

# Crowding out Public Service Motivation\*

Yannis Georgellis<sup>†</sup>, Elisabetta Iossa<sup>‡</sup> and Vurain Tabvuma<sup>§</sup>

First Version: June 08  
This Version: 26 June 09

## Abstract

Employing workers with Public Service Motivation (PSM) has been proposed as a means of improving performance in the public sector. There is, however, no conclusive evidence showing PSM among individuals. In this paper we attempt to firstly find evidence of PSM by investigating why people change jobs from the private to the public sector. Secondly we attempt to identify factors that crowd out PSM and thus hinder individuals with PSM from joining the public sector.

*Keywords:* Job satisfaction, Public Sector motivation.

*JEL Classification:* D64, D82, J45, Z13

---

\*We wish to thank Jaideep Roy and seminar participants at Brunel University for helpful comments.

<sup>†</sup>Department of Economics and Finance, Brunel University.

<sup>‡</sup>Department of Economics and Finance, Brunel University; DEI, University of Rome Tor Vergata, CEDI and CMPO.

<sup>§</sup>Department of Economics and Finance, Brunel University.

# 1 Introduction

Hiring individuals with Public Service Motivation (PSM) is often proposed as a way to improve public sector performance and to overcome incentive problems in the public sector. In this paper we attempt to find evidence of PSM and to investigate whether extrinsic rewards crowd out PSM.

The concept of PSM has its roots in the public administration literature where it is broadly defined as “an individual’s predisposition to respond to motives grounded primarily or uniquely in public institutions” (Perry, 1996). This predisposition is determined by environmental factors, such as parental modelling or socialization within organizations. It reflects three categories of motives: rational, norm-based and affective. Rational motives are present when individuals want to participate in policy-making to pursue their political agenda, or when individuals commit to a public program because they personally identify with it. Norm-based motives are generated by a desire to pursue the public interest; they include patriotism, civic duty and a sense of loyalty to the government. Affective motives refer to behaviour motivated by emotional responses to different social contexts and are characterized by a desire to help others.

The presence of PSM generates a number of implications. If values and sentiments associated with the public sector are attractive to individuals with PSM, hiring these individuals will help to overcome incentive problems in the public sector. Agents who care about the output will have less incentive to shirk in the public sector than in the private sector.<sup>1</sup> This is because public sector managers cannot commit to increase other factors of production to maintain output if an agent shirks effort, whereas private sector managers can, due to the profit motive (Francois, 2001).<sup>2</sup> Further, hiring individuals with PSM will increase organizational efficiency in the public sector as better

---

<sup>1</sup>See Francois and Vlassopoulos (2007) for a survey of literature that discusses the role of pro-social motivation in overcoming incentive problems in the provision of public goods.

<sup>2</sup>Individuals are more willing to donate labour in the public sector because the public sector can credibly commit not to expropriate labour (see Grout and Yong; 2003 and Grout and Schnedler; 2006). Gregg, Grout, Ratcliffe, Smith and Windmeijer (2008) find that workers in the non-profit sector donate significantly more labour than workers in the private sectors.

matching of agents and principals with similar preferences reduces the need for high-powered incentives (Besley and Ghatak, 2005). In fact the use of high powered incentives may have adverse effects on public-sector performance. As shown by Benabou and Tirole (2006), monetary incentives decrease the reputational value of pro-social actions and thus reduce the overall utility from pro-social behaviour. Extrinsic rewards may then crowd out PSM: whilst higher wages increase the probability of filling a job vacancy, they decrease the expected average quality of job applicants because less motivated workers are induced to apply (Delfgaauw and Dur; 2007).<sup>3</sup>

Conclusive empirical evidence of PSM amongst public-sector workers is however yet to be found. Some empirical research into PSM is discussed in the public administration literature: Brewer and Selden (1998) find evidence of PSM amongst whistle-blowers, but their sample comprises only public sector employees, thus they do not compare public sector workers with workers in other sectors. Crewson (1997) and Dilulio (1994) show that workers in the public sector report higher satisfaction with the intrinsic characteristics of work than workers in the private sector. Houston (2000) shows that public sector employees are more likely to place a higher value on the intrinsic rewards. Houston (2006) shows that public sector workers undertake more charitable activities than workers in the private sector. These studies however do not show whether it is the public sector that causes individuals to derive greater satisfaction from the intrinsic characteristics of their work or rather it is individuals who derive greater satisfaction from the intrinsic characteristics of public-sector work who are drawn to the public sector.

