Roozeboom et al. 2007).<sup>3</sup> The survey includes a rich set of demographic variables and data on a wide range of work-related topics, such as employment conditions, pay, hours worked, job and pay satisfaction, attitude towards work, intention to leave, job security, health-related issues, and workplace characteristics.

Our key variable of interest is the type of reward chosen by the respondents for completing the survey (see Appendix A for the exact question and possible answers).<sup>4</sup> Respondents could choose between receiving a widely redeemable gift certificate, receiving a national lottery ticket, or donating the reward to a charity of their choice. All types of reward had the same face value: 25 guilders (11.34 euro), about 15% of daily disposable household income in 2000. The list of charities is not particularly long, but includes some of the largest and best-known charities in The Netherlands. Most of the charities are uncontroversial, and there is no reason to believe that the set of charities is particularly appealing to either public sector employees or private sector employees.

One concern is that donating to charity is the only option where the respondent remains completely anonymous (see Appendix A). If respondents choose to receive either the lottery ticket or the gift certificate, they need to fill in their name and address. Hence, for respondents who worry about their privacy, giving money to charity is relatively appealing. This might imply that donating to charity does not reflect pro-social attitudes but rather re-

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<sup>3</sup>See for more information: [http://www.eurofound.europa.eu/ewco/surveys/national/countries/netherlands2005\\_6\\_tas.htm](http://www.eurofound.europa.eu/ewco/surveys/national/countries/netherlands2005_6_tas.htm)

<sup>4</sup>The survey was repeated in 2002 and 2004. We do not use these data in our analysis because in 2002 the data-collecting company did not report data on our key variable and in 2004 the reward for respondents was substantially lower and differed between completing the internet questionnaire (10 euros) and the written questionnaire (7,50 euros).

fects privacy concerns, which could be related to risk aversion. However, research organization TNO is a well-known and trusted institute in the Netherlands, which works with strict guidelines to preserve the anonymity of its survey respondents. Moreover, the survey is not conducted on behalf of the respondents' employers, but on behalf of the Ministry of Social Affairs and TNO. Thus, it is not likely that many respondents worried about their privacy when choosing their reward. Furthermore, recent evidence suggests that people have limited willingness to pay for privacy. Beresford et al. (2010) find that students choosing between buying something from a website that offers a small discount but requires more personal information as compared to a website that gives no discount, most students opt for the discount despite the reduced privacy. Grossklags and Acquisti (2007) report that most of the participants in their experiment were willing to make their score on an intelligence quiz and their body weight known to the other participants for as little as 25 cents.

Since respondents indicated their main economic sector in the survey, but not whether their organization belongs to the public or private sector, we recoded the main economic sectors into public or private, using a data file we obtained on request from Statistics Netherlands. The sectors thus included in the public sector are education, hospitals, nursing homes, welfare work, and central and local government.<sup>5</sup> Four economic sectors contain a substantial mix of private and public organizations; we omit these sectors from our analyses.<sup>6</sup> Furthermore, we confine ourselves to employees, leaving out the self-employed, owners of firms, and (unpaid) family workers. We also restrict the sample to respondents between 20 and 64 years of age, because there are very few respondents under 20 years of age and 65 is the regular Dutch retirement age. This gives 3126 respondents. Non-response on specific control variables leaves us with a sample of 2662 respondents.

Our empirical strategy is to examine whether an otherwise comparable respondent differs in his choice of reward depending on the sector of employment. If public sector workers are more altruistic and more risk averse at the margin, we should find that public sector workers are more likely to donate

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<sup>5</sup>A public sector employee is either a civil servant (government employee at the local or national level, policeman, fireman, teacher, employee of an academic hospital) or someone employed by an organization subsidized by the government (general hospital, social security agency, child care, social care). These organizations are usually not-for-profit organizations in the Netherlands. However, not all not-for-profit organizations are subsidized by the government. Unfortunately our data do not allow us to make such a distinction.

<sup>6</sup>These four sectors are: Other type of industry (which also comprises workers in sheltered employment), other type of transport and communication (which includes public transport), other type of healthcare (among others general practitioners and midwives) and culture, sports, and recreation.

the reward to charity and less likely to choose the lottery ticket rather than to opt for the gift certificate. Since our dependent variable has three potential categorical outcomes (lottery ticket, charity, gift certificate) we analyze our data using a multinomial logistic regression model. We take gift certificate as our reference category, as this is the safe and selfish alternative.<sup>7</sup>

Obviously, the choice of the reward does not only depend on a respondent's risk preferences and pro-social attitude, but also on other characteristics such as respondent's income. People with a low income may be more likely to choose the gift certificate, as this can be exchanged for basic necessities such as food or clothing. Therefore, we control for the respondent's net monthly income in the regression analyses. We do not have information on household income, but we know whether the respondent is the breadwinner of the household. Since our categorical income measure is somewhat crude, especially in the highest category, we also add whether respondents hold a managerial position and if so, how many employees they supervise. This is likely to pick up some additional income effects. Moreover, we include the following demographic controls: Age, sex, region, education, marital status, and the number of children living at the home.

An important issue is whether public and private sector employees had different attitudes before they sorted into their sector of employment or changed their attitudes afterwards. To account for such tenure effects, we add employee's tenure at the organization and interact it with the employee's sector of employment.<sup>8</sup> Finally, we check whether feelings of underpayment affect employee's choice of reward using the question "Is your salary sufficient for the work that you do?" and we also interact this variable with the employee's sector of employment.

