The impact of government size on corruption: A Meta Regression Analysis

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Introduction

In 2018, the UN Secretary-General António Guterres, citing estimates by the World Economic Forum, said the global cost of corruption is at least $2.6 trillion, or 5 per cent of the global gross domestic product (GDP).

Businesses and individuals pay more than $1 trillion in bribes every year.

However, the cost of corruption is greater than the sum of lost money: according to Mauro (2021), distortions in spending priorities caused by corruption undermine the ability of the state to promote sustainable and inclusive growth and drain public resources away from education, health care, and infrastructure.

The corruption literature

- A large literature, which started in the 1990s when data have become more widely available, has addressed the issues of its causes and consequences.
- As a result, a few surveys have summarized the literature (e.g., Rose-Ackerman (1999), Tanzi (1998), Aidt (2003), Lambsdorff (2006), and Treisman (2007)).
- In particular, the determinants of corruption among the various factors have received a great deal of interest. They include:
  - economic variables (economic development, openness to international trade, state intervention in the economy, endowment of natural resources)
  - sociocultural variables (British legal system, British colonial heritage, Protestant religion, ethnolinguistic fragmentation, education of the population)
  - political variables (base political rights, uninterrupted democracy, freedom of information, mass media diffusion, federalism, electoral system, political instability).

Government size and corruption

- Public intervention (government size), interpreted as both spending decisions and market regulation, can create more opportunities for manipulation of the public budget and rent extraction when public officials have greater discretionary power.
- The first dimension hinges on public budgets and therefore the size of public expenditure.
- The second focuses on government policies including measures of the incidence of market-unfriendly policies (price controls or inadequate bank supervision), as well as, on perceptions of the burdens imposed by excessive regulation.

Government size and corruption

- Empirical models on the relationship between government size and corruption have produced mixed results, reflecting different viewpoints on the role of large governments.
- Most of the literature considers that while a certain degree of government intervention is instrumental in remedying market failures, excessive intervention (an increase in government size) provides more opportunities for political rent-seeking (more resources can be stolen from the public budget), leading politicians and monopolist bureaucrats to become more corrupt, inhibiting market competition and generating government failures (e.g., Rose-Ackerman, 1978, 1999).

Government size and corruption

- Nevertheless, different explanations and controversial results for the linkage under investigation are rather common (e.g., Alesina and Angeletos, 2005; Méon and Sekkat, 2005; Kotera et al., 2012; Billger and Goel, 2009). For example, some prominent studies suggest that increasing government size should reduce corruption since a larger government can enshrine a system of checks and balances (i.e., improved oversight) and strengthen voice and accountability.

Government size and corruption

- Given these empirical results, it is unclear whether large governments enhance corruption. This makes it difficult for researchers and policy-makers to draw unambiguous conclusions about the effect of the former on the latter variable, which in turn has significant consequences in terms of the policy design of anti-corruption measures.

- Our paper aims to provide the first meta-regression analysis of the government size/corruption nexus, filling the evidence gap in the literature.

