Letter Grading Government Efficiency

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February 2012

Incredibly Preliminary

I. Introduction

Many developing countries have very poorly performing governments, as evidenced by surveys of citizens, businessmen, foreign investors, or local experts (La Porta et al. 1999, Treisman 2000, Svensson 2005, or Kaufmann et al. 2008). Yet the quality of government improves fairly universally as countries grow richer. Unfortunately, survey responses make it difficult to disentangle the determinants of the quality of government, since they capture the respondents' combined assessment of government policies, corruption, and productivity. In addition, survey responses often reflect a combination of personal experiences and policy views (Glaeser et al. 2004). As such, they make it difficult to explore the reasons for low quality government.

At the broadest level, there are two reasons for bad government in developing countries: political economy and productivity. The political economy arguments hold that governments in poor countries are less accountable because citizens have few opportunities to exercise their voice (Hirschman 1970). As countries become richer and more educated, government responsiveness to citizen needs improves, in part because politics become more democratic and transparent, and so does the quality of government (Verba and Nie 1972, Barro 1999, Glaeser, Ponzetto, and Shleifer 2007, Papaioannou and Siourounis 2008, Djankov et al. 2010, Botero et al. 2012).

An alternative view of bad government in developing countries is low productivity of government services, similar to low productivity in the private sector. Part of the problem might be inferior inputs, including human and physical capital as well as technology. Part of the problem might also be poor management, including the lack of supervision and monitoring (Bloom et al. 2007, 2010a,b, 2012a,b; Lewis 2004). Low government productivity can show up in a number of outcomes, including public worker absenteeism (Chaudhury et al. 2006), corruption and bureaucratic delays (Treisman 2000, Svensson 2005), or just low quality of public goods (e.g., La Porta et al. 1999).

In this paper, we propose one objective indicator of government efficiency, and use it to shed light on these two broad theories of the quality of government (while recognizing that they are not mutually exclusive). Our indicator describes the performance of the mail system in accomplishing one simple task: returning an incorrectly addressed international letter. Between December 2010 and February 2011 we had sent letters to non-existent business addresses in 159 countries: 2 letters in each country's largest 5 cities. Each envelope had a typed up address using the Latin alphabet, as required by international postal conventions, and included a return address at the Tuck School of Business at Dartmouth in Hanover, New Hampshire, as well as a clear request to "please return to sender if undeliverable." The addresses included an existent city and zip code (where available), but a non-existent business name and street address. The letter inside was a standard one page business letter, written in English and requesting a response from the recipient. We included nothing else in the letter to avoid a temptation to open and steal the content (see Castillo et al. 2011).

All countries subscribe to an international postal convention requiring them to return the letters posted to an incorrect address. We measured the fraction of letters that were actually returned, and how long it took the letters to come back from the date they were posted from Cambridge, MA. We stopped keeping track of returns a year after the final postings that took place on Feb 4, 2011. We do not believe this procedure aroused any concerns or delays at the US post offices. We use the data to construct measure the share of letters we got back, and how long it took to get them back, in each of 159 countries, and then analyze a variety of correlates of these measures of postal efficiency.

Our approach to measuring government efficiency has two key advantages. First, we are looking at a fairly simple and universal across countries, government service. All countries have post office equipment reading zip codes and sometimes addresses, so the letter has to end up in the hands of a postal employee whose job is to return it but who can alternatively throw the letter out. We are thus

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looking at government efficiency from the narrow perspective of whether this task is actually performed. Doing so enables us to focus on government productivity and to relate it to that in the private sector.

Second, by design we are looking at a government service where neither corruption nor political patronage plays any role. It is actually impossible to ask the American sender of the letter for a bribe, since he is not available to pay it.   Likewise, no larger political purpose is served by either returning the letter or throwing it out. It is a simple matter of postal employees doing their job or not doing it, where performance requires a rather small effort and very little human capital. In essence, we are examining a measure of the quality of government free from political economy influences.

Once we construct our measures, we can consider some of the determinants of government efficiency, especially as compared to that in the private sector. In particular, we use measures of capital, labor, and technology in the postal system to examine their influence on efficiency. In addition, recent research shows that management practices are a key determinant of productivity (Bloom et al 2007, 2010a,b, 2012a,b).   We use survey measures of management quality to examine its impact on mail efficiency for a large sample of countries, but also more precise Bloom/Van Reenen measures of management practices for a smaller sample[2].

Our principal finding is that, despite the simplicity of the task, there is enormous variation in government efficiency as measured by the probability and the time of returning the letter.   We got 100% of the letters back from 21 out of 159 countries, including from the usual suspects of efficient government such as Canada, Norway, Germany and Japan, but also from Uruguay, Barbados, and Algeria. At the same time, we got 0% of the letters back from 16 countries, most of which are in Africa

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[2] The McKinsey Global Institute sees competition as an essential determinant of productivity (Lewis 2004). Since mail enjoys monopoly provision everywhere, finding cross-country differences undermines the centrality of this hypothesis.

but also including Tajikistan, Cambodia, and Russia. Overall, we had received 59% of the letters back over a year since they were sent out.   Another measure we look at is the percentage of the letters we got back in 90 days.   Only 4 countries sent all the letters back in 90 days (United States, El Salvador, Czech Republic, and Luxembourg), while 42 did not manage to deliver any back within 3 months. Overall, only 35% of the letters came back within 3 months. As we understand the postal convention, the country has no more than a month during which it must return the letter, so very few countries complied with the postal convention they signed in this regard. In statistical terms, the variation in our measures of postal efficiency is comparable to the variation of per capita incomes across countries.

We then try to understand this impressive level of government inefficiency from a number of perspectives. First, we show that our measures of government efficiency are highly correlated with per capita income and human capital of a country, similarly to the more standard survey measures. They are also correlated with many other measures of government efficiency used in other studies. Interestingly, when we conduct the principal components analysis that includes our postal variables but also per capita income, human capital, and a few measures of efficiency, only the first principal component is significant.

Second, we estimate a "production function" for mail across countries, where output is returning the letter. Postal efficiency is highly correlated with proxies for resources of the postal system, such as the number of permanent offices per capita or postal stuff per capita (these two are very highly correlated with each other). In addition, we look at two key "technological" determinants of productivity. Specifically, our measures postal efficiency are higher in countries that use the Latin alphabet, suggesting that language was a problem despite the fact that the postal convention requires that the addresses be written in Latin letters. In addition, different countries use different postcode data bases for the machines reading the letters, and the Universal Postal Union keeps track of this

information. We thus have a proxy for how far away from the initial machine reading at the country of destination the letter might need to go before the incorrect address is detected.   Perhaps not surprisingly, this variable is a strong predictor of postal efficiency. The postal resources variables, the language dummy, and postcode data bases together explain about 40% of the variation across countries in the fraction of letters we got back, and the fraction we got back in 90 days.

Finally, we ask whether the determinants of productivity in the private and public sectors are similar by looking at the quality of management.   We first look at several cross-country survey-based measures of management quality and find that in fact they help explain differences in mail productivity, although the incremental R-squared is small.   We then consider the Bloom/Van Reenen management practices variables using a small sample of 16 countries for which we have overlapping data (their sample includes 18 countries).   These variables are generally highly significant and add considerable explanatory power.   Management practices are important for public and not only private sector efficiency.   In conclusion, we discuss some implications of these findings.

II. Procedure and Variables.

We sent 2 letters to each of the 5 largest cities in 159 countries. These were airmail, first class letters, with correct international postage of 98 cents. The letters were dropped in street mail boxes in Cambridge, MA between December 8, 2010 and February 4, 2011.   Both the letter inside and the information on the envelope used the Latin alphabet and the Arabic numerals, as required by the postal convention. The letter inside, reproduced in Figure 1, was always the same, and written in English. It came from Rafael La Porta at Tuck School of Business at Dartmouth College in Hanover, New Hampshire. The letter stated that it was confidential, confirmed the receipt of previous correspondence, and requested urgent response regarding the recipient's willingness to continue the collaboration project.

The idea of such a letter was to add a bit of urgency to the task of returning in the event that a postal employee opened the envelope and read it. At the same time, we made sure there was only one piece of paper inside the envelope to minimize the temptation for postal employees to look for valuables inside (Castillo et al. 2011).

The name of the addressee was chosen as a common name in the country. In addition to the name of the addressee, each address on the front of the envelope had a generic name of a business, such as Computer Management Professionals, Smart Computer Services, Inventory Technology Partners, Professional Management Forum, Inventory Area Management Computer, etc. Following the name of the business, the envelope had a printed address, which had a correct existing zip code for the city in question but a non-existent address. Names of Nobel Laureates in Economics and famous Western composers were used as street names. It is possible but extremely unlikely that, by coincidence, the street address existed in that city at that zip code. For all practical purposes, the street address was non-existent. The addresses were typed following the postal convention. Figure 2 presents the front of the envelope for several of the returned letters.

In addition, each letter contained the return address of Rafael La Porta at the Tuck School of Business at Dartmouth. Under the address, it said in larger bold letters **PLEASE RETURN TO SENDER IF UNDELIVERABLE**. This too was done to encourage the return of the letter.

All of the countries in the sample subscribe to the Universal Postal Union. Article 147 from the Universal Postal Union Letter Post Regulations Final Protocol of 2009 regulates the return of incorrectly addressed mail, and in particular mandates the return of such mail under normal circumstances (our letters certainly met those circumstances: they did not contain biodegradable or radioactive material, etc.). Moreover, the Regulations require that the letters must be returned within a month of entering

the country.   The letters met all the requirements, such as how the addresses were typed, postage, return addresses, letter weight, to trigger the return of the letter under the Universal Postal Union.

Following the mailing, Rafael La Porta kept track of the dates of return of the letters. Since he practically never travels, and comes to his office at Tuck every weekday when mail is delivered, the issue of his being absent on the date the letter arrived rarely arose. Nonetheless, he made sure that his trusty assistant kept track of the arrival dates of returned letters on the few occasions he was away. Based on this information, we constructed, for each country, three variables. The first is the fraction of the 10 letters that was returned. The second is the fraction of 10 letters that were returned within 3 months, as would be (generously) required by postal conventions. And the third is the average time to get the letter back using the (equalizing) assumption that the letters than never came back actually did come back on February 4, 2011, the last day we kept track of the data.

Table 1 presents some statistics on these three variables, and lists the countries with the highest and the lowest share of returned letters. On average, we got 59% of the letters back, although only 35% of the sent letters came back within 3 months. For high income countries, we got almost 85% of the letters back, and 60% within 3 months, while for low income countries these numbers fall to 32% and 9%, respectively.   Table 1 also shows that more of the letters came back, and they came back quicker, from higher education than from lower education countries. Despite our focus on a very simple task, government efficiency measures vary enormously across countries, and in ways roughly related to per capita income and human capital, consistent with the evidence on subjective indicators of the quality of government (La Porta et al 1999, Treisman 2000).

