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Remittances and corruption

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ABSTRACT

We examine the effect of remittances on corruption using panel data for 111 countries over the period of 1986–2010. We find that remittances increase corruption, especially in non-OECD countries.

1. Introduction

Remittances are the second largest supply of external financing following foreign direct investment (FDI), and surpass official development assistance and portfolio investment in many developing economies (Ratha, 2003). Previous studies have found that remittances reduce poverty and inequality (Adams and Page, 2005), stimulate investment (Woodruff and Zenteno, 2001), and promote financial development (Aggarwal et al., 2011).

The literature also documents that remittances influence institutional quality. Theoretically, remittances enable households to buy public goods and service, as opposed to depending exclusively on the government to supply these public resources (Abdih et al., 2012). Since households have access to public resources via remittances, they have very little incentive to hold the government accountable for corrupt activities. Thus, Abdih et al. (2012) argue that the "government can then free ride and appropriate more resources for its own purposes, rather than channel these resources to the provision of public services" (p. 8). Following Abdih et al. (2012), we argue in this paper that access to remittances causes households to tolerate rent-seeking behavior,

which, in turn, makes it inexpensive and effortless for the government to participate in corrupt practices.

Recent research has focused only on cross sectional analysis (Abdih et al., 2012) and data from Mexico (Tyburski, 2012) to investigate the relationship between remittances and institutional quality. In this paper, we contribute to the literature in two important ways. First, we estimate a dynamic model of remittances and corruption using data for a panel of 111 countries over the 1986–2010 period. In our view, incorporating the dynamics is essential because "the 'history' of corruption seems important in explaining current corruption levels" (Herzfeld and Weiss, 2003, 629). We employ the bias-corrected least squares dummy variable (LSDVC) model extended by Bruno (2005), who demonstrated that the LSDVC estimator is more efficient and robust compared to numerous instrumental variable estimators in dynamic panel data models. Moreover, to account for the possible endogeneity of remittances, we employ a three-stage least squares model where we simultaneously estimate a system of equations in which remittances and corruption are endogenously determined.

Second, we examine the economic and political determinants of corruption in a panel data framework. It is important to identify the causes of corruption since it is detrimental to investment and economic growth by encouraging rent-seeking behavior, deteriorating the rule of law and weakening domestic political institutions (Mauro, 1995; Klitgaard, 1988). To anticipate our results, we find that remittances increase corruption, particularly

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in non-OECD countries. These results are robust even after accounting for the reverse causality between remittances and corruption.

2. Data and model

We collect data for a panel of 111 countries over the 1986–2010 period. The corruption index – the dependent variable – ranges between 0 and 6, where lower values represent greater corruption. Specifically, a low score indicates that "high government officials are likely to demand special payments" and "illegal payments are generally expected throughout lower levels of government" in the form of "bribes connected with import and export licenses, exchange controls, tax assessment, policy protection, or loans" (Knack and Keefer, 1995, 225). The data for corruption come from International Country Risk Guide (2011).

We scale remittances as a percentage of gross domestic product (GDP) to properly evaluate the magnitude of these flows relative to the size of the receiving economy. Following Larrain and Tavares (2004), we include foreign direct investment (FDI) as these funds represent substantial infrastructure developments and privatization ventures, which, in turn, provide incentives for rent-seeking activity by public officials. Like remittances, FDI is included as the ratio to GDP. We also control for the GDP per capita growth because economic development raises "the spread of education, literacy, and depersonalized relationships", and, therefore, increases the likelihood that a corrupt activity is detected and opposed (Treisman, 2000, 404). We also follow Fisman and Gatti (2002) and include government expenditures in our model since a small proportion of government resources per resident may entice the public to participate in unlawful behavior "to get ahead of the queue". The data for remittances/GDP, FDI/GDP, GDP per capita growth and government consumption/GDP are obtained from World Bank (2011).