The steps of our MRA

DATASET COLLECTION

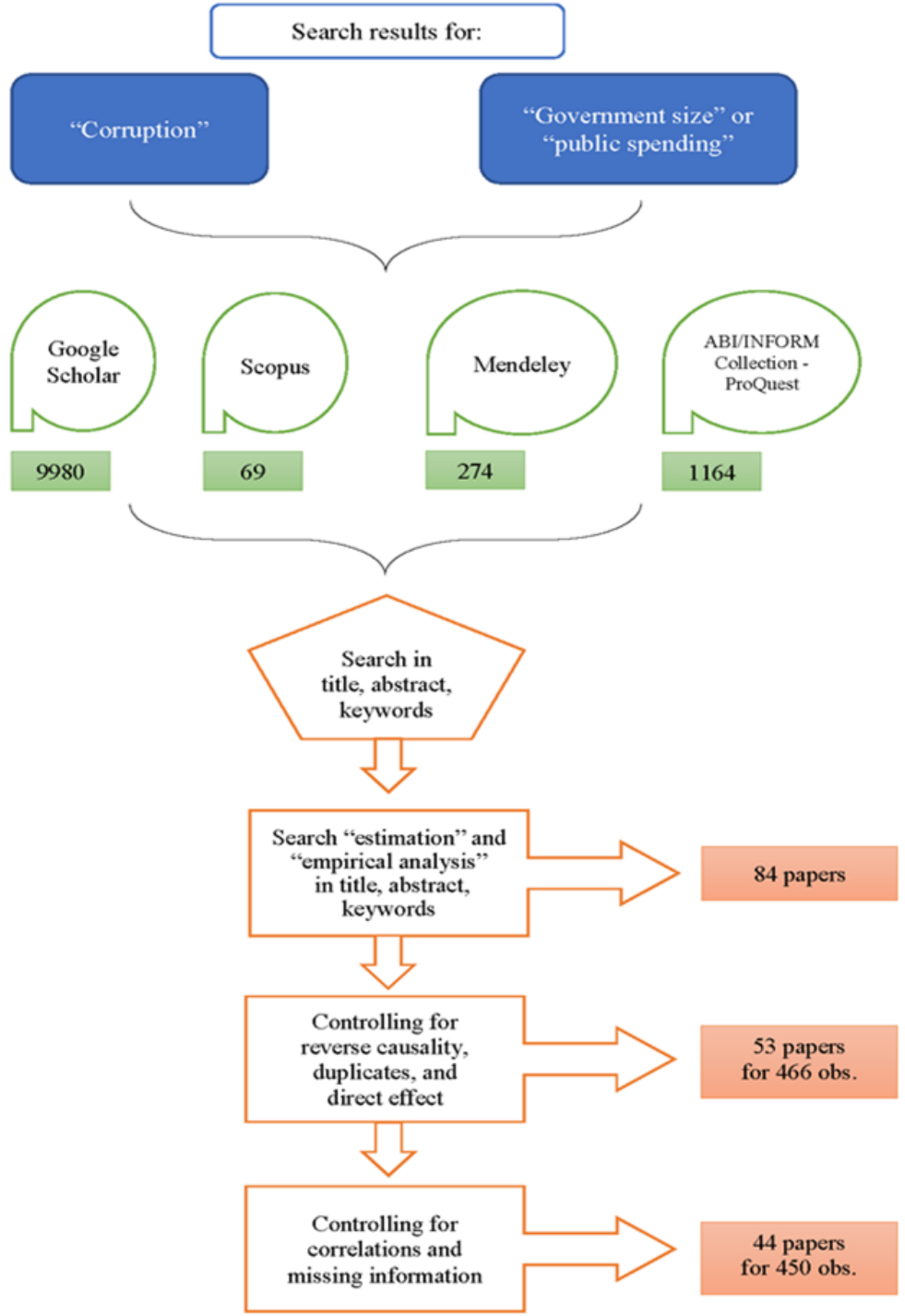
HETEROGENEITY

PUBLICATION BIAS

META-REGRESSIONS

CONCLUSIONS

Dataset collection



The partial correlation index (PCC)

Valickova et al. (2015) define the PCC as follows:

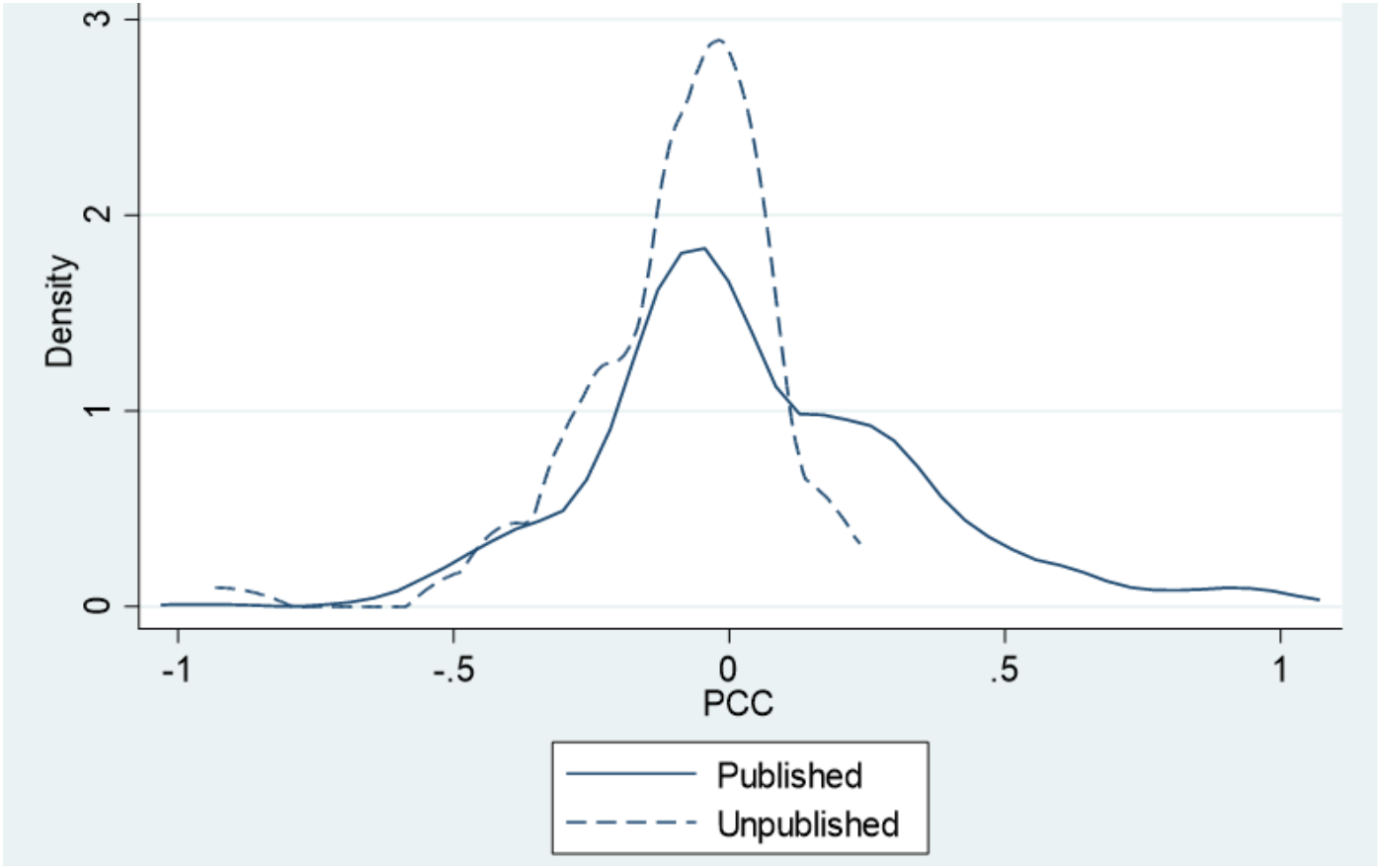
$$r_{ij} = \frac{t_{ij}}{\sqrt{t_{ij}^2 + df_{ij}}}$$

where *i* indicates the single estimation reported in the *j-th* primary paper, *t* is test-staticistic for the significance of *β,* df are the degrees of freedom for estimating *β.*

The standard error for the PCC is:

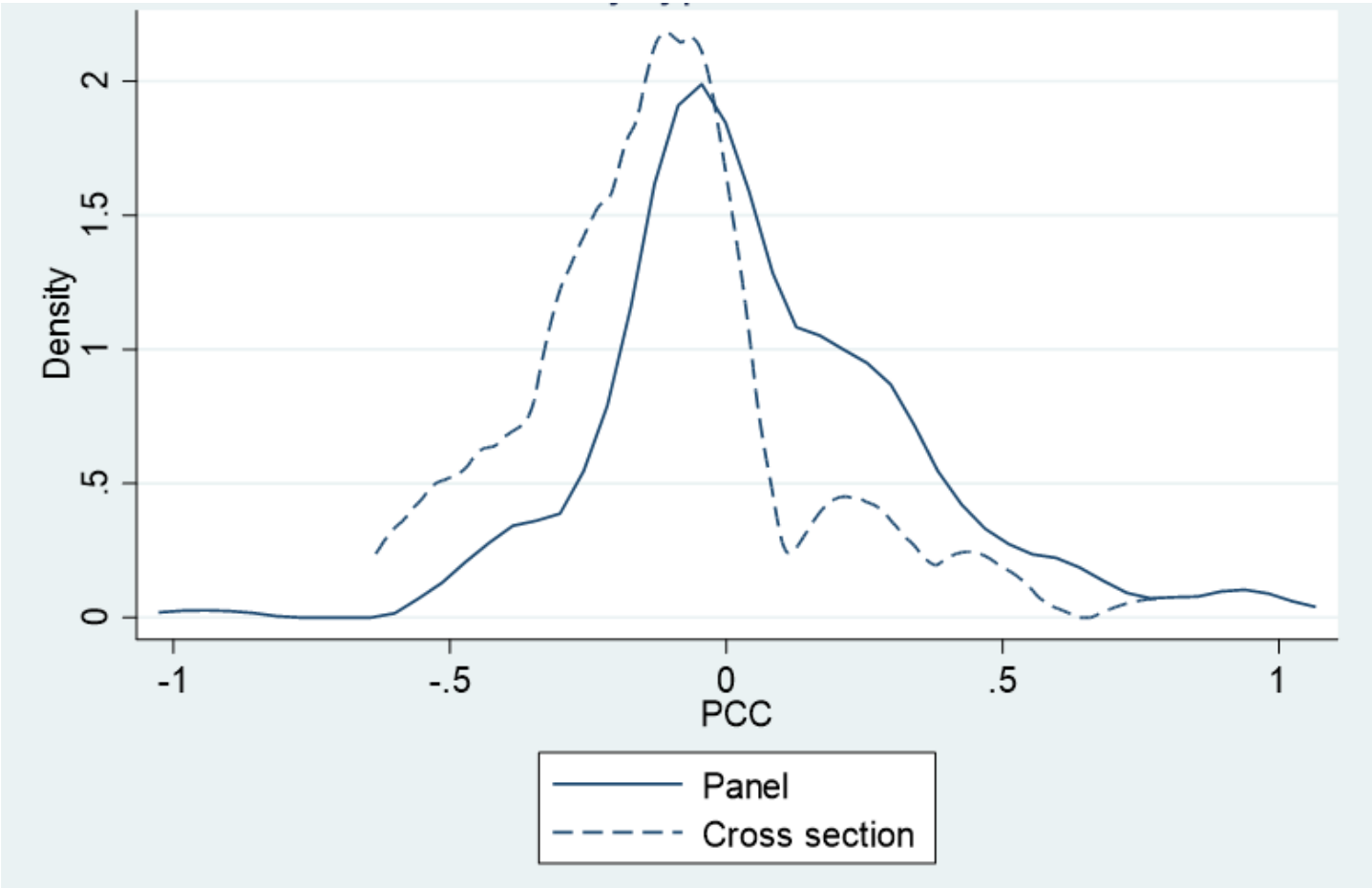
$$SEr_{ij} = \frac{r_{ij}}{t_{ij}}$$

Existence of heterogeneity: density by type of contribution



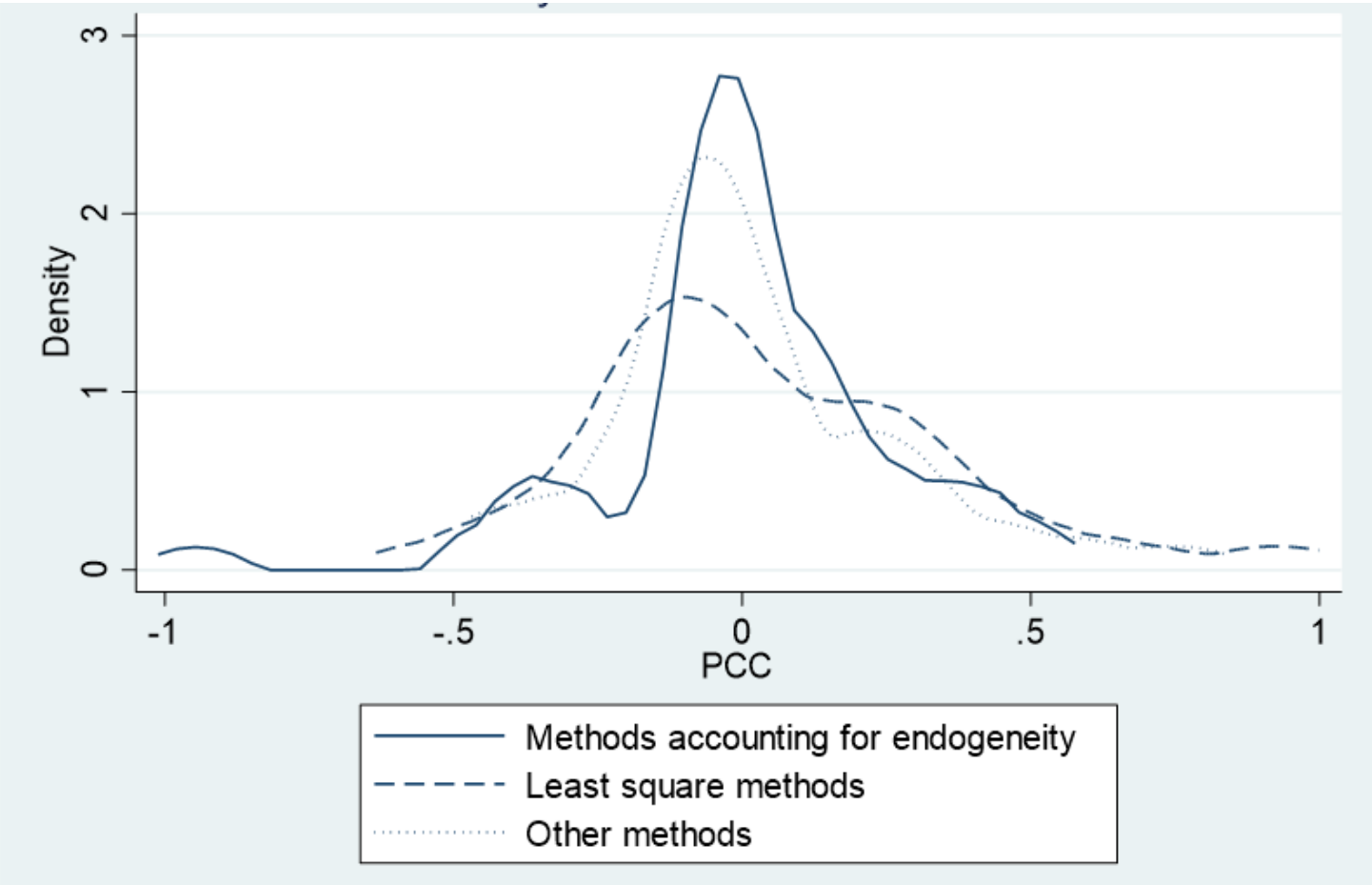
* The result is confirmed when testing for