Further, the empirical literature on the crowding-out effect of monetary incentives has not considered the effect of extrinsic rewards on public sector workers.<sup>4</sup> Frey, Oberholzer-Gee, and Eichenberger (1996) and Frey and Oberholzer-Gee (1997) show that people are less likely to accept that “Not In My Backyard” (NIMBY) projects are undertaken in their own town when they are offered a monetary compensation. In an experimental study, Gneezy

---

<sup>3</sup>Crowding out of workers with PSM has also been attributed to unmotivated workers being attracted to the public sector (see Delfgaauw and Dur; 2008).

<sup>4</sup>In his seminal paper, Titmuss (1970) argued that monetary compensation undermines civic duty so that the introduction of monetary compensation would result in blood of lower quality being collected.

and Rustichini (2000a) show that individuals exert less effort when a small monetary compensation is offered than when no compensation is offered. In Gneezy and Rustichini (2000b) the introduction of a fine to parents who are late in collecting their children from school increases the rate of parents arriving late.<sup>5</sup>

In this paper, we use data from the British Household Panel Survey (BHPS) to investigate whether PSM can explain individuals' propensity to move into public sector jobs. To proxy the utility derived from extrinsic aspects of the job we use workers' self-reported satisfaction with pay, satisfaction with job security and satisfaction with work hours.<sup>6</sup> We consider satisfaction with work itself as a proxy for intrinsic rewards.<sup>7</sup> Using predicted differentials for these variables, we estimate transition probabilities from the private into the public sector.

Our results show that the higher the predicted satisfaction with the work itself in the public sector, the higher the probability that an individual will make the transition from the private to the public sector. Instead, higher predicted satisfaction with the extrinsic characteristics does not raise the probability of transition. These results imply that individuals are drawn to the public sector by the intrinsic characteristics of working in the public sector rather than the extrinsic benefits, which is consistent with the existence of PSM evidence. Further, extrinsic rewards crowd out PSM, in that, higher predicted satisfaction differentials with the extrinsic characteristics of the job (i.e. satisfaction with hours of work, satisfaction with job security, and satisfaction with pay) decrease the likelihood of individuals moving into the public sector. We find similar results by investigating transitions into different occupational classifications and into different sub-sectors of the public sector.

---

<sup>5</sup>See Frey and Jegen (2001) for a survey of the literature on crowding out and in of intrinsic motivation.

<sup>6</sup>The use of self-reported satisfaction data has been validated by several researchers. For example, it has been shown that job satisfaction predicts future quits (Freeman, 1978; Clark et al. 1998), it is negatively correlated with absenteeism (Clegg, 1983) and that it is positively correlated with productivity (Mangione and Quinn, 1975). See Diener (2000) for a review.

<sup>7</sup>Satisfaction with the work itself has been used as a proxy for the intrinsic utility derived from a job (Pouliakas and Theodossiou, 2009).

The paper also offers some of the first evidence on public sector rents based on domain satisfaction measures, thus contributing to a growing literature on public sector rents using subjective well-being measures (see e.g. Luechinger, Meier, and Stutzer, 2005; Clark and Senik, 2005; and Clark, 2004). Earlier studies on public sector rents focus mainly on wage differentials (see e.g. Bender 1998).

The rest of the paper is organized as follows. Section 2 provides the theoretical foundation of our empirical analysis and it derives the predictions. Section 3 discusses the empirical methodology whilst section 4 presents the empirical results. Section 5 concludes with some policy recommendations.

## 2 Theoretical Foundations

We borrow from Benabou and Tirole (2006) (hereafter BT) for the simple theoretical framework.<sup>8</sup> We consider the behaviour of agents who choose to work in the public sector.  $a_k$  denotes the level of pro-social activities undertaken by each agent in sector  $k$  at cost  $ca_k$  and  $y_k$  denotes the (vector of) extrinsic rewards, enjoyed by agents in sector  $k$ ,  $k = P, G$ , where  $k = P$  denotes the private sector and  $k = G$  denotes the public sector. Extrinsic rewards include wages, job security and working hours.  $\hat{a} \equiv a_G - a_P$  denotes the difference in pro-social activities between the public and the private sector whilst  $\hat{y} \equiv y_G - y_P$  denotes the differential in extrinsic rewards. We take  $a_k$  as given and assume that more pro-social activities are carried out in the public sector so that  $\hat{a} > 0$ . The sector in which an agent works, the sectorial level of pro-social activities  $a_k$  and the extrinsic rewards  $y_k$  are publicly observable.

