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## Altruistic and Status Minded Public Workers: Evidence of the Influence of Government Effectiveness



**Master thesis**

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### **Abstract**

We empirically explore whether workers in the public sector are more intrinsically motivated by altruism and status concerns than their private counterparts and look for the influence of an effective government. We base our findings on a large scale survey conducted in 51 countries. We use logistic regression to estimate the influence on the odds of working in the public sector. We find that altruistic workers are strongly attracted to the public sector and even more so to an effective government. The effects of status concerns seem ambiguous. However, we do find that highly status minded employees avoid a very effective government. We find that these effects are stronger for higher levels of altruism and status concerns.

Keywords: Altruism, Status Concerns, Public Service Motivation, Stated Preferences.

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# 1 Introduction

There is growing understanding for the cause and nature of intrinsic worker motivation in economic literature. It is argued that sources of motivation differ between the public and the private sector. The public sector is characterized by the fact that most of the work offers the opportunity to contribute to society or to the welfare of others. For instance a nurse who can contribute to the welfare of her patients by working hard, a government employee who can formulate policy that raises the welfare of the weak in society or a teacher who can raise the future wellbeing of his students. These kind of jobs attract people who value being important to others and care about their own output, this makes these workers valuable to the public sector. Although this might sound promising, not every government or public sector might offer these opportunities. Consider countries that are ruled by strict regimes, have very ineffective governments or lack a well functioning public sector. It is hard to imagine how an intrinsically motivated worker is attracted to such a public sector by the desire to help others. A worker might even do better in the private sector.

The influence of the effectiveness of a public sector might be an important factor that determines if these workers are truly attracted to the public sector. It might even be able to explain the differences in self-selection effects between countries.

A formalisation of intrinsic motivation for the public sector lies in the concept of public service motivation, Perry and Wise (1990)<sup>1</sup> argue that public sector workers differ from their private counterparts in the fact that they have a preference to serve the public interest. They define public service motivation as: *“an individuals predisposition to respond to motives grounded primarily or uniquely in public institutions and organisations”* (p. 368). They propose that workers who have a greater public service motivation have a higher chance of ending up in a public organisation. It is argued that public service motivation has positive benefits to the public organisation due to the fact that it is positively related to individual performance.

The concept of public service motivation is often used in combination with altruism. Rainey and Steinbauer (1999) add the concept of altruism to define public service motivation. They give a second interpretation of 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 this concept of public service motivation to empirically explore the effect on self-selection of

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<sup>1</sup> Although there is more literature on public service motivation, Perry and Wise (1990) gave the first comprehensive overview of the concept.

workers to the public sector. Furthermore we add the concept of status concerns. Status concerns measure the importance a worker places on performing well and having their contributions recognized.

Intrinsically motivated workers are valuable to the public sector. Understanding of intrinsic motivation creates possibilities for different ways of attracting and retaining qualitative personnel, especially in times where governments have to cut on expenses and public sector wages are likely to fall behind the private sector developments. We extend the literature by incorporating the influence of government effectiveness. This could provide more insight in the relationship of altruism, status concerns and the public sector.

First of all we expect people who have a strong preference to help others, to self-select into jobs where they can be important. These jobs are mostly found in the public sector. We expect these workers to care about their output and value if their contributions are recognized. We test the following hypothesis:

*(1) Workers who are altruistic or status minded are more likely to be employed in the public sector compared to the private sector.*

Additionally we expand the current literature with the introduction of the influence of government effectiveness on the self selection of altruistic and status minded workers.

We expect that workers who care about their contribution to others or society or who care about their actions being recognized are more attracted to a government that provides a stronger possibility. An effective government offers the opportunity to an altruistic worker for his or her actions to be more helpful to others and make a stronger contribution to their welfare. A status minded individual might feel strongly attracted to an effective government by the opportunity to make more impact, to achieve better results in work and get more appraisals from it. Our second hypothesis is:

*(2) An effective government is more appealing to an altruistic and status minded worker than an ineffective government.*

If the altruistic and status minded workers self select to the public sector we expect that they do so because this raises their utility. We test this by the following hypothesis:

*(3) Workers who are altruistic or status minded are happier when working in the public sector compared to the private sector.*

Finally we expect that an effective government has a positive influence on the happiness of the public workers because it can fulfil their preferences for altruism and status concerns better than an ineffective government. Our last hypothesis is:

*(4) An altruistic or status minded worker is happier when working for an effective government than for an ineffective government.*

The hypotheses are empirically explored based on a dataset of the World Values Survey<sup>2</sup> (2005) with additional data from the Worldwide Governance Indicators<sup>3</sup>. The World Values Survey is a survey conducted in 51 different countries containing data on work and living values. A subset of 37 thousand respondents was taken from this dataset and contains all working respondents divided over the public and the private sector. The Worldwide Governance Indicators contain data on the quality and characteristics of governments and are calculated by the World Bank. We use the ratio for government effectiveness in our comparison. We use logistic regression to estimate the effect of differences in altruism and status concerns on the odds of ending up in the public sector instead of the private sector. We also include government effectiveness per country to assess how this influences the choice of employment. We control for several demographics that might influence the choice of sector. Lastly we use linear regression to check if altruistic and status minded workers are truly happier in the public sector.

In line with the literature we find significant and robust differences in altruism between the public and private sector (Lewis and Frank, 2002; Crewson, 1997; Houston, 2000). Due to the large size of our sample and nationwide diversity we believe our results are generalizable. We find no robust evidence of the influence of status concerns. We do find that an effective government has a strong attractiveness on altruistic workers. An effective government seems to offer them a better opportunity to be important. Additionally we find that status minded workers avoid a very effective government. We find little support that altruistic or status minded workers are happier or unhappier in the public sector compared to the private. We do observe the expected signs based on our previous findings but they are insignificant. We hold the fact that happiness is a far noisier signal than choice of employment responsible for this.

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<sup>2</sup> Source: World Values Survey Organisation

<sup>3</sup> Source: World Bank

We proceed as followed, the next section discusses the related literature on public service motivation and altruism. Section three summarizes the used datasets and explains the key variables of interest. Section four resumes with an explanation of the used methodology, descriptive statistics of the sample and the used models. Section five contains the basic results of the analysis. Finally the results and hypotheses are discussed in section six, section seven concludes.

## **2 Literature Review**

This thesis builds on the existing literature on public service motivation and intrinsic motivation. The theory of public service motivation can be interpreted as a counterweight for the rational self-interest choice theories (Vandenabeele, 2007). Public service motivation is a type of intrinsic motivation characteristic for the public sector. Perry and Wise (1990) give a detailed overview of public service motivation. They propose that workers can have different types of motivation to work for the public sector. Motivation can be rational, norm based or affective. Workers can have a private interest in the public sector due to participation in the policy formulation (rational), a desire to serve the public (norm based) or due to personal identification (affective). They also propose that public service motivation has behavioural implications. Workers with a higher public service motivation are more likely to 1) choose employment in the public sector, 2) show higher individual performance and 3) are less dependent on monetary incentives. This makes workers with a high public service motivation valuable to the public sector.

### **2.1. Public service motivation and altruism**

The concepts of Perry and Wise (1990) on public service motivation are not followed by all. There are multiple views on the context of public service motivation. A more global concept is used by Rainey and Steinbauer (1999), who see altruism as a major part of public service motivation. Workers who value to serve others also show a strong motivation for public services. This definition of altruism, as a motivation for public services, is extended by Brewer and Selden (1998). They introduce pro-social behaviour and emphasise the use beyond the public sector alone. Finally Vandenabeele (2007) emphasises that public service motivation is characterized by behaviour that goes beyond the organisational or self-interest.

In economic literature altruism is well used as a primary motivation for public service. However there is critique from social (psychology) scholars. Paliavin and Charng (1990) state that altruism in economics is seen as a costly decision instead of truly feeling the need of benefitting others as only motive. They claim that true altruism must follow from the need to benefit others. Not just costly behaviour but the motivation behind the behaviour determines if it is altruistic. Nonetheless Perry and Hondeghem (2008) acknowledge the fact that in economic literature the concepts are connected. They argue that public service motivation in economics is used as concept for altruism. They define altruism as: *“the willingness of individuals to engage in sacrificial behavior for the good of others without reciprocal benefits for themselves”* (p. 5).

In this paper we use altruism as primary indicator of public service motivation in line with the definition of Rainey and Steinbauer (1999). We include status concerns to see if altruistic workers also feel the need to have their actions recognized or that they truly feel the need to benefit others despite their own benefits.

## **2.2. Intrinsic motivation and self-selection**

Recent research on intrinsic motivation shows that workers are not only motivated by the monetary wage. They have shown that workers without direct effort incentives still keep their effort above the bare minimum. Delfgaauw and Dur (2008b) note that a key prediction of the literature on intrinsic motivation, is the fact that jobs with *“high intrinsic qualities”* (p.6) lead to self selection of workers with on average high motivation to these jobs. The cause can be found in various kinds of altruistic and social preferences.

For instance Francois (2000) and Prendergast (2007) who show that workers care about their output for altruistic reasons. Other scholars show that workers can also be motivated because they care about their contribution to a public good (Besley and Ghatak, 2005; Delfgaauw and Dur, 2008a; Glazer, 2004).

Delfgaauw and Dur (2008a) and Nyborg and Brekke (2008) show that workers with a high public service motivation or a high willingness to be important to others self select to the public sector. They also mention a downside, the fact that the public sector attracts workers by the opportunity to shirk. However Delfgaauw and Dur (2008a) mention that this does not have to be negative at all. This thesis builds on these models and estimates if the self-selection effect proposed in this literature is truly visible.