Table 2 correlates our measures of government efficiency with a large number of standard measures, taken from standard data sources (for a sampling of these measures, see La Porta et al. 1999, although here we use the most recent numbers).   The correlations are generally quite high.   We also

conduct a principal components analysis of log GDP per capita, ln human capial, share of letters we got back, property rights index, the overall Doing Business Rank, government effectiveness score, infrastructure quality index, ICRG corruption index, and democracy index. The results indicate that only the first principal component is significant. There is one common factor in the quality of government. Following Putnam (1993) and La Porta et al. (1997), we also checked whether trust is a predictor of mail efficiency. In our data, it is not statistically significant.

As a final point, we note that the coefficient of variation in our measures of postal productivity is 1.80 for getting the letter back, and 1.11 for getting it back in 30 days.   This is comparable to coefficients of variation of 1.80 for GDP per capita.   Despite the simplicity of our measure, it is as variable across countries as the more traditional indicators of development.

III. Deteriminants of Mail Efficiency

Table 3 presents the basic analysis of the determinants of mail efficiency, including resources of the postal system, whether a country uses the Latin alphabet, as well as the extent of postcode databases.   We measure resources as the (ln) permanent offices per capita and (ln) postal staff per capita. The correlation between these two variables is .82, so we use them separately.   We find that postal resources are strong predictors of efficiency, as one would expect from a production function specification.   Table 3 also shows, more interestingly, that countries that use the Latin alphabet return 12 percentage points more letters (an extra .7 of a letter), and also return one more letter within three months. Although using the Latin alphabet confirms to the postal convention that all countries sign, evidently language is an obstacle to the return of the letter from countries that do not use it.

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We also find strong evidence that postcode databases predict our outcomes. The variable equals 1 if postcode database includes street names, in which case the non-existence of the street name, and therefore the incorrectness of the address, would pop out immediately as soon as the envelope is machine read. The variable equals 0 if the postcode database only includes the names of localities, in which case the envelope-reading machine would not detect the wrong address at all, and a person is needed to do it. There are two intermediate values as well. We find that going from 0 to 1 on this variable raises by about 20 percentage points the number of letters that come back or that come back within 3 months. This variable seems to successfully capture technology differences among countries in the processing of letters.

Altogether, these resource and technology variables explain 40-45% of the variation across countries in the share of letters that come back, and in the share of letters that come back within three months. We do not have data on human capital of postal employees, although the standard years of schooling variable is not significant when added to the specifications in Table 3. Although over half the variance remains unexplained, this evidence shows that, even for this extremely simple service, productivity differences are substantially accounted for by inputs, including technology.

One possibility is some additional variation in postal efficiency is explained by management practices, as argued by Lewis (2004) and Bloom et al (2007, 2010a,b, 2012a,b) for the private sector. After all, the issue in returning the mail seems to be how to get a low level postal employee to actually do his job or putting the incorrectly addressed letter into a correct (return) container, rather than throw it out or get rid of it in some other way. This seems to be fundamentally a management task of monitoring employees (it is hard to see how incentives would work).

We address this possibility in two ways. First, in Table 4, we add to Table 3 regressions four cross-country survey (i.e., subjective) measures of the quality of management that we could find (see

Appendix A for precise definitions): a public management performance score, the will by managers to delegate authority, the quality of management schools, and an indicator of innovative capacity. Although some of these indicators, particularly the quality of management schools, predict postal efficiency in some specifications, somewhat surprisingly these variables have fairly small incremental explanatory power.

In Table 5, we add to the Table 3 specification the Bloom/Van Reenen management practices index for the overlapping small subsample of 16 countries, as well as the three subindexes of monitoring management, targets management, and incentives management. Each one of these variables is a statistically significant predictor of our mail efficiency measures. In this small subsample, the variables from Table 3 are typically no longer significant.

In summary, it appears that management explains some of the variation in postal productivity across countries, just as they explain variation in private sector productivity. This finding leaves open the deeper question of how countries solve these basic management problems, such as getting a postal employee to get his job done, as they develop.   One possibility is that the more developed countries could hire better educated and trained managers, who can provide the necessary supervision of the employees (see Gennaioli et al. 2012). The broader message of course is that an important reason for low quality government in developing countries is overall low productivity, which is not a consequence of political failures but which might be their cause, and which appears in the private sector as well.

IV. Conclusion.

This paper has made two contributions. First, it constructed new objective measures for the quality of government in 159 countries, those based on return of incorrectly addressed international

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mail.   These measures correlate with other indicators of the quality of government, yet have the advantage that we know more precisely what goes into them.

Second, we used these measures to argue that an important reason for poor government in developing countries is not corruption or patronage, but rather the same basic low productivity that plagues the private sector in these countries as well. Such low productivity is related to inputs and technology, but also to management.   In some ways, it is not surprising that a measure of the quality of government constructed to be free of political influences in fact correlates with standard determinants of productivity; yet it is still important to recognize that not all bad government is caused by politics.

In fact, our findings could shed light on some fundamental puzzles related to the quality of government. The first puzzle, illustrated by this paper, but seen in other research as well (e.g., La Porta et al 1999, Treisman 2000) is that the quality of government improves nearly universally as countries grow richer. This fact is surprising if one focuses on the uniqueness of government, but makes perfect sense once it is recognizes that government is subject to the same dynamics as the private sector.

Second, the analysis suggests that perhaps even the more political aspects of poor government, such as corruption, may be a reflection of problems similar to those of the private sector, such as mismanagement. Corruption, for example, might be in part a manifestation of the failure of monitoring and incentive systems. Perhaps our small findings on the post office could be developed into a broader theory of the quality of government and its evolution in the course of economic development.

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Table 1: Measures of mail efficiency

	Got the letter back	Got the letter back in 90 days	Avg. Number of days to get the letter back
Panel A: Top and bottom countries sorted by "Got the letter back"			
United States	100%	100%	16.20
El Salvador	100%	100%	39.00
Czech Republic	100%	100%	52.30
Luxembourg	100%	100%	68.00
Finland	100%	90%	51.60
Norway	100%	90%	53.30
Canada	100%	90%	54.30
Uruguay	100%	90%	54.00
Colombia	100%	90%	60.20
Barbados	100%	90%	57.90
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Angola	20%	0%	404.00
Malawi	20%	0%	414.70
Mauritania	20%	0%	416.20
Mongolia	10%	10%	383.60
Swaziland	10%	0%	387.40
Fiji	10%	0%	388.20
Congo, Dem. Rep.	10%	0%	397.60
Tonga	10%	0%	398.70
Honduras	10%	0%	408.70
Burundi	10%	0%	410.70
Cambodia	0%	0%	413.50
Russian Federation	0%	0%	418.80
Gabon	0%	0%	418.80
Panama	0%	0%	418.80
Egypt, Arab Rep.	0%	0%	418.80
Nigeria	0%	0%	418.80
Sudan	0%	0%	418.80
Cameroon	0%	0%	418.80
Tajikistan	0%	0%	418.80
Cote d'Ivoire	0%	0%	418.80
Ghana	0%	0%	418.80
Tanzania	0%	0%	418.80
Rwanda	0%	0%	418.80
Liberia	0%	0%	418.80
Myanmar	0%	0%	418.80
Somalia	0%	0%	418.80
Panel B: Full sample means			
Full sample (159)	0.5931	0.3535	228.22
Panel C: Means by GDP per capita			
High income (39)	0.8487 [a]	0.6000 [a]	125.91 [a]
Upper middle income (38)	0.6684	0.4316 [c]	196.27 [c]
Lower middle income (39)	0.5590	0.3026	245.99
Low income (38)	0.3211 [a]	0.0921 [a]	336.02 [a]
Panel D: Means by avgerage number of years of schooling			
Above median years of schooling (72)	0.7528 [a]	0.5208 [a]	164.48 [a]
Below median years of schooling (84)	0.4607	0.2120	281.65

Notes:
 Number of countries in parentheses.
 Significance levels: (a) if p<0.01; (b) if p<0.05; (c.) if p<0.10.

Table 2A: Mail efficiency and other dimensions of government efficiency and institutional quality
(without controlling for the log of GDP per capita in PPP 2005 US$)

The table shows the results of robust OLS regressions using the full sample of countries with letters data. The dependent variables are shown in the first column and the source of the variable in the second column. Each row shows the results of three different regressions using each of our mail efficiency variables on the measures of government efficiency and quality of institutions shown in the first column. Each regression includes a constant. The cells for each of the three regressions show: (1) the coefficient and significance level for the mail variable used in the regression; (2) the number of observations; and (3) the R-squared of the regression. The coefficients of the constant are not shown.

Dependent Variables:	Source	Got the letter back			Got the letter back in 90 days			Ln Avg. number of days to get the letter back		
		Coeff.	Obs.	R-sq.	Coeff.	Obs.	R-sq.	Coeff.	Obs.	R-sq.
Panel A: The quality of the bureaucracy										
Gov. staff structured to deliver services effectively	IDA Resource Allocation Index	0.5853a	60	0.13	0.8301a	60	0.12	-0.3812a	60	0.15
Government Effectiveness (1996-2007)	Kauffman	1.9319a	157	0.40	1.8776a	157	0.35	-0.9292a	157	0.43
Bureaucratic quality (1995-2008)	BERI	1.8898a	132	0.31	1.7299a	132	0.26	-0.8742a	132	0.33
Extent of bureaucratic red tape	Global Competitiveness Report	-0.9881a	125	0.39	-0.8384a	125	0.31	0.4344a	125	0.39
Overall Ease of doing business rank	Doing Business Report	-81.1293a	153	0.24	-83.3686a	153	0.24	41.2116a	153	0.30
Starting a business procedures	Doing Business Report	-0.4285a	153	0.07	-0.4582a	153	0.08	0.2203a	153	0.09
Starting a business days	Doing Business Report	-0.9323a	153	0.10	-0.9361a	153	0.10	0.4547a	153	0.12
Time to import	Doing Business Report	-1.1583a	153	0.28	-1.2273a	153	0.30	0.5933a	153	0.35
Documents to export	Doing Business Report	-0.4714a	153	0.21	-0.4297a	153	0.16	0.2192a	153	0.21
Construction permit days	Doing Business Report	-0.4835a	153	0.06	-0.4820a	153	0.06	0.2502a	153	0.08
Enforcing contracts procedures	Doing Business Report	-0.1831a	153	0.10	-0.1631a	153	0.08	0.0825a	153	0.10
Paying taxes rank	Doing Business Report	-31.5491a	153	0.04	-39.8463a	153	0.06	17.9055a	153	0.06
Business Freedom	Heritage Foundation	29.6077a	150	0.30	29.7538a	150	0.30	-14.3761a	150	0.34
Efficiency of the tax system	Global Competitiveness Report	-0.1300	119	0.00	-0.2559	119	0.01	0.1182	119	0.01
Time firms spend meeting with officialas	WB Enterprise Surveys	-2.5590b	99	0.11	-1.7566b	99	0.04	1.0960b	99	0.08
Regulatory quality (1996-2007)	Kaufman	1.8674a	157	0.41	1.8298a	157	0.37	-0.8954a	157	0.44
Infrastructure quality	Global Competitiveness Report	1.6612a	134	0.19	1.6805a	134	0.20	-0.8237a	134	0.23
% household with running water at home	Gallup 2007	0.5701a	128	0.28	0.6010a	128	0.32	-0.2776a	128	0.34
ICRG corruption index (2000-2008)	ICRG	2.0529a	132	0.34	2.0093a	132	0.33	-0.9605a	132	0.36
% firms expect to give gifts for water connection	WB Enterprise Surveys	-20.7020a	97	0.15	-22.5085a	97	0.15	11.2498a	97	0.18
Voice and accountability index (1996-2004)	Kaufman	1.8754a	156	0.41	1.8361a	156	0.37	-0.8967a	156	0.44
Expropriation risk (1982-1997)	BERI	3.0557a	121	0.32	2.8650a	121	0.27	-1.3875a	121	0.32
Protection of property rights and law enforcement	Heritage Foundation	41.3822a	150	0.31	41.7462a	150	0.31	-20.4708a	150	0.36
Judicial independence	Global Competitiveness Report	1.8588a	134	0.19	1.5409a	134	0.14	-0.8232a	134	0.19
Democracy index (1990-2006)	Polity IV	6.5761a	148	0.34	6.6012a	148	0.32	-3.1880a	148	0.37
Executive constraints (1990-2006)	Polity IV	3.4875a	147	0.33	3.5303a	147	0.31	-1.6872a	147	0.36
Freedom of the press	Freedom House	-40.2230a	157	0.33	-40.9366a	157	0.33	19.5688a	157	0.37