Agents differ in two dimensions: their intrinsic valuation for pro-social activities and their valuation for extrinsic rewards. An agent's type is then defined by the intrinsic value  $\omega_i \in [\underline{\omega}, \bar{\omega}]$  that he attaches to carrying out 1 unit of pro-social activities, where  $\underline{\omega}$  may be negative to indicate that an individual may dislike pro-social activities, and by the value  $\chi_i \in [\underline{\chi}, \hat{\chi}]$  that he attaches to enjoying 1 unit (in monetary units) of extrinsic rewards.  $\omega_i$  and  $\chi_i$  are random variable with cumulative distribution function  $H(\omega_i, \chi_i)$ .

---

<sup>8</sup>See also Benabou and Tirole (2003).

Agents have reputational concerns and wish to appear pro-social/altruistic. The value of reputation depends linearly on the posterior belief  $E_{\omega_i}(\omega_i|\hat{y}, k)$  of the agent's type  $\omega_i$ , given the sector  $k$  in which the agent works and the differential  $\hat{y}$  in extrinsic rewards between the two sectors. The utility of agent  $i$  from working in sector  $k$  is

$$U_{i,k} = (\omega_i - c) a_k + \chi_i y_k + \mu_i E_{\omega_i}(\omega_i|\hat{a}, \hat{y}, k),$$

where  $\mu_i \in [0, 1]$  is the weight on reputational concerns, which may change across individuals.

Initially, agents are randomly allocated between the private and the public sector. On the job, agents privately learn their type  $\theta = \{\omega_i, \chi_i\}$  and choose whether to remain in the sector they are in or to move to the other sector, given  $a_k$  and  $y_k$ . Types in the private sector for whom  $U_{i,G} \geq U_{i,P}$ , will move to the public sector; types in the public sector for whom  $U_{i,G} < U_{i,P}$  will move to the private sector. Over time, therefore, types will separate between sectors: those (referred to as "the highly intrinsically motivated") for whom

$$\omega_i \hat{a} + \chi_i \hat{y} \geq \tilde{\omega}_i \equiv c \hat{a} - \mu R(\hat{a}, \hat{y}),$$

where

$$R(\hat{a}, \hat{y}) \equiv E_{\omega_i}(\omega_i|\hat{a}, \hat{y}, G) - E_{\omega_i}(\omega_i|\hat{a}, \hat{y}, P)$$

will be in the public sector whilst those with low intrinsic motivation,  $\omega_i < \tilde{\omega}$ , will be in the private sector.  $R(\hat{a}, \hat{y})$  denotes the reputational gain from working in the public sector compared to the private sector.

Since initially half of the agents are in the private sector, the probability of transition from the private to the public sector is

$$p(\hat{a}, \hat{y}, \mu) = \frac{1}{2} \Pr(\omega_i \hat{a} + \chi_i \hat{y} \geq \tilde{\omega}_i)$$

Within this framework, BT show as follows:

1. Intrinsic motivation for pro-social activities is an important factor explaining why people wish to participate to pro-social activities. We add it that, to the extent that more activities are carried out in the

public sectors, intrinsic motivation helps explaining the desire of people to work in the public sector. Other things equal, people with higher intrinsic motivation wish the most to join the public sector.