differences in means (11% significance level).

Existence of heterogeneity: density by data type



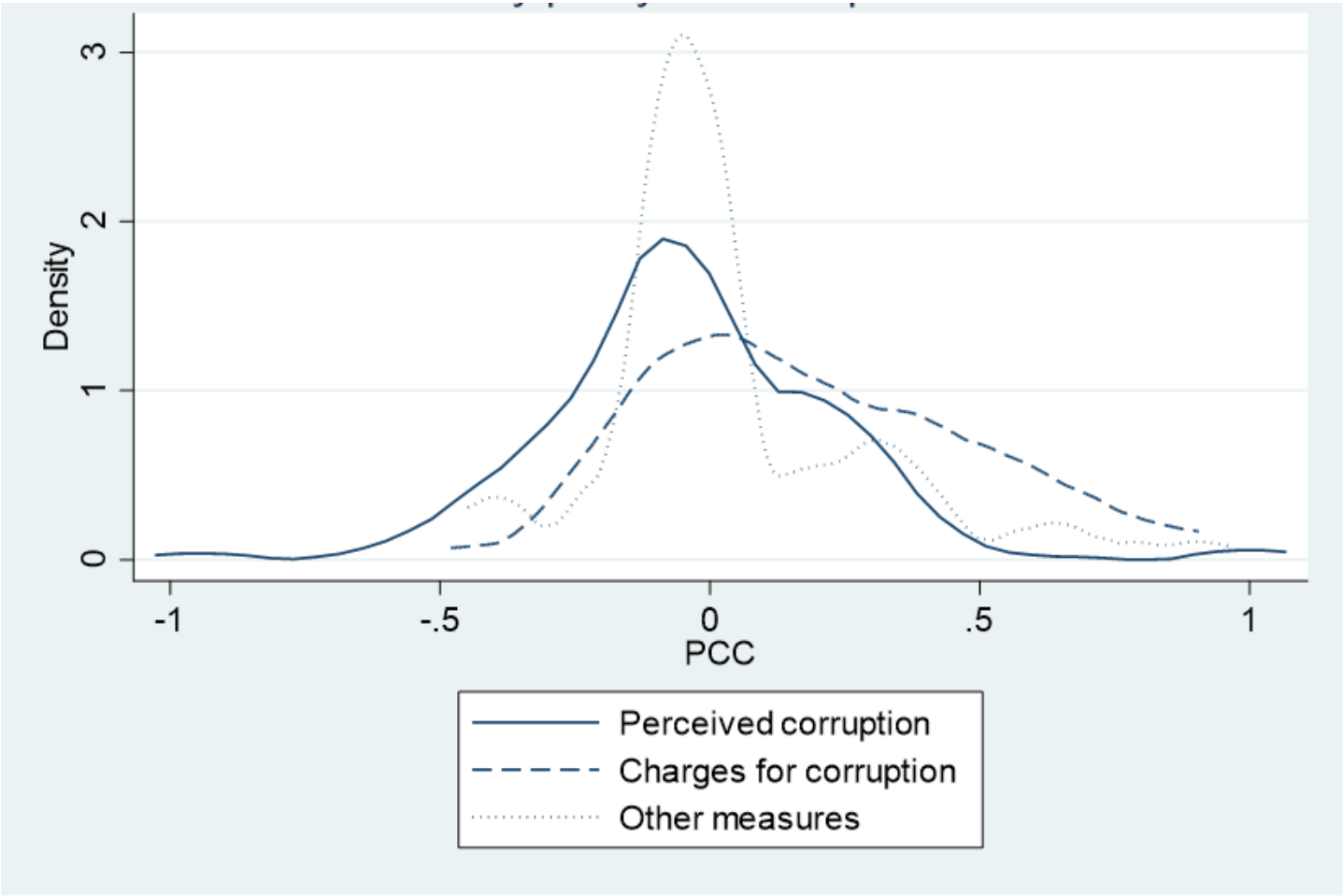
* The result is confirmed when testing for differences in means (5% significance level).