Table X : Factor analysis

		Number of obs	=	111
Method: principal-component factors		Retained factors	=	1
Rotation: (unrotated)		Number of params	=	9

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	5.91832	5.08508	0.6576	0.6576
Factor2	0.83324	0.06131	0.0926	0.7502
Factor3	0.77193	0.24943	0.0858	0.8359
Factor4	0.52250	0.23529	0.0581	0.8940
Factor5	0.28721	0.00937	0.0319	0.9259
Factor6	0.27783	0.07475	0.0309	0.9568
Factor7	0.20309	0.07721	0.0226	0.9793
Factor8	0.12588	0.06586	0.0140	0.9933
Factor9	0.06002	.	0.0067	1.0000

LR test: independent vs. saturated: chi2(36) = 891.67 Prob>chi2 = 0.0000

Screen Plot Prin.Comp. GDPpc HumanCapital Letters & Gov Efficiency
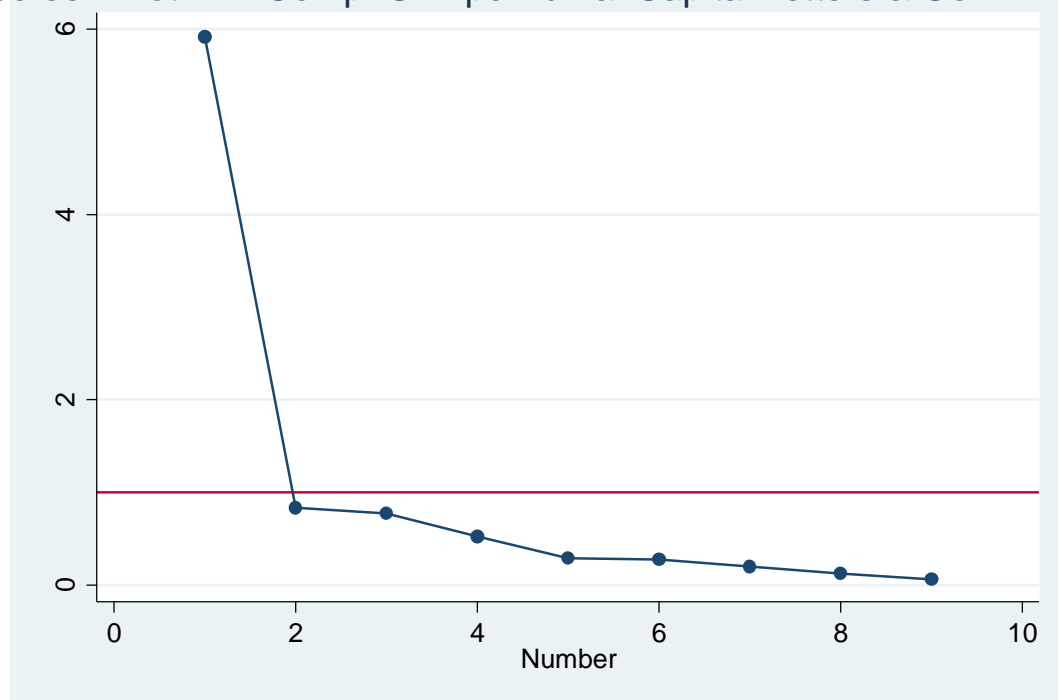
Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Uniqueness
Ln GDP per capita	0.8365	0.3002
Ln Human capital	0.6775	0.5410
Got the letter back	0.6749	0.5446
Property Rights	0.9142	0.1641
Overall Doing Buss. Rank	-0.8432	0.2891
Government Effectiveness	0.9601	0.0782
Infrastructure quality	0.8388	0.2965
ICRG Corruption index	0.8380	0.2977
Democracy index	0.6556	0.5702

Table 3: Postal office characteristics and alphabet as determinants of mail efficiency

	Got it back		Got it back in 90 days		Ln. Avg Number of days to get it back	
Ln permanent offices percapita	0.0983a		0.0983a		-0.2200a	
	[0.017]		[0.016]		[0.035]	
Ln postal staff percapita		0.0957a		0.0885a		-0.2091a
		[0.016]		[0.017]		[0.034]
Postcodes databases	0.2472a	0.1800b	0.2436a	0.1938a	-0.6005a	-0.4622a
	[0.063]	[0.070]	[0.067]	[0.074]	[0.142]	[0.153]
Alphabet used is latin-based	0.1231b	0.1077b	0.1115b	0.0938b	-0.2421b	-0.2062b
	[0.048]	[0.047]	[0.044]	[0.042]	[0.097]	[0.094]
Constant	-0.0051	-0.1287	-0.2363a	-0.3237a	-0.2363a	-0.3237a
	[0.067]	[0.084]	[0.062]	[0.087]	[0.062]	[0.087]
Observations	157	157	157	157	157	157
R-squared	0.42	0.42	0.44	0.42	0.44	0.42

Robust standard errors in bracket
a $p<0.01$, b $p<0.05$, c $p<0.1$

Table 3B: Postal office characteristics, alphabet, GDP per capita and human capital as determinants of mail efficiency

	Got it back		Got it back in 90 days		Ln. Avg Number of days to get it back	
Panel A: Controlling for GDP per capita						
Ln permanent offices percapita	0.0755a		0.0766a		-0.1637a	
	[0.018]		[0.017]		[0.037]	
Ln postal staff percapita		0.0743a		0.0676a		-0.1533a
		[0.021]		[0.020]		[0.044]
Postcodes databases	0.1634b	0.1455b	0.1606b	0.1504c	-0.3862b	-0.3554b
	[0.069]	[0.073]	[0.074]	[0.078]	[0.151]	[0.158]
Alphabet used is latin-based	0.1268a	0.1121b	0.1265a	0.1106b	-0.2733a	-0.2406b
	[0.047]	[0.048]	[0.044]	[0.044]	[0.096]	[0.097]
Ln GDP per capita	0.0557a	0.0389c	0.0573a	0.0455b	-0.1459a	-0.1148b
	[0.019]	[0.021]	[0.017]	[0.020]	[0.041]	[0.046]
Constant	-0.3576b	-0.3246b	-0.6176a	-0.5876a	7.3424a	7.2743a
	[0.143]	[0.142]	[0.134]	[0.135]	[0.304]	[0.300]
Observations	154	154	154	154	154	154
R-squared	0.44	0.42	0.47	0.44	0.51	0.49
Panel B: Controlling for Human Capital						
Ln permanent offices percapita	0.1107a		0.0978a		-0.2245a	
	[0.020]		[0.020]		[0.042]	
Ln postal staff percapita		0.1134a		0.0900a		-0.2248a
		[0.022]		[0.022]		[0.046]
Postcodes databases	0.2619a	0.1882a	0.2465a	0.1948b	-0.6114a	-0.4687a
	[0.065]	[0.070]	[0.069]	[0.075]	[0.146]	[0.155]
Alphabet used is latin-based	0.1260a	0.1130b	0.1150a	0.1011b	-0.2478b	-0.2203b
	[0.048]	[0.047]	[0.044]	[0.043]	[0.098]	[0.095]
Ln Avg. years of schooling	-0.0691	-0.0904	-0.0038	-0.0032	0.0378	0.0713
	[0.056]	[0.060]	[0.053]	[0.059]	[0.120]	[0.129]
Constant	0.0714	-0.0643	-0.2320a	-0.3341a	6.3378a	6.6039a
	[0.082]	[0.090]	[0.081]	[0.097]	[0.177]	[0.200]
Observations	155	155	155	155	155	155
R-squared	0.42	0.42	0.43	0.42	0.47	0.46
Panel C: Controlling for the first principal component of Ln GDPpercap, Human Capital and the 6 measures of government efficiency from the principal components analysis in Table X						
Ln permanent offices percapita	0.0496b		0.0669a		-0.1167a	
	[0.019]		[0.023]		[0.042]	
Ln postal staff percapita		0.0379		0.0382		-0.0689
		[0.027]		[0.029]		[0.057]
Postcodes databases	0.1360c	0.1348c	0.1199	0.1281	-0.3085c	-0.3212c
	[0.071]	[0.075]	[0.087]	[0.089]	[0.166]	[0.171]
Alphabet used is latin-based	0.1123b	0.1038b	0.0858	0.0663	-0.1536	-0.1211
	[0.054]	[0.052]	[0.056]	[0.053]	[0.114]	[0.108]
First principal component	0.3967a	0.3723b	0.4352a	0.4589a	-1.1312a	-1.1626a
	[0.100]	[0.151]	[0.123]	[0.169]	[0.235]	[0.335]
Constant	0.0892	0.0875	-0.2292b	-0.1815	6.2683a	6.1938a
	[0.082]	[0.110]	[0.094]	[0.133]	[0.183]	[0.252]
Observations	111	111	111	111	111	111
R-squared	0.45	0.43	0.45	0.42	0.51	0.49