It is important to account for law and order as the deterrent value of a criminal activity rests on the ability and willingness of the institution to implement the rule of law (Becker, 1968). The law and order index ranges between 0 and 6, where higher values denote "sound political institutions, a strong court system, and provisions for orderly succession of power" and represent "the degree to which the citizens of a country are willing to accept the established institutions to make and implement laws and adjudicate disputes" (Knack and Keefer, 1995, 225). Finally, we consider the effect of domestic political institutions since the population in a democratic regime is more likely to penalize corrupt government officials by expelling them from government positions (Chowdhury, 2004). The democracy dummy is extracted from Cheibub et al. (2010).

In summary, the regression model is as follows:

$$\text{corruption}_{it} = f\left(\text{remittances}_{it}, x_{it}, \varepsilon_{it}\right) \tag{1}$$

where corruption_{it} is the dependent variable that denotes corruption in country i during year t. The variable "remittances" represents remittances/GDP; x_{it} corresponds to a vector of economic and political variables as discussed above; ε_{it} is the error term. To ensure robustness, we employ the LSDVC (AB) and LSDVC (BB) models, which represent the bias-corrected estimates developed by Arellano and Bond (1991), and Blundell and Bond (1998), respectively. We also compute the long-run effects for all the explanatory variables. The bootstrapped standard errors are generated using Monte Carlo simulations with 2000 replications. We estimate 5-year averages of the data since the dependent variable exhibits little year-to-year variations (Brunetti and Weder, 2003; Braun and Di Tella, 2004). A useful feature of the LSDVC model is that it is especially appropriate for small samples (Bruno, 2005).

3. Results

The LSDVC (AB) and LSDVC (BB) estimates for the full sample are displayed in columns 1 and 2 of Table 1. The long-run coefficients are reported at the bottom of the table. The lagged dependent variable is positive and significant at the 5% level, suggesting that corruption is persistent. This is consistent with previous findings in Chowdhury (2004). Also, we find that remittances increase corruption, at the 5% level of significance. Also, the long-run estimates are significant at conventional levels, suggesting that this effect is sustained into the long run.

Interestingly, GDP per capita growth significantly increases corruption. One possible explanation is that when people are poverty-stricken, there is nothing much to extract through corruptive behavior. As income rises, there is more to gain, and, thus, greater incentive for corruption. This result is in line with Braun and Di Tella (2004) and Frechette (2006). In all specifications, higher law and order reduces corruption, at the 5% level of significance. FDI/GDP, government consumption/GDP and democracy have no significant impact on corruption.

To account for the possible heterogeneity in our sample, we re-estimate the LSDVC (AB) and LSDVC (BB) models separately for 33 OECD (columns 3 and 4) and 78 non-OECD (columns 5 and 6) countries. For non-OECD countries, we find that remittances significantly increase corruption. This effect is sustained into the long run, at least at the 10% level of significance. However, they have no significant impact on corruption in OECD countries.

For non-OECD countries, GDP per capita growth is associated with higher corruption, at the 10% level of significance. Nevertheless, this effect is insignificant in OECD countries. The fact that we do not observe it for the OECD countries may suggest that there is some nonlinearity between income and corruption. Further, higher law and order significantly decreases corruption in both samples. The long-run estimates are also significant at the 5% level, indicating that this effect is maintained into the long run. As in the full sample, FDI/GDP, government consumption/GDP and democracy have no significant impact on corruption in both samples.

Finally, it is important to highlight that the effect of FDI on corruption is insignificant. FDI may not impact corruption because foreign investors exit the country if local corruption is not detected and apprehended, as for example argued by Wei (2000).

4. Robustness test

It is also important to address the possible endogeneity of remittances. For example, more corrupt nations may experience higher emigration, which, in turn, may contribute to higher remittances (Abdih et al., 2012). To account for the possible endogeneity of remittances, we follow Gupta et al. (2009) and employ a three-stage least squares model where we simultaneously estimate a system of equations in which remittances and corruption are endogenously modeled. Moreover, this enables us to examine the impact of remittances on corruption and the reverse causality between corruption and remittances.

