Motivation and mission in the public sector: evidence from the World Values Survey

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Abstract It is well-recognised that workers may have intrinsic—as well as extrinsic—motivations. Previous studies have identified that public sector workers typically have a higher level of intrinsic motivation, compared to workers in the private sector. This paper compares (measures of) intrinsic motivation among 30,000+ workers in the two sectors across 51 countries using data from the World Values Survey. We find that public sector workers exhibit higher intrinsic motivation in many countries, but that this is not a universal relationship. One possibility is that public sector mission may influence whether or not motivated workers choose to work in the sector. In support of this, we show that the level of (public) corruption—which plausibly affects mission—can explain some of the variation across countries in the proportion of motivated workers in the sector.

Keywords Intrinsic motivation · Public sector · Corruption · Worker selection

1 Introduction

Tabellini (2008) emphasized that political and economic outcomes reflect not just the design of public policies but also the behaviour of public officials. While his main focus was on culture and shared normative values, another potentially important

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factor affecting their behaviour is public officials' motivation. A number of studies have found that workers in the public sector typically have a higher level of intrinsic motivation than private, for-profit workers. Public sector workers are more likely to self-report a higher level of intrinsic motivation towards their jobs (Houston 2000; Lewis and Frank 2002; John and Johnson 2008) and this translates into additonal effort on the job—both self-reported effort (Frank and Lewis 2004) and an objective measure of "donated labour", captured by unpaid overtime (Gregg et al. 2011). It is plausible that such intrinsic motivation is an important determinant of outcomes in a range of public services, for example health and education, where some aspects of effort may be non-contractible and hence hard to reward directly (see Francois and Vlassopoulos 2008, for further discussion).

Previous empirical studies looking at intrinsic motivation among public sector workers have tended to focus on individual countries. The main focus of this paper is on variation in levels of intrinsic motivation across counties. We use data from the World Values Survey (WVS) to look at measures of motivation among more than 30,000 workers in the public and private sectors across 51 countries that cover a range of income levels, political regimes and cultures. We show that there are many countries in which public sector workers do indeed show a higher level of intrinsic motivation, but that this is not a universal relationship—there are also many countries where public sector workers are less intrinsically motivated than private sector workers.

The second contribution of this paper is to try to explain at least some of this difference across countries. We focus on the potential importance of the "mission" of the public sector in explaining the variation. Besley and Ghatak (2005), Wright (2007), and Dur and Zoutenbier (2011) all emphasize the role of the mission of the public sector as an important factor in attracting intrinsically motivated people and in triggering pro-social behaviour. We suggest that the level of corruption in the public sector is likely to affect its mission—a more corrupt public administration is likely to be less attrctive to intrinsically motivated workers. In a cross-country regression framework, we show that corruption, appropriately instrumented, has a negative effect on the (average) proportion of motivated workers in the public sector relative to the private sector. In an individual-level regression framework we also show that intrinsically motivated workers are less likely to work in the public sector when levels of corruption are higher.

An alternative to the mission matching story that would be consistent with the observed negative cross-country relationship between corruption and motivation is adaptation—i.e. that the level of corruption directly affects workers' motivation. We cannot test this explicitly, but we show that the negative effect of corruption on the likelihood of motivated workers being in the public sector is stronger among younger workers. This tends to support mission matching rather than adaptation.

The rest of the paper is organised as follows. The next section provides more discussion of intrinsic motivation among public sector workers and the potential effect of corruption on mission alignment and the selection of motivated workers. Section 3 describes the World Values Survey and the main variables used. Section 4 compares characteristics of public and private sector workers across countries while Sect. 5 looks at the relationship between the level of motivation and corruption. Section 6 concludes.

2 Intrinsic motivation among public sector workers

A sizeable literature in public administration and economics has identified that workers in the public and private sectors are likely to differ in their motivation (see Perry et al. 2010; Francois and Vlassopoulos 2008 for summaries). Workers in both sectors are assumed to care about extrinsic rewards such as wages. But public sector workers are thought to have a higher level of intrinsic motivation, linked to caring directly about the job that they are doing.

Originally, in the public administration literature, this motivation was seen as being grounded primarily or uniquely in public institutions and organisations (Perry and Wise 1990). Later, the concept was broadened so that it was more similar to a general feeling of altruism (Rainey and Steinbauer 1999). Here, we use intrinsic motivation among public sector workers to capture individuals' altruistic or other-regarding motivations in relation to their involvement in the provision of goods and services by the public sector.[1]

To make things clearer, we present a simple framework following Francois and Vlassopoulos (2008). Suppose the public sector is engaged in the production of a single good, g, which is a function of worker effort (e_i):

$$g = k(e_i...e_{-i})$$

Similarly for the private sector, there is a production function in which there is a single good, p, which is a function of worker effort.

Workers are characterised as having the following utility function:

$$U_i^s = w^s - \varphi(e_i) + h_i \lambda^s(e_i)$$

For worker i in sector s, utility depends positively on their wage and negatively on their work effort (e_i). Workers are assumed to vary in the extent to which they may also derive some positive utility from their effort, $h_i \in [0, 1]$. If $h_i = 1$, workers are impure, or action-oriented, altruists and are assumed to care directly about their contribution to the public sector good, i.e. $(\lambda^{PUB})' > 0$. We define these workers as being intrinsically motivated. Impurely altruistic workers are assumed not to care about their contribution to the privately produced good, i.e $(\lambda^{PRI})' = 0$.[2]

A number of implications follow, developed in *inter alia* Besley and Ghatak (2005) and Delfgauuw and Dur (2008). The first is that intrinsically motivated individuals will be more likely to work in the public sector than in the private sector. A second is that such motivated workers will require less strong incentives to induce the same level of effort; and, finally, that the public sector may optimally offer lower wages in order to attract intrinsically motivated workers.

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[1] This seems similar to many definitions of public service motivation in the public administration literature which specifically focus on individuals' intrinsic motivations with regard to their employment rather than a broader conception of altruism.

[2] We ignore the possibility that intrinsically motivated workers may be pure altruists and care about the public sector good, whoever is providing it since there is less empirical support for this behaviour (see Tonin and Vlassopoulos 2010; Gregg et al. 2011).

In this simple framework, intrinsically motivated workers are assumed always to care about their contribution to the public good, irrespective of the characteristics of the public sector. However, a number of papers emphasize the importance of "mission" such that workers only care about their effort if there is mission alignment between themselves and the organisation (Besley and Ghatak 2005; Wright 2007; Dur and Zoutenbier 2011).