Existence of heterogeneity: density by estimation method



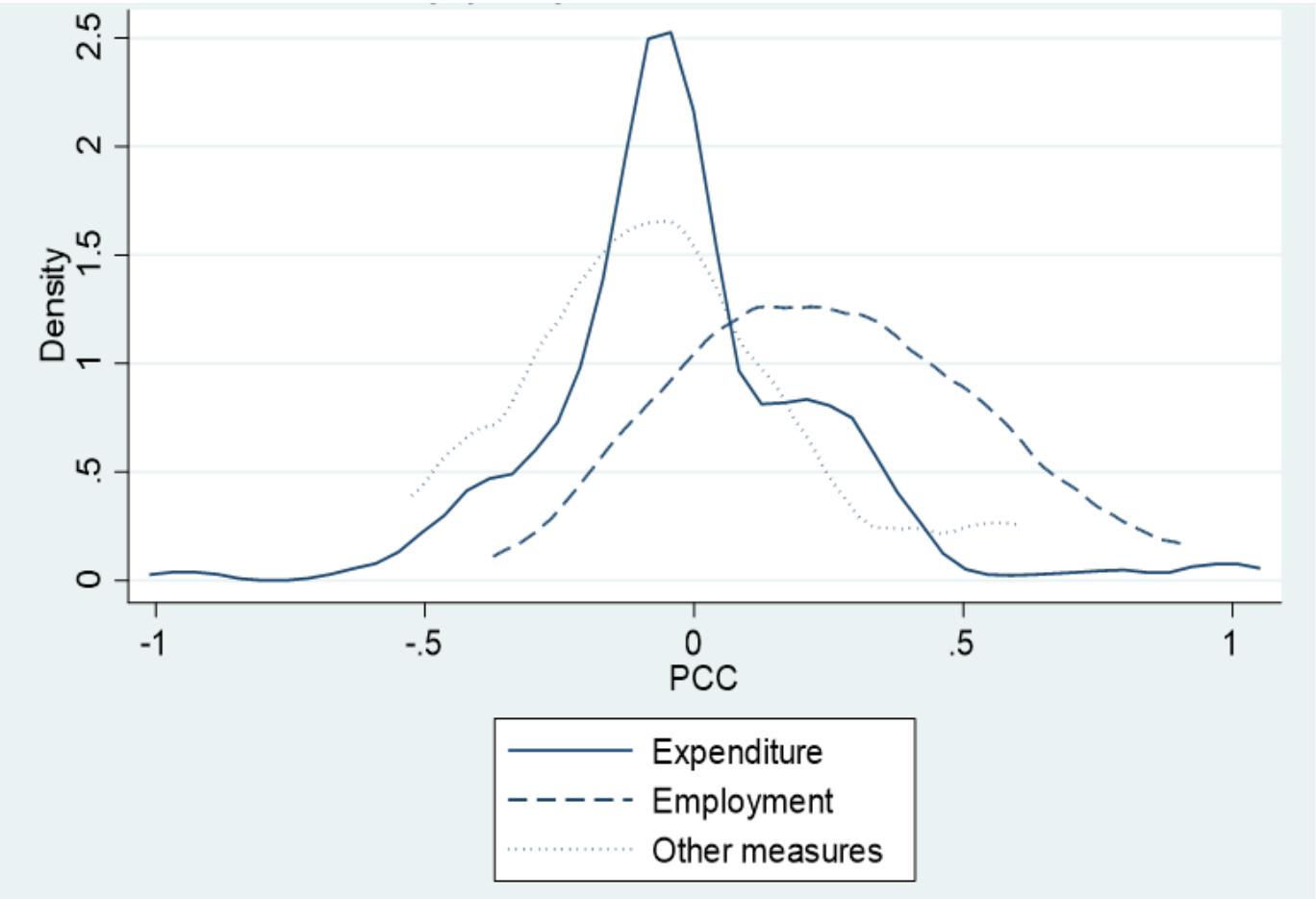
* The same result is confirmed when testing for differences in means (5% significance level).

Existence of heterogeneity: by proxy for corruption



* The same result is confirmed when testing for differences in means (5% significance level).