Intrinsic motivation and extrinsic rewards do not have to be complements. Bénabou and Tirole (2003) find that implicit incentive schemes might even crowd out the intrinsic motivation of workers. In addition, Bénabou and Tirole (2006) model a situation where an agent's action depends on altruistic or prosocial motivation, material self interest and image concerns. They find that greater publicity for prosocial behaviour could lead to higher reputational motivation to engage in such actions. Extrinsic incentives can create doubt on the true motivation of prosocial behaviour and can therefore crowd out intrinsic motivations. They show that people might want to reflect their intrinsic motivation in their actions and gain (social and self) image improvements. We include status concerns in our research because we expect that in a sector where intrinsic motivation could be predominant, that the willingness to see this reflected in image or status concerns is predominant as well. A more efficient government should make the actions more important and therefore result in higher reputational benefits for the public sector workers.

Fershtman, Hvide and Weiss (2005) show how status concerns influence worker effort. They show that efficiency is maximized when workers with different status concerns are mixed. They also notice that people with high status concerns are more productive and earn higher wages.

### **2.3. Empirical evidence**

Most of the empirical studies on selection effects of motivated workers to the public sector emphasise that public workers have an altruistic or intrinsic motivation to work for the public sector. Workers who are mainly extrinsically motivated are more likely to work for the private sector (Lewis and Frank, 2002; Crewson, 1997; Rainey, 1982; Houston, 2000). However there is evidence that proves otherwise (Gabris and Simo, 1995).

Empirical research among managers of the public and private sector showed that public sector managers find work that is useful to society more important than managers of private firms (Rainey, 1982). The data came from the Federal Employee Attitude Surveys and additionally showed that federal employees rate impacting the public affairs as a very important job aspect.

Crewson (1997) finds that these differences between reward motivations of public and private sector employees are stable over time. He used survey data from several sources to show the differences over time. Public sector employees score higher on their willingness to be helpful to society and help others and rate a feeling of accomplishment as a more important job characteristic than their private counterparts. He also finds evidence for a

positive relationship between public service motivation and organisational commitment. The existence of public service motivation is confirmed by Houston (2000). He claimed that public employees place more value on intrinsic rewards and less on financial rewards. He finds that public sector workers place more importance on meaningful work than workers from the private sector.

Lewis and Frank (2002) show that people who place higher priority on helping others and have a desire to be useful to society are more likely to be employed in the public sector. Their research based on the General Social Survey in the United States finds that these effects are stronger for people with a higher level of public service motivation. In their comparison of people who work for the public sector and who indicate that they want to work for the public sector, they find the strongest evidence for the first category. In this paper we compare only the workers who actually work for the public sector, we therefore expect to find similar results. Finally they also remark that job security is still a very strong aspect in the choice of sector of employment.

The evidence using revealed preferences data is less extensive. Buurman, Dur and Van den Bossche (2009) base their findings on a survey where respondents were given the choice for a gift certificate, lottery ticket or a donation to charity. They find that public sector workers choose the pro-social option more often at the start of their career. However they find that this effect reverses with tenure and private sector workers choose the pro-social option more often at the end of their career. They propose a *“swift decline in altruistic motivations with tenure”* (p.12) in the public sector.

The research on status concern differences between public and private sector workers is less extensive. There is evidence on preferences for promotion. Promotions are an acknowledgement of a workers performance and can be seen as an improvement in status. Literature shows that status is more important for private sector workers than for their public counterparts (Rainey, 1982; Jurkiewicz, Massey and Brown, 1998; Crewson, 1997). There is counter evidence, for instance Houston (2000) finds that public sector workers find promotions a more important job characteristic and Gabris and Simo (1995) find no effects at all.

#### **2.4. Critique on public service motivation**

There is also more critical work on public service motivation. For example Gabris and Simo (1995) and Baldwin (1987) who argue that although differences between the public and private sector may exist, the differences are overestimated.

Gabris and Simo (1995) argue that the differences between motivation in the two sectors are negligible at best. They find no significant differences between the importance of meaningful work for workers of the two sectors. They claim that if public sector jobs were made more challenging, financially more appealing and be given higher responsibility it would produce more valuable public employees. Added to this Jurkiewicz, Massey and Brown (1998) remarkably find that private sector employees rank a chance to benefit society higher than their public peers.

One of the critiques on current research is that the reward preferences are examined with datasets coming from local samples (cities, states). In our research we do include several countries from a variety of regions like South America, Africa, Europe and Asia. Another critique is the fact that most research is done by bivariate estimations. They claim that a control for background statistics can improve the understanding of public-private sector differences.

Vandenabeele et al. (2006) note that macro-economic comparisons of public service motivation are difficult due to differences in concept. In their literature research they test the theory of Perry and Wise (1990) for Germany and the United Kingdom and find that the self sacrifice part of public service motivation is much more prevalent in the United Kingdom literature than for instance in Germany.

This thesis differs from the papers above in that it uses a more global definition of public service motivation. Only altruism is used as primary indicator and status concerns are used to check if workers in the public sector also feel the need for their actions to be recognized. We extend the current empirical literature on public service motivation by incorporating the effect of government effectiveness. This allows examining if workers who truly care about their output for status or altruistic reasons feel more attracted to a government that offers them that opportunity. It could also explain why altruism is more prevalent in the public sector of some countries than others. Finally we base our estimations on a large dataset containing a large number of different countries and control for several demographics to eliminate bias.

### 3 Data

The data used comes from the World Values Survey (WVS)<sup>4</sup> and from the Worldwide Governance Indicators (WGI)<sup>5</sup>. The World Values Survey is conducted in different waves, the first in 1981 the last wave in 2005-2008. We use only the 2005-2008 wave because previous waves do not contain questions on sector of employment, altruism or status. This wave is split-up in two separate ballots (A and B) containing data on different countries, both ballots are used in the analysis. This results in a dataset containing data on 51 different countries<sup>6</sup> with 82.992 respondents. The range of countries is very diverse, ranging from wealthy OECD countries to poor development countries. The number of respondents per country can vary from 1001 to 3051, the surveys were carried out face to face<sup>7</sup>.

The survey includes a large set of political, social and cultural variables and data on a wide range value related topics. These topics include psychological characteristics, work values, social values, life values and a large set of demographics.

The key variable of interest is the sector of occupation. Every respondent had to indicate whether he or she was working for the government or a public institution, private business or industry or a non-profit organisation. Since we only intend to compare the private sector workers with the public sector workers we have taken a subsample containing all individuals who indicated that they are employed in either the public sector (government and public institution) or the private sector (private business or industry). We exclude all workers of the non profit sector because of the low number of respondents in this category. This results in a subsample of 37.259 respondents<sup>8</sup>. Two other important variables of interest from this survey are stated altruism<sup>9</sup> and stated status concerns<sup>10</sup> of a respondent. Respondents were asked to score themselves on a 1 to 6 scale measuring from “very much like me” to “not at all like me”. This combination of data allows testing whether there are differences in altruism and status concerns between public and private sector workers.

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<sup>4</sup> Conducted by the World Values Survey Organisation ([www.worldvaluessurvey.org](http://www.worldvaluessurvey.org))

<sup>5</sup> Calculated by the World Bank ([www.govindicators.org](http://www.govindicators.org))

<sup>6</sup> Countries included in the analysis are: France, United Kingdom, Netherlands, Spain, United States, Canada, Japan, Mexico, South Africa, Australia, Norway, Sweden, Argentina, Finland, South Korea, Poland, Switzerland, Brazil, Chile, India, Slovenia, Bulgaria, Romania, China, Taiwan, Turkey, Ukraine, Russia, Peru, Uruguay, Ghana, Moldova, Georgia, Thailand, Indonesia, Vietnam, Serbia, Egypt, Morocco, Iran, Jordan, Cyprus, Trinidad and Tobago, Andorra, Malaysia, Burkina Faso, Ethiopia, Mali, Rwanda, Zambia and Germany.

<sup>7</sup> With exception of Japan and Australia. Surveys there are written questionnaires.

<sup>8</sup> This excludes all respondents who indicated that they are unemployed. We also excluded all respondents above the age of 70, because it is unlikely that they are still employed.

<sup>9</sup> Question faced by respondents: “It is important to this person to help the people nearby; to care for their well-being”.

<sup>10</sup> Question faced by respondents: “Being successful is important to this person; to have people recognize ones achievements”.

The data from the World Values Survey is supplemented with data from the Worldwide Governance Indicators. These indicators provide benchmarking for 212 countries over a period ranging from 1996-2008 in six different categories, containing data on the quality of governance in a country. These categories include: Voice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption. The indicators are calculated by the World Bank.

The main variable of interest is Government Effectiveness. The data of 2005 is used in the analysis because most of the surveys of the World Values Study wave 2005-2008 are collected in the same year. The variable is described as followed (Kaufmann et al, 2009, p.6): *“Government Effectiveness: capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation and the credibility of the government’s commitment to such policies”*.

The indicator is a ratio and is measured with data from several sources<sup>11</sup>. These sources contain survey and poll information obtained from private and public organisations, experts on governance and citizens. These surveys are conducted by a several independent survey institutes, non-government organisations and international organisations<sup>12</sup>. The World Bank has weighted the data from these sources to construct a ratio that can be used to compare the performance of countries. The government effectiveness ratio is measured with a minimum of -2,5 and a maximum of 2,5. The data is particularly useful because it is available for all countries that participated in the World Values Survey. Furthermore it provides the opportunity to compare these countries on a variable that is very hard to measure. The extensive use of sources to calculate the ratio makes sure that a lot of different features of effectiveness are taken into account. The downside of the sources is that it is just an indicator of government effectiveness and the complexity of the measurement and conceptualization makes it hard to construct a completely objective variable.

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<sup>11</sup> For a detailed description of measurement see: Kaufmann et al. (2009)

<sup>12</sup> Sources include: Country Risk Preview by McGraw Hill, Country Risk Service by Economist Intelligence Unit, Global Competitiveness Report by World Economic Forum, World Markets Online by World Markets Research Centre and International Country Risk Guide by Political Risk Services.

## 4 Methods

In order to estimate the effects of government effectiveness on the self selection of altruistic and status minded workers to the public sector we use binary logistic regression. To test the effects on happiness we use a different technique, linear regression. This section explains the choice of methods followed by the models used to test the hypotheses and transformations in the variables.