To make things more explicit we extend the framework to allow for mission alignment following Dur and Zoutenbier (2011). They model workers' utility as depending on being in the public sector rather than directly on effort, i.e. $U_i^{pub} = w^{pub} - \varphi(e_i) + \beta_i h_i$. $\beta_i \in [0, 1]$ captures mission alignment, i.e. whether or not workers value the mission of the public sector. In their paper, mission alignment is measured by the extent to which indivdiuals express confidence in political parties, allowing mission alignment to vary across individuals within a country. Using data from the World Values Survey they show that mission alignment as well as intrinsic motivation is important to explain who works in the public sector. In this paper, we consider variation in mission alignment that might vary across countries as a result of institutional corruption.

Although in principle, corruption can apply to both the public and the private sectors, we use a measure of corruption (the Corruption Perception Index) that focuses on corruption in the public sector. This captures things such as the bribery of public officials, kickbacks in public procurement, embezzlement of public funds, and the strength and effectiveness of anti-corruption efforts.

The basic idea is a very simple one—if there is a high level of corruption we assume a low level of mission alignment between intrinsically motivated individuals and the public sector. This seems intuitively plausible. Intrinsically motivated individuals are unlikely to derive any utility from working in the public sector and exerting effort if this benefits corrupt public officials. Only if public corruption is low will intrinsically motivated individuals be mission-aligned with the public sector.

Our expectation is that, for intrinsically motivated workers, the likelihood of working in the public sector will be inversely related to the degree of corruption. In the absence of mission alignment, i.e. when corruption is high, motivated workers will be equally likely to work in the public and private sectors. Note that if workers feel that the public sector is so corrupt that it is harmful to the public interest, they may actually prefer to work in the private sector. We therefore expect intrinsically motivated workers to be more likely to locate in the public sector where corruption is lower.

To date, there has been very little empirical work that has directly explored the relationship between corruption and workers' choice between the public and private sector. One exception is Serra et al. (2011) who, looking at Ethiopia, argue that "the original mission of the public sector ... has been eroded by decades of central planning, weak monetary incentives and poor accountability". They find evidence that pro-social and philanthropic health professionals choose not to work in the public sector (but instead choose the not-for-profit sector). We explore this issue across a much wider range of countries.

3 The World Values Survey

We analyse data from wave five of the World Values Survey, carried out over the period 1st April 2005 – 31st December 2006. Our sample consists of 59,604 respondents (34,789 workers) from 51 countries, representing a total population of 4.8 billion (73.3 % of the world population)[3]. Information on the sample sizes for each country, which range between 668 and 2,697, is given in Table 1.

Table 1 Summary statistics

	World Values Survey					ILO public sector	Corruption measure (CPI)
	Obs	Proportion employed	Prop^n in private	Prop^n in Public	Prop^n in NFP		
Andorra (AN)	881	0.95	0.78	0.21	0.01		
Argentina (AR)	740	0.49	0.72	0.26	0.02	0.16	7.1
Australia (AU)	965	0.78	0.69	0.25	0.06	0.16	1.3
Brazil (BR)	1, 225	0.41	0.67	0.27	0.05		6.7
Britain (GB)	725	0.66	0.71	0.25	0.04	0.2	1.4
Bulgaria (BU)	706	0.60	0.71	0.29	0.00	0.29	6
Burkina Faso (BF)	1, 223	0.35	0.48	0.27	0.25		6.8
Canada (CA)	1, 503	0.68	0.69	0.28	0.03	0.19	1.5
Chile (CH)	770	0.54	0.82	0.13	0.05	0.15	2.7
China (CN)	1, 705	0.24	0.57	0.42	0.01		6.7
Cyprus (CY)	870	0.65	0.74	0.23	0.03	0.18	4.4
Egypt (EG)	2, 697	0.38	0.55	0.44	0.01		6.7
Ethiopia (ET)	1, 330	0.50	0.67	0.29	0.05		7.6
Finland (FI)	724	0.66	0.57	0.41	0.03	0.27	0.4
France (FR)	720	0.68	0.68	0.28	0.04	0.29	2.6
Georgia (GE)	1, 112	0.40	0.59	0.32	0.09	0.21	7.2
Germany (DE)	1, 306	0.62	0.56	0.22	0.21	0.15	2
Ghana (GH)	1, 278	0.64	0.83	0.12	0.05		6.7
India (I)	1, 736	0.45	0.39	0.17	0.44		6.7
Indonesia (IN)	1, 766	0.49	0.67	0.30	0.03		7.6
Iran (IR)	2, 268	0.43	0.64	0.31	0.04	0.19	7.3
Italy (IT)	773	0.54	0.70	0.27	0.03	0.15	5.1
Japan (JA)	796	0.71	0.82	0.15	0.03	0.08	2.4
Malaysia (MY)	977	0.66	0.74	0.18	0.08	0.17	5
Mali (MA)	1, 197	0.32	0.34	0.26	0.40		7.2
Mexico (ME)	1, 289	0.50	0.68	0.23	0.08	0.12	6.7

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[3] Population figures based on World Bank population statistics for 2006 http://data.worldbank.org/indicator/SP.POP.TOTL

Table 1 continued

	World Values Survey					ILO public sector	Corruption measure (CPI)
	Obs	Proportion employed	Prop^n in private	Prop^n in Public	Prop^n in NFP		
Moldova (MO)	821	0.62	0.56	0.43	0.01	0.27	6.8
Morocco (MC)	1, 066	0.90	0.89	0.10	0.01	0.1	6.8
Netherlands (NE)	741	0.61	0.66	0.26	0.08		1.3
Norway (NO)	778	0.85	0.62	0.38	0.01	0.35	1.2
Peru (PE)	1, 246	0.27	0.66	0.29	0.05		6.7
Poland (PO)	730	0.58	0.61	0.38	0.01	0.27	6.3
Romania (RO)	1, 253	0.54	0.66	0.34	0.00	0.21	6.9
Russia (RU)	1, 513	0.72	0.55	0.40	0.06	0.33	7.5
Rwanda (RW)	1, 265	0.63	0.79	0.14	0.07		7.5
South Africa (SA)	2, 278	0.54	0.71	0.19	0.10		5.4
South Korea (SK)	1, 026	0.51	0.62	0.27	0.10		4.9
Serbia (SE)	1, 040	0.57	0.58	0.42	0.00		7
Slovenia (SL)	762	0.63	0.63	0.35	0.02	0.29	3.6
Spain (SP)	809	0.58	0.82	0.18	0.00	0.15	3.2
Sweden (SV)	720	0.83	0.59	0.40	0.01	0.34	0.8
Switzerland (SW)	797	0.83	0.65	0.31	0.04		0.9
Taiwan (TA)	982	0.78	0.84	0.15	0.01		4.1
Thailand (TH)	1, 235	0.71	0.35	0.16	0.49	0.09	6.4
Trinidad Tobago (TT)	763	0.62	0.68	0.30	0.01	0.27	6.8
Turkey (TU)	1, 167	0.40	0.81	0.18	0.01	0.14	6.2
Ukraine (UK)	784	0.67	0.41	0.53	0.06	0.22	7.2
Uruguay (UR)	668	0.50	0.80	0.18	0.01	0.16	3.6
USA (US)	907	0.66	0.70	0.19	0.11	0.16	2.7
Vietnam (VI)	1, 199	0.25	0.36	0.61	0.03		7.4
Zambia (ZA)	1, 203	0.38	0.54	0.39	0.07		7.4
Total	57, 035	34,789	20,572	8,569	2,331		