2. The greater the level of pro-social activities carried out in the public sector compared to the private sector (and thus  $\hat{a}$ ), the more intrinsically motivated people wish to move to the public sector.
3. For given level of pro-social activities in the public sector (and thus  $\hat{a}$ ), an increase in extrinsic rewards in the public sector ( $d\hat{y} > 0$ ) may reduce the reputational gain  $R(\hat{a}, \hat{y})$  from working in the public sector. Intuitively, as observers cannot observe agents' types, a signal extraction problem arises and an increase in extrinsic rewards generates two effects on reputation. First, new types are drawn to the public sector (i.e.  $\tilde{\omega}_i$  decreases). The new composition of the public sector thus comprises fewer intrinsically motivated agents and the 'good reputation' of working in the public sector decreases (as the new members have lower  $\omega_i$ 's than the old one, they drag down the group reputation for pro-social orientation). However, the stigma of working in the private sector also increases (as the members with high  $\omega_i$ 's move to the public sector). As such the reputational gain  $R(\hat{a}, \hat{y})$  of working in the public sector may increase or decrease (this is the "image spoiling effect of extrinsic rewards").
4. Because of (3), an increase in extrinsic rewards in the public sector ( $d\hat{y} > 0$ ), may crowd out intrinsic motivation, in the sense that it may reduce the number of agents who wish to work in the public sector ( $d\tilde{\omega}_i > 0$ ).
5. To the extent that women care more about their reputation for pro-social activities than men, crowding out is more likely to occur for women than for men.

### 3 Methodology and Data

We use data from the first fourteen waves of the British Household Panel Survey (BHPS) covering the period 1991-2004. The BHPS is a longitudinal survey of approximately 10,000 individuals in 5,500 households per year, providing a rich source of information of demographic and labour market characteristics, as well as information on individuals' subjective evaluation of their jobs and their economic situation. Restricting the sample to full-time workers between the ages of 16 and 65 results in 37384 and 25728 person-year observations for men and women respectively. Crucially, the panel nature of the data allows us to identify, during the sample period, 747 transitions from the private to the public sector, all initiated by the workers themselves voluntarily (i.e. quits), with no intervening unemployment or inactivity spells.

In order to explore whether such transitions are driven or explained by PSM, we classify job attributes observed prior to and after each transition as intrinsic or as extrinsic. To make such a distinction operational, we consider wages, job tenure and hours of work to be extrinsic rewards, while the nature of the work itself to be an intrinsic reward. We take the view that individuals have a predetermined level of PSM, which is the result of environmental factors, such as parental modelling and socialization within social groups that individuals interact with or are part of. Because it is difficult to measure individuals' motives directly, we proxy such motives by using self-reported domain job satisfaction scores. Following the theoretical model in Section 2, we expect that satisfaction with intrinsic rewards is positively correlated with the probability of transition into the public sector. In contrast, due to reputational effects, satisfaction with extrinsic rewards should have little or even negative influence on individuals' decision to seek employment in the public sector.

More formally, the probability that individual  $i$  makes the transition into the public sector can be written as

$$\Pr(M_{it}^G = 1) = \Pr[\beta' X_{i,t-1}^P + \varepsilon_{it} > 0] \quad (1)$$

In (1),  $M_{it}^G$  is an observed indicator variable taking the value 1 if an individual  $i$  moves into the public sector at time  $t$  and 0 otherwise. The vector  $X_{i,t-1}^P$  represents individual and labour market characteristics at time  $t - 1$ , the year prior to making the transition. It includes expected earnings differentials between the public and the private sector as well as expected satisfaction differentials for the various extrinsic and intrinsic job attributes under consideration.<sup>9</sup>  $\varepsilon_{it}$  is a random error term.

Earnings in both private and public sector employment are observed only for those in private employment and public employment respectively, and they are censored at zero. Because of this, we estimate standard Mincer-type earnings functions corrected for selectivity bias. We use these estimates to calculate the expected earnings differential between the public and private sector  $\hat{y}_{it}$  for each individual in our sample, irrespective of current status. These expected earnings differentials are used when estimating equation (1), the transition into the public sector equation. In a similar fashion, we estimate differentials for satisfaction with pay  $\hat{s}_{it(PAY)} = \hat{S}_{it(PAY)}^G - \hat{S}_{it(PAY)}^P$ , satisfaction with job security  $\hat{s}_{it(SEC)} = \hat{S}_{it(SEC)}^G - \hat{S}_{it(SEC)}^P$ , satisfaction with hours worked  $\hat{s}_{it(HOURS)} = \hat{S}_{it(HOURS)}^G - \hat{S}_{it(HOURS)}^P$ , and satisfaction with the work itself (an intrinsic reward)  $\hat{s}_{it(WORK)} = \hat{S}_{it(WORK)}^G - \hat{S}_{it(WORK)}^P$  between the public and private sectors. These predicted domain satisfaction differentials enter as additional regressors in the transition equation (1), which is written as,

$$\Pr(M_{it}^G = 1) = \alpha_0 + \alpha_1 \hat{y}_{it} + \alpha_2 \hat{s}_{it(PAY)} + \alpha_3 \hat{s}_{it(SEC)} + \alpha_4 \hat{s}_{it(HOURS)} + \alpha_5 \hat{s}_{it(WORK)} + \beta' X_{i,t-1}^P + \varepsilon_{it} \quad (2)$$