Firstly we use binary logistic regression to estimate the effect of status concerns and altruism combined with government effectiveness on the odds of a worker being employed in the public or private sector. Since our dependent variable is a binary variable<sup>13</sup> we cannot use regular OLS. Logistic regression offers the opportunity to estimate a change in the odds of a worker being employed in the public sector, given a change in the values of the independent variables. A positive coefficient implies that a worker with that characteristic has a higher chance of working in the public sector compared to the private.

We use logistic regression instead of probit regression because it is easier to interpret the results. However there are some limitations. Logistic regression requires a large enough sample size to pick up the effects of the independent variables. The more explanatory variables the larger the sample size needed. Since we have a sample size of over 37 thousand we do not expect any problems. Secondly the correlation between the explanatory variables cannot be too high because this creates bias in the estimations. In the results section we therefore check for multicollinearity.

Secondly, to estimate the effect of an effective government on the happiness of an altruistic and status minded public worker we use linear regression. Linear regression can be used because the dependent variable “happiness” is not a binary variable but nominal. With linear regression, the coefficients estimate the contribution of an efficient government to the stated happiness of an altruistic or status minded public worker. The following paragraphs show the models constructed with the logistic and linear regression.

### 4.1. Logistic regression model

In our first model we estimate the effect of altruism and status concerns on the odds of being employed in the public sector. The dependent variable in our logistic regression is the prediction of the logarithm of the odds of being employed in the public sector. The variable

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<sup>13</sup> After transformation, sector of employment has two possible outcomes: public or private

public sector is recoded as a dummy, meaning it scores a one when employed in the public sector and a zero when employed in the private sector. We estimate the probability of an individual with the characteristics  $X_1 + X_2 + \dots + X_n$  of ending up in the public sector by the following logistic equation:

$$(I) \quad P(\text{Public sector}) = \frac{1}{1 + e^{-(\alpha + b_1 X_1 + \dots + b_n X_n + \varepsilon_i)}}$$

Rewriting gives a linear combination that predicts the logarithm of the odds of ending up in the public sector, where  $P_i$  stands for the probability of a worker being employed in the public sector:

$$(II) \quad \ln(\text{ODDS}^P) = \ln\left(\frac{P(\text{Public sector})}{1 - P(\text{Public sector})}\right) = \ln \frac{P_i}{1 - P_i} = \alpha + b_1 X_1 + \dots + b_n X_n + \varepsilon_i$$

This makes the interpretation of the regressions more difficult, however we will focus on the  $\text{Exp}(b)$  term in the regression tables. An  $\text{Exp}(b)$  indicates the change in odds for a change in the independent variable. When  $\text{Exp}(b) > 1$  the odds increase and when  $\text{Exp}(b) < 1$  the odds of being employed in the public sector decrease.

#### 4.2. Models for altruism and status concerns

The models contain two main independent variables. Let  $A$  be the value for altruism and  $S$  be the value for status concerns. Both variables originally ranged from 1 to 6<sup>14</sup>, to simplify the interpretation, both variables are centred on their means. All variables that are centred on their mean are indicated with a subscript *mc*. The coefficients  $\gamma$  and  $\delta$  show the effects of a deviation from the mean.

Three control variables included are included. Let  $F$  be the dummy variable that takes the value of one if female and zero if male. We use gender as a control variable because we expect females to self-select to the public sector because of the opportunity to work part-time. Secondly let  $O$  be the continuous variable that indicates how old a workers is. The maximum of this variable is determined at 70 years because people older are very unlikely to be employed. We expect age to have a positive effect on working for the public sector because the public sector usually offers the opportunity for life-time employment. The last control variable is education, denoted by  $E$  which ranges from 0(=no education) to

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<sup>14</sup> Scales are reversed for interpretation purposes, making 1 = "not at all like me" and 6 = "very much like me"

4(=university level education)<sup>15</sup>, we expect that the public sector offers on average more jobs for the higher educated than the private sector. We find strong support in the literature for the effects of the control variables on choice of employment (Lewis and Frank, 2002; Buurman, Dur and Van den Bossche, 2009).

To check for non linear effects in the control variables we have included age and education squared denoted by  $O^2$  and  $E^2$  respectively. Non linear terms for the main variables are not included, in the next model we do include dummy variables for each step of altruism and status concerns. This allows to check for any quadratic effects but also allows to check if the effects are only in the extremes. The control variable coefficients are  $\theta, \mu, \vartheta, \eta, \psi$  and there is a constant  $\alpha$ , included in the model. This results in the first model:

$$(1) \quad \ln \frac{P_i}{1-P_i} = \alpha + \theta F + \mu O + \eta O^2 + \vartheta E + \psi E^2 + \gamma A_{mc} + \delta S_{mc} + \varepsilon_i$$

This model provides insight in how well altruism and status concerns help predict the odds of ending up in either the public or the private sector. To fully understand the effects it is necessary to include interaction terms. In the second model we include the term government effectiveness, denoted by  $G_{mc}$ . Again this variable is centred on its mean to show the effect compared to the average government. This means that the coefficient  $\varphi$  shows how a more than average effective government influences the odds of ending up in the public sector. The government effectiveness term differs for each country in the dataset<sup>16</sup>. We interact this term with both altruism and status concerns. This estimates how effectiveness of a government influences the self-selection of altruistic and status minded workers. When the coefficients  $\rho$  and  $\sigma$  are positive it implies that a more effective government has a stronger attractiveness for altruistic and status minded workers<sup>17</sup>. The second model as followed:

$$(2) \quad \ln \frac{P_i}{1-P_i} = \alpha + \theta F + \mu O + \eta O^2 + \vartheta E + \psi E^2 + \gamma A_{mc} + \delta S_{mc} + \varphi G_{mc} + \rho A_{mc} G_{mc} + \sigma S_{mc} G_{mc} + \varepsilon_i$$

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<sup>15</sup> Total scale for education is: 0=no education (originally 1), 1=primary education (originally 2,3), 2=secondary school(originally 4,5), 3=secondary university preparatory (originally 6,7) and 4=university level(originally 8,9). Original scale from 1 to 9.

<sup>16</sup> Government effectiveness is measured on a five point scale with two decimals.

<sup>17</sup> We have checked for interaction between altruism and status concerns and for the three-way interaction with government effectiveness. However we found them to be insignificant.



In the third model we split the variables altruism and status concerns into separate dummies. This offers the opportunity to see if there are differences between the stated levels of altruism and status concerns. We use this method instead of including regular non-linear terms because we want to examine the possibility that there are small differences between adjacent dummies. For example the dummy for “Like me” could show the same effect as the dummy for “Very much like me”.

Equation (3) includes the matrixes  $A_{m \times n}$  and  $S_{m \times n}$  consisting of five column vectors. Since a respondent can only give one correct answer to the question and there are six answering possibilities we have five dummies per question. The first dummy equals one when a respondent answered “not like me” and a zero otherwise. The second dummy equals one for “A little like me”, the third for “Somewhat like me”, the fourth for “Like me” and finally the fifth for “Very much like me”. The reference answer is “Not at all like me”. These five dummies form the matrixes of dummies for altruism and status. The vectors  $\mathbf{u}$  and  $\mathbf{v}$  contain all coefficients for the separate dummies. This results in our third model:

$$(3) \quad \ln \frac{P_i}{1-P_i} = \alpha + \theta F + \mu O + \eta O^2 + \vartheta E + \psi E^2 + \mathbf{u}A_{m \times 5} + \mathbf{v}S_{m \times 5} + \varepsilon_i$$

The fourth and final model includes the interaction effects for government effectiveness and the altruism and status dummies. These interaction effects show how government effectiveness influences the odds of ending up in the public sector for each level of indicated altruism and status. Again the vectors  $\mathbf{w}$  and  $\mathbf{z}$  contain all coefficients for the dummies. The fourth model is as followed:

$$(4) \quad \ln \frac{P_i}{1-P_i} = \alpha + \theta F + \mu O + \eta O^2 + \vartheta E + \psi E^2 + \mathbf{u}A_{m \times n} + \mathbf{v}S_{m \times n} + \varphi G_{mc} + \mathbf{w}G_{mc}A_{m \times n} + \mathbf{z}G_{mc}S_{m \times n} + \varepsilon_i$$

With these four models the effects of altruism, status and government effectiveness on choice of sector are estimated in size, effect and non linearity. The next paragraph shows the models used to asses the influence on the happiness of public servants.

### 4.3. Models on happiness

To estimate if altruistic and status minded public servants are truly happier in a more effective government we use OLS. The dependent variable happiness<sup>18</sup> ranges from one for “Not at all happy” to four for “very happy”<sup>19</sup>.

We use five control variables: gender, age, education, financial satisfaction and health. Non-linear terms are included for both health and financial satisfaction. We tested for non linearity of the variables age, education, altruism and status concerns but found all to be insignificant.

Health denoted by  $H$ , is the most obvious, because healthier people are on average assumed to be happier. Financial satisfaction denoted by  $M$ , seems obvious as well, given the fact that financial possibilities increase the possibilities of a good live. We include education because education is a good proxy for income. We expect wealthier people to have more financial opportunities and a higher social status, which should result in higher happiness. Lastly we include age and gender as a control variable.

The estimates  $\gamma$  and  $\delta$  show how altruism and status concerns influence happiness independent of sector. The coefficient  $\kappa$  estimates the difference between the private and public sector. The variable sector is denoted by  $P$  and is a dummy variable which scores one for public and zero for private. We add two interaction terms, altruism and status with sector of employment, these are the main variables of interest. The estimates  $\tau$  and  $\omega$  estimate the sector specific effect of altruism and status on happiness for the public sector workers. This results in the following model:

$$(5) \quad Happiness = \alpha + \theta F + \mu O + \vartheta E + \beta H + \eta H^2 + \pi M + \psi M^2 + \gamma A_{mc} + \delta S_{mc} + \kappa P + \tau P A_{mc} + \omega P S_{mc} + \varepsilon_i$$

This model is extended with the inclusion of government efficiency and the cross terms with altruism and status. Notice that the main variables are again mean centred. The cross terms are multiplied by the dummy variable sector of employment denoted with  $P$ , this ensures that the effect measured only counts for the workers of the public sector. The coefficients  $\rho$  and  $\sigma$  will be positive if altruistic workers are truly happier in an effective public sector compared to a non effective.