Robust standard errors in bracket
a $p<0.01$, b $p<0.05$, c $p<0.1$

Table 4C: Management Quality, Postal Office Characteristics and Alphabet as Determinants of Mail Efficiency
(for the Bloom-Van Reenen 16 countries with management practices data)

	Got letter back				Got letter back in 90 days				Ln Number of days to get it back			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Ln permanent offices pc	0.043	0.148	0.156	0.169c	-0.490	0.061	0.041	0.123	0.390	-0.072	-0.003	-0.220
	.	(0.087)	(0.095)	(0.082)	(0.000)	(0.105)	(0.159)	(0.132)	.	(0.337)	(0.464)	(0.353)
Postcode database	0.000	0.176	0.181	0.086	0.000	-0.030	0.056	-0.271	0.000	-0.516	-0.757	0.057
	(0.000)	(0.187)	(0.225)	(0.166)	(0.000)	(0.165)	(0.268)	(0.213)	(0.000)	(0.592)	(0.980)	(0.564)
Latin alphabet is used	0.218	0.019	0.059	0.057	-0.061	0.030	0.063	0.162	-0.465	0.085	0.047	-0.241
	.	(0.121)	(0.151)	(0.122)	(0.000)	(0.099)	(0.210)	(0.118)	(0.000)	(0.363)	(0.610)	(0.422)
Public Mgmt performance	0.084				0.274				-0.264			
	.				.				(0.000)			
Will to delegate authority		0.049				0.188a				-0.470b		
		(0.040)				(0.056)				(0.188)		
Quality of Mgmt schools			-0.019				0.072				-0.233	
			(0.073)				(0.201)				(0.347)	
Innovation capacity index				0.048				0.136c				-0.326c
				(0.039)				(0.072)				(0.149)
Constant	-0.323	-0.298	-0.066	-0.357	0.603	-0.579	-0.106	-0.564	5.431	7.231a	6.199a	7.128a
	(0.000)	(0.427)	(0.387)	(0.428)	.	(0.394)	(0.695)	(0.635)	.	(1.229)	(1.446)	(1.482)
Observations	4	16	16	16	4	16	16	16	4	16	16	16
Adjusted R^2	.	0.432	0.384	0.443	.	0.172	-0.192	0.036	.	0.241	-0.094	0.089

Table 4: Management Quality, Postal Office Characteristics and Alphabet as Determinants of Mail Efficiency

	Got letter back				Got letter back in 90 days				Ln Number of days to get it back			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Ln permanent offices pc	0.070a	0.100a	0.097a	0.086a	0.060a	0.109a	0.110a	0.105a	-0.135a	-0.234a	-0.233a	-0.205a
	(0.019)	(0.017)	(0.016)	(0.019)	(0.018)	(0.018)	(0.017)	(0.019)	(0.037)	(0.036)	(0.035)	(0.040)
Postcode database	0.166b	0.146b	0.091	0.134c	0.260a	0.166b	0.149b	0.173b	-0.539a	-0.386a	-0.309b	-0.364b
	(0.078)	(0.061)	(0.060)	(0.074)	(0.081)	(0.072)	(0.073)	(0.085)	(0.157)	(0.143)	(0.146)	(0.167)
Latin alphabet is used	0.072	0.138a	0.121b	0.150a	0.043	0.117b	0.112b	0.120b	-0.099	-0.250b	-0.228b	-0.258b
	(0.052)	(0.049)	(0.047)	(0.050)	(0.047)	(0.049)	(0.049)	(0.051)	(0.101)	(0.106)	(0.102)	(0.107)
Public Mgmt performance	0.051a				0.032b				-0.092a			
	(0.015)				(0.012)				(0.026)			
Will to delegate authority		0.059b				0.052b				-0.151a		
		(0.025)				(0.023)				(0.054)		
Quality of Mgmt schools			0.110a				0.059b				-0.202a	
			(0.024)				(0.027)				(0.054)	
Innovation capacity index				0.064b				0.037				-0.155b
				(0.025)				(0.028)				(0.066)
Constant	-0.133c	-0.170	-0.360a	-0.101	-0.253a	-0.434a	-0.475a	-0.343a	6.512a	6.868a	7.097a	6.674a
	(0.075)	(0.106)	(0.111)	(0.095)	(0.077)	(0.103)	(0.118)	(0.109)	(0.146)	(0.231)	(0.245)	(0.232)
Observations	117	136	136	133	117	136	136	133	117	136	136	133
Adjusted R^2	0.387	0.386	0.435	0.381	0.409	0.414	0.418	0.397	0.466	0.448	0.470	0.438
Adjusted R^2 without management variable	0.345	0.372	0.372	0.364	0.392	0.404	0.404	0.395	0.432	0.428	0.428	0.416

Table 5: Management practices, postal office characteristics and alphabet as determinants of mail efficiency

	Got it back				Got it back in 90 days				Ln. Avg Number of days to get it back			
Ln permanent offices percapita	0.1318	0.1117	0.1358c	0.1510	0.0291	-0.0116	0.0428	0.0712	0.0332	0.1211	-0.0060	-0.1050
	[0.081]	[0.077]	[0.075]	[0.087]	[0.112]	[0.123]	[0.134]	[0.097]	[0.287]	[0.347]	[0.358]	[0.250]
Postcodes databases	0.0817	0.1044	0.0795	0.1309	-0.2080	-0.1548	-0.1705	-0.1397	0.0866	-0.1786	0.0041	-0.0117
	[0.141]	[0.120]	[0.134]	[0.194]	[0.201]	[0.178]	[0.176]	[0.195]	[0.383]	[0.310]	[0.372]	[0.632]
Alphabet used is latin-based	0.0143	0.0004	0.0315	0.0275	0.0609	0.0337	0.1019	0.0792	0.0497	0.0887	-0.0774	0.0228
	[0.091]	[0.077]	[0.092]	[0.128]	[0.105]	[0.106]	[0.098]	[0.117]	[0.219]	[0.193]	[0.269]	[0.404]
Management practices	0.3789b				0.8078b				-2.5756b			
	[0.138]				[0.332]				[0.874]			
Monitoring management		0.3471a				0.7202b				-1.9079b		
		[0.106]				[0.264]				[0.621]		
Targets management			0.2890b				0.5055c				-1.7082b	
			[0.130]				[0.263]				[0.733]	
Incentives management				0.2401				0.6608b				-2.5938b
				[0.167]				[0.288]				[0.848]
Constant	-1.0360c	-0.9081c	-0.7976	-0.7444	-1.8459	-1.5282c	-1.0788	-1.6109	11.7383a	9.8457a	9.5188a	12.2530a
	[0.574]	[0.487]	[0.493]	[0.613]	[1.031]	[0.829]	[0.732]	[0.903]	[2.144]	[1.414]	[1.432]	[2.312]
Observations	16	16	16	16	16	16	16	16	16	16	16	16
R-squared	0.67	0.72	0.64	0.59	0.39	0.48	0.25	0.28	0.62	0.57	0.43	0.58
Adj. R-squared	0.550	0.612	0.510	0.441	0.171	0.287	-0.0184	0.0145	0.477	0.412	0.218	0.422
R-squared w/o Management	0.55	0.55	0.55	0.55	0.10	0.10	0.10	0.10	0.16	0.16	0.16	0.16
Adj. R-squared w/o Management	0.432	0.432	0.432	0.432	-0.119	-0.119	-0.119	-0.119	-0.0459	-0.0459	-0.0459	-0.0459

Robust standard errors in brackets
a p<0.01, b p<0.05, c p<0.1

Table 6: Ln GDP per capita and per worker and Mail Efficiency

	Ln GDP per capita (US$ 2005 constant dollars, 2008)			
Got it back		0.3635c		
		[0.201]		
Got it back in 90 days			0.3593	
			[0.253]	
Ln Days to get it back (limit 02/04/12)				-0.1916c
				[0.104]
Ln Capital - Labor ratio (1996)	0.8880a	0.8513a	0.8503a	0.8388a
	[0.077]	[0.070]	[0.067]	[0.068]
Ln Avg. Human Capital (1996)	-0.204	-0.1962	-0.2062	-0.1973
	[0.209]	[0.205]	[0.207]	[0.205]
Constant	-4.1731a	-3.8725a	-3.7360a	-2.4945a
	[0.843]	[0.783]	[0.741]	[0.912]
Observations	117	117	117	117
R-squared	0.79	0.79	0.79	0.79