3.1 Sector of employment

The 2005 wave for the first time collected information on sector of employment—either for current employment or for previous "major work". We focus only on current employees in line with the approach taken in most previous studies.
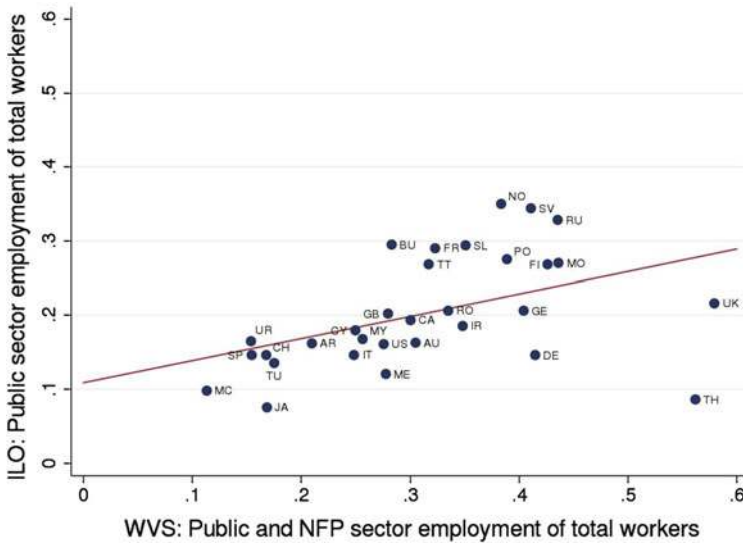
Specifically, the question asks the following:

> *Are you working for the government or public institution, for private business or industry, or for a private non-profit organization? Do you or did you work for:*
> *1 Government or public institution*
> *2 Private business or industry*
> *3 Private non-profit organization*

Fig. 1 Employment in the public sector (WVS and ILO comparison). *Line* indicates best fit from a linear regression See Table 1 for details of country names

The proportions who report working in each sector are shown in Table 1, together with an external benchmark of employment in the public sector, which we take from the International Labour Organisation http://laborsta.ilo.org/applv8/data/SSMe.html. Ideally, we would like separately to analyze employment in the not-for-profit sector (since motivated workers may select to work in this sector if the public sector is corrupt) but the sample sizes for most countries are too small to do this in a meaningful way. Our focus is therefore on workers in the public sector and the private, for-profit sector.

There is some suggestion that the WVS under-estimates the proportion that works in the public sector compared to the ILO figures, but public sector size measured in the WVS is positively and significantly correlated with the external benchmark[4] (the correlation coefficient is 0.337). Figure 1 shows this more clearly.

3.2 Measures of intrinsic motivation

The World Values Survey contains a number of potential indicators of intrinsic motivation. Two of these are based on individuals' self-reported motivation—the first focuses

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[4] In this paper unless otherwise stated we define WVS public sector employment as those who responded that they currently work for 'Government or a public institution.' However, when comparing the relative size of the public sector in the WVS with the ILO measure of the public sector, we also include NFP workers in the WVS definition of the public sector. This is because the public sector in the ILO database is defined as all market or non market activities which at each institutional level are controlled and mainly financed by a public authority. This therefore includes non-market Non Profit Institutions (NPIs) that are controlled and financed by a public body. http://laborsta.ilo.org/applv8/data/SSMe.html.

on individuals' self-reported motivation specifically in relation to employment, while the second relates more broadly to their overall motivation in life.

The employment motivation question asks:

Regardless of whether you're actually looking for a job, which one would you, personally, place first if you were looking for a job:
1 A good income so that you do not have any worries about money
2 A safe job with no risk of closing down or unemployment
3 Working with people you like
4 Doing an important job that gives you a feeling of accomplishment

We interpret the response, "doing an important job", as an indicator of intrinsic motivation, following a number of earlier studies of public service motivation (Houston 2000; Lewis and Frank 2002; John and Johnson 2008). The advantage of this measure is that is relates directly to the individual's motivation in relation to employment. One potential issue is that it may capture an individual's concern with status (for example, how others perceive them, which may be affected by the level of public corruption) as well as pro-social motivation. However, to the extent that it reflects individuals' desired self-image as someone seen to be doing good, it arguably still reflects an intrinsic rather than an extrinsic motivation.

We also use a second measure, used by Dur and Zoutenbier (2011), that captures the extent to which individuals are altruistically motivated by asking about what things are important to them in their life:

Now I will briefly describe some people. Would you please indicate for each whether that person is very much like you, like you, somewhat like you, not like you, or not at all like you?
It is important to this person to help the people nearby, to care for their wellbeing.[5]

We define people as being intrinsically motivated if they respond that this person is "very much like them" or "like them". Compared to the question on employment motivation, the potential drawback of this measure is that it relates to a much wider conception of altruism, not specifically related to employment.

We also considered a third possible measure, suggested by some earlier studies (Brewer 2003; Houston 2006), that captures the extent to which individuals engage in altruistic acts outside of their main job. The World Values Survey asks individuals whether they are active in organisations that might be considered pro-social, including charity, and environmental organisations. However, as we show in the next section, we observe similar patterns across sectors when looking at the proportion who engage in sports activities, suggesting that activity measures may capture other factors that vary across sectors, such as individuals' time availability, rather than their motivation. Our main focus is therefore on the two self-reported motivation measures.

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[5] Another potential indicator of pro-sociality is individuals who agree that it is important to this person to look after the environment. This yields very similar results.

4 Comparison of public and private sector workers

Table 2 summarizes for each country in our sample the proportions of public and private sector workers who are defined as intrinsically motivated according to the different indicators. The raw data show a tendency for workers in the public sector to be more intrinsically motivated than workers in the private sector, but this is not universal. Looking at work motivation, for example, there are a number of countries, including Mali, South Korea, Bulgaria and Spain, where private sector workers have a higher level of motivation.

