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Public spending, corruption, and income inequality: A comparative analysis of Asia and Latin America

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Abstract

Based on data from 16 Asian and 18 Latin American countries from 1996 to 2009, this article argues that corruption does indeed affect the distributive outcomes of government spending, but not necessarily in the expected direction. The incentives for bureaucrats and politicians to abuse their power during the budgetary process suggests that corruption should concentrate public funds in the hands of elites, exacerbating inequality. However, this should only be expected when corruption takes the form of looting (embezzlement). When it takes the form of cheating (vote-buying), it may actually reduce inequality as it involves resource distribution and building of clientelistic linkages. It is the level of political competition rather than regional differences that determines the distributional effects of corruption in Asia and Latin America. This article has profound implications for the study of corruption and policy outcomes, suggesting that the level of political competition is a key factor in determining the outcomes of corruption.

Keywords

Income inequality, spending, corruption, political competition, Asia, Latin America

Government spending is generally regarded as a strong determinant of income distribution. However, the effect of government spending is far from predetermined. Public expenses are controlled by politicians and administered via bureaucrats who may be motivated to abuse their power in various ways. This point can be illustrated more clearly when examining the level of corruption. Through a comparative analysis of Asia and Latin America, I find that the effects of corruption and spending are not uniform. An increase in government spending leads to a more biased distribution of income at high levels of corruption in Asia, while the opposite is true for Latin America. I will attempt to explain this anomaly, in the second part of this paper, by using two concepts of corruption introduced by Nyblade and Reed (2008): "looting" (private gain) and "cheating" (vote-buying), which lead to the divergent distributional pattern. It is further argued that political competition is able to

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capture the (relatively) dominant form of corruption, as it is assumed that vote-buying will be more widespread in competitive systems. After accounting for political competition, the pattern of corruption identified above is no longer found to be region-specific.

Corruption is commonly defined as the abuse of public power for private benefit (e.g. Shleifer and Vishny, 1993; Tanzi, 1998). This definition leads to the expectation that corruption gains are concentrated in the hands of elites who belong to high-income groups. Corruption also affects the normal dispensing of government services, hurting those who rely most heavily on them, i.e. the poor. Therefore, the traditional view is that we should expect corruption to lead to a more biased distribution of income and wealth. However, central to this study is Nyblade and Reed's (2008) suggestion that corruption can take the form of either 'looting' or 'cheating'. The former mirrors the traditional definition of corruption, such as the exchange of political influence for private material gain, whereas the latter refers to 'the use of illicit means to enhance one's probability of being (re)elected' (Nyblade and Reed, 2008: 927). This can be considered as corruption if election to public offices is regarded as a private gain. The possibility of cheating may complicate the expected effect of corruption on inequality, as vote-buying and pork-barrel projects involve the distribution of benefits to a wider population. This may contribute to the lack of consensus on the exact effect of corruption on inequality in the literature. Gupta et al. (2002) find that corruption adversely affects poverty and income inequality (see also Mauro, 1998; You and Khagram, 2005). They suggest a range of possible mechanisms, including economic growth, tax systems, and social spending biased toward the rich, less social and education spending, and less physical and human investment, but no evidence for any of these channels is provided.[1] Chong and Calderon (2000) argue that corruption pushes up inequality before reducing it, thus the effect is non-linear. They specifically find that corruption tends to be associated with lower inequality in less-developed countries due to the existence of the informal sector. Building on this argument, recent studies (e.g. Andres and Ramlogan-Dobson, 2011; Dobson and Ramlogan-Dobson, 2012) argue that corruption actually reduces inequality, going against conventional wisdom.

These mixed findings suggest a complex relationship between corruption and inequality (similarly for spending and inequality, as discussed below). I argue that the inconsistent findings in both literatures can be explained by jointly considering the effect of government spending, which can amplify that of corruption. Strictly speaking, corruption pertains to sporadic acts of bribery between two parties, which is unlikely to significantly and consistently affect the overall distribution of income throughout the entire population. While confirming that corruption has no direct effect on inequality, I analyze the interactive effect of public spending and corruption and establishes a significant result. Corruption is no longer an act with limited consequences when considered in association with government spending, but has the potential to affect all sectors in society.