Table 1 contains the descriptive statistics of our subsample. Some interesting differences between public and private sector employees are visible. First of all, private sector employees choose the lottery ticket (48%) more often than public sector employees (35%). Public sector employees on the other hand choose to donate to charity (24%) somewhat more often than private sector employees (22%). Further, there are substantial differences in socio-demographic variables. Public sector workers are slightly older on average

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<sup>7</sup>We also ran multinomial probit regressions as well as binary logistic regressions (grouping charity and gift certificate as the safe options; grouping gift certificate and lottery as the selfish options; taking only the gift certificate as the selfish option, dropping the lottery ticket; and taking only the gift certificate as the safe option, dropping the charity). All these models produced results similar to the multinomial logistic regression model and are for brevity not reported. Hausman tests show that the Independence of Irrelevant Alternatives assumption underlying the multinomial logit model is not violated.

<sup>8</sup>Unfortunately, we lack data on respondents' sectoral tenure.

than private sector employees, 44 versus 42 years old, and are far more often female, 42% versus 18%. Public sector employees are (therefore) also less likely to be the breadwinner in the household than private sector employees (67% versus 79%). The majority of public sector employees completed higher vocational education or university studies (67%), against only a minority of private sector employees (37%). Nevertheless, the differences in income are not that large. There is, however, a large difference in the answers to the question “Is your salary sufficient for the work you do?”. Less than half of public sector employees answers this question in the affirmative (45%), while more than half of the private sector employees is satisfied with their salary (58%). Finally, tenure among public sector employees in our sample is also longer than that of private sector employees, 14 versus 12 years.

## 4 Results

Table 2 reports the results of our multinomial logistic regression analyses.<sup>9</sup> In model 1 we take up the public sector dummy as the sole explanatory variable. Public sector employees are, as expected, significantly less likely than private sector employees to choose the lottery ticket rather than the gift certificate. The average marginal effect of working in the public sector is a reduction in the probability of choosing the lottery ticket by 12.8 percentage points. In contrast to our expectations, we do not find that public sector employees are more likely than private sector employees to donate to charity. The marginal effect of working in the public sector on the probability of donating to charity is 1.9 percentage points, which is small and not significantly different from zero. Note that the first column of the charity panel in Table 2 shows a statistically significant negative coefficient for the public sector dummy. However, the multinomial logit estimation procedure implies that this effect is relative to the propensity to opt for the gift certificate. Hence, our findings imply that public sector workers are less likely to choose the lottery ticket and about as likely to choose to donate to charity as compared to private sector workers, although given that a worker does not choose the lottery ticket, public sector workers relatively often choose the gift certificate rather than the donation to charity.

As we noticed in the previous section, there are many more differences between public and private sector employees than just sector of employment. Therefore, we add several controls in model 2. Model 2 shows results quite

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<sup>9</sup>For ease of presentation, we treated the number of subordinates, income, and education as continuous variables in Table 2. Taking up these variables as categorical variables instead gives results very similar to those presented in Table 2.

close to model 1, although the estimated marginal effects are smaller than in model 1. Working in the public sector reduces the probability of choosing the lottery ticket by 6.6 percentage points and reduces the probability of donation by 2.1 percentage points, where the latter effect is not statistically significant.

The choice for the lottery ticket is significantly related to some of the demographic variables. Women are 11.6 percentage points less likely to choose the lottery ticket as compared to men. Employees with higher levels of education opt for the lottery ticket significantly less often. Couples with children living at home are more likely to choose the lottery ticket than singles. However, the larger the number of children, the less likely employees choose the lottery ticket. Finally, income and other variables affecting people's budget have relatively small effects.<sup>10</sup> Income does, however, matter for donating to charity. All budget-related variables show that as people's budget increases, the probability of choosing the charity increases as well. A higher income or a larger number of subordinates make donating more likely, as does not being the breadwinner. Furthermore, some of the demographic variables also have an effect. Couples with children living at home are less likely to choose the charity than singles. The probability of donating to charity increases in education and in age. The marginal effect of age on the probability of choosing the charity is 0.4 percentage points per year.<sup>11</sup> Lastly, note that the fit of model 2 is substantially better than that of model 1.<sup>12</sup>

Model 3 examines whether and how public sector workers' risk and pro-social attitudes develop during their career. As we discussed in the Introduction, several earlier studies have found that altruistic motivations decline with tenure among public sector employees (Blau 1960, Van Maanen 1975, and Cooman et al. 2009). We therefore add to model 2 employee's tenure at the organization as well as tenure interacted with the employee's sector, and similarly for tenure squared to allow for nonlinear effects. We also ran regressions including interaction terms of age and public sector so as to rule out that any possible tenure effects are actually driven by respondent's age. The interaction effect with age was never significant, nor did it change the effects and significance of tenure. Obviously, since our data are cross-sectional, we can not completely rule out that tenure effects are intertwined with cohort

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<sup>10</sup>The results for the control variables are close to those of Hartog et al. (2002) and Dohmen et al. (2011), except for the effect of education, which is positive in these earlier studies.

<sup>11</sup>Houston (2006) reports similar findings for these socio-demographic variables.

<sup>12</sup>We included ethnic minority, firm size, and age squared as additional controls in previous regressions. However, as those variables had no significant effect, we left them out of our final regressions.

and selection effects.