To examine the relationship further, and to control for other differential characteristics of public sector workers, we run regressions of the following form for each of the 51 countries in the World Values Survey for which we have information:[6]

$$Pub_i = \beta_0 + \beta_1 M_i + X_i \gamma + u_i$$

Where Pub_i is a binary indicator that takes the value 1 if the individual works in the public sector (equal to zero if the individual works in the private sector) and M_i is an indicator of intrinsic motivation (each indicator is included separately). X_i is a vector of control variables, including age, gender and education level. We estimate these regressions using a linear probability model which makes it easier to interpret the coefficients – the results from running a probit model are very similar.

Coefficients from the 51 regressions are reported in Table 3. One striking finding is that there are clear differences in the demographic characteristics of public and private sector workers.[7] There is a near-universal tendency for public sector workers to be older, to be more likely to be female and to be better educated than private sector workers. In 44 out of 51 countries, age has a positive effect on the probability of working in the public sector (this is statistically significant for 31). In 44 countries, being female has a positive effect (statistically significant for 28) and in all but one country, having a degree has a positive effect (statistically significant for 45). When we control for some of the difference in job types between the two sectors by looking only at non-manual workers, the results are qualitatively similar although there is less statistical significance because of the smaller sample sizes.[8]

The regression results confirm that there is a tendency for public sector workers to have a higher level of intrinsic motivation than private sector workers, but show that this is far from being a universal relationship. For 30 (out of 51) countries workers reporting that their primary motivation is doing an important job are more likely to work in the public sector (statistically significant for 6). However, there are 21 countries

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[6] This approach is very similar to Aknin et al. (2013) who look at the relationship between giving to charity and subjective well-being across a large number of different countries. In the WVS we also find that people with higher levels of subjective well-being are also more likely to work in the public sector (positive for 41 out of 51 and statistically significant for 18).

[7] We report the coefficients on the demographic characteristics from the regressions that include our preferred indicator of intinsic motivation relating to individuals' employment motivation. Using other motivation indicators yields similar results.

[8] The survey does not have any information on occupations that would allow us to control further for differences in job types.

Table 2 Self-reported motivation among public/private sector workers

| Country | Proportion who are pro-socially motivated, according to different indicators | | | | | | | | |
| | (1) Work motivation | | | (2) Life motivation | | | (3) Active charity/env org. | | |
	Public	Private	Diff	Public	Private	Diff	Public	Private	Diff
Britain	0.467	0.289	0.178	0.642	0.583	0.059	0.308	0.195	0.113
Andorra	0.602	0.436	0.166	0.729	0.758	−0.029	0.192	0.156	0.036
USA	0.384	0.226	0.158	0.509	0.530	−0.021	0.241	0.162	0.080
Norway	0.583	0.447	0.136	0.719	0.700	0.019	0.149	0.086	0.062
Canada	0.496	0.361	0.135	0.785	0.729	0.056	0.340	0.235	0.105
Peru	0.423	0.298	0.125	0.663	0.631	0.033	0.265	0.133	0.133
Turkey	0.313	0.194	0.119	0.663	0.560	0.102	0.036	0.026	0.010
Finland	0.357	0.247	0.110	0.418	0.424	−0.006	0.128	0.055	0.072
Germany	0.266	0.160	0.106	0.540	0.385	0.155	0.078	0.044	0.035
Sweden	0.544	0.441	0.104	0.755	0.708	0.048	0.109	0.066	0.043
Chile	0.222	0.129	0.093	0.698	0.651	0.047	0.204	0.091	0.113
China	0.230	0.145	0.086	0.676	0.601	0.075	0.143	0.064	0.079
Argentina	0.260	0.177	0.083	0.745	0.641	0.104	0.094	0.065	0.029
Iran	0.375	0.292	0.083	0.582	0.562	0.020	0.180	0.130	0.050
Vietnam	0.133	0.075	0.058	0.425	0.453	−0.027	0.202	0.150	0.053
Ethiopia	0.096	0.050	0.046	0.463	0.346	0.117	0.234	0.134	0.100
Indonesia	0.213	0.169	0.044	0.717	0.590	0.126	0.322	0.253	0.068
Thailand	0.124	0.082	0.042	0.316	0.276	0.040	0.161	0.160	0.001
Serbia	0.161	0.120	0.041	0.541	0.489	0.052	0.156	0.101	0.054
Australia	0.355	0.315	0.040	0.516	0.462	0.054	0.160	0.127	0.033
Japan	0.293	0.253	0.040	0.185	0.192	−0.006	0.012	0.009	0.003
Rwanda	0.202	0.162	0.040	0.574	0.541	0.033	0.284	0.154	0.131
Uruguay	0.136	0.099	0.036	0.754	0.562	0.192	0.115	0.048	0.066
Ukraine	0.158	0.126	0.032	0.585	0.522	0.063	0.043	0.014	0.029
Mexico	0.336	0.306	0.029	0.711	0.687	0.024	0.233	0.128	0.105
Burkina Faso	0.088	0.059	0.029	0.598	0.604	−0.006	0.070	0.063	0.007
Georgia	0.160	0.137	0.023	0.653	0.675	−0.022	0.007	0.000	0.007
Romania	0.101	0.078	0.022	0.687	0.555	0.132	0.028	0.005	0.023
Taiwan	0.214	0.193	0.021	0.652	0.610	0.042	0.107	0.071	0.036
India	0.101	0.081	0.020	0.496	0.513	−0.016	0.323	0.184	0.139
France	0.279	0.261	0.018	0.584	0.553	0.031	0.161	0.117	0.043
Morocco	0.134	0.119	0.015	0.515	0.434	0.082	0.071	0.021	0.050
Poland	0.184	0.169	0.015	0.669	0.547	0.122	0.061	0.034	0.027
Ghana	0.101	0.086	0.015	0.636	0.580	0.057	0.333	0.127	0.206
Cyprus	0.162	0.149	0.013	0.838	0.763	0.075	0.131	0.061	0.069
Malaysia	0.111	0.100	0.011	0.293	0.288	0.005	0.147	0.048	0.099
Netherlands	0.328	0.317	0.010	0.708	0.595	0.114	0.108	0.074	0.035