This study contributes to the literature in a number of ways. First, I clarify the effect of corruption on income distribution by identifying their conditional association. I suggest an underlying causal argument from corruption and spending to distributional outcomes and support it empirically. Second, complementing previous works that classify different types of corruption (e.g. Johnston, 2005), I expand the concept by incorporating the distinction between cheating and looting, and, more importantly, by showing that the extent of political competition is a key factor in identifying the predominant form of corruption. Finally, though initially a regional-centered analysis is carried out, I find that the apparent divergence between Latin American and Asian countries can be explained with a more rigorous framework. This shows not only the generalizability of my theoretical arguments, but also that corruption is a highly comparable phenomenon across the world.

The remainder of the paper is organized as follows. I begin by reviewing the existing literature on spending, corruption, and inequality, followed by a brief discussion about this study's

comparative design. The theoretical arguments, methodology, and data are then introduced. The subsequent section tests the hypotheses. The article concludes with a discussion of the findings and their implications.

Overview of the literature

Spending and inequality

The mass of literature dedicated to the relationship between spending and inequality attests to its importance, but is only briefly reviewed here. A larger public sector is generally believed to decrease the level of income inequality through greater redistribution, but even democratic governments are under no obligation to benefit all citizens equally (Ross, 2006). In the reverse causal direction, a higher level of inequality is also found to suppress social spending, which is at odds with the influential median-voter model proposed by Meltzer and Richard (1981). This is known as the Robin Hood paradox: spending is lowest in places where it is most needed (Lindert, 2004). This is most evident in Latin America, a region with the highest level of inequality but only modest social spending. While social spending is a strong predictor of equality in advanced industrial countries, Huber and Stephens (2012) find that this is not the case in Latin America.

Given the inconclusive findings, some studies suggest that the effect of spending depends on other factors. Persson and Tabellini (2003) provide evidence that the focus on narrow interests of politicians in plurality systems results in lower social spending than in proportional systems. Pritchett (1996) surveys the literature and argues that the differences may be caused by a number of reasons, including corruption and patronage. Following this line of enquiry, Rajkumar and Swaroop (2008) argue that public spending only produces the desired outcome under good governance, including the prevention of corruption. This review demonstrates that, in the main, government spending is treated as a homogenous factor with an expected outcome in one direction. Even with corruption as an additional factor, the dynamics are assumed to be uniform, which is where this research departs from the literature.

Corruption and spending

Corruption can plausibly affect the level and composition of government spending. The evidence for the association between the level of government spending and corruption is weak (Montinola and Jackman, 2002), but it is generally accepted that corruption leads to higher spending in sectors with greater rent-seeking potential and less transparent procurement rules (such as military spending; Shleifer and Vishny, 1993), which allow for great flexibility and thus more corruption opportunities (Delavallade, 2006).

What is largely missing from the literature is an account of how corruption may change the underlying nature of the same type of spending. For example, education spending uses mature and widely available technology, and so should not be very vulnerable to corruption (Mauro, 1998; Shleifer and Vishny, 1993), but politicians and bureaucrats who allocate and distribute resources (within the education sector after the overall budget is designated) can still plausibly engage in corruption if the circumstances are right. A study in Uganda found that over 85% of the education budget either disappeared or was used for other purposes (Ablo and Reinikka, 1998). It is plausible that corruption can affect the distribution of public expenditures regardless of their nature and intended purpose. This leads to the formation of my causal arguments.

Table 1. Average values of key variables by region.

	Spend	Corruption	Gini
Asia	10.82	5.52	37.48
Latin America	12.19	5.86	49.13
OECD	19.66	2.39	29.77
Rest of Euro	18.57	5.41	32.85
Other	15.92	5.63	39.81

Notes: Refer to text for data description. See Supplementary Material for the list of countries included.