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<sup>18</sup> We chose the variable happiness instead of life satisfaction from our sample. Results for both equations show little difference in the estimations.

<sup>19</sup> Question faced by respondents: “Taking all things together, would you say you are:”

The final model is as followed:

$$(6) \quad \text{Happiness} = \alpha + \theta F + \mu O + \vartheta E + \beta H + \eta H^2 + \pi M + \psi M^2 + \gamma A_{mc} + \delta S_{mc} + \kappa P + \tau PA_{mc} + \omega PS_{mc} + \varphi G_{mc} + \rho PA_{mc}G_{mc} + \sigma PS_{mc}G_{mc} + \varepsilon_i$$

The results of the estimated models can be found in section five. The next paragraph contains the descriptive statistics of the sample.

#### 4.4. Descriptive statistics

Table 1 (next page) shows the descriptive statistics of the subsample. There are some remarkable differences between the public and private sector workers. In the subsample almost 51% of all respondents from the public sector are female. For the private sector this is only 41%. Public sector workers are on average slightly older than their private counterparts, 43 years versus 40 years. Moreover the public sector workers are on average higher educated. Of all public sector workers 40% has a university type education and 63% has at least university or university preparatory. On the contrary, in the private sector only 22% of all respondents have a university type education and almost 26% has no education at all or only primary.

We find different averages for the independent variables in both sectors. In the public sector a worker scores an average altruism of 4,8 on a scale to 6, the private sector workers score less with 4,68. There are also differences for status concerns. A public sector worker scores an average of 3,90 where the private sector workers scores surprisingly higher on average with 3,92. This implies that workers in general are slightly less status minded than altruistic. The average government effectiveness for a country is 2,95<sup>20</sup>, this is an unweighted average.

Remarkably there are also differences in reported health and happiness. Public sector workers report slightly lower health (3,88 compared to 3,95) and lower happiness (3,11 compared to 3,13) compared to the private sector workers. However public sector workers are on average more satisfied with their financial situation than private sector workers.

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<sup>20</sup> Rescaled to a range from 0 to 5.

Table 1: Descriptive statistics

<i>Variable</i>	<i>Obs.</i>	<i>Public Sector</i>	<i>Private Sector</i>	<i>Total</i>
Altruism:	37.775			
<i>Mean</i>		4,80	4,68	4,72
<i>Standard deviation</i>		(1,08)	(1,12)	(1,11)
Status concerns:	37.565			
<i>Mean</i>		3,90	3,92	3,91
<i>Standard deviation</i>		(1,46)	(1,43)	(1,44)
Government effectiveness				2,95
Happiness	40.206			
<i>Mean</i>		3,11	3,13	3,12
<i>Standard deviation</i>		(0,698)	(0,704)	(0,702)
Financial satisfaction	38.459			
<i>Mean</i>		6,04	5,91	5,95
<i>Standard deviation</i>		(2,42)	(2,36)	(2,38)
Health	40.460			
<i>Mean</i>		3,88	3,95	3,93
<i>Standard deviation</i>		(0,848)	(0,817)	(0,827)
Sex: Female %	40.558			
<i>Mean</i>		50,93	40,81	43,87
<i>Standard deviation</i>		(0,500)	(0,491)	(0,496)
Age:	40.576			
<i>Mean</i>		42,94	39,55	40,58
<i>Standard deviation</i>		(13,08)	(13,17)	(13,24)
Education:	40.411			
<i>None or primary</i>		9%	26%	21%
<i>Secondary school</i>		27%	27%	27%
<i>Secondary univ. prep.</i>		23%	25%	25%
<i>University</i>		40%	22%	27%
<b>Number of observations:</b>		<b>11.655</b>	<b>25.910</b>	<b>37.565</b>

## 5 Results

In this section we show the results of all six estimated models. The first paragraph contains results of tests on the assumptions of the regressions. These tests are conducted to prevent bias in the estimates of the regressions, which should result in more accurate estimates. The following paragraphs contain the results of the six regressions.

### 5.1. Assessing the models

In contrast to OLS, logistic regression does not make assumptions on linearity, normality or homogeneity of variances. We do test on multicollinearity to prevent bias in the estimators of the first to fourth model. We test for multicollinearity in the estimations of the logistic regressions with the VIF statistic (table A.1 in the appendix)<sup>21</sup>. The average VIF statistic is not much greater than 1 and the largest VIF does not cross 10. This indicates that collinearity of our variables should not be a problem (Bowerman and O'Connell, 1990). Also tolerance levels are well above .2 which confirms the absence of multicollinearity (Menard, 2001). Correlations between the independent variables are also relatively low (table A.3 in the appendix), this confirms our expectations of lack of multicollinearity.

The fifth and sixth model are estimated with linear regression and therefore do assume linearity, normality and homogeneity of variances. Firstly table A.2 shows that there are no direct concerns for multicollinearity. The VIF statistics are high for the squared terms, this is logical because these terms are highly correlated with the original terms. For all other variables we find an average VIF slightly higher than one. Tolerance levels are again well above .2. Figure A.1 to A.6 show the different plots for the two models.

Figure A.1 and A.4 show that both models have approximately normal distributed (bell shaped) residuals. Figure A.2 and A.5 show that there is a strong linear relationship between the dependent and independent variables. Lastly figure A.3 and A.6 show that there are no signs of heteroskedasticity in the variances of the two models. Given these results, there is strong confidence that the estimations of the models give the best linear unbiased estimators.

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<sup>21</sup> Tests on multicollinearity are not standard for logistic regression. Therefore the tests are performed by performing OLS with the same variables. This does provide VIF statistics. Menard (2001) suggest this is a good proxy to test for multicollinearity with logistic regressions. The disadvantage is that OLS assumes a continuous dependent variable instead of a dichotomous. Therefore results must be assessed with caution. We therefore include a correlation matrix.

## 5.2. Self selection with effective governments

The first column of table 2 (page 23) shows the results of the first model. Both altruism and status concerns have a positive and significant effect on the odds of ending up in the public sector. The effect of altruism is larger than the effect of status concerns. To interpret the size effect we evaluate the  $Exp(b)$  coefficient. This shows the change in odds given a change in the independent variable. Both altruism and status concerns are mean centred, so an increase by one from the mean of the variable altruism results in 9,6% ( $Exp(b) = 1.096$ ) higher odds of ending up in the public sector. A downwards deviation of one leads to 9,6% lower odds (95% confidence interval: lower bound 1.073 and upper bound 1.120). Despite the fact that the averages in the public sector and the private sector only differ 0,12 we find a sizable effect for our regression coefficient. We see that the public sector workers score 5% higher on the highest two categories where the private sector workers score higher on the lowest four categories, this might explain why we find a significant coefficient in our regression. For status concerns the effects of a deviation are 2,7% ( $Exp(b) = 1.027$ ). The 95% confidence interval (lower bound 1.010 and upper bound 1.045) shows that the effect is large enough to be positive with 95% accuracy.

We performed tests to assess the robustness of altruism and status concerns and found mixed evidence<sup>22</sup>. We find that altruism is robust in size, sign and significance. Adding or removing variables from the equation changes little in the estimation of the coefficients of altruism. If we perform the same for status concerns we find that the estimate of status concerns is not robust, adding or removing variables causes a change in sign and significance. In our second model we see that status concerns are not significant and maybe influenced by a third omitted variable. We also find remarkable different values for the highest level of status concerns.

The female dummy has a significant effect on the odds of ending up in the public sector. A female has 43,8% higher odds of ending up in the public sector than a male. Age has a positive but diminishing effect, the squared term is negative but very close to zero. For higher levels of age we find that this variable has a substantial impact ( $p < 0.01$ ). The effect of education is positive and diminishing ( $p < 0.01$ ). An extra level of education at the lower levels leads to a larger increase in odds than at higher levels. This is in line with our descriptive statistics where we found very little public workers to be uneducated. The high

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<sup>22</sup> Several regressions were estimated starting with only altruism or status concerns and added a variable in each step until we end up with model 2.

number of significant coefficients is partly a result of the size of the dataset. The large dataset creates the opportunity to notice even the smallest of effects if present.

The second model in the table includes government effectiveness and the interaction terms. The control variables are still significant and have similar magnitudes and effects to the first model. The coefficient for altruism has changed marginally from 9,6% to 8,1% ( $Exp(b) = 1.081, p < 0.01$ ). The coefficient for status concerns however has changed sign. With the inclusion of the interaction term the coefficient has changed from 2,7% positive to 1,2% negative ( $Exp(b) = 0.988, p > 0.10$ , 95% confidence interval: lower bound 0.971, upper bound 1.005).

The effectiveness of a government has a large negative effect on the odds of working for the public sector ( $p < 0.01$ ). We test this by looking at the correlation with government size and find that efficient governments are on average smaller governments (.495,  $p < 0.01$ )<sup>23</sup>. A positive deviation from the mean of government effectiveness results in a 31,7% decline on the odds of ending up in the public sector for the workers of that country. The interaction effect of government effectiveness with altruism is positive ( $Exp(b) = 1.033, p < 0.01$ ). This implies that a rise of altruism or government effectiveness by 1, additionally increases the odds of ending up in the public sector by 3,3% (95% confidence interval: lower bound 1.010 and upper bound 1.056).

We have included a scatter plot containing all individual  $Exp(b)$  coefficients for altruism per country<sup>24</sup> in the appendix table A.7. This clearly shows how higher levels of government effectiveness per country lead on average to improved odds of ending up in the public sector for an altruistic worker. We encounter a number of remarkable observations, for instance in Spain the odds of ending up in the public sector are reduced for an extra level of altruism. We find high values for countries as Turkey, China, Ethiopia and Poland. The trend lines strongly indicate a linear relationship between the odds of ending up in the public sector for an altruistic worker and the government effectiveness in a country (the dotted trend line excludes the cases mentioned above). Causes for these noteworthy observations can be numerous, however we decided to keep the data from these countries in the analysis. We also find a number of countries with a highly effective governments (levels higher than the average of 2.95) but with a negative coefficient for altruism (ranging from 0.972 to 0.922).