Table 2 continued

Country	Proportion who are pro-socially motivated, according to different indicators								
	(1) Work motivation			(2) Life motivation			(3) Active charity/env org.		
	Public	Private	Diff	Public	Private	Diff	Public	Private	Diff
Brazil	0.283	0.273	0.010	0.790	0.828	−0.039	0.232	0.142	0.090
Russia	0.122	0.115	0.007	0.402	0.366	0.036	0.009	0.023	−0.014
Egypt	0.095	0.090	0.005	0.709	0.649	0.060	0.047	0.016	0.031
Zambia	0.149	0.145	0.003	0.540	0.544	−0.004	0.173	0.135	0.038
Switzerland	0.524	0.521	0.003	0.602	0.585	0.017	0.155	0.142	0.014
Trinidad and Tobago	0.343	0.340	0.003	0.708	0.691	0.017	0.215	0.169	0.046
Italy	0.313	0.319	−0.007				0.123	0.072	0.050
Moldova	0.115	0.122	−0.007	0.488	0.449	0.040	0.074	0.045	0.028
Slovenia	0.117	0.125	−0.008	0.186	0.180	0.006	0.055	0.024	0.031
South Africa	0.078	0.089	−0.012	0.324	0.278	0.046	0.016	0.012	0.005
Spain	0.138	0.153	−0.015	0.632	0.647	−0.015	0.115	0.049	0.066
Bulgaria	0.092	0.110	−0.018	0.517	0.470	0.047	0.033	0.013	0.020
South Korea	0.261	0.297	−0.036	0.646	0.601	0.046	0.120	0.102	0.019
Mali	0.072	0.164	−0.092	0.724	0.648	0.076	0.364	0.264	0.100

Ordered in terms of the difference in the work motivation variable between the public and private sectors

for which the relationship runs in the other direction (statistically significant for 1). When we include people whose second motivation is an important job (results not reported), the relationship appears slightly stronger—the coefficients are positive in 38 countries (statistically significant for 16)—although again there are some countries for which the coefficients are negative.

The results based on the life motivation variable are very similar. For 33 (out of 50) countries, people who think it is important to help others are more likely to work in the public sector (statistically significant for 10). Finally, those who are active in a charity/ environmental organisation are more likely to work in the public sector in 48 countries out of 51, statistically significant for 18. However, we find a qualitatively similar relationship (albeit weaker) for individuals who are active in a sports organisation, suggesting that the activity indicators may reflect other factors, such as time availability, as well as (or instead of) intrinsic motivation. In our analysis of the relationship between corruption and motivation we focus on the self-reported motivation measures.

5 Intrinsic motivation and corruption

In this section we explore whether differences in corruption can explain at least some of the variation in intrinsic motivation among public sector workers (compared to private sector workers) across countries. First, we show by means of a cross-country regression that the level of government corruption has a negative effect on the proportion

Table 3 Country-level regression coefficients

Country	Age	Female	Degree	Want to do imp job	Imp to help others	Active in charity/ env org.	Active in sports
Andorra	−0.002	0.060	0.234	0.070	−0.017	0.042	0.050
Argentina	0.011	0.083	0.063	0.080	0.071	0.039	−0.093
Australia	0.005	0.185	0.154	−0.018	0.018	0.012	0.034
Brazil	0.005	0.195	0.244	−0.003	−0.061	0.064	0.116
Britain	0.003	0.180	0.154	0.099	0.033	0.082	0.013
Bulgaria	0.009	0.101	0.220	−0.059	0.002	0.104	−0.237
Burkina Faso	−0.004	0.091	0.473	0.069	−0.026	0.013	0.282
Canada	0.003	0.118	0.193	0.075	0.055	0.073	0.020
Chile	0.000	0.073	0.108	0.063	0.012	0.107	−0.027
China	0.012	0.007	0.331	0.115	0.039	0.150	0.184
Cyprus	0.002	−0.030	0.189	−0.024	0.058	0.137	−0.008
Egypt	0.011	0.307	0.173	−0.026	0.073	0.223	0.004
Ethiopia	−0.006	0.126	0.321	0.083	0.085	0.101	0.102
Finland	0.006	0.282	0.250	0.039	-0.013	0.119	0.041
France	0.006	0.050	0.277	−0.049	0.027	0.062	0.060
Georgia	0.000	0.282	0.225	0.043	−0.045	0.350	0.752
Germany	−0.001	0.152	0.289	0.055	0.087	0.064	0.069
Ghana	0.001	−0.036	0.457	−0.011	0.021	0.129	0.071
India	0.006	0.141	0.394	0.004	-0.091	0.080	0.119
Indonesia	0.012	0.069	0.326	0.011	0.084	0.040	0.056
Iran	0.005	0.086	0.381	0.016	0.035	0.076	0.063
Italy	0.008	0.165	0.212	−0.022		0.100	−0.059
Japan	0.001	0.050	0.104	0.021	−0.008	0.091	0.052
Malaysia	0.006	0.042	0.161	−0.014	−0.001	0.219	0.085
Mali	0.004	0.219	0.338	−0.196	0.085	0.097	0.146
Mexico	0.003	0.156	0.270	−0.009	−0.022	0.116	0.074
Moldova	0.007	0.252	0.000	−0.053	−0.014	0.087	0.011
Morocco	0.000	−0.022	0.272	−0.002	0.029	0.147	0.049
Netherlands	0.002	0.083	−0.088	0.016	0.081	0.076	−0.011
Norway	0.005	0.263	0.223	0.046	0.019	0.057	−0.056
Peru	0.009	0.008	0.240	0.074	−0.012	0.124	0.135
Poland	0.004	0.073	0.102	0.008	0.113	0.177	0.214
Romania	0.008	0.064	0.230	-0.016	0.035	−0.225	−0.036
Russia	0.008	0.125	0.095	0.042	0.094	0.311	−0.056
Rwanda	−0.002	0.001	0.704	0.033	0.005	0.096	0.090
Serbia	0.001	0.038	0.225	0.041	0.024	0.057	−0.042
Slovenia	0.004	0.056	0.176	−0.044	−0.022	0.225	−0.012
South Africa	0.006	0.065	0.196	−0.071	0.037	0.029	0.113
South Korea	0.007	0.123	0.251	−0.076	0.027	0.044	−0.010

Table 3 continued

Country	Age	Female	Degree	Want to do imp job	Imp to help others	Active in charity/ env org.	Active in sports
Spain	**0.006**	0.000	**0.274**	−0.020	−0.017	**0.141**	−0.028
Sweden	**0.004**	**0.305**	**0.096**	0.034	−0.003	0.087	−0.061
Switzerland	**0.003**	**0.173**	**0.158**	−0.022	−0.016	−0.002	0.014
Taiwan	**0.004**	0.018	**0.190**	−0.020	0.014	0.017	0.041
Thailand	**0.004**	**-0.131**	**0.378**	0.037	0.030	0.011	0.031
Trinidad and Tobago	**0.006**	−0.056	**0.333**	−0.003	0.003	0.022	**0.136**
Turkey	0.003	0.064	**0.249**	**0.085**	**0.066**	−0.009	0.026
Ukraine	**0.007**	0.071	0.022	0.074	0.049	0.209	0.070
Uruguay	0.003	**−0.083**	**0.257**	0.015	**0.113**	0.130	−0.013
USA	0.002	0.056	0.095	**0.129**	−0.024	**0.080**	−0.038
Vietnam	0.003	−0.051	**0.161**	0.100	−0.027	0.087	−0.021
Zambia	0.001	**0.105**	**0.216**	0.005	−0.026	0.054	−0.012
# +ive coeffs (sig)	44 (31)	44 (28)	49 (45)	30 (6)	33 (10)	48 (18)	33 (17)
# -ive coeffs (sig)	7 (3)	7 (2)	1 (0)	21 (1)	18 (1)	3 (1)	18 (0)

Coefficients on demographic characteristics are from regressions including employment motivation indicator. Other indicators of intrinsic motivation yield similar results

bold denotes significant at 10% level

Dependent variable = individual works in the public sector (0/1)

of motivated workers in the public sector relative to the private sector. We attempt to establish that this is a causal relationship by exploiting a number of previously-used instruments for the level of corruption (degrees latitude and years' democracy). Secondly, we run an individual-level regression to show that motivated workers are less likely to work in the public sector in countries where the government is more corrupt.