Research design: Asia and Latin America

This research focuses on Asia and Latin America, which are often compared on account of similarities in economic and political development (e.g. Haggard and Kaufman, 2008). The comparison is also an integral part of my research design: Latin America and Asia take on similar values in the explanatory variables (corruption and government expenditures) and yet display a great divergence in the dependent variable (income inequality). Taiwan and Korea have highly egalitarian income distributions given their level of development because of land reforms and education expansion, but the same cannot be said of Latin American countries (Haggard and Kaufman, 2008). Table 1 shows that the levels of corruption are higher in both continents than in OECD countries or even the rest of Europe. The average levels of public spending in Asia and Latin America are very low, at 10.82% and 12.19% (of GDP) respectively, as opposed to 19.66% in OECD countries. However, the average net income inequality is 37.48 in Asia and as high as 49.13 in Latin America. Controlling for other factors, such a setup enables a most-similar design to be approximated, which can be used to investigate the underlying inequality-generating processes in the two regions.

There are other theoretical and practical reasons to start the analysis regionally. In cross-sectional studies, the effects of unobservable factors, such as cultural background, can be problematic. The dynamics of corruption might unfold in distinctive ways across regions, or even form 'cultures' of corruption (Xin and Rudel, 2004). Moreover, as I use subjective measurements of corruption, which are based on the respondents' perceptions and thus more comparable intra-regionally, a regional analysis is appropriate. However, as I will demonstrate, the apparent differences in corruption norms and behavior between Latin America and Asia can be explained by an improved theoretical framework.

Arguments

I previously noted a lack of consensus on the relationship between corruption and income inequality. Before going into the main arguments, I argue that corruption does not have an independent effect on the distribution of income (there is an interactive effect discussed below) as, strictly speaking, it only involves the illegitimate activities of corrupted individuals. These transactions are very unlikely to have a consistent and significant effect on the economy-wide distribution of income, which is captured by comparative indicators.[2] This leads to my first hypothesis:

H1: Corruption has no direct effect on income inequality.

This study primarily investigates the interaction between corruption and public spending. Corruption will initially be defined as the traditional concept of looting. While corrupt officials, by

themselves, cannot systematically affect country-level income inequality, it can occur if they have access to a large government budget. The effect of corruption on income inequality can be amplified by the extent of government spending. Therefore, the distributional effect of spending cannot be accurately predicted without taking corruption into account, and vice versa for the distributional effect of corruption.

In a country with pervasive corruption, increased government spending will give officials greater freedom to pursue rent-seeking activities (e.g. procurement spending or extrabudgetary accounts; Tanzi, 1998). The excess funds can be directed at procurements earmarked for themselves and their colleagues at an inflated price. Newly created high-level positions within the government or nationalized companies can also fall into the hands of the same elite group. Income inequality is therefore expected to increase with government spending in countries where corruption is rife. When a country is relatively free from corruption, a surge in expenditure will translate into actual resources available for distribution. More will be allocated to social spending, leading to income being distributed more equitably. Two hypotheses can therefore be formulated, and are discussed further below:

H2: Income inequality decreases with government spending in countries with low levels of corruption.

H3: Income inequality increases with government spending in countries with high levels of corruption.

Alternative forms of corruption: Cheating vs looting

Here, I suggest that the theoretical arguments underlying H2 and H3 are actually conditional. The hypotheses are developed following the standard definition of corruption as the abuse of public office for private gain (usually equivalent to material gains), but this could still include different forms of corruption. Johnston (2005: 9–10, emphasis original) suggests that, 'high-corruption societies do not just diverge from the ideal but *differ from each other'.* More relevant to this study, Nyblade and Reed (2008) suggest that the concepts of looting and cheating can both be accommodated under the broader framework of corruption. They argue that cheating, most notably vote-buying, can be considered as corruption if winning an election is a private gain. The distinction between cheating and looting has significant implications for the distribution of income. Looting increases inequality when combined with higher levels of government spending, as outlined above, while cheating involves politicians handing out benefits to voters in exchange for votes. These benefits can be in the form of cash or gifts during the election period, or pork-barrel projects after the briber wins the election, which is expected to reduce inequality. Although inequality usually sustains clientelistic practices (more resources for the rich to spend on vote-buying), the effect of clientelism on inequality has seldom been systematically analyzed (the same difficulty as facing studies of corruption on inequality). It has, however, been well-established at the micro level that clientelistic benefits go primarily to the poor as their votes are cheaper to buy (e.g. Calvo and Murillo, 2004; Stokes, 2005) and they prefer immediate over programmatic benefits (Kitschelt, 2000). Similarly, Debs and Helmke (2010) provide a model explaining why bribes never go to rich voters, but exclusively to the poor. These arguments all suggest that benefits can decrease income inequality, at least in the short-run.