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<sup>23</sup> Government size calculated by # public sector workers/total # of workers. Only 38 of the 57 countries are included. Source OECD (2005) and IMD World Competitiveness Online 1995-2010 (updated: Feb 2010), the correlation table can be found in the appendix: table A.4.

<sup>24</sup> Individual  $Exp(b)$  coefficients are obtained by performing the regression of model one for each country in the dataset.

These countries include United Kingdom, United States, Norway, Taiwan, Chile and Malaysia. However we found these coefficients to be insignificant. Furthermore the 95% confidence intervals cross the  $Exp(b) = 0$  line. We also see that a lot of countries with a very ineffective government have negative  $Exp(b)$  coefficients. This shows that altruistic workers on average avoid very ineffective governments.

The interaction effect of government effectiveness with status concerns is negative at 4,3% (95% confidence interval: lower bound 0.941 and upper bound 0.973,  $p < 0.01$ ). We find the interaction term of status concerns to be more robust than status.

The first model explains only little of the differences in odds of sector of employment with a Nagelkerke  $R^2$  of .106. The addition of the interaction terms and government effectiveness raises this to .138. Because of the difference in calculation compared to OLS, the  $R^2$  of logistic regression tends to be lower than at OLS. Additionally, we find that adding the interaction terms and government effectiveness raises the sensitivity<sup>25</sup> of our regression from 15,4% to 23,7% and the overall success rate of the prediction from 70.1% to 71,6%.

However the main interest goes to the effects of the independent variables on the sector of employment and not to creating a forecasting model. This makes the  $R^2$  less relevant than the Wald statistic<sup>26</sup>.

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<sup>25</sup> Sensitivity measures:  $P(\text{correct prediction}|\text{public sector})$ .

<sup>26</sup> Logistic regression uses the Wald statistic instead of the t-statistic to test for significance of individual estimates.



Table 2: Prediction of the sector of employment

<i>Independent variable:</i>	Model 1:			Model 2:		
	b		Exp b	b		Exp b
Female	0,363 (0,023)	***	1,438	0,428 (0,024)	***	1,535
Age	0,050 (0,001)	***	1,051	0,048 (0,006)	***	1,049
Age Squared	0,000 (0,000)	***	1,000	0,000 (0,000)	***	1,000
Education	0,780 (0,042)	***	2,181	0,886 (0,043)	***	2,426
Education Squared	-0,093 (0,012)	***	0,911	-0,107 (0,012)	***	0,889
Altruism	0,092 (0,011)	***	1,096	0,077 (0,011)	***	1,081
Status concerns	0,027 (0,009)	***	1,027	-0,012 (0,009)		0,988
Government effectiveness				-0,382 (0,013)	***	0,683
Government effectiveness * Altruism				0,032 (0,011)	***	1,033
Government effectiveness * Status concerns				-0,044 (0,009)	***	0,957
Constant	-3,453 (0,122)	***	0,032	-3,667 (0,124)	***	0,026
Observations	37259			37259		
Cox and Snell R <sup>2</sup>	0,076			0,098		
Nagelkerke R <sup>2</sup>	0,106			0,138		
Log likelihood	43199,35			42284,69		

*Dependent variable: Sector of Employment*

*Standard errors between parentheses*

*\*, \*\*, \*\*\* indicate significance at a respective 0.10, 0.05 and 0.01 level*

### 5.3. Level effects of altruism and status concerns

Model one and two from the previous paragraph are estimated once again with the difference that altruism and status concerns are divided into dummy variables. With these dummy variables we check for non-linear effects of altruism and status. Table 3 shows that the control variables for gender, age and education remain roughly unchanged.

Model 3 in the first column illustrates that both the second and third altruism dummy have a negative effect on the odds of ending up in the public sector. The last three dummies have a positive effect which increases at every level, which suggests a linear effect. Figure A.8 in the appendix indicates a strong linear effect for altruism. However the independent dummies are not significant ( $p > 0.10$ ). The dummies for status concerns also show a linear effect, however there seems to be little difference between the 5<sup>th</sup> and 6<sup>th</sup> step. The strongest negative size effects can be found at the lower levels of status concerns. Only these lower levels are significant. The results of the dummies are in line with what we found in the first model.

Model 4 includes the interaction effects for all dummies. Compared to the model without interaction, all dummies variables for altruism are positive and larger. The top three categories have become significant. Figure A.9 in the appendix shows that the linear effect of altruism remains unchanged. All status dummies are also significant and still show a positive but very weak linear relation, with the exception of the most extreme form of status concerns. Remarkably we find that the most extreme form has the strongest negative effect of ending up in the private sector. This could explain why the sign of the variable status concerns has changed in model one and two.

The interaction effects of altruism and government effectiveness are significant. Figure A.10 in the appendix shows a small linear effect with exception of the second level dummy (figure shows effects for a constant level of government effectiveness equal to one). Although the effects seem very small it increases with more extreme levels of government effectiveness. When government effectiveness lies around the mean there are little effects however the higher the deviation the stronger the effect becomes. The interaction effect of status and government effectiveness is negative like in the second model. Again a negative linear effect is visible. The more extreme the results of government effectiveness the higher the effect on the odds of ending up in the public sector. We find larger differences in the extremes (2<sup>nd</sup> to 3<sup>rd</sup> step and 5<sup>th</sup> to 6<sup>th</sup> step). However the dummy for the lowest level is insignificant.

*Table 3: Analysis of independent steps*

<i>Independent variable:</i>	Model 3:			Model 4:		
	b		Exp b	b		Exp b
Female	0,364 (0,024)	***	1,439	0,430 (0,024)	***	1,537
Age	0,050 (0,006)	***	1,051	0,048 (0,006)	***	1,050
Age Squared	0,000 (0,000)	***	1,000	0,000 (0,000)	***	1,000
Education	0,783 (0,042)	***	2,187	0,889 (0,043)	***	2,432
Education Squared	-0,093 (0,012)	***	0,911	-0,107 (0,012)	***	0,898
Government effectiveness				-0,759 (0,181)	***	0,468
<b><i>Altruism</i></b>						
Dummy 2	-0,148 (0,153)		0,862	0,074 (0,171)		1,077
Dummy 3	-0,076 (0,142)		0,926	0,178 (0,160)		1,195
Dummy 4	0,031 (0,139)		1,031	0,262 (0,158)	*	1,300
Dummy 5	0,109 (0,138)		1,115	0,335 (0,157)	**	1,398
Dummy 6	0,222 (0,138)		1,248	0,415 (0,157)	***	1,515
<b><i>Status concerns</i></b>						
Dummy 2	-0,182 (0,060)	***	0,833	-0,142 (0,064)	**	0,868
Dummy 3	-0,157 (0,059)	***	0,854	-0,140 (0,062)	**	0,870
Dummy 4	-0,114 (0,058)	**	0,892	-0,125 (0,061)	**	0,882
Dummy 5	-0,036 (0,058)		0,964	-0,106 (0,061)	*	0,900
Dummy 6	-0,031 (0,061)		0,969	-0,184 (0,065)	***	0,832
Observations	37259			37259		
Cox and Snell R <sup>2</sup>	0,076			0,098		
Nagelkerke R <sup>2</sup>	0,107			0,139		
Log likelihood	43176,98			42264,32		

*Continues on the next page*

<i>Independent variable:</i>	Model 3 (continued):		Model 4 (continued):	
	b	Exp b	b	Exp b
<i>Government effectiveness* Altruism</i>				
Dummy 2			0,529 *** (0,194)	1,698
Dummy 3			0,424 ** (0,183)	1,528
Dummy 4			0,522 *** (0,181)	1,686
Dummy 5			0,533 *** (0,180)	1,705
Dummy 6			0,545 *** (0,181)	1,724
<i>Government effectiveness * Status concerns</i>				
Dummy 2			-0,048 (0,059)	0,953
Dummy 3			-0,126 ** (0,058)	0,881
Dummy 4			-0,140 ** (0,057)	0,869
Dummy 5			-0,178 *** (0,057)	0,837
Dummy 6			-0,250 *** (0,063)	0,778
Constant	-3,464 *** (0,185)	0,031	-3,859 *** (0,201)	0,021
Observations	37259		37259	
Cox and Snell R <sup>2</sup>	0,076		0,098	
Nagelkerke R <sup>2</sup>	0,107		0,139	
Log likelihood	43176,98		42264,32	

*Dependent variable: Sector of Employment*

*Standard errors between parentheses*

*\*, \*\*, \*\*\* indicate significance at a respective 0.10, 0.05 and 0.01 level*

#### 5.4. Happiness of public servants

The results of the regression on happiness can be found in table 4. Column one shows that both health and financial satisfaction have the largest and significant effect on the happiness of an individual. There is a positive and increasing relationship between health and happiness, the healthier a person the more it contributes to happiness. The relation between financial satisfaction and happiness is positive and diminishing. An extra level of financial satisfaction at the lower levels increases the happiness of a person most. Since the financial satisfaction is on a 1 to 10 scale and health on a 1 to 5 scale both effects can have quite an impact. The effect of the female dummy is 0,031 and significant. The effects of age and education seem to have little relevance. Education does not contribute significantly to happiness and the effect of age seems to be marginally small (0,000).

Altruistic individuals are estimated to be 0,039 extra satisfied given each level of altruism ( $p < 0.01$ ). We find no evidence for either status concerns or sector of employment. Altruism seems to have a positive effect on workers of the public sector where the effect of status concerns is negative. We find these effects for the public sector workers to be insignificant.