Before proceeding to the regression framework and results, Fig. 2 motivates the analysis by showing that there is a clear negative relationship in the raw data between the level of intrinsic motivation among the public sector workforce in a country (using our preferred measure of the difference between the public and private sector in the proportions of workers who cite their primary work motivation as doing an important job) and how corrupt the country is perceived to be, measured by the corruption perception index (CPI).

Of course, there are a number of possible explanations for this negative relationship. Perhaps most obviously, the more intrinsically motivated the workers in the public sector, the less likely they may be to engage in corrupt activities (accept bribes, embezzle public funds etc). Arguably since the measure of corruption is derived from people's perceptions of the level of corruption, which may include their perception of the motivations of public sector workers, the two measures might actually capture the same thing. Another possibility is that both the level of corruption and the level of motivation are jointly determined by other factors – such as wages. Ex ante, it is unclear
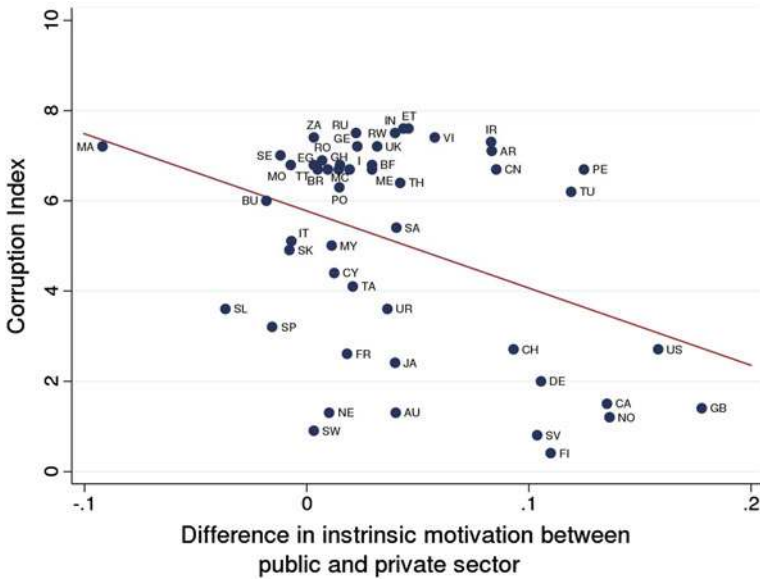
Fig. 2 Pro-social motivation and corruption. *Line* indicates best fit from a linear regression See Table 1 for details of country names

which way the relationship would go. The literature suggests that higher wages are necessary to reduce the extent of corruption (Rijckeghem and Weber 2001), although high wages may then attract extrinsically motivated workers. We test the sensitivity of our results to wages below.

Here, we are interested in the alternative direction of causation – that the level of corruption in a country may have an effect on the level of intrinsic motivation among public sector workers. In order to identify this effect, we therefore instrument the level of corruption, explained further below.

5.1 Cross-country regressions

We run the following cross-country regression to explore the relationship between the level of corruption across countries and the degree of motivation among public sector workers:

$$M_c^{PUB} = \beta_0 + \beta_1 CPI_c + Z_c\gamma + u_c$$

where M_c^{PUB} is a measure of the level of intrinsic motivation among public sector workers in country c, measured by the difference between the proportion of public sector workers and private sector workers citing doing an important job as their primary work motivation. We also use the second self-reported motivation measure (importance of helping others) as a robustness check. *CPI* is our measure of corruption. This widely-used measure captures the degree to which public officials and politicians are believed

to accept bribes, take illicit payment in public procurement, embezzle public funds, and commit similar offences. Each country is given a score from 0 to 10—we re-scale such that a higher number indicates a more corrupt administration. The index is based on 17 different polls and surveys, typically of business managers and experts (eg risk analysts and international organisations).

Z is a vector of controls including other differences in the characteristics of public and private sector workers (average age, proportion female and education) and the size of the public sector (proxied by government spending as a share of GDP). We also control for the level of GDP; individuals in richer countries may be better able to prioritize an important job rather than a job with a good income, although focusing on the difference between motivations in the public and private sector should help to take care of the effect of the level of GDP, and there may be systematic differences in corruption across rich and poor countries. We also do a robustness check including government wages to confirm that the results are robust to levels of remuneration in the public sector, although this information is only available for a sub-sample of 32 countries.

Estimating this equation by OLS is likely to yield a biased estimate of the coefficient β_1 because of the potential endogeneity of corruption. This includes not only the possible effect of intrinsic motivation on corruption, but also the possibility that both the degree of corruption and motivation are jointly determined by some other factor, such as wages. We therefore instrument corruption using two variables suggested by the literature – latitude and uninterrupted years since becoming a democracy.

A country's latitude has consistently been used by previous studies to instrument for corruption (see for example Gupta et al. 2002; Cole 2006). The instrument captures the extent of Western Europe's influence around the world. Hall and Jones (1999) originally suggested latitude as an instrument for the quality of institutions. Their argument was that Western European explorers were more inclined to settle in counties which were both sparsely populated and had a comparable climate—and hence latitude—to Europe (including USA, Canada and Australia). Western Europeans tended to establish well-defined property rights and relatively good quality institutions, thus countries with greater latitude are generally associated with lower levels of corruption due to the positive Western European influence on a country's social infrastructure.

The second instrument is years of uninterrupted democracy (as used in Aidt et al. 2008). Treisman (2000) and Persson and Tabellini (2003) argue that countries with a longer period of democratic rule have developed better processes in which to minimise corruption. The political system and the fear of losing the next election increase incentives to act fairly and in a non-corrupt way. Lederman et al. (2005) found that corruption is higher in countries that have a shorter or no democratic tradition.