A high level of corruption alone is therefore insufficient to predict its effect on income distribution without knowing whether cheating or looting is involved, but, as we will discuss below, the measures of corruption are generally not well-developed, let alone measures of cheating and

looting. Alternative indicators must be used to provide additional information, and I argue that political competition can capture the prevalence of vote-buying as opposed to looting. I do not intend to argue that elites must choose between buying votes and looting; it is highly likely that elites, especially the powerful, do both. The point is that political competition can induce them to carry out more vote-buying relative to looting, which favorably shifts the distributive effect of corruption (i.e. decreases income inequality).

Political competition: The missing link

In this study, I do not investigate the effect of political competition on corruption, but instead argue that it has an effect on the form of corruption. Focusing on the British system, Doig (1984) argues that the most serious corruption cases are found where political competition is weak, but this is challenged by Schlesinger and Meier (2002) with evidence from the US. It is more likely that the 'cases of serious corruption' Doig (1984) is referring to are the high-profile looting of state resources rather than vote-buying and pork-barrel politics, which would bring his arguments in line with the ones suggested below.

According to Nyblade and Reed (2008), electoral stability should be more conducive to looting as incumbents are less worried about competitors and vote-buying. I generalize this idea and suggest that political competition is the predictor of the proportion of vote-buying versus looting, which in turn determines the direction of the effect of corruption on inequality. Assuming politicians are office-seeking, they must devote a certain level of resource (patronage and clientelistic networks) to ensure (re-)election. A more contested political arena tends to drive up the total expenditure of resources as voters are less loyal (each politician spends more) and there are more competitors (spenders). Therefore, cheating should increase with the level of political competition. This idea can also be formulated as a simple model, as elaborated in the Supplementary Material (available from http://ips.sagepub.com).

Despite their comparability, a fundamental difference between Asia and Latin America is the political context. Latin America is much more democratic than Asia. The average Polity score for Latin American countries included in this study is 8.0 (on the scale of −10 to +10), and the corresponding figure for Asia is 4.1. Elections are simply not as common in Asia and the level of political competition is much lower. Even in Japan, the oldest democracy in the region, power transition between parties is very rare. Latin America has more elections and a greater degree of political competition, and the extent of electoral volatility is considerably higher, so we should logically expect more cheating. Indeed, it is generally believed that many parties and candidates rely on building clientelistic links when running for office in Latin America (e.g. Calvo and Murillo, 2004). Diaz-Cayeros and Magaloni (2009) find a positive correlation between support for democracy and the perceptions of clientelism, further confirming the widespread use of such electoral strategies in the region.

As Latin America in general has greater political competition, corruption in the form of cheating is predominant (again, this does not rule out the fact that politicians do both; only that they do one more than the other). This contrasts with Asia where looting is more prevalent. This difference explains why Latin America might not fit with the hypotheses developed above, when corruption is viewed as looting (H2 and H3). Depending on other factors, an insignificant or opposite pattern may result. However, once we take political competition into account, the hypotheses developed above can be applied even when the two groups of countries are pooled together. The two hypotheses will be tested in the second half of the empirical analysis below:

> H4: In cases of low political competition, income inequality increases with government spending and corruption.

H5: In cases of high political competition, income inequality decreases with government spending and corruption.