When we look at the last model (6) in the second column of table 4 we find that the interaction of altruism and status with the private sector is again not significant. However the effect of status on happiness has changed to a positive effect of 0,006 per level ( $p < 0.05$ ). The results show that people who live in a country with a more effective government are happier than those who live in a country with a less effective government. The interaction effect of government effectiveness with sector and altruism is positive but not significant. We find a negative effect of the interaction with status ( $p > 0.10$ ). Compared to the previous model we also see a remarkable negative effect of education on happiness ( $p < 0.01$ ). This effect is 0,014 per level of education. This implies that workers with higher levels of education are on average less happy.

Table 4: Regression on happiness

<i>Independent variable:</i>	Model 5: b		Model 6: b	
Female	0,031	***	0,017	***
	(0,007)		(0,007)	
Age	0,000		-0,001	***
	(0,000)		(0,000)	
Education	-0,005		-0,014	***
	(0,003)		(0,003)	
Health	0,178	***	0,174	***
	(0,030)		(0,030)	
Health squared	0,010	***	0,009	**
	(0,004)		(0,004)	
Financial satisfaction	0,096	***	0,090	***
	(0,006)		(0,006)	
Financial satisfaction squared	-0,001	**	-0,001	**
	(0,001)		(0,000)	
Altruism	0,039	***	0,041	***
	(0,004)		(0,004)	
Status concerns	-0,002		0,006	**
	(0,003)		(0,003)	
Sector	-0,007		0,006	
	(0,007)		(0,007)	
Altruism*Sector	0,005		0,005	
	(0,007)		(0,007)	
Status concerns*Sector	-0,007		-0,005	
	(0,005)		(0,005)	
Government effectiveness			0,069	***
			(0,004)	
Gov. effectiveness * Altruism*Sector			0,005	
			(0,005)	
Gov. effectiveness* Status*Sector			-0,007	
			(0,004)	
Constant	1,703	***	1,822	***
	(0,057)		(0,057)	
Observations	36621		36621	
R <sup>2</sup>	0,224		0,232	
Adjusted R <sup>2</sup>	0,224		0,232	

*Dependent variable: Life satisfaction*

*Standard errors between parentheses*

*\*, \*\*, \*\*\* indicate significance at a respective 0.10, 0.05 and 0.01 level*

## 6 Discussion

How do altruistic and status minded workers self-select to the public or private sector and how does government efficiency influence this relation? That is what we examine with the use of four hypotheses.

### 6.1. Self-selecting altruistic workers and the contradiction of status concerns

We find strong support for the first part of our first hypothesis. Results show that altruistic workers face greater odds to end up in the public sector compared to the private, the effect of status concerns is ambiguous.

*(1) Workers who are altruistic or status minded are more likely to be employed in the public sector compared to the private sector.*

As proposed in Perry and Wise (1990) we find a strong effect of altruism (public service motivation) on self-selection to the private sector. In addition to much of the available literature we find that this effect is increasing for higher levels of altruism. The effect is linear and can be as large as 9,6% for an extra level of stated altruism.

Workers that value being important to others choose employment in the public sector because the public sector offers better possibilities to help others. The difference between a totally non-altruistic worker and a very altruistic worker is substantial, a very altruistic worker faces as much as 48% higher odds of working in the public sector instead of the private. These results are in line with the literature that states that public workers do differ in intrinsic or altruistic motivation from the private sector (Lewis and Frank, 2002; Crewson, 1997; Rainey, 1982; Houston, 2000).

Remarkably we find contradicting evidence for status concerns. Workers with status concerns do not show a strong favour for either the public or the private sector. The effects are, if even present, very small and not very robust.

The level analysis might offer an explanation, we find a linear relationship with exception of the most extreme form of status concerns. Moderately status minded workers are drawn to the public sector where the extreme cases (both positive and negative) are drawn to the private sector. This could indicate that public workers on average have a greater preference to help others but are more or less indifferent to having their actions recognized by others. This implies that workers are truly intrinsically motivated to contribute to others instead of behaving from self-interest. This was one of the concerns of Paliavin and Charng (1990) who

stated that altruism in economics is seen as a costly decision instead of truly feeling the need of benefitting others as only motive. These results are confirmed by Rainey (1982) and Jurkiewicz, Massey and Brown (1998) who find that private sector workers find on average status and prestige more important than their public counterparts.

In contrast to much of the existing literature we controlled for demographics and found that females, high age and high education increase the odds of ending up in the private sector. This is in line with empirical evidence available that finds that people with these characteristics are more likely to work for the public sector (Buurman, Dur and Van den Bossche, 2009; Lewis and Frank, 2002).

## **6.2. The attractiveness of an effective government**

We expand the literature on public service motivation and self-selection by incorporating government effectiveness. We propose that:

*(2) An effective government is more appealing to an altruistic and status minded worker than an ineffective government.*

We find strong evidence that altruistic workers are indeed more attracted to an effective government compared to an ineffective government. From the assumption that the opportunity to be important or to help others rises with a more efficient government, we did expect this effect. An altruistic worker has an additional rise in odds of 3,3% for each extra level of government effectiveness. The effect of altruism independent of government effectiveness is 8,1%. If we again compare the totally non-altruistic worker with the very altruistic worker we find that the totally altruistic worker faces 57% higher odds of working for the public sector with an effectiveness of one. For a maximum effective government this effect can rise to a difference of 117% in odds. We find strong evidence that non altruistic workers avoid the public sector, these workers might be strongly motivated by extrinsic rewards. Furthermore we see that strongly altruistic workers avoid the public sector when it is very ineffective. This might be caused by the fact that the altruistic workers do not feel that they have the opportunity to be important to others or they might feel that they can do better in the private sector.

Remarkably our results show that status minded workers avoid the public sector when it is very effective. We find a negative effect on the odds of 1,2% for each level of status concerns and an additional negative effect of 4,4% for the interaction term. Apparently a more



effective government offers the opportunity to be more valuable to others or society without receiving extra status from it. Additionally we find that countries with higher government effectiveness have residents with on average lower status concerns<sup>27</sup>.

So far we have assumed that an effective government attracts the most altruistic workers. None the less there is room for reversed causation. One could imagine how altruistic workers, with their high intrinsic motivation for their public work, make the public sector more effective. Due to their higher effort and dedication to the cause they make valuable contributions to the sector. This does not change the importance of the results. We still observe a high number of altruistic workers in effective governments and either way the results have a clear impact. Either the government should attract altruistic workers to improve effectiveness or the government should improve its effectiveness (conditions to work properly) to attract workers that are less dependent on extrinsic rewards.

### **6.3. The absence of proof on happiness**

We find little support for our hypotheses on the happiness of public servants. First of all we do not find any evidence for our third hypothesis.

*(3) Workers who are altruistic or status minded are happier when working in the public sector compared to the private sector.*

We do find evidence that altruistic workers are on average happier than non altruistic workers. Apparently caring for others also raises the happiness of an individual. However we do not find any differences between workers of the public or the private sector. Apparently an altruistic worker is just as happy working in the public or private sector.

Although we do observe the signs as expected, positive for altruism and sector and negative for status and sector we do not find them significant.

This is partly due to the fact that happiness is a noisy signal. There are many variables that can influence the happiness of an individual. These can be small short term events or long term events. Therefore we see choice of sector as a much more reliable assessment of motivation. When a worker self-selects to a sector where he or she feels uncomfortable it becomes costly to stay at that position. Therefore an employee will always end up in the sector best suited to their preferences. We also find a lack of support for our last hypothesis.

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<sup>27</sup> Correlation: -0.186,  $p < 0.01$

*(4) An altruistic or status minded worker is happier when working for an effective government than for an ineffective government.*

Government effectiveness has no significant influence on the happiness of an altruistic or status minded worker. This again can be due to the fact that happiness is a far noisier signal than choice of sector. However we do see the signs that we expected for both variables. Additionally we find that a country with an effective government has on average happier people.

#### **6.4. Policy implications of the findings**

Now that we have established that altruistic workers are more motivated to work for the public than the private sector and we found a strong effect of government effectiveness on this motivation we can assess the implications. We have confirmed that the public and private sector differ in motivation, this implies that incentives must be organized in different ways. An incentive in the private sector might have different results for public sector workers.

Altruistic motivation of public servants can be used as a tool for recruitment and retention. Emphasising the effectiveness of a government or investing in the quality of public services attract workers who are intrinsically motivated. Perry and Wise (1990) propose this has positive benefits for the productivity of workers and reduces the need for extrinsic stimulation. An investment in the quality of public services might even be more beneficial than raising the wage of public servants. Because this improves the opportunity to be important to others and therefore attract more motivated employees. This proposition is in line with the findings of Glazer (2004). He shows that workers that value the produced output (devoted workers) prefer to work for firms that credibly commit to invest higher levels of capital, since this raises the valued output.

The results of this research can also be interpreted as a clear warning. Due to the current economic and financial crises many administrations face the problem of large cuts on expenses. Cutting back on investments in healthcare or education could lead to the fact that public workers cannot fulfil their desire to be important to others. Our results clearly show that an ineffective government is less attractive to intrinsically motivated workers. Highly motivated public workers could leave the sector as a result.

## 7 Conclusion

In summary, we found clear support for the differences in altruistic motivation between the public and private sector. Our results seem robust and the effects of altruism on self-selection to the public sector can reach up to an extra 48% in odds, if we compare a non-altruistic worker with a totally altruistic worker. Our findings are in line with the current literature on public service motivation (Lewis and Frank, 2002; Crewson, 1997; Rainey, 1982; Houston, 2000). We have established that higher levels of altruism lead to a stronger self-selection effect to the public sector. Additionally we found strong support for the positive influence of government effectiveness. Due to the large size and diversity of our sample the results seem generalizable to different countries. Workers who value to be important to others feel strongly attracted to an effective government and avoid very ineffective governments.

We find that the influence of status concerns on the self-selection of public workers is ambiguous and not robust. We found different effects for the extreme values of status concerns and the average status minded worker. Related literature gives mixed evidence for the effects. For instance Rainey (1982) and Crewson (1997) show that status and prestige is more important for private sector workers where Houston (2000) finds that public sector workers place more importance on status. We therefore doubt if status concerns really influence choice of sector or that both sectors offer the opportunity to have actions recognized. We additionally find that status minded workers avoid very effective governments, although the effects seem marginal.