The main hypothesis that PSM increases the probability of transition into the public sector implies a positive and significant coefficient  $\alpha_5$ . If extrinsic rewards exert little or no influence on individuals' decision to become public sector employees, then the coefficients  $\alpha_1$  to  $\alpha_4$  will be statistically insignificant. Negative and statistically significant coefficients  $\alpha_1$  to  $\alpha_4$  are consistent with the crowding out hypothesis, whereby extrinsic rewards mitigate an individual's utility from the intrinsic rewards associated with the

---

<sup>9</sup>These are the  $\omega_i(a_G - a_P)$  and  $(1 - \omega_i)(y_G - y_P)$  in the theoretical model.

transition into the public sector.

## 4 Results

We begin by presenting summary statistics for the real wage, job and the four domains of job satisfaction.

[Insert Table 1 here.]

The table above shows that on average wages are significantly higher in the public sector than in the private sector, for both men and women. Satisfaction with pay is also higher in the public sector than in the private sector. We find similar results with the number of hours worked and job tenure: on average people work fewer hours and stay in jobs longer in the public sector.<sup>10</sup> In addition, our results show that individuals in the public sector are more satisfied with job security and with the number of hours they work than individuals in the private sector. Average satisfaction with the work itself is significantly higher in the public sector than in the private sector.

We now examine the results that make use of observed transition into the public sector. Table 2 below gives the probit estimations for transition from the private to the public sector.

[Insert Table 2 here]

There is strong evidence for our main hypothesis: people are more likely to move to public sector if they expect to enjoy greater satisfaction with the work itself in the public sector. Further, higher predicted satisfaction with pay in the public sector will reduce the probability of moving to the public sector, thus providing evidence of the image spoiling effect of monetary rewards in the public sector. The satisfaction with job security differential is insignificant. This provides evidence that individuals are not more likely

---

<sup>10</sup>This is consistent with previous studies. See e.g. Rama (1999) and Bender (1998).

to join the public service out of a desire to derive greater utility from job security. There is strong evidence that higher (predicted) utility with the number of hours worked in the public sector in fact it reduces an individual's probability of joining the public sector. Thus, the results of the predicted satisfaction with pay and working hours differentials are consistent with the crowding out hypothesis, whereby extrinsic rewards mitigate an individual's utility from the intrinsic rewards associated with the transition into the public sector.

This grouping of results shows that people join the public sector mainly because it offers individuals with PSM the opportunity to carry out pro-social activities. Higher wages or better extrinsic rewards are not the driving force behind the transition. In fact, our results show that higher extrinsic rewards in the public sector crowd out PSM in the public service, i.e. make it less likely for individuals who are public service motivated to join the public sector.

We now examine transition into different occupational groupings in the public sector at the one digit (or Major Group) level using the Standard Occupational Classification 1990 (SOC 1990). The major group is a grouping of broad occupational categories which is useful in comparing occupations that have similar qualifications, training, skills, and experience. Table 3 gives the results.

[Insert Table 3 here]

Once more we find strong evidence for our main hypothesis, the predicted satisfaction with work itself differential significantly increases the probability of making the transition to the public sector. This shows that individuals with high levels of PSM are more likely to move to the public sector. There is also evidence of PSM being crowded out by extrinsic rewards. For most occupations, either the predicted satisfaction with pay or satisfaction with working hours are negative and significant. Exceptions are individuals moving into management and administration or are becoming plant and machine operatives in the public sector. In both these types of occupation we find no evidence to support the hypothesis that higher satisfaction with the work

itself in the public sector increases the likelihood of moving to the public sector as the predicted satisfaction with work differential is insignificant.