We find that for public sector workers, tenure does not significantly affect the probability of taking the lottery ticket. For private sector workers, we find a small negative effect of tenure, such that private sector workers' probability of choosing the lottery ticket goes down by 0.3 percentage point per year. This effect is insignificant at conventional levels ( $p$ -value = 0.06). Figure 1a plots the predicted probability of choosing the lottery ticket for both private sector workers and public sector workers against tenure, and Figure 1b gives the 95 percent confidence interval of the difference in predicted probability, i.e. the marginal effect of working in the public sector on the probability to choose the lottery ticket. Public sector employees are less likely to choose the lottery ticket than private sector employees for all levels of tenure, and significantly so for employees with less than 10 years of tenure. For higher levels of tenure, the difference becomes less pronounced, in particular because private sector workers are somewhat less likely to opt for the lottery ticket.

We find a strong negative effect of tenure on the probability of donating to charity for public sector workers, while there is no such effect for private sector workers. The average marginal effect of tenure on public sector workers' probability to donate is  $-0.5$  percentage points per year. This effect is statistically significant ( $p$ -value = 0.01). Figure 2a plots the predicted probability of donating to charity for both private sector workers and public sector workers against tenure, showing that the negative effect of tenure on the probability to donate for public sector employees is particularly strong early in their career. Figure 2b gives the 95 percent confidence interval of the difference in predicted probability. This figure shows that at the start of their career, public sector employees are significantly more likely to donate to charity than their private sector counterparts. After a few years, this positive effect has disappeared and even reverses. Indeed, during a large part of their careers, public sector employees are significantly less likely to donate to charity than private sector employees.

One of the reasons for a negative effect of tenure on pro-social inclinations of public sector employees might be that their tenure-wage profile is flatter than that of private sector employees, which may give rise to growing feelings of underpayment. In model 4, we control for these feelings of underpayment using the variable "Is your salary sufficient for the work that you do?" and its interaction with the public sector dummy. We are particularly interested in whether public sector employees' likelihood of donating to charity is more strongly affected by feelings of underpayment than that of private sector employees. This would support the idea that donations to charity and contributions to society at the workplace are considered as substitutes by public sector employees.

We find striking effects of feelings of underpayment on the probability of choosing the charitable donation. Model 4 in Table 2 shows that employees who feel underpaid are significantly less likely to donate to charity, and particularly so in the public sector. The average marginal effect of dissatisfaction with pay on the probability to donate the reward is minus 5.5 percentage points for private sector workers and minus 14.6 percentage points for public sector workers. The difference in the average marginal effect between private and public sector workers is also statistically significant ( $p$ -value = 0.01). We thus find a clear indication that public sector employees consider donations to charity as a substitute for their job-related net contribution to society. Figures 3a and 3b show that among satisfied employees, public sector employees are 16 percentage points more likely to donate than private sector employees at the start of their career. However, as before, after several years this difference disappears. Figures 4a and 4b plot the predicted probability of donating for dissatisfied employees against tenure and the average marginal effect of working in the public sector, respectively. Clearly, among dissatisfied employees, there is no significant difference in pro-social inclinations between public and private sector employees at the start of their career. As tenure increases, public sector employees become less inclined to donate to charity. After about ten years, the difference becomes statistically significant. Comparing figures 2, 3, and 4, it follows that controlling for feelings of underpayment hardly affects the tenure profile in public sector employees' inclination to donate to charity. Inspection of the data shows that, somewhat surprisingly, there is no clear relationship between feelings of underpayment and tenure. Hence, other factors seem to play a role here, e.g. Blau (1960)'s disillusionment effect, which we discussed in the Introduction.

Lastly, consider the effects of feelings of underpayment on the probability of choosing the lottery ticket. For private sector employees, we find a small and insignificant effect. For public sector employees, the marginal effect is significantly positive and sizeable, reflecting that dissatisfied public sector employees switch from donating to charity towards more selfish options. The difference in the marginal effect of dissatisfaction between public and private sector employees is not statistically significant. For both satisfied and dissatisfied employees in both sectors, the tenure profile in the probability of choosing the lottery ticket is very close to the profiles depicted in Figures 1a and 1b and are, for the sake of brevity, not depicted.

## 5 Conclusion

Summarizing, we have found clear support for the hypothesis that public sector employees are more risk averse than private sector employees. However, in contrast to our expectations, we have also found that public sector employees are on average not more inclined to make charitable contributions than private sector employees. One reason for this striking result is that relatively many employees in the public sector feel underpaid, which weakens their inclination to donate. Moreover, we have found that feelings of underpayment have much larger repercussions for the probability of donating to charity in the public sector than in the private sector, suggesting that public sector employees consider the contributions they make on the job as a substitute for charitable donations. Our findings suggest that many public sector employees feel that they already donate a lot to society by exerting effort on the job for relatively little pay and, therefore, are less willing to make any further contributions than their private sector counterparts. Lastly, we have found a strong negative effect of tenure on pro-social inclinations in the public sector, which arises independently of feelings of dissatisfaction about pay. As public sector employees' tenure increases, they become less and less inclined to make charitable contributions, while there is no tenure effect for private sector employees. Such evolution of preferences for public sector employees is well in line with studies by Blau (1960), Van Maanen (1975), Moynihan and Pandey (2007), and De Cooman et al. (2009) documenting swift declines in altruistic motivations with tenure among public sector employees.



## A Appendix

Final question of the survey:

Below you can indicate if you would like to receive a gift certificate or a state lottery ticket (without jackpot). When you choose for one of these options we need your name and address. You can also choose a charity, in that case we donate f. 25,- (11,34 euro) for a completed questionnaire to one of the organizations below. If you choose to donate to charity you do not need to fill out a name and address.