We find little support that altruistic or status minded workers are happier or unhappier in the public sector compared to the private. We do observe the expected signs based on our previous findings but they are insignificant. This is probably caused by the fact that happiness is a very noisy signal. Therefore we see choice of employment as a far stronger signal of motivational choice. Workers who are truly happier in the public sector will unlikely choose employment in the private sector.

Our results can have implications for the attraction and retention of public sector workers. Research shows that intrinsically motivated workers can have benefits to the public sector. However a very ineffective government can deter motivated workers from joining the public sector. Large budget cuts and a lack of investment in for instance healthcare or education can lead to negative self-selection effects of motivated public workers. The effect works both ways, investing in a good infrastructure for public services and signalling the opportunity to be important to others can also attract these valuable intrinsically motivated workers.

There are opportunities for further research. For instance does the existence of an effective government allow for larger wage differentials between the public and private sector? If so, this means that investing in the public infrastructure is just as important as offering good extrinsic rewards. Also how can a government credibly signal that it is effective? A poor performing government might invest in signalling these opportunities to attract highly motivated workers.

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## Appendix

Table A.1: Collinearity statistics for the coefficients of the logistic regressions

Model	Model 1		Model 2	
	Tolerance	VIF	Tolerance	VIF
(Constant)				
Female	,978	1,022	,978	1,023
Age	,904	1,106	,903	1,107
Education	,951	1,051	,949	1,054
Government effectiveness	,893	1,119	,886	1,128
Altruism	,934	1,071	,932	1,074
Status	,874	1,144	,873	1,145
Interaction term status			,965	1,037
Interaction term altruism			,972	1,029

Table A.2: Collinearity statistics for the coefficients of the linear regressions

Model	Model 5		Model 6	
	Tolerance	VIF	Tolerance	VIF
(Constant)				
Female	,976	1,025	,964	1,038
Age	,893	1,120	,850	1,176
Education	,900	1,111	,879	1,137
Health	,017	58,507	,017	58,559
Health squared	,017	58,001	,017	58,061
Financial situation	,055	18,231	,055	18,285
Financial situation squared	,055	18,064	,055	18,067
Altruism	,652	1,534	,651	1,535
Status	,622	1,607	,610	1,639
Sector	,922	1,084	,869	1,151
Altruism*Public sector	,666	1,501	,664	1,507
Status concerns*Public sector	,648	1,543	,645	1,551
Government effectiveness			,807	1,240
Gov Eff*status*public			,925	1,081
Gov Eff*alt*public			,965	1,036



Table A.3: Correlation matrix for the coefficients of the logistic regressions

		Sector	Female	Age	Education	Gov. Effect.	Altruism	Status
Sector	Pearson Correlation	1	,094**	,118**	,214**	-,068**	,050**	-,008
	Sig. (2-tailed)		,000	,000	,000	,000	,000	,118
	N	40576	40558	40576	40411	40576	37775	37565
Female	Pearson Correlation	,094**	1	-,008	-,050**	,011**	,048**	-,065**
	Sig. (2-tailed)	,000		,033	,000	,003	,000	,000
	N	40558	77972	77972	77490	77972	67130	66562
Age	Pearson Correlation	,118**	-,008	1	-,172**	,202**	,014**	-,173**
	Sig. (2-tailed)	,000	,033		,000	,000	,000	,000
	N	40576	77972	78024	77540	78024	67178	66607
Education	Pearson Correlation	,214**	-,050**	-,172**	1	,202**	-,006	,006
	Sig. (2-tailed)	,000	,000	,000		,000	,112	,134
	N	40411	77490	77540	77540	77540	66771	66219
Government effectiveness	Pearson Correlation	-,068**	,011**	,202**	,202**	1	-,049**	-,186**
	Sig. (2-tailed)	,000	,003	,000	,000		,000	,000
	N	40576	77972	78024	77540	78024	67178	66607
Altruism	Pearson Correlation	,050**	,048**	,014**	-,006	-,049**	1	,268**
	Sig. (2-tailed)	,000	,000	,000	,112	,000		,000
	N	37775	67130	67178	66771	67178	67178	66269
Status	Pearson Correlation	-,008	-,065**	-,173**	,006	-,186**	,268**	1
	Sig. (2-tailed)	,118	,000	,000	,134	,000	,000	
	N	37565	66562	66607	66219	66607	66269	66607

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Table A.4: Correlation of government effectiveness and government size

		Government Effectiveness	Size
Government Effectiveness	Pearson Correlation	1	,495**
	Sig. (2-tailed)		,002
	N	38	38
Size	Pearson Correlation	,495**	1
	Sig. (2-tailed)	,002	
	N	38	38

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Figure A.1: Normality model 5

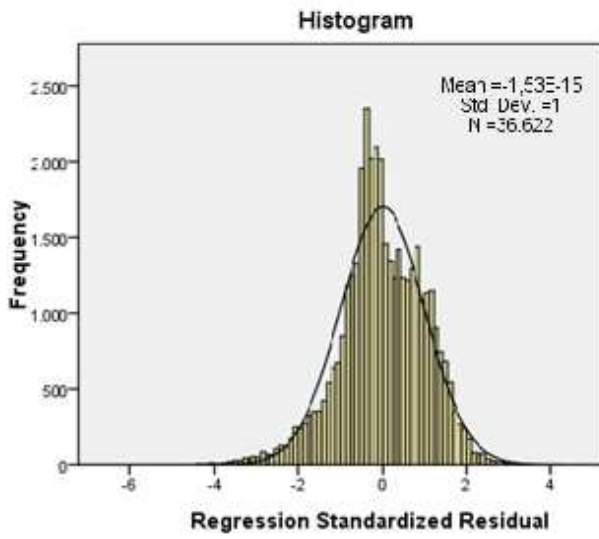


Figure A.2: Linearity model 5

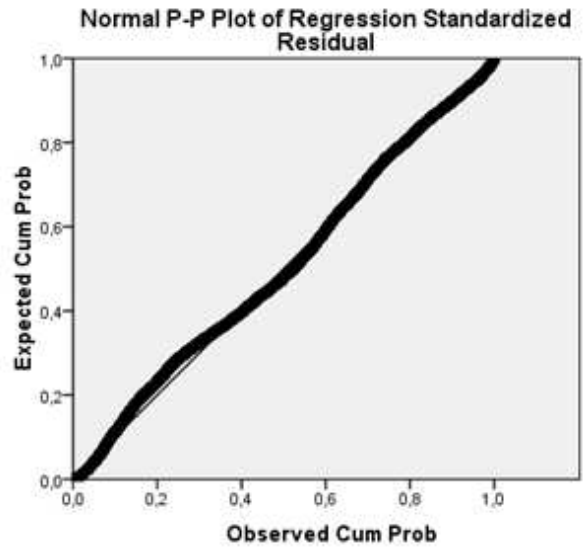


Figure A.3: Homogeneity of variances model 5

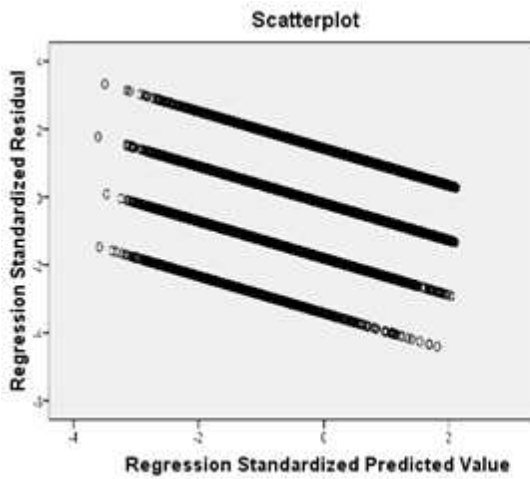


Figure A.4: Normality model 6

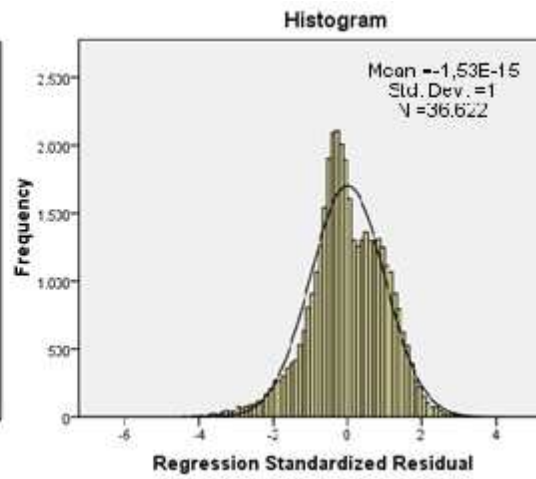


Figure A.5: Linearity model 6

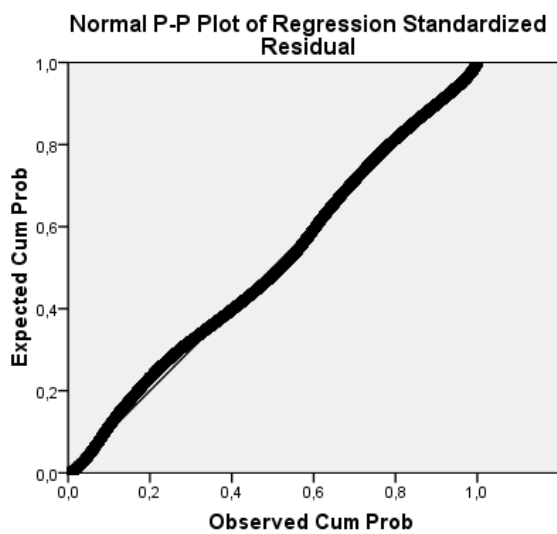


Figure A.6: Homogeneity of variances model 6

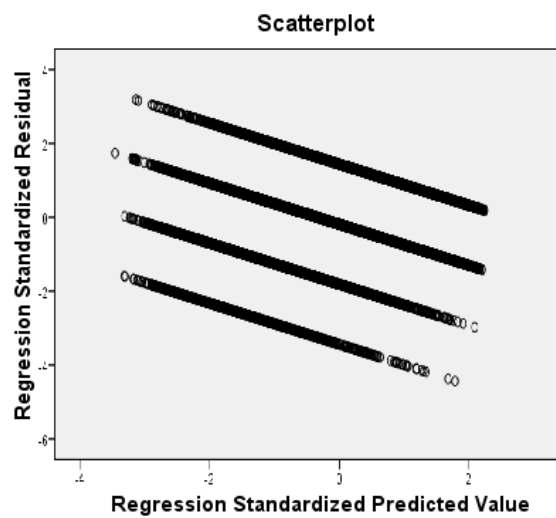


Figure A.7: Altruism coefficients versus government effectiveness per country<sup>28</sup>