Next, we divide the public sector into different sub-sectors, these being central government, local government and public corporations. There are important differences in these organizational structures that may impact how attractive these sub-sectors are to individuals with PSM. These differences for example manifest themselves in some sub-sectors providing less opportunity for individuals with PSM to carry out their motivations. Central governments and public sector corporations are more likely to succumb to pressure from unions and employees than local government. Wages and other pecuniary and non pecuniary benefits have been shown to be higher in central government and public sector corporations. We expect higher wages and non pecuniary benefits to reduce the likelihood of a public sector motivated individual moving into these sub-sectors of the public sector. Table 4 below gives the results for probit estimations for transition probability into the different sub-sectors.

[Insert Table 4 here]

The results show that the probability of transition into all sub-sectors is significantly positively related to the satisfaction differential with work itself. However, the probability of transition is significantly reduced by the predicted satisfaction with pay differential for both transition into central government and the NHS and Higher Education. The probability of transition is also significantly reduced by the predicted satisfaction with working hours differential for transition into the NHS and Higher Education. This implies that the higher predicted satisfaction with wages and better working hours, enjoyed in central government and public sector corporations, reduces the utility of moving into these sub-sectors for individuals.<sup>11</sup> Grouped together, the results show that individuals are more likely to move into these different sub-sectors of government if they are public service motivated.

---

<sup>11</sup>The wage differential being significant and positive for women moving into local government can be partially explained by the fact the wage differential between the private and public sector is greatest for women.

## 5 Conclusion and Policy Recommendations

Our results show that higher wages, satisfaction with pay, job security and working hours in the public sector are either insignificant in influencing the probability of transition to the public sector or reduce this probability. Instead, higher satisfaction with the intrinsic characteristics of work in the public sector increases the probability of transition to the public sector. Individuals are more likely to move due to higher satisfaction with the work itself in the public sector, as the public sector provides greater opportunity for these individuals to carry out their public service motivation. This grouping of results provides strong evidence of PSM and suggests that extrinsic rewards may crowd out intrinsic motivation.

These results suggest that from an efficiency point of view, the public sector should lower wages and other extrinsic rewards for two reasons. Firstly, high wages in the public sector deter individuals with PSM from entering the public sector as high wages decrease their utility from this pro-social move because they are perceived to be “greedy”. Therefore lower wages and other extrinsic rewards allow for better matching as individuals with PSM will be more willing to work in the public sector. Secondly, a reduction in wages and other extrinsic rewards will reduce problems of adverse selection in hiring new workers for the public sector. High wages in the public sector will also attract individuals who do not have PSM. These individuals require higher powered incentives to perform the same task compared to individuals with high levels of PSM and therefore are more costly than individuals with PSM. By offering lower wages the public sector will attract a higher proportion of individuals with PSM.

## References

- [1] Benabou, R., and Tirole, J., 2003, Intrinsic And Extrinsic Motivation, *Review of Economic Studies*, vol. 70, pp. 489 – 520.
- [2] Benabou, R., and Tirole, J., 2006, Incentives And Pro-social Behaviour, *American Economic Review*, vol. 96 (5), pp. 1652 – 1678.

- [3] Bender, K., 1998, The Central Government-Private Sector Wage Differential, *Journal of Economics Surveys*, vol. 12, pp. 178-220.
- [4] Besley, T., and Ghatak, M., 2005, Competition And Incentives With Motivated Agents, *American Economic Review*, vol. 95 (3), pp. 616-636.
- [5] Brewer, G. A., and Seldon, S., C., 1998, Whistle Blowers In The Federal Civil Service: New Evidence Of The Public Service Ethic, *Journal of Public Administration Research and Theory*, vol. 8, pp. 413-440.
- [6] Clark, A., Georgellis, Y., and Sanfey, P., 1998, Job Satisfaction, Wage Changes And Quits: Evidence From Germany, *Research In Labour Economics*, vol. 17, pp. 95-121.
- [7] Clark, A., 2004, Looking for Labour Market Rents With Subjective Data, *Working Paper, CNRS, DELTA, and IZA*.
- [8] Clark, A., and Senik, C., 2005, The (Unexpected) Structure Of “Rents” On The French And British Labour Markets, *Journal of Socio-Economics*, vol. 35, pp. 180-196.
- [9] Crewson, P. E., 1997, Public Service Motivation: Building Empirical Evidence Of Incidence And Effect, *Journal of Public Administration Research and Theory*, vol. 7, pp. 499-518.
- [10] Delfgaauw, J., and Dur, R., 2007, Signalling And Screening Of Workers’ Motivation, *Journal of Economic Behaviour and Organizations*, vol 62 (4), pp. 605-624.
- [11] Delfgaauw, J., and Dur, R., 2008, Incentives And Workers’ Motivation In The Public Sector, *Economic Journal*, vol. 118, pp. 171-191.
- [12] Diener, E., 2000, Subjective Well-Being: The Science Of Happiness And A Proposal For A National Index, *American Psychologist*, vol. 55, pp. 34 – 43.
- [13] Dilulio, J. J., 1994, Principled Agents: The Cultural Bases Of Behaviour In A Federal Government Bureaucracy, *Journal of Public Administration Research and Theory*, vol. 4, pp. 277-318.