Existence of heterogeneity: by proxy for government size

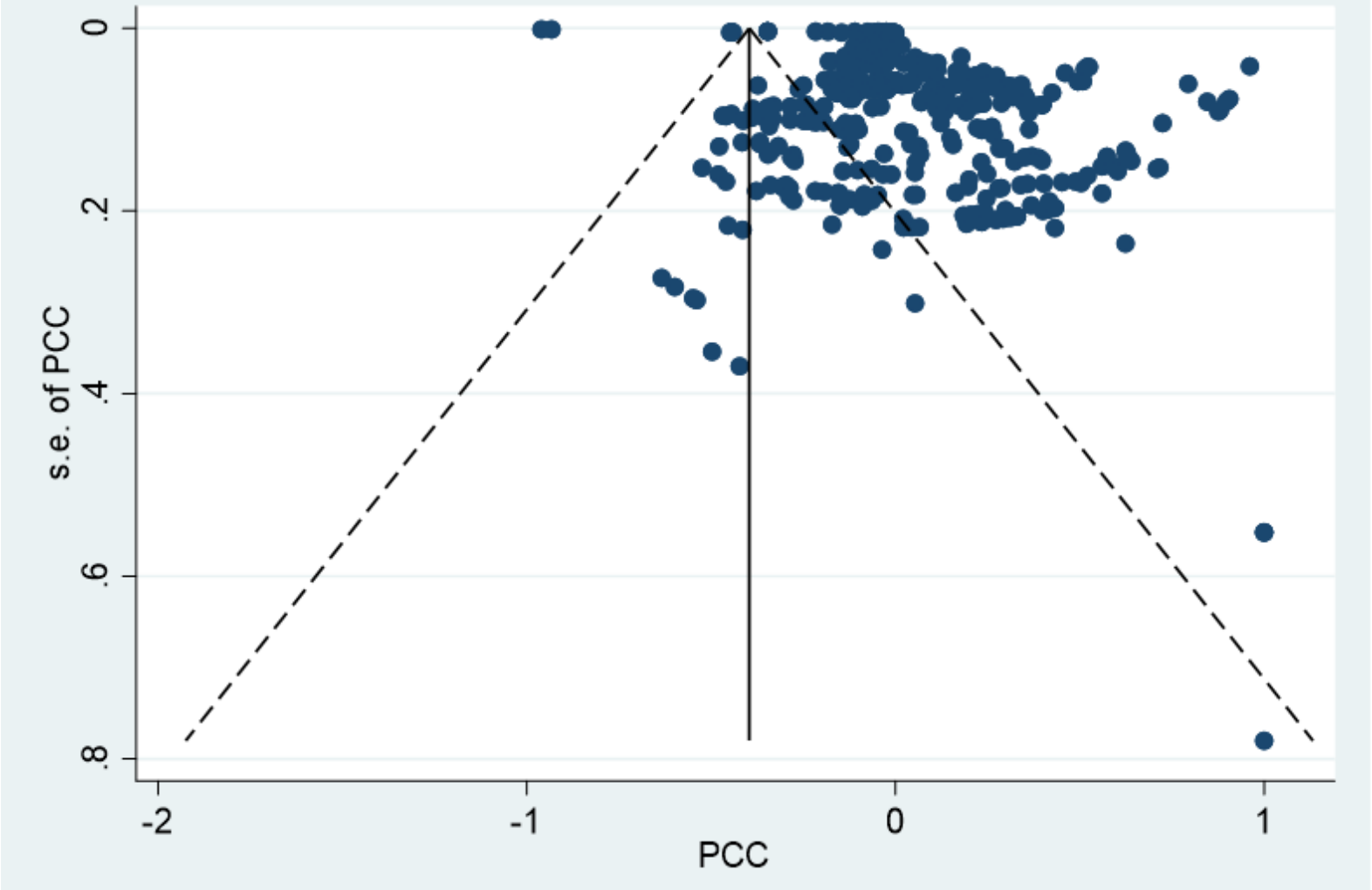


* The same result is confirmed when testing for differences in means (5% significance level).

Publication bias investigation

	(1) FAT-PET with robust SE	(2) FAT-PET-PEESE with robust SE
β_1 (Bias)	0.7751***	
	(0.2135)	
β_0 (Precision term)	-0.0369**	0.0059
	(0.0179)	(0.0130)
β_{SEr} (SEr)		1.7308***
		(0.6359)
Observations	450	450
Prob > F	0.000	0.000
Adjusted R square	4.08%	1.31%

Publication bias investigation: the funnel plot



Empirical strategy

- We employ the following model:

$$r_{ij} = \beta_0 + \beta_1 SEr_{ij} + \sum_k \beta_k X_{kij} + \varepsilon_{ij} + u_i$$

Where $\varepsilon_{ij} \sim N\left(0, \sigma_{ij}^2\right)$ is the within-study disturbance and $u_i \sim N(0, \tau^2)$ is the deviation due to the residual non-observable heterogeneity (between-study variance). The parameter τ^2 is a measure of between-study variability and is estimated as in Harbord and Higgins (2008).

The group of variables X_{kij} comprises the explanatory variables that summarize various model characteristics of every study.

Estimation strategy

- We adopt a two-step procedure as proposed in Gallet and Doucouliagos (2014) and applied in Aiello and Bonanno (2018; 2019).
- A Random Effect Maximum Likelihood (REML) regression is run in the first step, and, in the second step, we run a WLS regression in which the weights include SEr_{ij} in order to correct the default heteroskedasticity and also the value of τ^2 retrieved from the first step. This ensures that the estimates will be robust to clustering at study level.