1  Gift certificate (f 25,-)

2  Lottery ticket

Name:

Address :

Postal code and Place :

Charity:

3  Amnesty International

4  Unicef

5  Ronald McDonald House Charities

6  War Child

7  Carnation Foundation

8  Wilhelmina Foundation

9  Hart Foundation

10  Animal protection

11  Greenpeace

THANK YOU FOR YOUR COOPERATION!

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Table 1: Descriptive statistics

<b>Variable</b>	<b>Public Sector</b>	<b>Private Sector</b>	<b>Total</b>
Reward:			
Gift certificate	41.1%	30.2%	33.7%
Lottery ticket	35.4%	48.2%	44.0%
Charity	23.5%	21.6%	22.2%
Sex: Male (%)			
	58.4%	82.3%	74.5%
Age:			
Mean (years)	44.0	41.9	42.6
Standard Deviation	(8.8)	(9.3)	(9.2)
Education:			
No education attended/finished	0.2%	0.7%	0.5%
Primary school	0.7%	2.6%	2.0%
Lower secondary school	6.3%	20.3%	15.7%
Intermediate secondary school or intermediate vocational training	25.9%	39.2%	34.9%
Higher secondary school or higher vocational training	50.9%	29.1%	36.2%
(Post-) University	15.9%	8.1%	10.7%
Net monthly income:			
Less than fl. 500,-	0.7%	0.6%	0.6%
fl. 500,- until fl. 1000,-	1.6%	1.6%	1.6%
fl. 1000,- until fl. 1500,-	3.6%	3.1%	3.2%
fl. 1500,- until fl. 2000,-	7.5%	4.4%	5.4%
fl. 2000,- until fl. 2500,-	11.4%	9.6%	10.2%
fl. 2500,- until fl. 3000,-	13.9%	18.1%	16.7%
fl. 3000,- until fl. 3500,-	16.8%	17.6%	17.3%
fl. 3500,- until fl. 4000,-	13.4%	15.1%	14.5%
fl. 4000,- until fl. 5000,-	20.3%	16.9%	18.0%
fl. 5000,- until fl. 6000,-	5.8%	6.6%	6.3%
fl. 6000,- or more	5.1%	6.5%	6.0%
Breadwinner: Yes (%)			
	66.7%	79.1%	75.1%
Marital Status:			
Married/cohabitating without children living at home	25.5%	24.5%	24.8%
Married/cohabitating with children living at home	54.6%	59.8%	58.1%
Single parent	5.3%	2.3%	3.3%
Single	14.6%	13.4%	13.8%
Number of children living at home			
Mean	1.2	1.2	1.2
Standard Deviation	(1.2)	(1.2)	(1.2)

(Continued on the next page)

Table 1: Descriptive statistics (continued)

<b>Variable</b>	<b>Public Sector</b>	<b>Private Sector</b>	<b>Total</b>
Number of subordinates			
0 (no supervisory position)	69.7%	61.4%	64.1%
1-4 employees	10.0%	16.6%	14.4%
5-9 employees	5.4%	9.6%	8.3%
10-19 employees	6.3%	5.7%	5.9%
20-49 employees	5.1%	4.3%	4.5%
50 employees	3.5%	2.4%	2.7%
Province:			
Groningen	5.5%	2.9%	3.8%
Friesland	3.9%	4.0%	4.0%
Drenthe	4.5%	4.3%	4.4%
Overijssel	6.5%	7.6%	7.2%
Gelderland	12.4%	12.4%	12.4%
Utrecht	3.2%	3.8%	3.6%
Noord Holland	15.2%	17.3%	16.6%
Zuid Holland	23.8%	23.2%	23.4%
Zeeland	2.9%	2.3%	2.5%
Noord Brabant	12.6%	13.2%	13.0%
Limburg	7.8%	7.2%	7.4%
Flevoland	1.6%	1.7%	1.7%
Tenure:			
Mean (years)	13.8	11.8	12.4
Standard Deviation	(10.1)	(10.3)	(10.3)
Salary sufficient for the work you do? : Yes (%)	44.8%	57.8%	53.6%
<b>Total number of observations</b>	<b>868</b>	<b>1794</b>	<b>2662</b>