- [14] Francois, P., 2000, "Public Service Motivation" As An Argument For Government Provision, *Journal of Public Economics*, vol. 78, pp. 275-299.
- [15] Francois, P., and Vlassopoulos, M., 2007, Pro-Social Motivation And The Delivery Of Social Services, mimeo, University of British Columbia.
- [16] Freeman, R. B., 1978, Job Satisfaction As An Economic Variable, *American Economic Review*, vol. 68, pp. 135-41.
- [17] Frey, B., and Jegen, R., 2001, Motivation Crowding Theory, *Journal of Economic Surveys*, vol. 15 (5), pp. 589-611.
- [18] Frey, B., Oberholzer-Gee, F., Eichenberger, R., 1996, The Old Lady Visits Your Backyard: A Tale Of Morals And Markets, *The Journal of Political Economy*, vol 104 (6), pp. 1297-1313.
- [19] Frey, B., Oberholzer-Gee, F., 1997, The Cost Of Price Incentives: An Empirical Analysis Of Motivation Crowding-Out, *American Economic Review*, vol. 87 (4), pp. 746-755.
- [20] Gneezy, U., and Rustichini, A., 2000a, Pay Enough Or Don't Pay At All, *Quarterly Journal of Economics*, vol. 115, pp. 791- 810.
- [21] Gneezy, U., and Rustichini, A., 2000b, A Fine Is A Price, *Journal of Legal Studies*, vol. 29, pp. 1-17.
- [22] Gregg, P., Grout, P., Ratcliffe, A. Smith S., and Windmeijer, F., 2008, How important is Pro-social Behaviour in the Delivery of Public Services. CMPO Working paper 08/197.
- [23] Grout, P., and Schnedler, W., 2006, The Delicate Nature Of Effort-Provision In Non-Profit Organizations, mimeo, Universitat Heidelberg.
- [24] Grout, P., and Yong, M., 2003, The Role Of Donated Labour And Not for Profit At The Public/Private Interface, CMPO Working Paper Series No. 03/074.

- [25] Houston, D. J., 2000, Public-Service Motivation: A Multivariate Test, *Journal of Public Administration Research and Theory*, vol. 10 (4), pp. 713-728.
- [26] Houston, D. J., 2006, "Walking the Walk" of Public Service Motivation: Public Employees and Charitable Gifts of Time, Blood, and Money, *Journal of Public Administration Research and Theory*, vol. 16 (1), pp. 67-86.
- [27] Luechinger, S., Meier, S., and Stutzer, A., 2005, Rents In The Public Bureaucracy: Measurement And Causes, *Working Paper, University of Zurich and Harvard University*.
- [28] Mangione, T. W., and Quinn, R. P. , 1975, Job Satisfaction, Counter Productive Behaviour, And Drug Use At Work, *Journal of Applied Psychology*, vol. 60, pp. 114-116.
- [29] Perry, J. L., 1996, Measuring Public Service Motivation: An Assessment Of Construct Reliability And Validity, *Journal of Public Administration Research and Theory*, vol. 6, pp. 5-22.
- [30] Pouliakas, K., and Theodossiou, I., 2009, Confronting Objections to Performance Pay: A Study of the Impact of Individual and Gain-sharing Incentives on the Job Satisfaction of British Employees, *Forthcoming in: Scottish Journal of Political Economy*.
- [31] Rama, M., 1999, Public Sector Downsizing: An Introduction, *The World Bank Economic Review*, vol. 13 (1), pp. 1-22.
- [32] Titmuss, R., 1970, The Gift Relationship, *London, Allen and Unwin*.