Methodology and data

This study adopts a time-series cross-sectional design, with country-year as the unit of analysis. The unbalanced panel includes 16 Asian and 18 Latin American countries spanning 1996 to 2009. All models are estimated using the Prais–Winsten AR(1) process with robust standard errors. Country fixed effects are also included to take away unit heterogeneity. To ensure the robustness of the results, alternative models including random effects and lagged dependent variables are tested (other tests are discussed below). On account of the limitation of space, the discussion of these tests and full results can be found in the online Supplementary Material.[3]

The main independent variable is corruption. Given the difficulty in measuring it directly, particularly in a standardized manner across countries, perceptions of corruption are commonly used in the literature. The Corruption Perceptions Index compiled by Transparency International (TI) is the most popular measure, but their scores are less suitable for us here. The Index reflects comparative ranking of countries based on the underlying data, which does not reflect within-unit variations over time.[4] It is, however, possible to identify cross-country and over-time changes using the Worldwide Governance Indicators (WGI) provided by the World Bank (Kaufmann et al., 2010), which uses a similar methodology (but see Treisman, 2007).[5] The 30 underlying data sources (including the TI) are rescaled and combined, and a series of six composite indicators are then estimated and aggregated with an unobserved components model. Although there are objections against the use of subjective indicators of corruption (e.g. Olken, 2009), Kaufmann et al. (2010) provide arguments in support of using perception measures. Most importantly, non-perception-based measures of corruption are virtually non-existent in cross-national comparisons.

As one of the six dimensions of governance, the WGI corruption data measures the extent to which public power is used for private gain, comprising aggregated perceptions of the survey respondents. The original series ranges approximately from −2.5 to +2.5, with a higher figure representing a better control of corruption. For ease of interpretation, it is transformed into an index of corruption from 0 to 10, with 10 being the most corrupt. The country with the highest level of corruption was Cambodia (7.12) in Asia and Paraguay (7.7) in Latin America; while Singapore (0.49) and Chile (2.28) were the least corrupt in the two regions, respectively. The other independent variable is government spending as a share of GDP, taken from the World Bank World Development Indicators (WDI).[6] The highest spenders in the two regions were Taiwan, averaging 23% of its GDP, and Brazil with 19.9%. The lowest were Bangladesh with below 5% and Guatemala at 7.84%.

The main dependent variable, income inequality, is commonly measured by the Gini coefficient. It theoretically ranges from 0, which indicates perfect equality among income recipients, to 100 when one recipient has all the income. Analyses of inequality are made more difficult as raw data are usually not directly comparable. They are based on different definitions such as expenditure-based surveys and gross (employment/market wage) versus net income (gross income plus government tax and transfers). Although the World Income Inequality Database (WIID) provided by the UNU-WIDER is the most extensive database of income inequality, it suffers from the same shortcoming. To improve the comparability of WIID, Solt (2009) created a ‘Standardized WIID’ (SWIID) by smoothing the country series, estimating ratios across units of observation, region, and time with multilevel modeling, and finally adjusting for data categories. Version 3.1, released in 2011, is used here. It provides a wide coverage across time and case by incorporating multiple data sources. SWIID is currently a widely used dataset of inequality for cross-national studies. The

Table 2. Government spending, corruption, and income inequality.

		Low corruption	High corruption
Asia	Low spending	Singapore (40), Sri Lanka (41), Thailand (47)	Bangladesh (36), Cambodia (43), India (34), Indonesia (34), Pakistan (32), Vietnam (36)
	High spending	Japan (31), South Korea (30), Malaysia (42), Mongolia (33), Taiwan (30)	China (39), Philippines (44)
Latin America	Low spending	Chile (52), Mexico (48), Peru (53), Uruguay (42)	Dominican Republic (47), Ecuador (52), El Salvador (47), Guatemala (52), Nicaragua (51), Paraguay (52), Venezuela (44)
	High spending	Argentina (46), Brazil (51), Colombia (51), Costa Rica (44), Panama (51)	Bolivia (54), Honduras (51)

Notes: Average income inequality is in parentheses. Refer to text for data description. Corruption and spending are divided into high/low separately for Asia and Latin America.

measure based on net income is used in this research as it takes both market distribution and government responses into account, which fits with the theoretical arguments. A rough classification of the cases by their levels of spending and corruption can be found in Table 2.