Robust standard errors in brackets
a p<0.01, b p<0.05, c p<0.1

Appendix A: Variable definitions and basic descriptive statistics

Variable name	No. Obs	Mean	Std. Dev.	Coeff. Variation	Min	Max	Definition
Got the letter back	159	0.59	0.33	1.80	0.00	1.00	Percentage of the number of letters that were received back as "return to sender." We sent 10 letters to 5 different cities in each country. This variable is scaled to have values between zero (i.e., no letters were received back), to 1 (i.e., all letters were received back).
Got the letter back in 90 days	159	0.35	0.32	1.11	0.00	1.00	Percentage of the number of letters that were received back as "return to sender" in 90 days. We sent 10 letters to 5 different cities in each country. This variable is scaled to have values between zero (i.e., no letters were received back in 90 days), to 1 (i.e., all letters were received back in 90 days).
Ln number of days to get the letter back	159	5.04	0.71	7.09	2.69	6.04	Natural logarithm of the average number of calendar days that took to get back all the letters that returned as "return to sender." We sent 10 letters to 5 different cities in each country. This number is calculated for all the letters. For those letters which we did not get back, we calculated this number as the number of calendar days between our cutoff date (February 4, 2012) and the date when we sent the letter.
Ln permanent offices pc	159	4.08	1.39	2.94	0.61	6.97	The number of permanent post offices per million people in a given country in 2009. If the data for 2009 is unavailable, we use the most recent value between 2005 and 2008. Source: Universal Postal Union
Poscode databse	158	0.46	0.41	1.13	0.00	1.00	The type of postcode database used in each country in 2011. We elaborated this data using the information of the classification of postcode databases that countries have according to the Universal Postal Union. The data is based on the classification made by the Universal Postal Union of the type of postcode databse that each country sends them. With these datasets, UPU creates a Universal DataBase which is the world database of raw postcodes containing all available information on the postal addressing data. This database contains the postcode data to town locality, street and delivery point level, depending on the particular country's system. UPU classifies countries in four groups: (A) the database of teh counry contains postcodes for localities and streets, to which we assign a value of 1; (B) the database containd postcodes for localities and districts, to which we assigned a value of 0.66; (C) the database contains postcodes for localities, to which we assigned a value of 0.33; and (D) the database only contains names of localities only, to which we assigned the value of 0.
Latin alphabet used	159	0.66	0.48	1.39	0.00	1.00	The variable equals one if the alphabet used in the country is derived from the latin alphabet, and zero otherwise. The classification was done based on the classificaiton of alphabets in wikipedia.org
Public Mgmt performance	118	5.65	1.76	3.21	1.62	9.23	Management performance index from the Bertelsmann Stiftung BTI Bertelsmann Transformation Index. This index focuses on the steering and management of development and transformation processes. The index reviews and evaluates the reform activities of political decision makers, thus providing valuable information on the key factors of success and failures for states on their way to a market-based economy. The values range from 0 to 10.
Will to delegate authority	137	3.74	0.79	4.72	2.30	6.30	An index of the willingness to delegate authority. This index is constructed from the answers to the question "in your country, how do you assess the willingness to delegate authority to subordinates? The values go from 1, in situations where top management controls important decisions to 7, where authority is mostly delegated to business unit heads and other lower-level management.
Quality of management schools	137	4.20	0.85	4.94	1.80	6.10	An index of thequality of the business schools in the country. This index is constructed from the answers to the question "how would you assess the quality of the business schools in your country? The values go from 1, poor to 7, excellent.
Innovation capacity index	134	3.20	0.92	3.47	1.72	5.88	An index of the innovation capacity in the country. This index is constructed from the answers to the question "how would you assess the innovation capacity your country? The values go from 1, poor to 7, excellent.
Management practices	16	2.94	0.22	13.52	2.64	3.33	Index of firm overall management practices in each country. The index is based on an interview-based evaluation that defines and scores 1 (worst practice) to 5 (best practice) 18 basic management practices of a sample of firms in the country. The practices fall in three broad areas: (1) monitoring; (2) targets; and (3) incentives. (Bloom and Van Reenen, 2010).
Monitoring	16	3.12	0.28	11.26	2.63	3.53	Sub-index of firm "monitoring management practices" in each country. Monitoring practices measure how well companies monitor what goes on inside their firms and use this for coninuous improvement. The subiindex is the average of six of the 18 basic management practices in the overall management practices index. (Bloom and Van Reenen, 2010).
Targets	16	2.92	0.25	11.78	2.53	3.24	Sub-index of firm "targets in management practices" in each country. The questions included in this sub-index measure if companies set the right targets, track the right outcomes and take the appropriate action if the two are inconsistent. The subiindex is the average of five of the 18 basic management practices in the overall management practices index. (Bloom and Van Reenen, 2010).
Incentives	16	2.81	0.19	14.67	2.50	3.30	Sub-index of firm "incentive management practices" in each country. Incentive management practices measure if companies are promoting and rewarding employees based on performance, and if they are trying to hire and keep their best employees. The subiindex is the average of seven of the 18 basic management practices i n the overall management practices index. (Bloom and Van Reenen, 2010).
TFP (2007)	149	194.08	107.70	1.80	31.83	595.79	Total factor productivity in 2007 calculated based on the formula in Caselli (2000) but with data from the Penn World Tables version 6.3 (2010). TFP is the result of the following equation TFP= (y)/(k^(0.33)*h^(0.66)). Where "y" is real GDP per worker in international dollars computed from data from the Penn World Tables (PWT6.3); "k" is the capital-labor ratio computed data from the Penn World Tables (PWT6.3); and "h" is the average human capital computed using data from Barro and Lee (2010).
Ln TFP (2007)	149	5.11	0.58	8.73	3.46	6.39	Natural logarithm of Total factor productivity in 2007 calculated based on the formula provided in Caselli (2000) but with data from the Penn World Tables version 6.3 (2010)

Appendix B: Letters' data for the Czech Republic and Russia

Letter ID	Name	Street Address	Postcode and City	Date letter sent	Date letter received	Date of limit (02/04/2012)	Got it back	Got it back in 90 days	Number of days	Ln Number of days	Number of days	Ln Number of days
									(missing if not returned)		(up to limit of 04/02/2012)	
Panel A: Letters sent to the Czech Republic												
CZE_0	Zdenek Dvo?ák	Debreuská 1	110 00 Praha	09/12/2010	07/03/2011	04/02/2012	1	1	88.00	4.4773	88.00	4.4773
CZE_2	Vaclav Veselý	Meadeská 4	602 00 Brno	09/12/2010	08/03/2011	04/02/2012	1	1	89.00	4.4886	89.00	4.4886
CZE_6	Milan R?ži?ka	Haavelmoská 2	301 00 Plzeň-Jižní P?edm?stí	11/12/2010	04/01/2011	04/02/2012	1	1	24.00	3.1781	24.00	3.1781
CZE_3	Petr Svoboda	Buchananova 1704	602 00 Brno	14/12/2010	04/03/2011	04/02/2012	1	1	80.00	4.3820	80.00	4.3820
CZE_1	Jiri Ku?era	Frischova 7526	120 00 Praha 2	15/12/2010	03/02/2011	04/02/2012	1	1	50.00	3.9120	50.00	3.9120
CZE_8	Milos Novotný	Millerská 7400	460 01 Liberec IV-Perštýn	29/12/2010	25/01/2011	04/02/2012	1	1	27.00	3.2958	27.00	3.2958
CZE_5	Jan Sedlá?ek	Lewisova 4051	702 00 Moravská Ostrava	29/12/2010	08/03/2011	04/02/2012	1	1	69.00	4.2341	69.00	4.2341
CZE_9	Kazimir Svoboda	Markowitzova 6404	460 07 Liberec III-Je?áb	31/12/2010	31/01/2011	04/02/2012	1	1	31.00	3.4340	31.00	3.4340
CZE_7	Kazimir Pospíšil	Hayekova 7	301 00 Plzeň-Jižní P?edm?stí	31/12/2010	02/02/2011	04/02/2012	1	1	33.00	3.4965	33.00	3.4965
CZE_4	Zdenek Pokorný	Arrowská 48	713 00 Slezská Ostrava	04/02/2011	08/03/2011	04/02/2012	1	1	32.00	3.4657	32.00	3.4657
Average							**1.00**	**1.00**	**52.30**	**3.8364**	**52.30**	**3.8364**
Panel B: Letters sent to Russia												
RUS_0	Roman Avdeyev	Ulitsa Debreuska 8689	gorod Moskva 115487	08/12/2010	.	04/02/2012	0	0	.	.	423.00	6.0474
RUS_2	Ivan Zhakov	Ulitsa Modiglianaya 6802	Sankt-Peterburg 199178	09/12/2010	.	04/02/2012	0	0	.	.	422.00	6.0450
RUS_4	Oleg Golikova	Ulitsa Arrowlok 8547	Novosibirsk, Novosibirskaya Obl	10/12/2010	.	04/02/2012	0	0	.	.	421.00	6.0426
RUS_6	Fillyp Zubkov	Ulitsa Haavelmo ave 3	Ekaterinburg, Sverdlovskaya Obl	11/12/2010	.	04/02/2012	0	0	.	.	420.00	6.0403
RUS_3	Dmitri Avdeyev	Ulitsa Ohlinov 2	Sankt-Peterburg 199178	13/12/2010	.	04/02/2012	0	0	.	.	418.00	6.0355
RUS_8	Oleg Skryannik	Ulitsa Myrdalok 983	Nizhnij Novgorod, Nizhegorodskaya Obl	13/12/2010	.	04/02/2012	0	0	.	.	418.00	6.0355
RUS_5	Pavel Ivanov	Ulitsa Allaiska 45	Novoe Devyatkino, Leningradskaya Obl	14/12/2010	.	04/02/2012	0	0	.	.	417.00	6.0331
RUS_7	Ivan Zhakov	Ulitsa Hayeka 63	Ekaterinburg, Sverdlovskaya Obl	14/12/2010	.	04/02/2012	0	0	.	.	417.00	6.0331
RUS_1	Eduard Zhakov	Ulitsa Frischpik 402	gorod Moskva 101000	15/12/2010	.	04/02/2012	0	0	.	.	416.00	6.0307
RUS_9	Ludvig Sobyanin	Ulitsa Stiglerova 2709	Nizhnij Novgorod, Nizhegorodskaya Obl	15/12/2010	.	04/02/2012	0	0	.	.	416.00	6.0307
Average							**0.00**	**0.00**	**.**	**.**	**418.80**	**6.0374**

Appendix C: Correlations

(*= significance at 1%)

	Gotit	Gotit90	Ln Num. Perfor	Mgmt. 	Will to Delegate	Q Mgmt School	Innovation Capacity
Got it back	1.0000						
Got it back 90	0.7636*	1.0000					
Ln Num. Days	−0.8954*	−0.9330*	1.0000				
Mgmt perform	0.5440*	0.5072*	−0.5617*	1.0000			
Will to Delga	0.3746*	0.3694*	−0.4115*	0.2919*	1.0000		
Q Mgmt school	0.5029*	0.4085*	−0.4857*	0.3559*	0.7097*	1.0000	
Innovation Cap	0.4738*	0.4464*	−0.5179*	0.4513*	0.7606*	0.6762*	1.0000

	Gotit	Gotit90	Ln Num. Days	Ln Off percap	Ln Staff percap	Postcode database	Latin Alphabet
Got it back	1.0000						
Got it back 90	0.7636*	1.0000					
Ln Num. Days	−0.8954*	−0.9330*	1.0000				
Ln Offices pc	0.5410*	0.5594*	−0.5747*	1.0000			
Ln Staff pc	0.5976*	0.5933*	−0.6281*	0.8173*	1.0000		
Postcode data	0.5265*	0.5377*	−0.5686*	0.3361*	0.5048*	1.0000	
Latin alphabet	0.1793	0.1625	−0.1646	−0.0864	−0.0018	0.1578	1.0000

	Ln Off percap	Ln Staff percap	Postcode database	Latin Alphabet	Mgmt. Perfor	Will to Delegate	Q Mgmt School
Ln Offices pc	1.0000						
Ln Staff pc	0.8173*	1.0000					
Postcode data	0.3361*	0.5048*	1.0000				
Latin alphabet	−0.0864	−0.0018	0.1578	1.0000			
Mgmt perform	0.4003*	0.4564*	0.4278*	0.3317*	1.0000		
Will to Delga	0.2964*	0.4845*	0.4008*	0.1480	0.2919*	1.0000	
Q Mgmt school	0.2968*	0.4751*	0.4725*	0.1866	0.3559*	0.7097*	1.0000
Innovation Cap	0.4597*	0.6406*	0.5804*	0.0835	0.4513*	0.7606*	0.6762*

	Management (BV)	Monitoring (BV)	Targets (BV)	Incent (BV)	Mgmt. Perfor	Will to Delegate	Q Mgmt School
Management	1.0000						
Monitoring	0.9389*	1.0000					
Targets	0.9568*	0.8950*	1.0000				
Incentives	0.8713*	0.6766	0.7598*	1.0000			
Mgmt Perform	0.5441	0.5513	0.6982	0.1897	1.0000		
Will to Delga	0.7127*	0.6701	0.6357	0.6583	0.2919*	1.0000	
Q Mgmt school	0.5417	0.5662	0.4134	0.4986	0.3559*	0.7097*	1.0000
Innovation Cap	0.7910*	0.7484*	0.7943*	0.6430	0.4513*	0.7606*	0.6762*