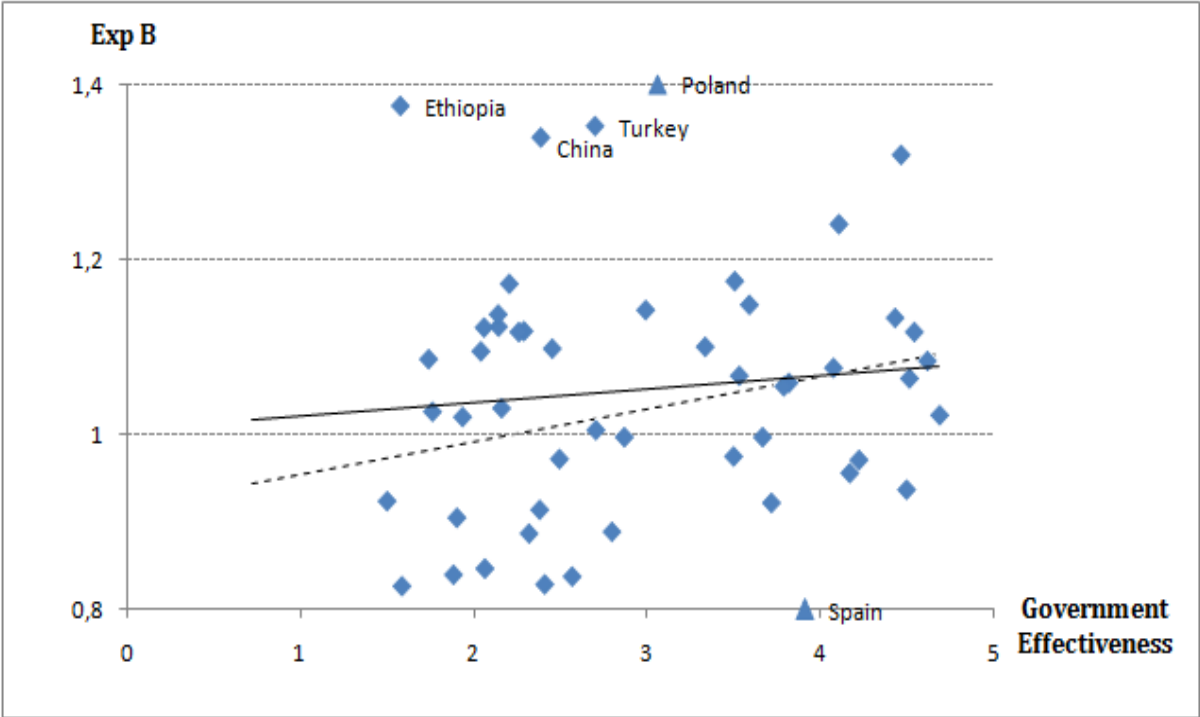
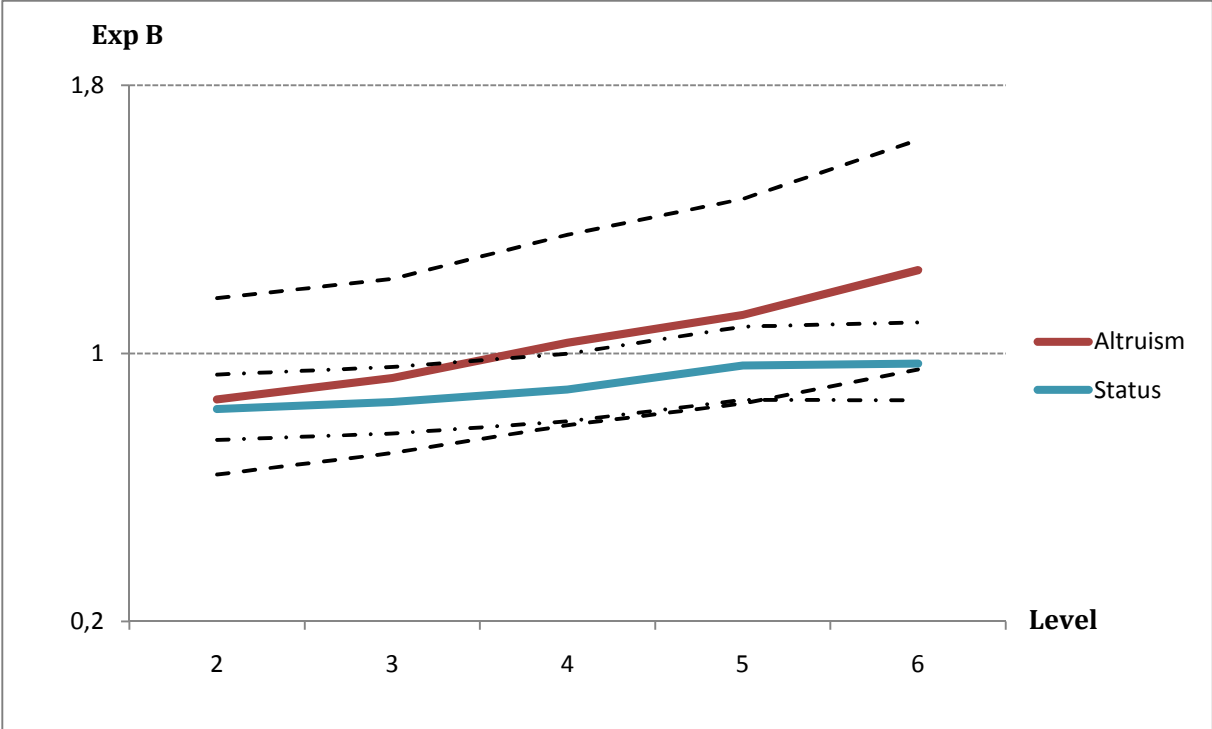


Figure A.8: Values of dummies including 95% confidence interval (Model 3)



<sup>28</sup> Both the  $Exp(b)$  for Poland (1.649) and Spain (0.728) lay outside the range of the figure and are indicated with a triangle.

Figure A.9: Values of dummies including 95% confidence interval (Model 4)

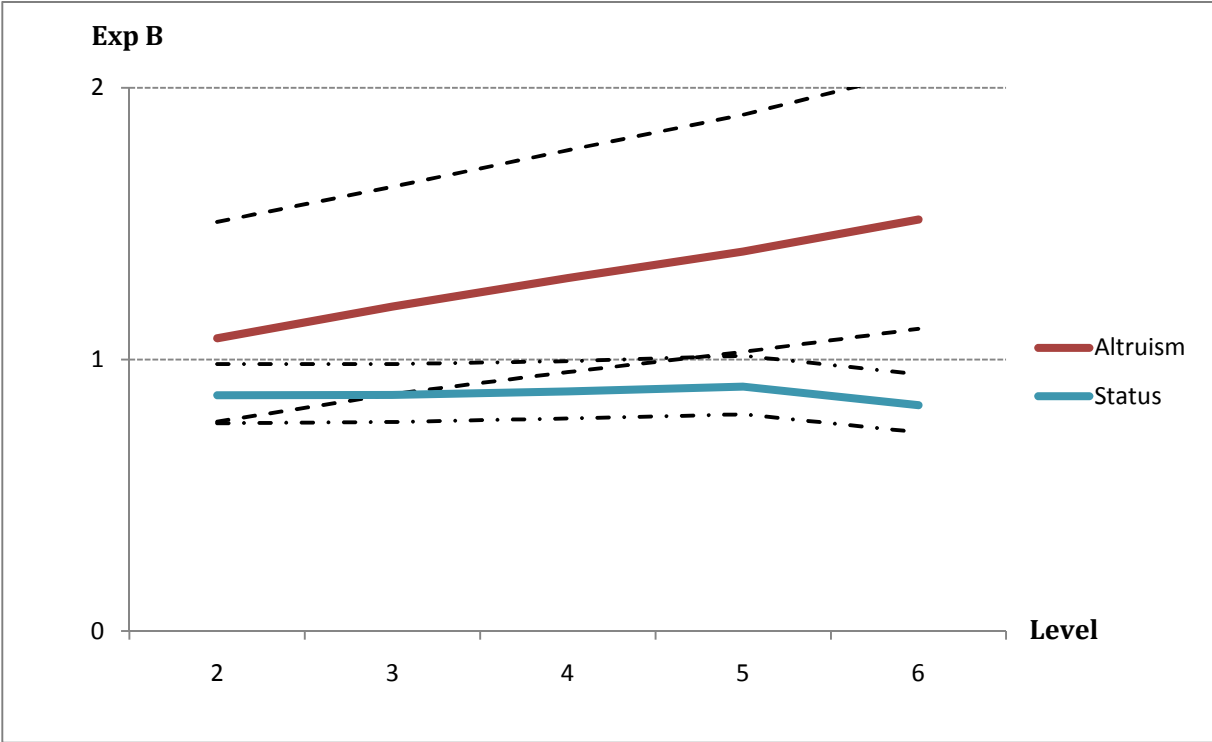


Figure A.10: Values of interaction dummies including 95% confidence interval (Model 4)