Our interpretation is that the instruments identify the extent to which the institutions themselves are corrupt. In this case, our estimates capture the effect of corruption that is linked to institutions on the degree of intrinsic motivation among the workers. There may be some concern that the degree of intrinsic motivation may be directly related

to the instruments, particularly the number of years' democracy (for example because democracy is more likely to persist if public sector workers are intrinsically motivated). We address this potential concern in two ways—first by testing for exogeneity in the standard way by means of the Sargan statistic and second, by showing that the results are qualitatively similar instrumenting corruption only with degrees latitude, which is more plausibly exogenous.

The results from the cross-country regressions are reported in Table 4. Columns (1) and (2) report OLS regressions, including additional controls for the characteristics of public sector workers, GDP and government size, confirming the negative relationship between CPI and intrinsic motivation shown in Fig. 2. Columns (3) – (7) report TSLS results. When we use both instruments—Latitude and years' democracy—in columns (3) and (5) the F-statistic from the first stage is greater than 10 and the p-value from the Sargan test shows that the null that the instruments are exogenous is not rejected. We also obtain qualitatively similar results when using only degrees latitude as an instrument (columns (4) and (6)), although we lose statistical significance because this is weaker in the first stage. These results support the validity of our instruments. Our results show that a higher level of corruption has a negative effect on the proportion of intrinsically motivated workers in the public sector. This is robust to controlling for other characteristics of the workers (column (3)), GDP and government size (column (5)) and wages (column (7)).

Columns (8) and (9) use the second available measure of intrinsic motivation, capturing whether the individual thinks it is important in life to help people. These results are less strong and the coefficient on the CPI in column (8) is only statistically significant at the 11 % level. There are several possible explanations for this. One is that our preferred measure captures intrinsic motivation specifically in relation to employment—which is directly affected by public sector corruption— rather than the wider altruism measure which could relate to other domains outside employment that are unaffected by public sector corruption. A second explanation is that "wanting to do an important job" reflects an individual's desire for status and that our estimate of the effect of corruption captures the effect of corruption on both mission-alignment and status from working in the public sector.

We cannot disentangle these two different explanations. Nevertheless, the fact that we obtain qualitatively similar results using the wider altruism measure lends support to our hypothesis that the level of corruption in a country has a negative effect on the level of intrinsic motivation among public sector workers through mission alignment.

The magnitude of the estimated coefficient suggests that a one point increase in the CPI is associated with a three percentage point reduction in the degree of pro-social motivation among workers in the public sector relative to those in the private sector. Within Europe, the gap between the most corrupt country (Italy) and the least corrupt country (Finland) is 4.7 points which would imply a 14 % point reduction in pro-social motivation. This is fairly similar to the observed difference in practice, which is 12 % points (a difference of +0.110 in Finland and a difference of −0.007 in Italy.)

Table 4 Corruption and the level of pro-social motivation in the public sector

| | Public-private differential: want to do an important job | | | | | | | PP diff: imp to help others | |
| | OLS | | TSLS | | | | | TSLS | |
	(1)	(2)	(3) Second stage	(4) Second stage	(5) Second stage	(6) Second stage	(7) Second stage	(8) Second stage	(9) Second stage
CPI	−0.0081**	−0.0059	−0.0126**	−0.0102*	−0.0313**	−0.0273	−0.0298*	−0.0191	−0.0101
	(0.0033)	(0.0070)	(0.0036)	(0.0059)	(0.0126)	(0.0331)	(0.0159)	(0.0121)	(0.0212)
Diff in age	0.0003	−0.0011	0.0007	0.0004	0.0031	0.0024	0.0016	0.0051	0.0070
	(0.0037)	(0.0041)	(0.0036)	(0.0035)	(0.0046)	(0.0067)	(0.0062)	(0.0041)	(0.0070)
Diff in educ	0.0630	0.0679	0.0748	0.0686	0.0578	0.0595	-0.0571	-0.0654	0.0617
	(0.0785)	(0.0796)	(0.0760)	(0.0759)	(0.0846)	(0.0825)	(0.0961)	(0.0761)	(0.1160)
Diff in female	0.0440	0.0783	0.0132	0.0294	0.0305	0.0381	0.0380	−0.0371	0.0399
	(0.0678)	(0.0756)	(0.0666)	(0.0730)	(0.0825)	(0.0984)	(0.0834)	(0.0764)	(0.1020)
GDP_rel_US		0.0000			−0.0017*	−0.0014	−0.0014	−0.0016	−0.0012
		(0.0006)			(0.0009)	(0.0022)	(0.0011)	(0.0008)	(0.0014)
Govt_share		−0.0014			−0.0012	−0.0012	−0.0022	−0.0011	−0.0027
		(0.0013)			(0.0014)	(0.0013)	(0.0020)	(0.0013)	(0.0022)
Gov wages							−0.0172**		−0.0064
							(0.0071)		(0.0083)

Table 4 continued

| | Public-private differential: want to do an important job | | | | | | | PP diff: imp to help others | |
| | OLS | | TSLS | | | | | TSLS | |
	(1)	(2)	(3) Second stage	(4) Second stage	(5) Second stage	(6) Second stage	(7) Second stage	(8) Second stage	(9) Second stage
Instruments			Latitude years' democracy	Latitude	Latitude Years' democracy	Latitude	Latitude years' democracy	Latitude years' democracy	Latitude years' democracy
F-stat (1st stage)			77.03	17.56	10.99	2.07	4.32	10.99	4.32
Sargan (p value)			0.6202		0.8891		0.9175	0.0334	0.0481
N	49	49	49	49	49	49	32	48	31

Regressions exclude Serbia, Andorra and Columbia because of missing variables. ** denotes coefficient is significant at 5 %; * at 10 % level
CPI corruption perception index. 0–10 where 10 is most corrupt. Year: 2006. (*Source*: Transparency International.); *Diff* refers to difference in mean characteristics between the public and private sectors; *GDP_rel_US* GDP relative to US, US = 100. Year: 2006. (*Source* Penn World Tables); *Govt Share* Government share of total output . Year: 2006. (*Source* Penn World Tables); *Gov wages* Government wages, relative to manufacturing. Year: 1995. (*Source* World Bank); *Latitude* absolute latitude, re-scaled from 0 to 1 (*Source* Central Intelligence Agency); *Years' democracy* number of years since country became a democracy. Year: 2006. (*Source* Database of Political Institutions).

5.2 Individual-level regressions

The mission-alignment story suggests that intrinsically motivated individuals will be less likely to work in the public sector when the level of corruption is higher. To explore this we run the following individual-level regression:

$$Pub_{ic} = \beta_0 + \beta_1 CPI_c + \beta_2 M_i + \beta_3 CPI_c M_i + \gamma Z_c + \delta X_i + u_{ic}$$

As before, Pub_{ic} is a binary indicator equal to one if individual i in country c works in the public sector, but we now pool data from all countries and look at the effect of country-level characteristics, including the level of corruption (CPI_c), instrumented as before, and individual characteristics, including an individual's intrinsic motivation (M_i). The interaction term ($CPI_c M_i$) allows for the probability that motivated individuals select to work in the public sector can be affected by the degree of corruption. Standard errors are clustered at the country level.