The regression model for the corruption equation is identical to Eq. (1). To account for the possible nonlinearity between income and corruption, we introduce GDP per capita squared in the corruption specification. Also, to control for heterogeneity, we add regional dummies (as in Gupta et al. (2009)).

The regression model for the remittances equation is as follows:

$$\text{remittances}_{it} = f\left(\text{corruption}_{it}, y_{it}, v_{it}\right). \tag{2}$$

We follow the literature and incorporate the following set of control variables into y_{it}: the real exchange rate, the real interest rate (lending interest rate), trade openness ((export + imports)/GDP), financial development (broad money/GDP), education (average

Table 1
LSDVC regression estimates.

	Full sample		OECD countries		Non-OECD countries	
	LSDVC (AB) (1)	LSDVC (BB) (2)	LSDVC (AB) (3)	LSDVC (BB) (4)	LSDVC (AB) (5)	LSDVC (BB) (6)
Lagged dep. var.	0.529**	0.546**	0.588**	0.583**	0.458**	0.476**
	(7.87)	(8.28)	(5.04)	(5.37)	(5.47)	(5.56)
Remittances/GDP	−0.042**	−0.041**	0.247	0.240	−0.048**	−0.047**
	(−2.07)	(−2.07)	(1.39)	(1.42)	(−2.12)	(−2.11)
FDI/GDP	−0.003	−0.003	−0.002	−0.002	−0.017	−0.015
	(−1.02)	(−0.96)	(−0.74)	(−0.74)	(−0.88)	(−0.80)
GDP per capita growth	−0.040**	−0.041**	−0.071	−0.066	−0.041*	−0.042*
	(−2.06)	(−2.11)	(−1.57)	(−1.49)	(−1.86)	(−1.89)
Gov. expenditures/GDP	0.025	0.022	−0.012	−0.011	0.040	0.038
	(1.05)	(1.00)	(−0.18)	(−0.17)	(1.60)	(1.55)
Law and order	0.394**	0.390**	0.640**	0.646**	0.349**	0.349**
	(4.93)	(5.03)	(3.52)	(3.66)	(3.96)	(3.98)
Democracy	−0.167	−0.149	−0.603	−0.594	−0.141	−0.125
	(−0.68)	(−0.63)	(−0.78)	(−0.79)	(−0.54)	(−0.49)
Long-run effects						
Remittances/GDP	−0.090**	−0.091*	0.599	0.574	−0.088**	−0.090*
	(−1.96)	(−1.95)	(1.31)	(1.35)	(−1.99)	(−1.94)
FDI/GDP	−0.006	−0.006	−0.005	−0.005	−0.031	−0.029
	(−1.02)	(−0.96)	(−0.73)	(−0.74)	(−0.88)	(−0.81)
GDP per capita growth	−0.085*	−0.090**	−0.173	−0.159	−0.075*	−0.080*
	(−1.94)	(−1.99)	(−1.28)	(−1.27)	(−1.82)	(−1.83)
Gov. expenditures/GDP	0.052	0.049	−0.030	−0.026	0.074	0.072
	(1.06)	(1.00)	(−0.17)	(−0.17)	(1.60)	(1.54)
Law and order	0.837**	0.859**	1.55**	1.55**	0.644**	0.667**
	(4.06)	(4.11)	(2.72)	(2.93)	(3.40)	(3.41)
Democracy	−0.355	−0.327	−1.46	−1.42	−0.261	−0.239
	(−0.68)	(−0.63)	(−0.78)	(−0.79)	(−0.54)	(−0.49)
Observations	278	389	90	123	188	266

Note: The z-statistics are in parentheses.
** Denotes significance at the 5% level.
* Denotes significance at the 10% level.

Table 2
Three-stage least squares regression estimates.

