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Why Won't Workers Do Their Jobs? Labor Market Rigidity and Job Performance in the Public Sector

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Labor Market Rigidity and Job Performance in the Public Sector

Alberto Chong and Angelo Cozzubo*

Abstract

We test the link between labor market rigidities and job performance in the public sector using a novel outcome variable namely, the number of days that it takes to the postal service to return letters sent to non-existent foreign addresses, a measure that we argue is an excellent proxy for job performance. We find a positive and statistically significant link between these two variables, regardless of the labor rigidity measure employed, changes in specification, and even unlikely endogeneity considerations, which suggest that this finding may be causal.

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1. Introduction

Economic research provides plenty of evidence that indicates that excessive labor market rigidities will compromise efficiency by not allowing an economy to optimally allocate resources among sectors of the economy. This is so because, as it has been typically argued, rigidities distort incentives of economic agents, which translates in reduced economic performance. While this view is not particularly controversial in economics, evidence on the the extent to which performance changes due to labor market rigidities has proved difficult to measure, as accurate outcome variables that gauge job performance have proved particularly difficult to come by.

We provide evidence on the link between labor market rigidities and job performance in the public sector by using a novel outcome variable, namely, the time it takes for the national postal service to return letters to a foreign sender when such letters were sent to non-existent addresses. In fact, as required by postal conventions, countries must return an undeliverable letter to the country of origin for otherwise they would be violating an international agreement. In addition this agreement also contemplates the fact that the cost of returning any undeliverable letters is paid by the sending country and not the receiving one. In the context above, the use of this outcome variable is particularly useful for our purposes for several reasons. In particular, it truly measures performance as it only requires that workers perform their duties, in this case, the very simple task of, essentially, placing a wrongly sent letter to a "return bin" and make sure that the letters are sent for delivery back to the sender country. This simple task requires little-to-no education, very little manual or intellectual effort when the cost of returning the letter is borne by the sender. In short, this variable simply measures whether workers do their job. In addition, we believe that this outcome variable is rather relevant to measure performance in the public sector for despite the growth of online and private delivery services, the demand for postal services has, if anything, grown over time worldwide and, in fact, the postal service still delivers over 200 letters per person per year in industrial countries and remains among the largest employers in most countries around the world (Chong, et al, 2014).

Our paper is organized as follows. Section 2 describes the data and methodology. Section 3 presents our results, including the use of alternative measures of labor rigidity, the application of sensitivity analysis to changes in specification, and endogeneity correction using instrumental variables. Finally, Section 4 concludes.

2. Data and Methodology

The dependent variable, collected by Chong, et al (2014), measures the return time in days of letters that were sent to nonexistent business addresses in 159 foreign countries. The letters were fully standardized, sent via airmail to each of the five largest cities in 159 countries using correct international postage. Two letters were sent to each city chosen. Each letter contained the same return address with the

following phrase in large, bold letters in each envelope: "please, return to sender if undeliverable". The letters were dropped in street mailboxes in Cambridge, MA between 8 December 2010 and 4 February 2011 (Chong, et al, 2014). Our key labor market rigidity measure is an index that comes from Campos and Nugent (2012) and was based on previous research that systematizes specific rigidity legislation using the methodology described in Botero, et al (2004). In addition, we employ a series of control variables, most of which were obtained from World Development Indicators (WDI) from the World Bank, with the exception of colonial heritage (Hensel, 2014) and perception of corruption (Transparency International, 2016). Table 1 presents variable definitions and corresponding sources. Table 2 shows summary statistics.

We use the following reduced form:

$$Return\ Time_{ik} = \alpha LAMRIG_i + \beta GDP_i + \gamma CPI_i + \delta Growth_i + \theta Sec.Enrol_i + \mu_i + \rho_i + \varepsilon_{ik}$$

Where (i) Return Time denotes the number of days the letter k in country i took to be sent back[1], (ii) LAMRIG is the rigidity of employment legislation, (iii) GDP denotes the logarithm of the gross domestic product per capita, (iv) CPI represents a corruption perception Index, (v) Growth denotes the rate of growth and (vi) Sec.Enrol denotes the school enrollment. In addition, μ_i and ρ_i represent country and year fixed effects, and the last variable is the error term. The data for all the explanatory variables employ averages for 2008 and 2009. The exception is our labor rigidity data, which is based on information that employs averages from 2000 to 2004[2]. In addition, all regressions are clustered at the country level. Finally, while highly unlikely, we also pursue an instrumental variables using colonial heritage as a reasonable instrument for our labor market rigidity index.