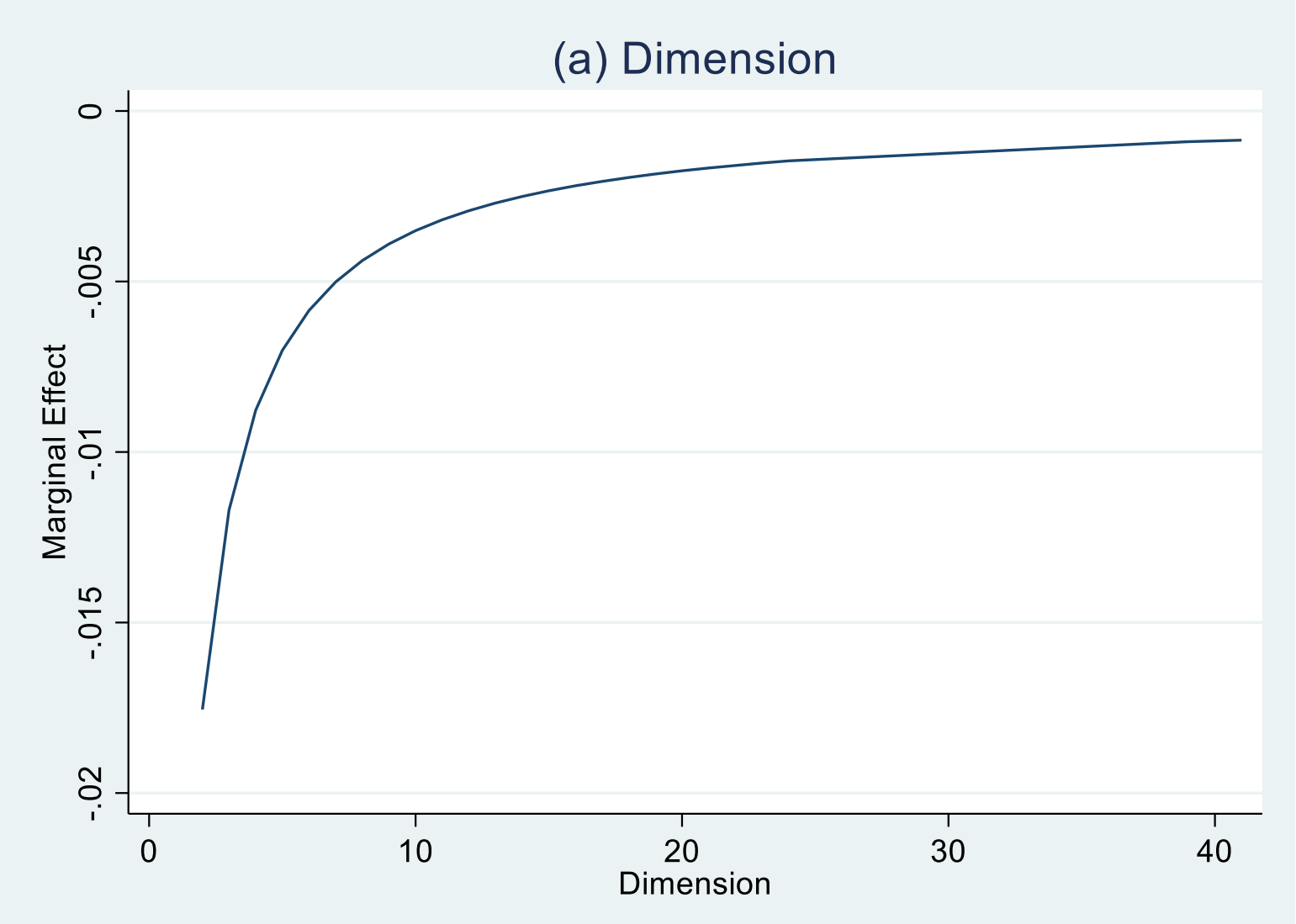
Variables

Dependent variable						
PCC	Partial correlation coefficient as in eq. (1).	450	0.0309	0.2861	-0.9603	1
Study design						
Ser	Standard error of PCC as in eq. (2).	450	0.0904	0.0795	0.0013	0.78
Precision effect (1/SEr)	The inverse of SEr.	450	38.29	76.28	1.28	750.44
Published	Dummy equal to 1 for estimations retrieved from peer-reviewed papers, and 0 otherwise.	450	0.8778	0.3279	0	1
Panel	Dummy equal to 1 for estimations on panel data, and 0 otherwise.	450	0.8244	0.3809	0	1
Year of publication_trend	Time trend based on the year of publication.	450	17.74	6.6032	1	26
Estimation approach						
Endogeneity	Dummy equal to 1 for estimations obtained using methods accounting for endogeneity, and 0 otherwise.	450	0.2200	0.4147	0	1
Least Square	Dummy equal to 1 for estimations obtained using least square method, and 0 otherwise.	450	0.5111	0.5004	0	1
Specific variables						
Perceived corruption	Dummy equal to 1 if the measure for corruption in the primary paper refers to data that do not measure corruption itself but only opinions about its prevalence, and 0 otherwise.	450	0.5778	0.4945	0	1
Charges for corruption	Dummy equal to 1 if the measure for corruption in the primary paper refers to the number of charged people for corruption issues, and 0 otherwise.	450	0.2267	0.4191	0	1
Govsize expenditure	Dummy equal to 1 if the measure of government size in the primary paper is related to the expenditures, and 0 otherwise.	450	0.7222	0.4484	0	1
lDimension	The logarithm of the number of regressors used in the primary regression models.	450	2.0294	0.6070	0.6931	3.7136

Meta-Regression on Corruption and Government Size

	(1)	(2)	(3)	(4)	(5)
	Baseline models				
	FAT-PET	Study design	Estimation method	Specific variables	Dimension
β_1 (Bias)	0.7751***	0.7430***	0.7065***	0.4541**	0.3258
	(0.2135)	(0.2229)	(0.2284)	(0.2305)	(0.2411)
β_0 (Precision term)	-0.0369**	-0.1904***	-0.1774***	-0.1398***	-0.0257
	(0.0179)	(0.0477)	(0.0498)	(0.0506)	(0.0541)
Published		0.0638**	0.0659**	0.0523*	0.0502
		(0.0305)	(0.0307)	(0.0312)	(0.0321)
Panel		0.1383***	0.1396***	0.0982***	0.0998***
		(0.0347)	(0.0350)	(0.0363)	(0.0354)
Year of publication_trend		-0.0008	-0.0011	0.0057**	0.0064**
		(0.0023)	(0.0023)	(0.0025)	(0.0025)
Endogeneity			-0.0306	-0.0323	-0.0234
			(0.0332)	(0.0333)	(0.0346)
Least Square			-0.0023	0.0044	0.0258
			(0.0294)	(0.0277)	(0.0306)
Perceived corruption				-0.0661*	-0.0859**
				(0.0341)	(0.0351)
Charges for corruption				0.1063**	0.1072**
				(0.0472)	(0.0456)
Govsize expenditure				-0.1067***	-0.0926***
				(0.0316)	(0.0320)
lDimension					-0.0630***
					(0.0184)