Numerous control variables are included in this study. The nature of the political regime is captured by the 21-point Polity IV variable from full autocracy (−10) to full democracy (+10) (Marshall et al., 2011). Democracy is considered as one of the most important determinants of redistributive policy, particularly in Latin America (Huber and Stephens, 2012). Economic development is an obvious factor of income inequality and government redistribution. Logged GDP per capita and its squared term are also inserted into the models to capture the Kuznets curve (1955). Trade openness is believed to increase social spending as the state seeks to compensate workers who are exposed to market risks (e.g. Cameron, 1978). It is measured as the sum of import and export as a percentage of GDP. Oil as a share of GDP is used to account for resource-rich regimes that can afford to gain legitimacy by redistributing (Ross, 2001). Taxation (as a share of GDP), in addition to spending, could affect redistribution because of its potentially progressive nature. Demographic factors, including unemployment and the proportion of the population over 65, are also included as control variables.[7] With the exception of democracy, all control variables are taken from the WDI.[8]

Capturing cheating vs looting with political competition

To capture the degree of political competition, a component of the Polity democracy measure, POLCOMP, is used (Marshall et al., 2011), which consists of two concepts, regulation of participation (PARREG) and competitiveness of participation (PARCOMP). The extent to which political participation is regulated is measured with PARREG, irrespective of competitiveness. For example, one-party states and democracies both regulate participation through stable and enduring political groups. A 5-category dimension is created this way (the other four being unregulated, multiple identity, sectarian, and restricted participation). PARCOMP reflects the degree to which alternative preferences can be pursued. It is also a 5-category scale ranging from repressed, to suppressed, factional, transitional, and competitive. By combining the two dimensions, a 10-point measure of political competition is created. The lowest score (1) represents a suppressed Polity (PARREG: restricted; PARCOMP: repressed), and 10 represents an institutionalized electoral system (PARREG: regulated; PARCOMP: competitive). The full Polity score is widely used in the literature, but specific

components have also been used. For example, Goldstone et al. (2010) forecast political stability and demonstrate that components of Polity are also theoretically significant (more so than the overall measure in their case) in reflecting the underlying nature of the regime, which reflects of the utility of these measures.

There may be concerns about using POLCOMP as an indicator of vote-buying, but while its limitations have been acknowledged, it serves reasonably well as a proxy given the severe lack of comparative data in this area. The Comparative Study of Electoral Systems data on corruption, for example (with questions worded in a way that can help distinguish cheating and looting), are only available for five cases in our sample. Although the Index of Electoral Malpractice (Birch, 2011) would be ideal as it offers a breakdown of a range of electoral irregularities, it does not cover Asian countries. Nevertheless, some interesting insights can be drawn. In the 1990s Costa Rica always returned the highest (10) score in POLCOMP, yet its level of "misuse of campaign resource"[9] was also very high by regional standards (4 on a scale of 1–5, where a higher value means greater malpractice). Bolivia's WGI corruption score improved from above 7 to below 6 from 2002 to 2006. While there is no obvious way of attributing this to changes in cheating or looting, Bolivia's level of political competition dropped during that period (from 9 to 7). It is perhaps revealing that the extent of "misuse of campaign resource" also improved slightly (Birch, 2011), suggesting that POLCOMP may be capturing some of the underlying dynamics. Again, these examples obviously suffer from selection bias and are not representative, but they do indeed highlight the possibility that POLCOMP might have the power to partially capture the extent of cheating vis-à-vis looting, particularly with the lack of viable alternatives.[10]

Results

I provide empirical results for the suggested hypotheses below, but before examining the regression models, some preliminary patterns found Table 2 should be noted. If the sample is divided by either spending or corruption alone, neither emerges as a good predictor of inequality, but once both factors are considered, it is clear that a higher level of inequality can be found in Asian countries with low corruption and spending (upper left; mean inequality = 42.67), and with high corruption and spending (bottom right; 41.5). High levels of corruption and low spending (upper right = 35.83) or high spending and low corruption (33.2) are characterized by a much lower inequality level, which is in line with our theoretical predictions H2 and H3. However, no corresponding interaction effects is found for Latin American countries (in the same order as above, the mean inequality of the four cells are 48.75, 52.5, 49.29, and 48, respectively). These contrasting results will be further assessed statistically.