Appendix D: The UPU Universal Database and Our Postcodes

Letter ID	Name	Company	Street Address	District	City and Postcode	Country	UPU Universal Database Data level		Postcode database (our variable)
JAM_1	Steven Taylor	Computer Management Professionals	7444 Stone Rd		Kingston	Jamaica	Names of localities only	C	0.00
AGO_9	Soleymane Umbelina	Os profissionais de gerenciamento de inventário	Avenida Miller 4294		Kuito	República de Angola	Names of localities only	C	0.00
ARE_2	Hakeem al-Otaiba	Business Inventory Management [xxxxx]	1 Modigliani St		Ash-Shariqah	United Arab Emirates	Names of localities only	C	0.00
DZA_2	Intizara Cham	Business Management Specialists[xxxxx]	6123 Rue Meade		31017 Ouahran	Algeria	Postcodes for localities	B	0.33
ISR_1	Yuval Goldblatt	Computer Management Professionals [xxxxx]	6 Frisch Rd		91999 Jerusalem	Israel	Postcodes for localities	B	0.33
ARM_6	Oshin Yeritsian	Business Manufacturing Group International [xxxxx]	Schultz Ave 349		0901 Vagharshapat, Armavir	Armenia	Postcodes for localities	B	0.33
MEX_8	Eber Vega	Servicios Informáticos Inteligentes	Av Tobin 659	Col Real de Guadalupe	72016 Puebla, Puebla	Mexico	Postcodes for localities and districts	B+	0.66
LKA_1	Baba Senaviratne	Supply Area Partners	1 Stone St	Horagala	Colombo 10502	Sri Lanka	Postcodes for localities and districts	B+	0.66
VEN_3	Raúl Ortega	Socios De Tecnología Profesional	Avenida Ohlin 324	Las Acacias	Caracas 1040, DF	Venezuela	Postcodes for localities and districts	B+	0.66
CAN_1	Aaron Macay	Supply Area Partners	213 Friedman St		Toronto ON M5C 1R6	Canada	Postcodes for localities and streets	A	1.00
JPN_4	Akihito Ozawa	Supply Management United [xxxxx]	Simonuki	Chuo-ku	Osaka-shi, Osaka-fu 541-0045	Japan	Postcodes for localities and streets	A	1.00
SWE_1	Leo Jönsson	Försörjningsområde Grupp	Frischgatan 1047		111 47 Stockholm	Sweden	Postcodes for localities and streets	A	1.00
USA_3	Ethan Brown	Technology Professional Partners	626 Kuznets St		Los Angeles, CA 90033	United States	Postcodes for localities and streets	A	1.00
ESP_8	Rafael Fernández	Profesionales De La Gestión De Inventario	Carrer de Tobin 65		29015 Málaga	Espana	Postcodes for localities and streets	A	1.00

Figure 6

Universal DataBase

List of data sets and database volume 2011.4

Data level:

A = postcodes for localities and streets
B+ = postcodes for localities and districts
B = postcodes for localities
C = names of localities only

SORTING BY REGION AND COUNTRY/TERRITORY NAME

Data set code ("ISO 3 CODE")	Data set identifier	Nom du pays/territoire	Country/territory name	Geographical region	Data level	Last updated
DZA	0	Algérie	Algeria	Africa	B	2006.2
AGO	0	Angola	Angola	Africa	C	2002.1
MAR	0	Maroc	Morocco	Africa	A	2009.3
MOZ	0	Mozambique	Mozambique	Africa	B	2004.3
JAM	0	Jamaïque	Jamaica	Central and South America	C	2003.4
MEX	0	Mexique	Mexico	Central and South America	B+	2011.4
URY	0	Uruguay	Uruguay	Central and South America	A	2004.4
VEN	0	Vénézuéla	Venezuela	Central and South America	B+	2006.4
CAN	1	Canada	Canada	North America	A	2011.4
SVN	0	Slovénie	Slovenia	Western Europe	B	2010.4
ESP	0	Espagne	Spain	Western Europe	A	2011.4
SWE	0	Suède	Sweden	Western Europe	A	2011.4
ISR	0	Israël	Israel	Asia Pacific Oceania	B	2002.1
JPN	0	Japon	Japan	Asia Pacific Oceania	A	2006.4

Figure 1

This figure presents the text of the one-page letter that was sent to each of the 10 recipients in the largest 5 cities in all 159 countries

_____

December 1, 2010
Re: Confidential

URGENT RESPONSE REQUESTED

Rafael La Porta
Tuck School of Business at Dartmouth
100 Tuck Hall
Hanover, NH 03755, USA

Dear Mr. XXXXX,

I hereby confirm receipt of the previous correspondence.

Please let me know if you would like to continue with the collaboration project.

I will wait to hear from you, but please respond as soon as possible as this matter is of absolute importance.

Regards,

Rafael La Porta

_____

Figure 2

This figure presents the front of the envelope of several returned letters.

Professor Rafael La Porta
Tuck School of Business at Dartmouth
100 Tuck Hall
Hanover, NH 03755

PLEASE RETURN TO SENDER IF UNDELIVERABLE

Gakere Michuki
Smart Computer Services
Tobin Rd 1048
Eldoret
KENYA

BOSTON MA 021
29 DEC 2010 PM 17 T

R.T.S.

RETURN TO SENDER.

NIXIE   100   5E 1   01 12/22/11
RETURN TO SENDER
OTHER REASON
UNABLE TO FORWARD
BC: 03755900000   *1721-20889-29-32

Porta
iness at Dartmouth

TO SENDER IF UNDELIVERABLE

BOSTON MA 021
14 DEC 2010 PM 17 L

Fadilah Haik
Technology Professional Partners شركاء التكنولوجيا المهنية
763, Kuznets St
Benghazi
Libyan Jamahiriya

عنوان ناقص
ADRESSE INSUFFESANTE
مرفوض
REFUSE
لم يطلب
NONRECLAME

92-01

RETURNED TO SENDER
RETURN TO S

NIXIE   100   5C 1   01 10/21/11
RETURN TO SENDER
TEMPORARILY AWAY
UNABLE TO FORWARD
BC: 03755900000   *1721-10207-14-27

Professor Rafael La Porta
Tuck School of Business at Dartmouth
100 Tuck Hall
Hanover, NH 03755

PLEASE RETURN TO SENDER IF UNDELIVERABLE

ZAMPOST LUSAKA MAIN
RECEIVED DAMAGED
RECEIVED WITH EXCESSIVE CELLO TAPE
UNKNOWN
REFUSED BY
NO SUCH AD
RETURN TO SENDER
R.L.O
GONE AWAY
SHIFT
DECEASED

Gabriel Lwcanika
Inventory Technology Partners
62 Lewis Ave
40200 Livingstone
Zambia

BOSTON MA 021

1-18

NIXIE   100   5C 1   01 01/12/12
RETURN TO SENDER
ATTEMPTED - NOT KNOWN
UNABLE TO FORWARD
BC: 03755900000   *1421-01567-29-35

03755@9000

Envelope 1

Professor Rafael La Porta
Tuck School of Business at Dartmouth
100 Tuck Hall
Hanover, NH 05755

PLEASE RETURN TO SENDER IF UNDELIVERABLE

R.B.

BOSTON MA 021
04 FEB 2011 PM 14 L

USA 98

Insoff. Address

1-5

Madzimoyo Mia
Services Professionals United
Tinbergen Rd 6
Lilongwe
MALAWI

NIXIE 100 12-30-11

RETURN TO SENDER
NOT DELIVERABLE AS ADDRESSED
UNABLE TO FORWARD

00247/0001

Envelope 2

La Porta
Business at Dartmouth
755
RN TO SENDER IF UNDELIVERABLE

10-17

BOSTON MA 021
31 DEC 2010 PM 18 T

USA 98

Abjit Handique
Smart Company Supply Services
4 Klein Rd
Bagbazar
Kolkata - 700001
INDIA

00174/0001

Envelope 3

a Porta
siness at Dartmouth
5
TO SENDER IF UNDELIVERABLE

11-3

BOSTON MA 021

USA 98

Julio Hernández
Supply Management United
71 Avenida Simon
Myrdal y Stigler
Camaguey 3
CP 70200 Camaguey
CUBA

INT

00470/0001

orta
ess at Dartmouth

BOSTON MA 021

31 DEC 2010 PM 14 T

USA 98

Braulio Hernández
Smart Company Supply Services
Avenida Sharpe 2860
Puntarenas
60101
Costa Rica
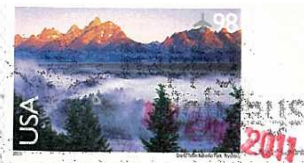
CORREOS DE COSTA RICA S.A.
Sucursal o Centro: CCI
Cartero Nº   6
☐ Cambio de Domicilio   ☐ Falleció
☐ Cambió el Apartado   ☐ Rehusado
☒ Dirección Insuficiente   ☐ Ausente
☐ Desconocido
☐ No pertenece al Apartado

1h-13

NIXIE   100   5E 1   OO 10/10/11
RETURN TO SENDER

---

a Porta
siness at Dartmouth

5

BOSTON MA 021

USA 98

Harsallah Kohistani
Business Management Specialists [ویازرگـــان تیریمد متخصـــص]
7436 Meade str
Herāt
AFGHANISTAN

RTS/ANK
9-20-11

10-16

NIXIE   100   5C 1   OO 10/02/11
RETURN TO SENDER
NOT DELIVERABLE AS ADDRESSED
UNABLE TO FORWARD
BC: 03755900000   *1421-21454-09-43
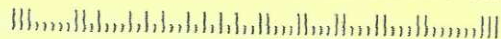
Professor Rafael La Porta
Tuck School of Business at Dartmouth
100 Tuck Hall
Hanover, NH 03755

1-3-2012

USA 98

Reagan Urbano
Services Professionals United
Avenida Kantorovich 8
Luanda
REPÚBLICA DE ANGOLA

Retour

NIXIE   100   5E 1   OO 12/23/11
RETURN TO SENDER
NOT DELIVERABLE AS ADDRESSED
UNABLE TO FORWARD
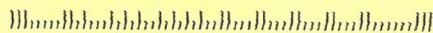BC: 03755900000   *1821-08246-91-44

Figure 3.   Got it back and measures of management quality

The following four graphs show the partial scatter plot of "got the letter back" and the measures of management quality used in Table 4 of the paper for the sample of countries with available data. These plots correspond to the first four regressions in Table 4 of the paper.