The results are reported in Table 5. Panel (a) uses our preferred measure of intrinsic motivation relating to employment; panel (b) uses the wider altruism measure. Our discussion focuses on panel (a); the results in panel (b) are qualitatively similar (but as before are less strong). The coefficient β_1 identifies the direct effect of corruption on whether or not someone chooses to work in the public sector for those who are not intrinsically motivated. This is positive in the specifications in columns (1) and (2) but insignificant once we control for the size of the government in column (3). We find that motivated workers are more likely to work in the public sector, but the coefficient on the interaction term, β_3, is negative and significant. Based on the results in column (3), the overall effect of intrinsic motivation (combining the direct effect and the interaction term) loses statistical significance when the CPI is greater than 5.6. From Table 1 27 countries have CPI levels above this—Mexico, Argentina, Poland, Brazil, India, Bulgaria, Romania, China, Turkey, Ukraine, Russia, Peru, Ghana, Moldova, Georgia, Thailand, Indonesia, Vietnam, Egypt, Morocco, Iran, Trinidad and Tobago, Burkina Faso, Ethiopia, Mali, Rwanda and Zambia.

Our main results control for the size of the public sector and the level of GDP. One possibility, however, is that the selection of motivated workers into the public sector may vary depending on the overall level of income in a country and that, to the extent that corruption is correlated with GDP, we are picking up this differential selection process. To test this, we run separate regressions on the richest and poorest 50 % of countries (results reported in columns (4) and (5)). In this case, the magnitude of the coefficients on the interaction term is actually higher among poorer countries (although it is not statistically significant).

Finally, we split the sample into younger workers (aged 35 and under) and older workers and run separate regressions for each group. The results, reported in columns (6) and (7) confirm previous findings that there is a stronger tendency for younger, intrinsically motivated workers to select the public sector (than older). They also show that corruption has a bigger negative effect on the likelihood of working in the public sector for younger motivated workers than for older. This latter finding is more consistent with a selection story than with the alternative adaptation story since the adaptation effect would be expected to be more pronounced among older workers.

Table 5 Corruption and selection into the public sector, IV regression results

	Full sample			Rich countries	Poor countries	Young workers	Older workers
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intrinsic motivation: want to do an important job							
Corruption Perception Index	0.0082	0.0111**	−0.0030	−0.0017	0.0367	−0.0058	−0.0072
	(0.0051)	(0.0055)	(0.0183)	(0.0123)	(0.0333)	(0.0122)	(0.0128)
Intrinsically motivated (0/1)	0.0218**	0.0670**	0.0677**	0.0709**	0.1368	0.1390**	0.0445**
	(0.0091)	(0.0217)	(0.0207)	(0.0154)	(0.0901)	(0.0328)	(0.0204)
Intrinsically motivated * CPI		−0.0101**	−0.0091**	−0.0122**	−0.0199	−0.0237**	−0.0031
		(0.0041)	(0.0041)	(0.0039)	(0.0140)	(0.0055)	(0.0042)
GDP_rel_US			−0.0012	−0.0002	−0.0008	−0.0012	−0.0015
			(0.0016)	(0.0013)	(0.0029)	(0.0010)	(0.0013)
Govt_share			0.0019	0.0142**	−0.0004	0.0033	0.0011
			(0.0026)	(0.0048)	(0.0025)	(0.0022)	(0.0029)
N	27,451	27,451	27,451	13,754	13,717	11,962	15,489
Intrinsic motivation: important to help people							
Corruption Perception Index	0.0078	0.0088	−0.0056	−0.0084	0.0415	−0.0115	−0.0084
	(0.0051)	(0.0060)	(0.0196)	(0.0132)	(0.0385)	(0.0119)	(0.0150)
Intrinsically motivated (0/1)	0.0377***	0.0464*	0.0455*	0.0207	0.1230	0.0050	0.0611*
	(0.0097)	(0.0200)	(0.0206)	(0.0167)	(0.1220)	(0.0216)	(0.0237)

Table 5 continued

	Full sample			Rich countries	Poor countries	Young workers	Older workers
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intrinsically motivated * CPI		−0.0017	−0.0014	0.0053	−0.0155	0.0023	−0.0014
		(0.0036)	(0.0037)	(0.0048)	(0.0194)	(0.0042)	(0.0044)
GDP_rel_US			−0.0012	−0.0001	−0.0007	−0.0011	−0.0015
			(0.0016)	(0.0013)	(0.0029)	(0.0009)	(0.0014)
Govt_share			0.0019	0.0141*	−0.0002	0.0030	0.0007
			(0.0025)	(0.0050)	(0.0024)	(0.0021)	(0.0030)
N	27,015	27,015	27,015	13,353	13,662	11,816	15,199

Regressions exclude Serbia, Andorra and Columbia because of missing variables. ** denotes coefficient is significant at 5 %, * at 10 % level

Variable definitions as in Table 4

Dependent variable = individual works in the public sector (0/1)

6 Conclusions

This paper has presented new evidence on worker motivation in the public and private sectors across a large sample of countries using data from the World Values Survey. Previous single-country studies have found intrinsic motivation to be higher in the public sector than in the private sector. We show that, while this is the case for many countries, it is not a universal tendency. Using our preferred measure of motivation (motivation in employment), we find that there are eight (out of 51) countries where the absolute levels of intrinsic motivation are higher in the private sector. Once we control for the characteristics of workers (age, gender, education), this increases to 21 countries.

Our analysis shows that corruption may explain at least some of the variation across countries. Our argument is that corruption reduces the mission alignment between intrinsically motivated workers and the public sector. We provide empirical support for this argument at both the country- and individual level. Our empirical results are consistent with a number of recent studies that emphasize the importance of mission-alignment (Besley and Ghatak 2005; Dur and Zoutenbier 2011) where the characteristics of both individual workers and the sector are important in producing the positive "mission match" that results in a higher level of intrinsic motivation and pro-social behaviour among public sector workers. A novel aspect of our paper is to emphasize one of the potential aspects of the public sector that might be important in delivering a mission match, namely the degree of corruption.

Our findings have a number of implications. First, they provide some empirical support for the importance of mission in attracting intrinsically motivated workers into the public sector. Governments can potentially affect the mission of the public sector—and therefore influence the level of motivation among the workforce. Second, they highlight a potential mechanism through which corrupt institutions may lead to worse public service outcomes.

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