Table 3 presents the regressions of the effect of government spending and corruption on income inequality.[11] Corruption and spending are entered in the regression first, followed by their interactive term. In model 1, neither corruption nor government spending significantly affect income inequality in all cases. Separating the cases into regions returns the same result (not shown).[12] Corruption has no direct effect on inequality as expected. This confirms H1.

The interactive effect of corruption and spending is then tested with the inclusion of the interactive term. In models 2 and 3, opposite patterns can be found in Asian and Latin American cases. All three variables possess opposite signs and they are at least significant at the 0.1 level. More importantly, following Kam and Franzese (2007), an F-test for corruption and the interaction term for Latin America (the weakest pair) show that they are jointly significant at the 0.05 level. Following the suggestions of Brambor et al. (2006), the interaction effects are presented in a graph of the marginal effects of spending on inequality for Latin America and Asia in Figure 1(a) and (b). The solid line represents the marginal effect while the broken lines show the 95% confidence intervals.

Table 3. Effects of corruption and spending on income inequality.

	1	2	3
Sample	All	Latin America	Asia
Spending	0.049	0.51**	–0.57**
	(0.061)	(0.19)	(0.23)
Corruption	0.37	1.01*	–0.92*
	(0.23)	(0.53)	(0.54)
Spending*Corruption		–0.076**	0.13***
		(0.030)	(0.041)
Polity	–0.026	0.0079	–0.031
	(0.055)	(0.067)	(0.058)
Log GDPPC	5.01	–8.48**	5.88**
	(3.21)	(4.14)	(2.85)
Log GDPPC–sq.	–0.30	0.49*	–0.32*
	(0.19)	(0.25)	(0.18)
Trade	0.0079	0.0059	0.016*
	(0.0069)	(0.0068)	(0.0089)
Oil	–0.039	–0.050	–0.37
	(0.050)	(0.040)	(0.32)
Tax	–0.063	0.023	–0.096
	(0.056)	(0.052)	(0.074)
Unemployment	0.020	0.038	–0.092
	(0.044)	(0.048)	(0.12)
Population 65+	–0.30	–1.85***	0.31
	(0.25)	(0.50)	(0.19)
N, #Countries	270, 34	140, 18	130, 16
R–squared	0.983	0.995	0.972

Notes: ***p = 0.01, **p = 0.05, *p = 0.10. Dependent variable is income inequality measured as Gini coefficients. All models are run with Prais–Winsten AR(1) estimation with robust standard errors in parentheses. Constant terms and fixed effects are included but not shown.

An effect is statistically significant at the 0.05 level when the boundaries do not include the horizontal line y = 0. Estimates from Asian cases show that when corruption is high (approximately above 7), public spending has a significant effect in increasing inequality; a significant but opposite effect can be found when corruption is low (below 2). This confirms H2 and H3 for Asia.

However, this is not found for Latin American cases plotted in Figure 1(b). In line with the opposite coefficients in the regressions, the directions of the effects are different from the Asian cases. Here, when corruption is low (< 5), spending significantly decreases income inequality, and the reverse is true when corruption is high (> 9). Not only are H2 and H3 not applicable in Latin America, but the exact opposite holds. This pair of opposite patterns is also robust to a range of alternative specifications, discussed in detail in the Supplementary Material.

Table 4 shows the results of regressions estimated with the same specification as above; the only difference is the sample selection criteria (and the exclusion of Polity as a control as it correlates with political competition; putting it back does not change the results, as reported in the Supplementary Material). I have shown that Asian and Latin American cases demonstrate diametrically opposite patterns. Here, cases are pooled together regardless of region, with selection based on the level of political competition and spending. Results are reported for cases with low and high POLCOMP in