3. Findings

Table 3 presents our main findings. We find that the labor rigidity coefficient is positively linked to return days and is statistically significant at one percent in our preferred specification (Column 4). Thus, the higher degree of rigidity in the labor market the worse the performance of workers. This may occur as a result of moral hazard as jobs are secure and the likelihood of a worker being penalized or fired is reduced drastically in rigid labor markets. Whereas endogeneity may not be a matter of particular concern given that (i) it is unreasonable to expect that return time will affect rigidity levels and (ii) all the regressions include country fixed and year effects, we still apply a two-stages approach in order to deal with this

[1] We follow Chong, et al (2014) and use a cut-off of 423 days for the letters that were not sent back, which is when they stopped collecting data.

[2] Institutional data move rather slowly and as such, it is reasonable to assume that this difference in period does not pose a problem as several other researchers have also argue (e.g, Botero, et al, 2004)

potential issue, in particular, from an omitted variables perspective. We use colonial heritage (Hensel, 2014) as instrument as this variable is strongly correlated with our potential endogenous variable, labor market rigidity (Botero, et al, 2014), but it is not apparent that it may be *directly* linked with the return time of the letters, as required. In Table 3, Column 5 we find supporting evidence that our findings may be causal, which are also consistent with the reported F-test of excluded instruments[3].

In Table 4 we show robustness tests by employing alternative rigidity measures. In particular we use labor rigidity measures related to the cost of firing, dismissal, and severance payments in countries[4]. Our results are all very similar to our key finding and all are statistical at one percent as well.

Finally, in Table 5 we test whether our findings are robust to changes in specification (Sala-i-Martín, 1997). To do this, we augment our benchmark specification using combinations of two variables out of a pool of ten ancillary variables[5]. The variable of interest is robust with the dependent variables if the weighted cdf(0) is greater than or equal to or higher than 0.90, which is what we find for all our labor market rigidity measures. In fact, we find analogous results when using the instrumental variables case.

4. Conclusions

We test the link between labor market rigidities and job performance in the public sector using a novel outcome variable namely, the number of days that it takes to the postal service of a country to return letters sent to non-existent foreign addresses, a measure that we argue is an excellent proxy for job performance. We find a positive and statistically significant link between these two variables, regardless of the labor rigidity measure employed, changes in specification, and even unlikely endogeneity considerations, which suggests that this finding may be causal namely, from labor rigidity to reduced job performance by workers.

5. References

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[3] The corresponding first stage is shown in the Appendix.

[4] Please, see Table 1 for definition of variables.

[5] The ten ancillary variables employed are life expectancy, rate of maternal death, oil rents as percentage of GDP, population density, share of rural population, openness, female labor force participation rate, percentage of population with sanitation access, gross capital formation as a percentage of GDP, gross domestic savings as a percentage of GDP (World Bank, 2016).

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Table 1: Variable Definitions

Variable	Definition
Days to Return	Number of days between the date the letter was sent and returned between December 2010 and February 2011. Unreturned letters were assigned 423 days, an arbitrary cutoff number chose by authors Source: Chong et al. (2014)
LAMRIG Index	Rigidity of employment legislation Index 2000 – 2004 using methodology of Botero, et al. (2004). Higher index indicates more rigidity. Source: Campos and Nugent (2012)
Colonial Heritage	Dummy variable equals to one if the country was once a colony, otherwise equals to zero. Source: ICOW Colonial Data
Ln GDP per capita	Average 2008 and 2009 of Ln GDP per capita (constant 2010 US$). Source: World Development Indicators
Corruption	Average 2008 and 2009 of Inverse of Corruption Perception Index. The score indicates the perceived level of public sector corruption on a scale of 0 (highly corrupt) to 10 (very clean). Source: Transparency International
Growth GDP	Average 2008 and 2009 of GDP growth (annual %). Source: WDI.
Secondary Enrolment	Average 2008 and 2009 of School enrollment, secondary (% gross). Source: World Bank
Cost of Firing	Average 2008 and 2009 Cost of Firing in days: Notice cost + Severance cost + Penalty cost. Source: World Bank.
Dismissal Procedure	Average 2008 and 2009. Average of dummies: notify before dismiss, approval before dismiss, notify before collective dismiss, approval before collective dismiss, retraining before worker redundant, priority rules to redundancy dismissal, priority rules to re-employment). Source: World Bank
Severance after 20 years	Average 2008 and 2009 of Severance pay for redundancy dismissal after 20 years of employment. Source: World Bank