	Full sample		OECD countries		Non-OECD countries	
	Corruption (1)	Remittances (2)	Corruption (3)	Remittances (4)	Corruption (5)	Remittances (6)
Remittances/GDP	−0.043** (−2.02)		0.171 (0.53)		−0.044** (−2.03)	
FDI/GDP	−0.006 (−0.26)		−0.014 (−0.50)		0.042 (1.33)	
GDP per capita	0.015 (0.53)		0.048 (0.76)		0.003 (0.09)	
GDP per capita squared	−0.003 (−1.14)		−0.004 (−0.31)		−0.002 (−0.83)	
Gov. expenditures/GDP	0.081** (5.38)		0.078** (3.49)		0.044** (2.03)	
Law and order	0.520** (8.98)		0.591** (3.24)		0.408** (5.37)	
Democracy	0.310* (1.69)		−0.649 (−1.00)		0.292 (1.36)	
Corruption		−0.479** (−3.00)		−0.260** (−5.99)		−0.128** (−2.27)
Real exchange rate		−0.017* (−1.85)		0.001 (0.40)		−0.024* (−1.86)
Real interest rate		0.016 (0.79)		−0.004 (−0.23)		0.002 (0.08)
Trade openness		0.012** (2.45)		0.002 (1.50)		0.019** (2.41)
Financial development		−0.001 (−0.30)		−0.003** (−2.33)		−0.013 (−1.54)
Education		0.034 (0.49)		−0.020 (−0.71)		0.120 (1.09)
Lagged remittances		0.903** (17.07)		0.455** (5.51)		0.967** (14.78)
Europe and Central Asia	−1.360** (−6.83)		−1.422** (−4.39)		−0.732** (−2.56)	
East Asia and Pacific	−0.433** (−2.02)		−1.160** (−2.63)		0.297 (1.14)	
Latin American and Caribbean	0.085 (0.44)		−0.342 (−0.72)		0.602** (2.63)	
Middle East and North Africa	−0.707** (−2.61)		−1.155** (−2.80)		0.172 (0.48)	
Sub-Saharan Africa	−0.374 (−1.36)				0.221 (0.73)	
Constant	0.087 (0.25)	2.606* (1.82)	0.793 (0.660)	1.616** (3.14)	0.234 (0.560)	1.935 (0.81)
Observations	390	390	113	113	277	277
R-squared	0.713	0.668	0.685	0.560	0.378	0.684

Note: The z-statistics are in parentheses.
** Denotes significance at the 5% level.
* Denotes significance at the 10% level.

years of schooling) and lagged remittances/GDP (Faini, 1994; Adams, 2009; Gupta et al., 2009); v_{it} is the error term. As before, we use 5-year averages of the data.

Table 2 presents the results. As before, remittances increase corruption in the full sample (column 1) and non-OECD countries (column 5) at the 5% level of significance. For OECD countries,

remittances remain insignificant at conventional levels (column 3). As expected, higher government consumption reduces corruption across all samples. We also find that democratic institutions are associated with lower corruption only in the full sample. Furthermore, we find no evidence of nonlinearity between income and corruption. As can be seen, the remaining explanatory variables for the corruption equations show similar results.

The remittances equation shows that they are higher in more corrupt nations (with a lower corruption index), at the 5% level of significance (columns 2, 4 and 6). This provides evidence for the reverse causality between corruption and remittances in all samples. Other explanatory variables are also estimated consistently with previous findings in the literature.

5. Conclusion

We examine the effect of remittances on corruption using panel data for 111 countries over the period of 1986–2010. We find that remittances increase corruption, especially in non-OECD countries. These results are robust even after accounting for endogeneity of remittances. While the literature documents the beneficial effects of remittances for receiving economies, our evidence suggests that these external funds generate detrimental consequences on the quality of domestic institutions. We therefore emphasize that it is critically important to further understand the nature and significance of remittances given that these flows have considerable implications for recipient countries.

Acknowledgments

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