Table 2: Results of multinomial logistic regression

Lottery ticket <sup>#</sup>	Model 1		Model 2		Model 3		Model 4	
	B	marginal effect	B	marginal effect	B	marginal effect	B	marginal effect
Public Sector	-.620*** (.095)	-.128*** (.020)	-.417*** (.106)	-.066*** (.022)	-.432** (.215)	-.066*** (.022)	-.431* (.244)	-.075*** (.023)
Female			-.558*** (.144)	-0.116*** (.029)	-.566*** (.145)	-.116*** (.029)	-.570*** (.145)	-.110*** (.030)
Age (years)			.009* (.005)	0 (.001)	.016** (.006)	.001 (.001)	.016** (.006)	.001 (.001)
Education			-.128** (.058)	-.044*** (.012)	-.143** (.059)	-.047*** (.012)	-.144** (.059)	-.046*** (.012)
Income			.020 (.027)	-.011* (.007)	.029 (.032)	-.010 (.007)	.026 (.033)	-.007 (.006)
Breadwinner (1=No)			.178 (.139)	-.005 (.028)	.184 (.139)	-.005 (.028)	.173 (.139)	-.005 (.028)
Marital Status:								
- Married/cohabitating without children living at home			.253 (.175)	0.059 (.034)	0.252 (.175)	.060* (.034)	.253 (.176)	.059* (.034)
- Married/cohabitating with children living at home			.451** (.202)	0.140*** (.040)	.456*** (.202)	.140*** (.040)	.457** (.203)	.137*** (.040)
- Single parent			-.138 (.313)	-.002 (.063)	-.157 (.313)	-.003 (.063)	-.158 (.313)	-.005 (.063)
- Single			0 <sup>a</sup>	.	0 <sup>a</sup>	.	0 <sup>a</sup>	.
Children living at home (number)			-.204*** (.068)	-.043*** (.014)	-.204*** (.068)	-.043*** (.014)	-.204*** (.068)	-.042*** (.014)
Number of subordinates			.046 (.039)	.002 (.008)	.048 (.039)	.003 (.008)	.049 (.039)	0.002 (.008)
Regional Dummies		No	Yes		Yes		Yes	
Tenure					-.014 (.018)	-.002 <sup>b</sup> (.001)	-.014 (.018)	-.002 <sup>b</sup> (.001)
Tenure_Squared					.000 (.001)		.000 (.001)	
Tenure*Public Sector					.004 (.032)	.000 <sup>c</sup> (.002)	.002 (.032)	.000 <sup>c</sup> (.002)
Tenure_Squared*Public Sector					.000 (.001)		.000 (.001)	
Salary sufficient for work you do? (1=No)							-.057 (.116)	.037* <sup>b</sup> (.020)
Public Sector*Salary sufficient for work you do? (1=No)							.029 (.199)	.064** <sup>c</sup> (.032)
Intercept	.469*** (0.055)		.053 (.486)		.103 (.500)		-.041 (.511)	
% Correct Predicted Lottery	73.8%		74.7%		74.0%		74.0%	

(Continued on the next page)



Table 2: Results of multinomial logistic regression (continued)

Charity <sup>#</sup>	Model 1		Model 2		Model 3		Model 4	
	B	marginal effect	B	marginal effect	B	marginal effect	B	marginal effect
Public Sector	-.227** (.110)	.019 (.017)	-.358** (.125)	-.021 (.018)	.240 (.244)	-.014 (.0184)	.568** (.268)	.006 (.019)
Female			-.150 (.166)	.024 (.025)	-.169 (.167)	.022 (.025)	-.248 (.170)	.009 (.025)
Age (years)			.028*** (.007)	.004*** (.001)	.032*** (.008)	.004*** (.001)	.031*** (.008)	.003*** (.001)
Education			.150** (.073)	.036*** (.010)	.150** (.074)	.037*** (.010)	.143* (.074)	.036*** (.010)
Income			.175*** (.039)	.026*** (0.005)	.187*** (.039)	.027*** (0.006)	.149*** (.040)	.021*** (0.006)
Breadwinner (1=No)			.475*** (.162)	0.063** (.024)	.491*** (.162)	.064*** (.024)	.473*** (.164)	.061 (.024)
Marital Status:								
- Married/cohabitating without children living at home			-.025 (.200)	-.030 (.033)	-.043 (.201)	-.032 (.033)	-.031 (.203)	-.030 (.033)
- Married/cohabitating with children living at home			-.395* (-.237)	-.110*** (.038)	-.385* (-.238)	-.107*** (.038)	-.360 (.239)	-.101*** (.038)
- Single parent			-.320 (.356)	-.047 (.060)	-.354 (.358)	-.051 (.059)	-.340 (.361)	-.047 (.059)
- Single			0 <sup>a</sup>		0 <sup>a</sup>	.	0 <sup>a</sup>	.
Children living at home (number)			-.051 (.078)	.010 (.012)	-.053 (.079)	.010 (.012)	-.060 (.079)	.009 (.012)
Number of subordinates			.091** (.043)	.011* (.006)	.089** (.044)	.010* (.006)	.101** (.044)	.012** (.006)
Regional Dummies	No		Yes		Yes		Yes	
Tenure					-.002 (.022)	-.001 <sup>b</sup> (.001)	.002 (.022)	-.000 <sup>b</sup> (.001)
Tenure_Squared					.000 (.001)		.000 (.001)	
Tenure*Public Sector					-.079** (.037)	-.005*** <sup>c</sup> (.002)	-.087** (.037)	-.004*** <sup>c</sup> (.002)
Tenure_Squared*Public Sector					.002 (.001)		.002* (.001)	
Salary sufficient for work you do? (1=No)							-.392*** (.148)	-.085*** <sup>b</sup> (.016)
Public Sector*Salary sufficient for work you do? (1=No)							-.497** (.237)	-.146*** <sup>c</sup> (.028)
Intercept	-.332*** (.067)		-3.036 (.553)		-3.292*** (.570)		-2.799*** (.587)	
% Correct Predicted Charity	0.0%		19.6%		21.3%		25.2%	
Nagelkerke R2	.019		.121		.112		.140	
Likelihood Ratio Test Final Model, Chi-Square (df)	43.9(2)***		300.6(44)***		316.0(52)***		349.7(56)***	
% Correct Predicted without model	44.0%		44.0%		44.0%		44.0%	
% Correct Predicted with model	45.9%		49.2%		49.7%		49.7%	
<b>Total number of observations</b>	<b>2662</b>		<b>2662</b>		<b>2662</b>		<b>2662</b>	

Note: cell entries are the unstandardized parameter estimates (B) and the average marginal effects. For categorical variables, the marginal effect is calculated as the discrete first-difference from the base level. Standard errors are in parentheses. \*=significant at 10%-level, \*\*=significant at 5%-level, \*\*\*=significant at 1%-level.

<sup>#</sup>Base Outcome = Gift Certificate.