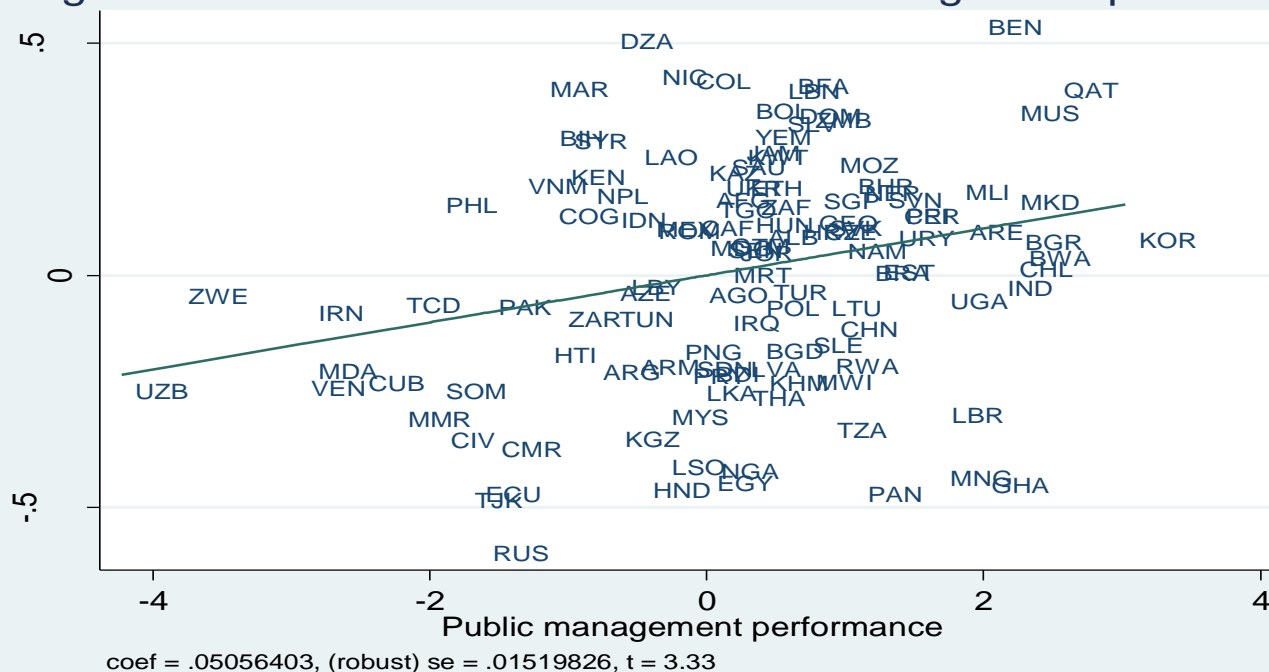Fig.3.a. Got the letter back and Public management performance

coef = .05056403, (robust) se = .01519826, t = 3.33

Fig.3b. Got the letter back and Will to delegate authority

coef = .05863434, (robust) se = .02534307, t = 2.31
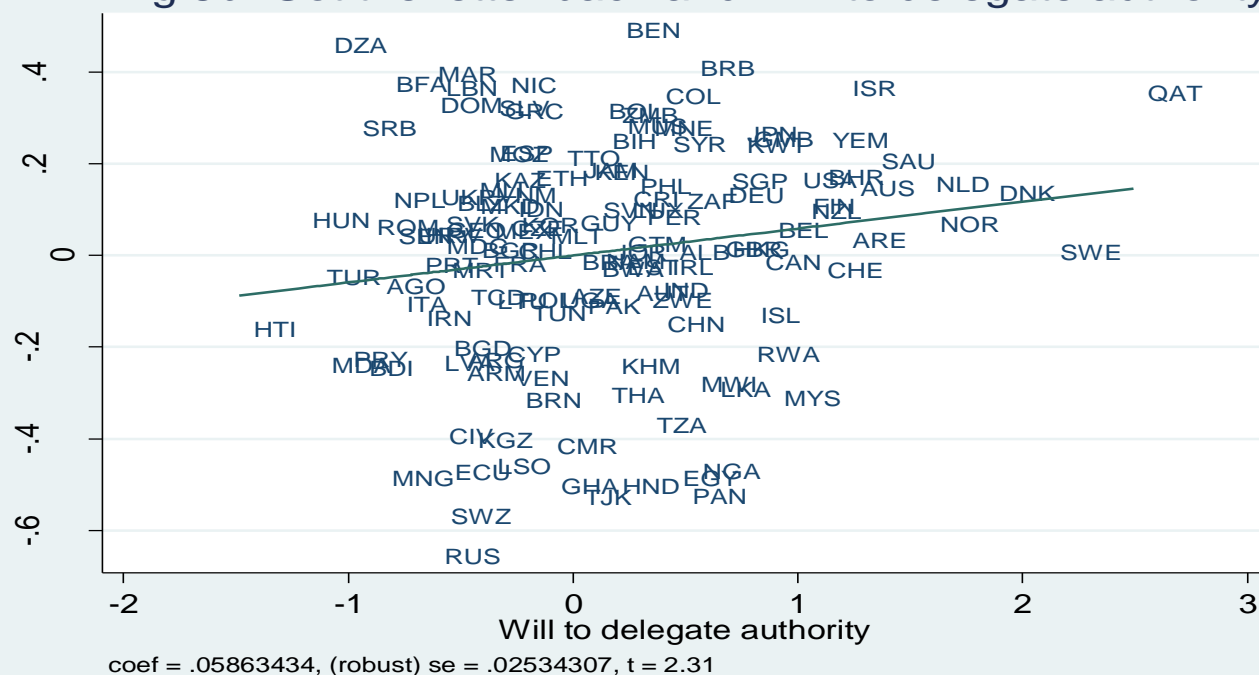
Fig.3c. Got the letter back and Quality of mangement schools

coef = .10967467, (robust) se = .02381863, t = 4.6
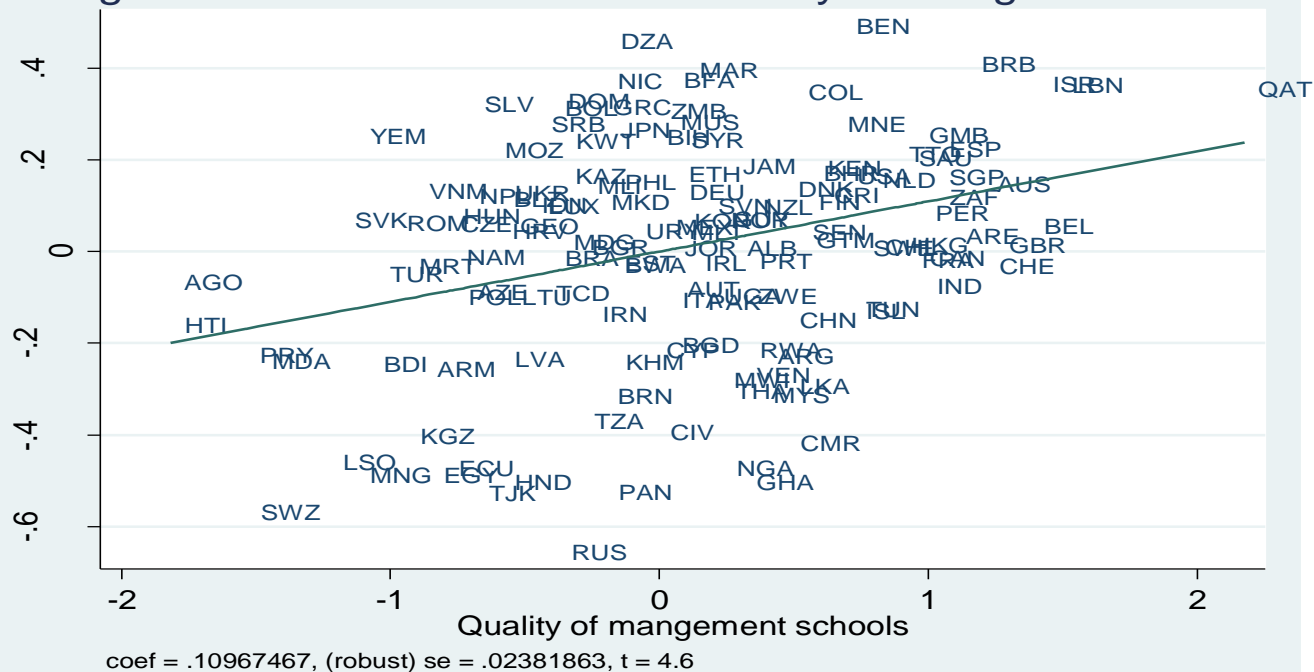
Fig.3d. Got the letter back and Innovation capacity

coef = .06407223, (robust) se = .02519683, t = 2.54
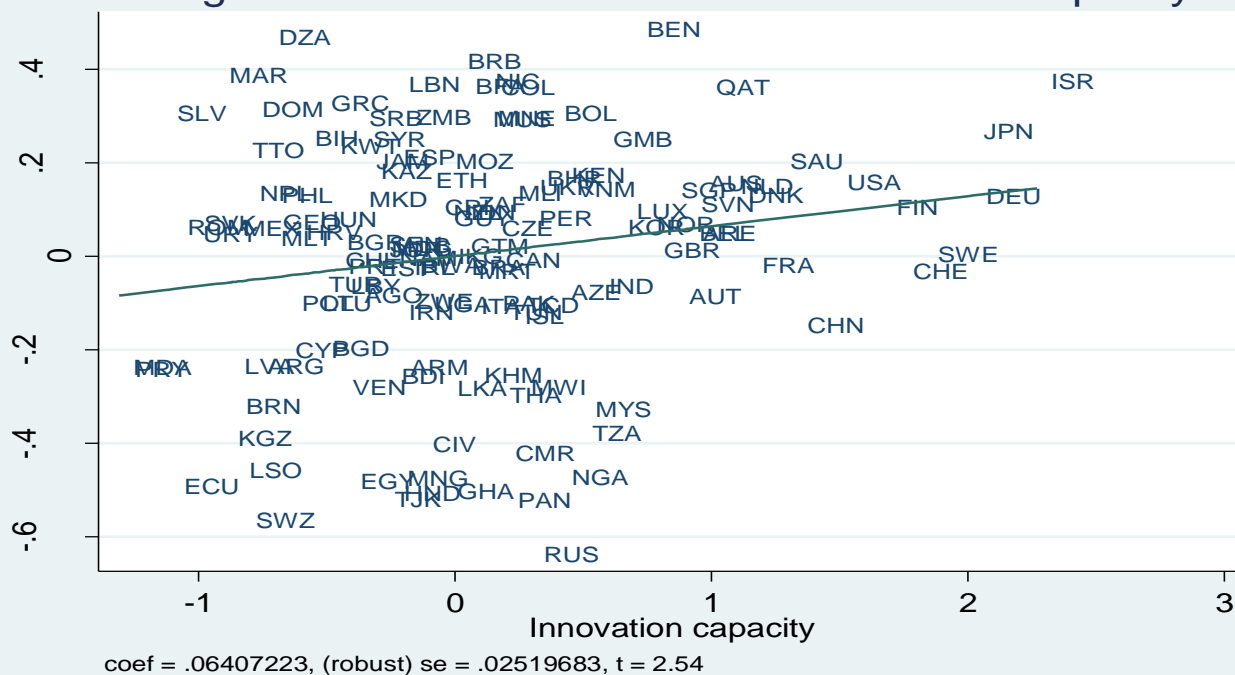
Figure 4.   Got it back and measures of managerial practices