Marginal effect of Dimension



Robustness checks

Robustness checks						
Govsize employment	Dummy equal to 1 if the measure of government size in the primary paper is related to employment, and 0 otherwise.	450	0.1933	0.3954	0	1
Countries corruption	Degree of corruption of the country to which the primary paper estimate refers.	450	0.4829	0.7615	-0.6105	2.2340
Dummy_ABS (Quality of journals)	Dummy variable equal to 1 if the primary paper is published in a 3- or 4-star ABS journal, and 0 otherwise.	450	0.1422	0.3497	0	1

Meta-Regression on Corruption and Government Size

	(6)	(7)	(8)
	Robustness checks		
	Govsize employment	Countries observables	Quality of journal
β_1 (Bias)	0.2537	0.1618	0.3449
	(0.2481)	(0.2595)	(0.2516)
β_0 (Precision term)	-0.1516***	-0.0541	-0.0100
	(0.0526)	(0.0543)	(0.0548)
Published	0.0244	0.0541*	0.0559
	(0.0334)	(0.0315)	(0.0355)
Panel	0.0915***	0.1031***	0.0963***
	(0.0343)	(0.0356)	(0.0365)
Year of publication_trend	0.0068***	0.0071***	0.0058**
	(0.0024)	(0.0025)	(0.0027)
Endogeneity	-0.0175	-0.0356	-0.0259
	(0.0340)	(0.0354)	(0.0356)
Least Square	0.0377	0.0203	0.0229
	(0.0304)	(0.0307)	(0.0312)
Perceived corruption	-0.0503	-0.0573	-0.0918**
	(0.0361)	(0.0392)	(0.0376)
Charges for corruption	0.1163***	0.1127**	0.0975*
	(0.0445)	(0.0460)	(0.0501)
Govsize expenditure		-0.0895***	-0.0927***
		(0.0316)	(0.0321)
lDimension	-0.0531***	-0.0689***	-0.0619***
	(0.0180)	(0.0177)	(0.0186)
Govsize employment	0.1998***		
	(0.0390)		
Countries corruption		0.0467**	
		(0.0186)	
Dummy_ABS			-0.0243
			(0.0456)

Conclusions

We can summarize our main results as follows:

1) We find strong heterogeneity in the literature across several dimensions.
2) The nature of the proxy for corruption matters.
    a. Specifically, we find significant impacts of the literature-specific variables: negative for perceived corruption measures and positive for the number of people charged for corruption;
3) Also, the nature of govsize measures matters.
    a. negative for govsize expenditure and positive for govsize employment
4) The type of contribution (published or not published) does matter.
5) Estimates made on panel data give significantly higher government size impacts on corruption.

FAT-PET-PEESE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Baseline models				Robustness checks		
	FAT-PET	Study design	Estimation method	Specific variables	Govsize employment	Countries observables	Quality of journal
SEr^2	1.7307***	1.4630**	1.3307**	0.6653	0.4201	0.4282	0.7186
	(0.6359)	(0.6035)	(0.6220)	(0.7298)	(0.7855)	(0.7969)	(0.7253)
β_0 (Precision term)	0.0059	-0.1280***	-0.1236***	-0.1017**	-0.2320***	-0.1494***	-0.0758
	(0.0130)	(0.0411)	(0.0462)	(0.0485)	(0.0486)	(0.0501)	(0.0532)
Published		0.0838***	0.0852***	0.0650**	0.0335	0.0650**	0.0732**
		(0.0303)	(0.0301)	(0.0311)	(0.0329)	(0.0307)	(0.0353)
Panel		0.1370***	0.1379***	0.0945***	0.0868**	0.0984***	0.0895**
		(0.0341)	(0.0342)	(0.0359)	(0.0347)	(0.0367)	(0.0374)
Year of publication_trend		-0.0027	-0.0029	0.0047*	0.0052**	0.0055**	0.0039
		(0.0021)	(0.0022)	(0.0025)	(0.0024)	(0.0024)	(0.0026)
Endogeneity			-0.0314	-0.0326	-0.0254	-0.0446	-0.0358
			(0.0336)	(0.0336)	(0.0333)	(0.0347)	(0.0344)
Least Square			0.0088	0.0114	0.0278	0.0024	0.0083
			(0.0288)	(0.0272)	(0.0270)	(0.0278)	(0.0273)
Perceived corruption				-0.0617*	-0.0284	-0.0348	-0.0702*
				(0.0341)	(0.0349)	(0.0379)	(0.0365)
Charges for corruption				0.1104**	0.1212***	0.1140**	0.0972*
				(0.0470)	(0.0453)	(0.0474)	(0.0503)
Govsize expenditure				-0.1154***		-0.1111***	-0.1155***
				(0.0311)		(0.0305)	(0.0314)
Govsize employment					0.2229***		
					(0.0381)		
Countries corruption						0.0435**	
						(0.0188)	
Dummy_ABS							-0.0332
							(0.0436)
Observations	450	450	450	450	450	450	450
F	4.762	9.887	7.038	8.949	12.62	8.209	8.332