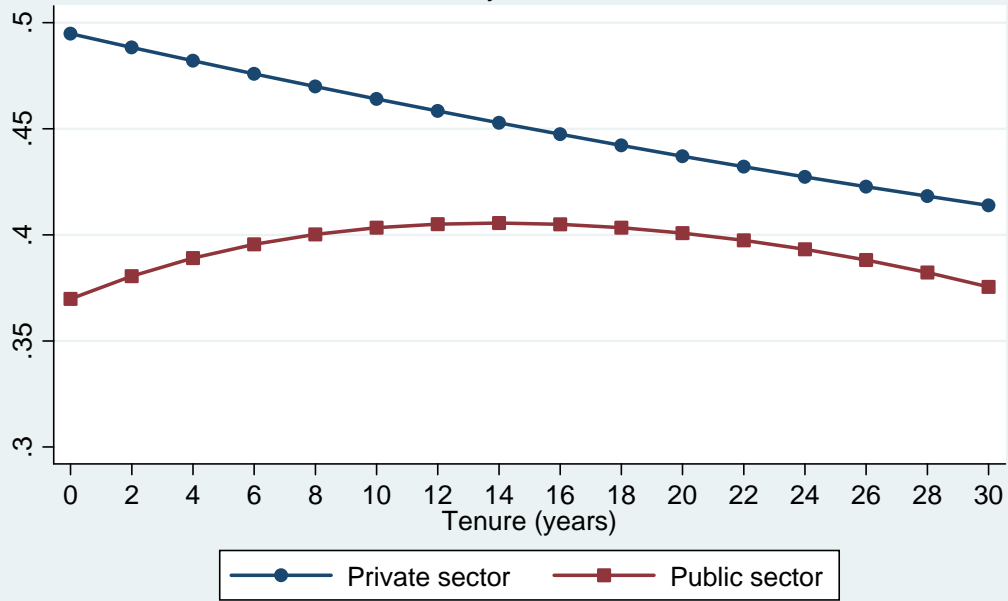
<sup>a</sup>= Base Category

<sup>b</sup> The marginal effects for tenure and for 'salary sufficient' are averaged over all public and private sector employees. In case of tenure, these include the effects through tenure\_squared.

<sup>c</sup> The marginal effects for the interaction terms 'tenure\*public sector' and 'salary sufficient\*public sector' are averaged over public sector employees only.

Figure 1a

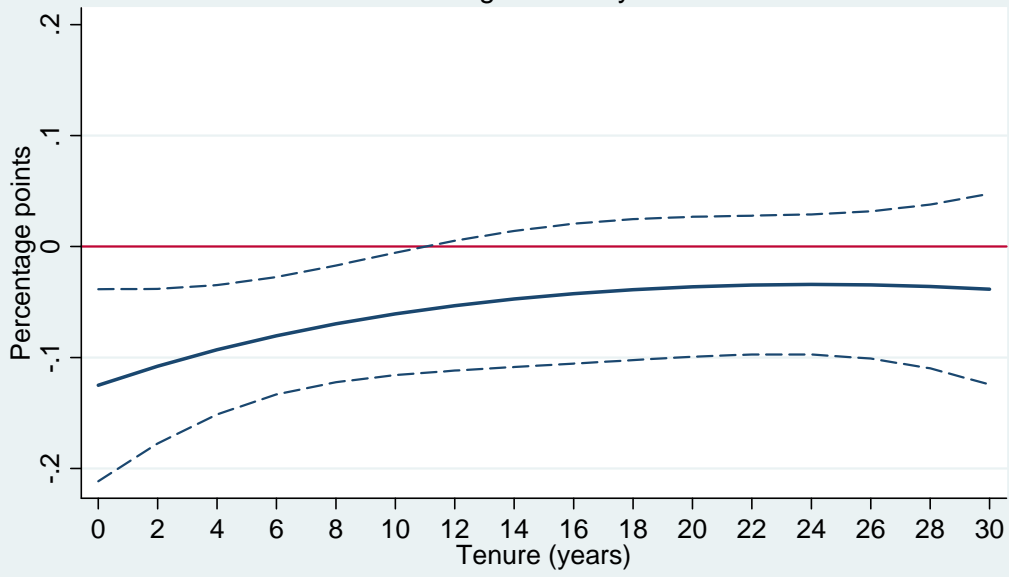
Predicted probability of choosing the lottery ticket  
by sector