The following four graphs show the partial scatter plot of "got the letter back" and managerial practices   from Bloom and Van Reenen (2010) for the 16 countries in our sample with available data.   These plots correspond to the first four regressions in Table 5 of the paper.
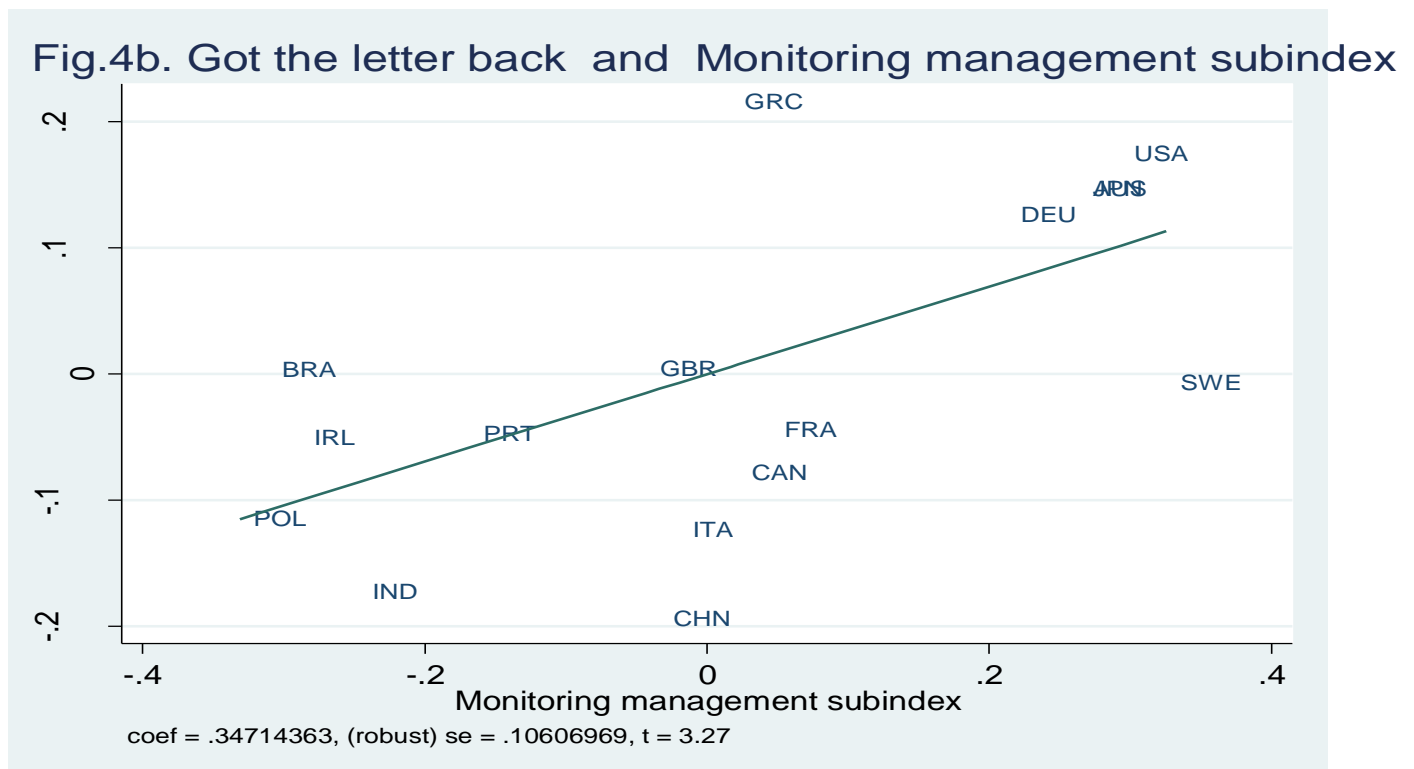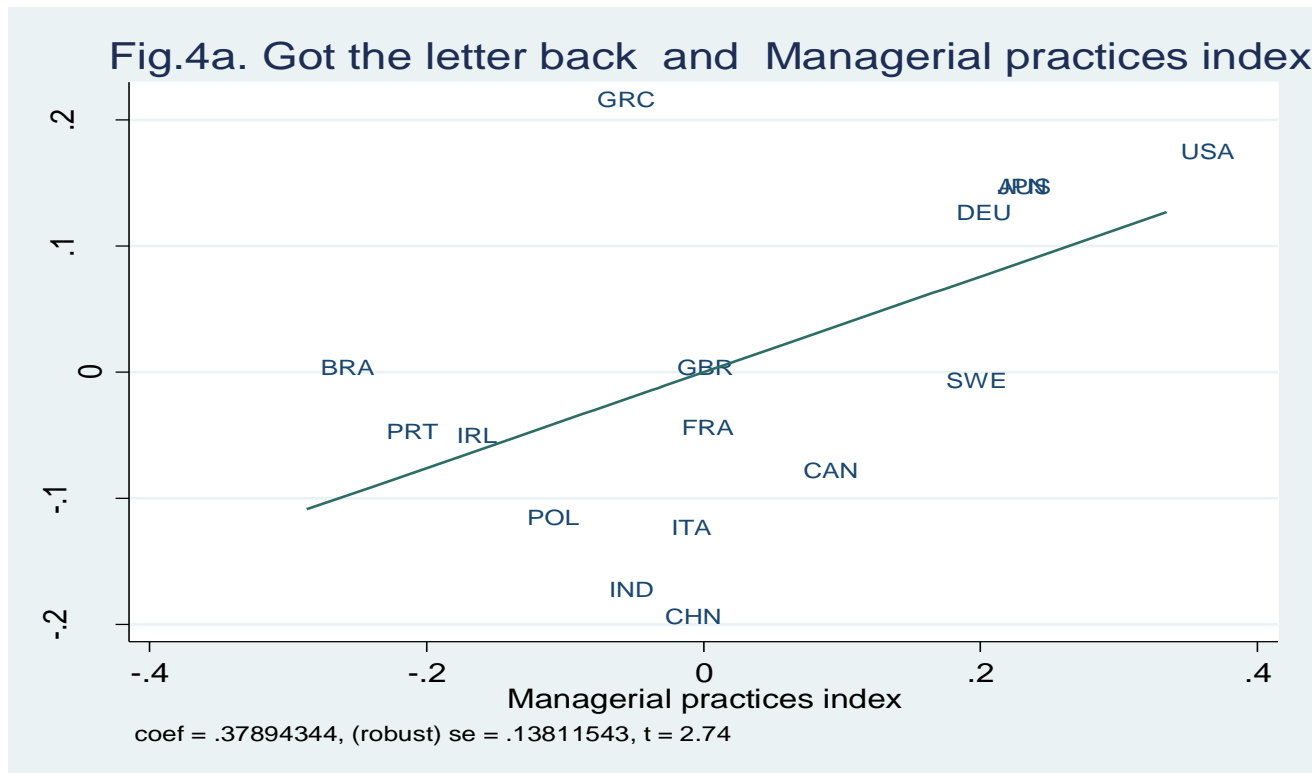

Fig.4a. Got the letter back and Managerial practices index

coef = .37894344, (robust) se = .13811543, t = 2.74

Fig.4b. Got the letter back and Monitoring management subindex

coef = .34714363, (robust) se = .10606969, t = 3.27

Fig.4c. Got the letter back and Targets management subindex
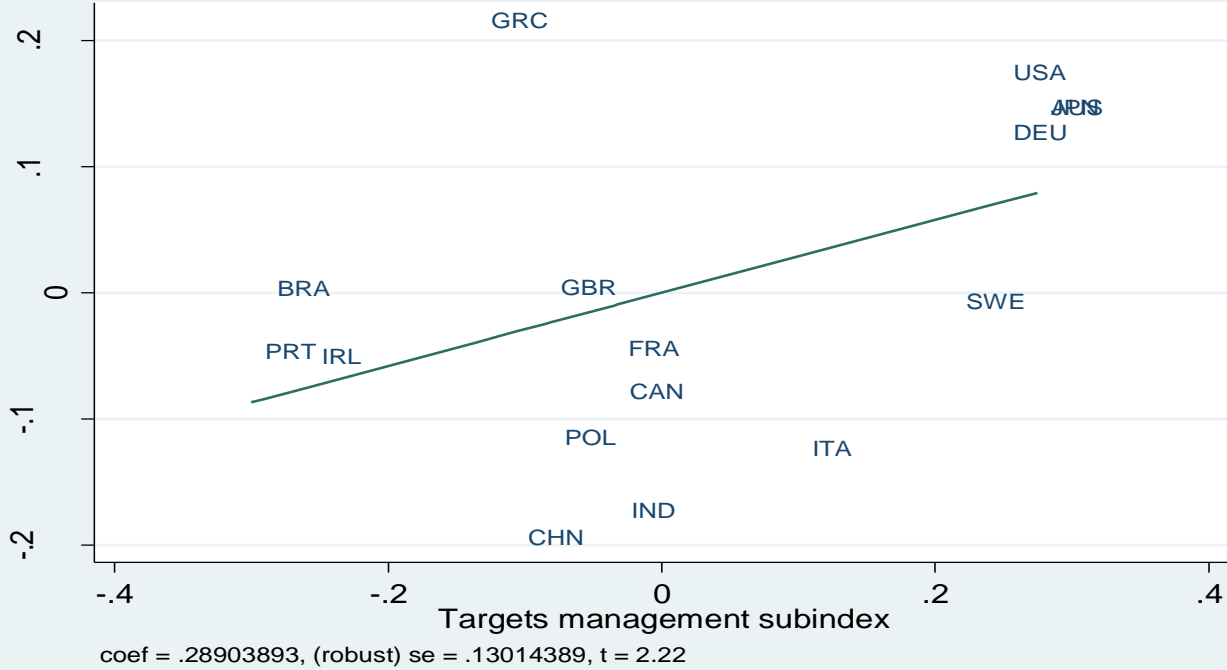
coef = .28903893, (robust) se = .13014389, t = 2.22

Fig.4d. Got the letter back and Incentives management subindex

coef = .24008318, (robust) se = .16687621, t = 1.44

4