Table 2: Summary Statistics

Variable	Mean	Std. Dev.	Min	Max
Days to Return	228.22	166.91	6.00	423
LAMRIG Index	158.55	44.75	45.71	245
Ln GDP per capita	8.50	1.54	5.37	11.55
Corruption Perception	-4.03	2.17	-9.35	0
Growth GDP	2.11	3.99	-10.07	14.81
Secondary Enrolment	79.76	27.37	11.56	129.18
Cost of Firing	50.35	55.87	0	446.33
Dismissal Procedure	0.38	0.29	0	1
Severance after 20 years	42.93	55.56	0	433.33

Table 3: Main Results
Dependent Variable: Days to Return

	(1)	(2)	(3)	(4)	(5)
LAMRIG Index	2.542***	0.410***	0.498***	1.121***	0.819**
	(0.058)	(0.028)	(0.013)	(0.190)	(0.392)
Ln GDP per capita	-180.8***	-3.808***	-4.997***	-17.41***	4.304
	(6.411)	(0.693)	(0.495)	(3.672)	(7.441)
Corruption		-63.919***	-54.362***	-24.472***	-14.522***
		(2.566)	(0.972)	(5.755)	(4.162)
Growth GDP pc			-0.768***	-3.910***	-5.439***
			(0.128)	(0.152)	(1.800)
Secondary Enrolment				-0.400***	-1.762***
				(0.148)	(0.302)
Constant	1276.529***	456.471***	432.830***	361.154***	226.268***
	(38.832)	(5.915)	(1.974)	(31.873)	(80.312)
F-test of excluded instruments					61.36
Test of endogeneity (p value)					0.079
R-squared	0.517	0.517	0.517	0.515	
Adjusted R-squared	0.463	0.463	0.463	0.461	
Observations	1350	1350	1350	990	980

Note: Standard errors in parentheses. * p<0.10, **p<0.05, ***p<0.01. Columns 1-5 employ ordinary least squares as well as country and year fixed effects and standard errors clustered at the city level. Column 6 applies an instrumental variable approach with colonial heritage as the instrument.

Table 4: Robustness to Changes in Rigidity Measures

Days to Return	(1)	(2)	(3)
Cost of Firing	0.712***		
	(0.104)		
Dismissal Procedure		106.799***	
		(15.628)	
Severance after 20 years			0.503***
			(0.074)
Ln GDP per capita	-4.498***	-4.819***	-15.076***
	(1.276)	(1.229)	(0.272)
Corruption	-52.271***	-37.575***	-48.285***
	(0.959)	(1.191)	(0.376)
Growth GDP	-5.262***	-0.777	-6.143***
	(0.115)	(0.542)	(0.243)
Secondary Enrolment	-1.029***	-0.744***	-0.956***
	(0.018)	(0.023)	(0.007)
Constant	559.141***	433.543***	635.428***
	(7.544)	(25.922)	(3.619)
R-squared	0.52	0.52	0.52
Adjusted R-squared	0.47	0.47	0.47
Observations	1060	1060	1060

Standard errors in parentheses; * p<0.10, **p<0.05, ***p<0.01. Regressions include country and year fixed effects and standard errors clustered at the city level.

Table 5: Sensitivity to Changes in Specification

	Cumulative Distribution Function at zero	Standard Error	Statistical Significance
LAMRIG index	1.332	0.104	0.96
Cost of Firing	0.892	0.09	0.94
Dismissal Procedure	102.46	15.23	0.90
Severance after 20 years	0.635	0.08	0.93

Following Sala-i-Martin (1997) a variable whose weighted cdf(0) is larger than 0.90 is significantly correlated with the dependent variable (i.e. robust) at a ten percent significance level. The cdf is computed assuming non-normality of the parameters estimated. Results are similar if we assume normality, instead. We use our preferred specification shown in Table 3, Column 4. Results are analogous for the instrumental variables case.

Appendix: First Stage
(Instrumental Variables, Table 3, Column 5)

Colonial Heritage	31.257***
	(3.990)
Ln GDP per capita	0.998
	(2.530)
Corruption	-7.992***
	(1.103)
Growth GDP pc	-2.095***
	(0.405)
Secondary Enrolment	-0.066
	(0.087)
Constant	192.427***
	(13.723)
R-squared	0.13
AdjR2	0.12
Observations	980

Standard errors in parentheses; * p<0.10, **p<0.05, ***p<0.01. Regressions include country and year fixed effects and standard errors clustered at the city level.