STATA™

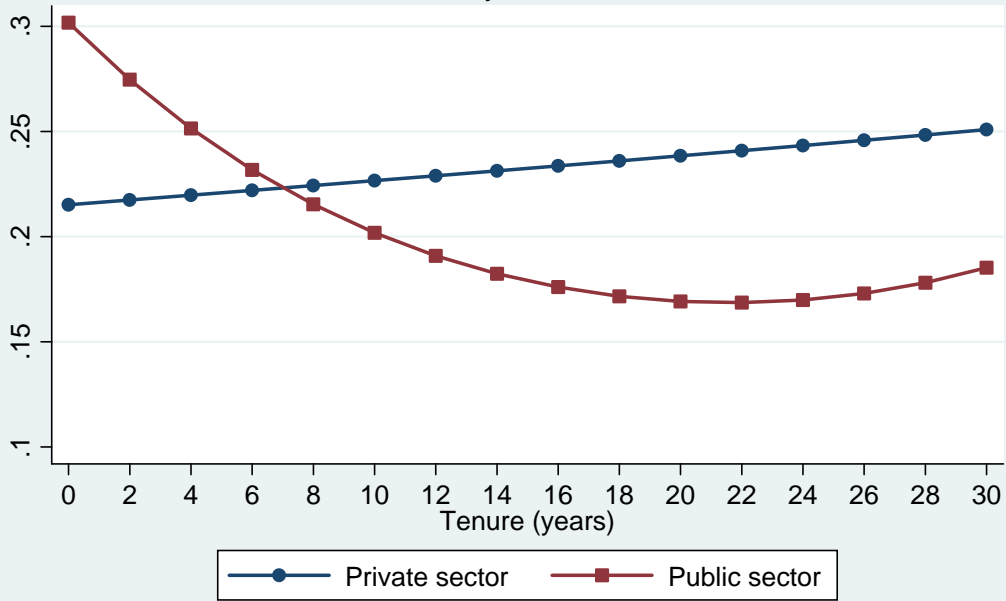
Figure 1b

Marginal effect of public sector employment on the probability of choosing the lottery ticket



STATA™

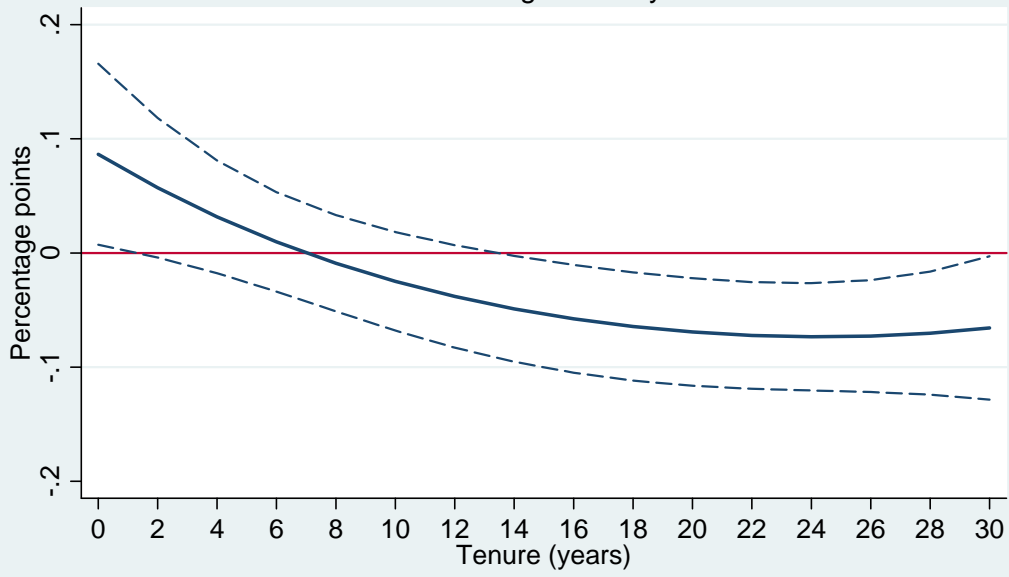
Figure 2a  
Predicted probability of donating to charity  
by sector



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Figure 2b

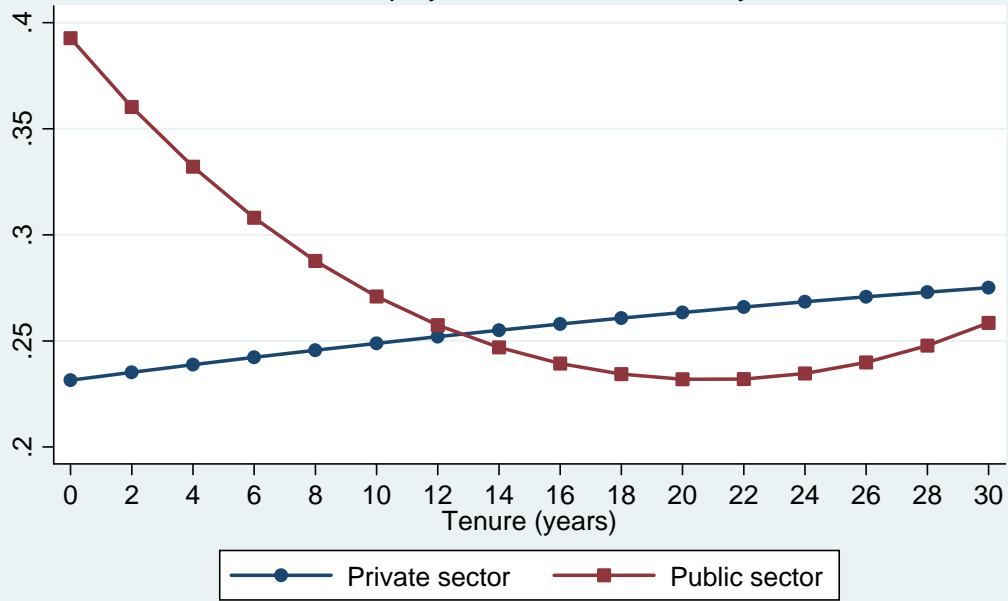
Marginal effect of public sector employment on the probability of donating to charity



STATA™

Figure 3a

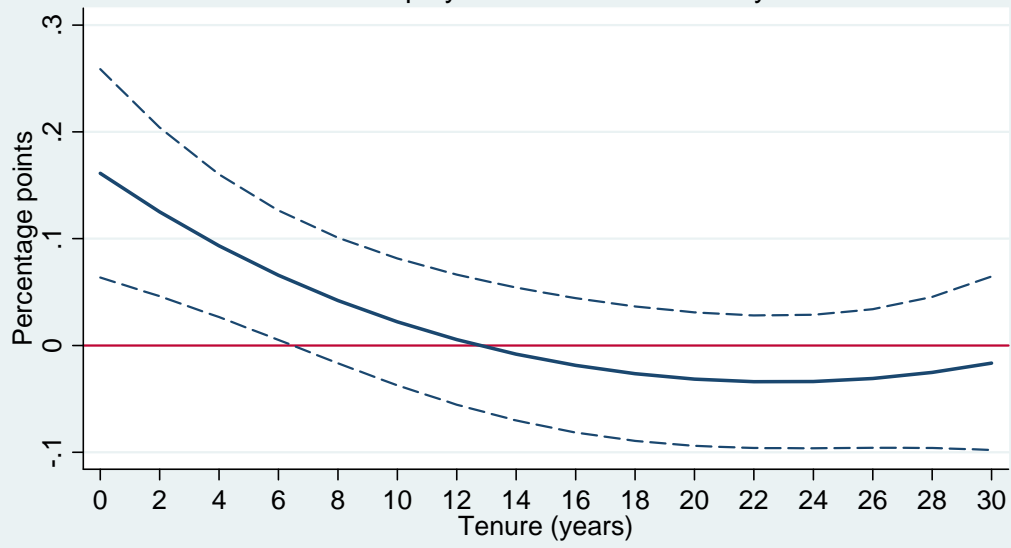
Predicted probability of donating to charity by sector for employees satisfied with salary



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Figure 3b

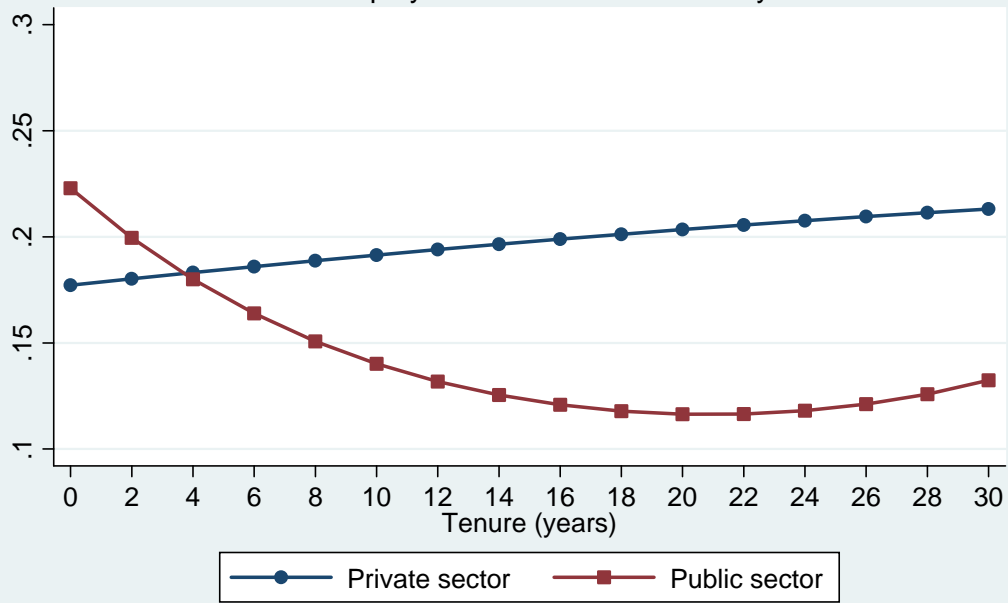
Marginal effect of public sector employment on the probability of donating to charity for employees satisfied with salary



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Figure 4a

Predicted probability of donating to charity by sector for employees dissatisfied with salary

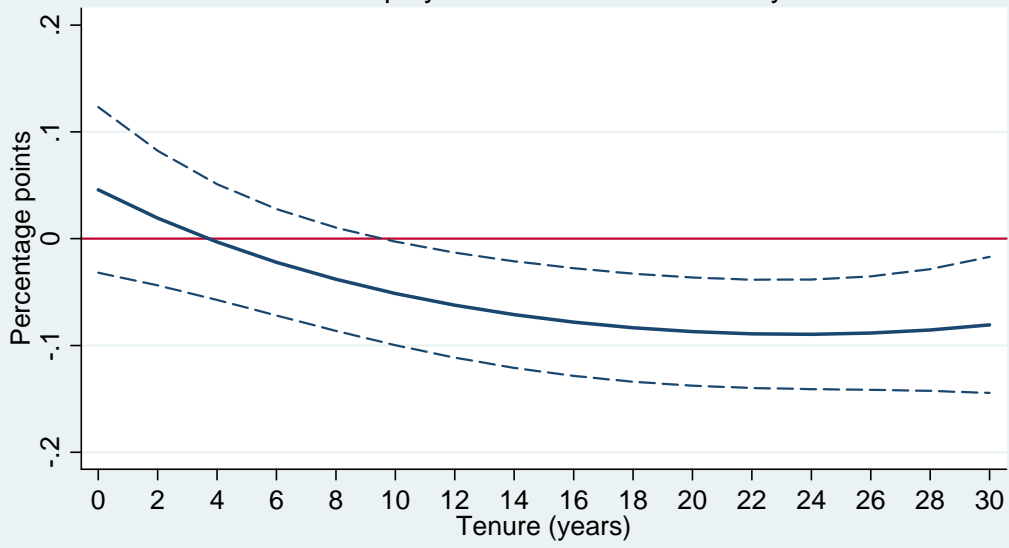


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Figure 4b

Marginal effect of public sector employment on the probability of donating to charity for employees dissatisfied with salary



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