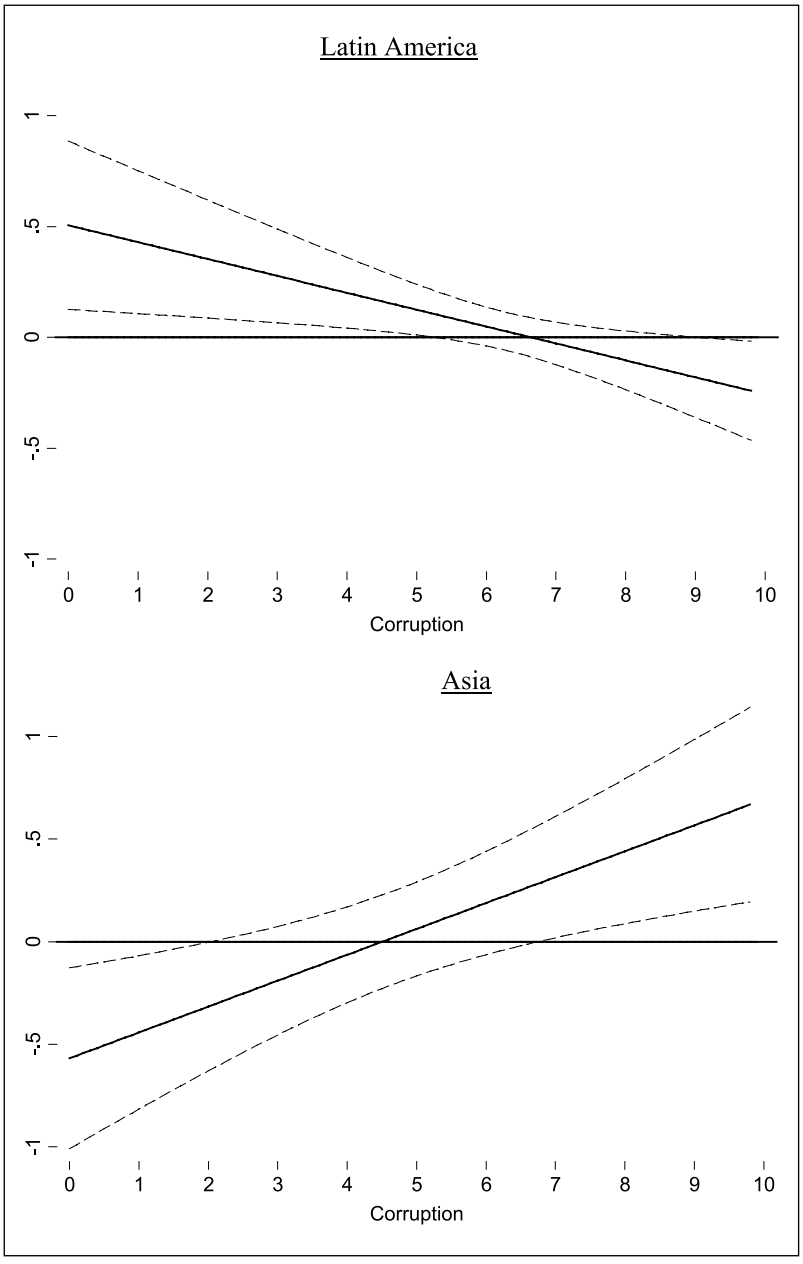

Figure 1. Marginal effects of spending on income inequality by region.
Notes:Graph of marginal effect of government spending on inequality in Latin America (a) and Asia (b). The broken lines represent the 95% confidence interval (two-tailed). Plotted with the coefficient matrix and the variance-covariance matrix of models 2 and 3. See Brambor et al. (2006) for a description of the methods and the computer code used to generate the graph.

models 4 and 5, respectively. The cut-off is set at 7 as the distribution is skewed. In the low competition group, the coefficients of spending and the interaction term with corruption reach conventional

Table 4. Effects of spending on inequality: Corruption and political competition.

Specification	4	5	6	7	8
	POLCOMP < 7	*POLCOMP* >= 7	High spend and low competition	High spend and low competition	All
Spending	–1.01***	0.24	–1.25**	–1.01	0.26
	(0.36)	(0.17)	(0.47)	(0.61)	(0.16)
Corruption	–1.25	0.61	4.14***	3.41**	1.25***
	(0.83)	(0.46)	(0.87)	(1.22)	(0.48)
Spending*Corruption	0.21***	–0.035			–0.072***
	(0.067)	(0.027)			(0.028)
POLCOMP					0.36
					(0.34)
Corruption*POLCOMP					–0.12**
					(0.050)
Spending*Corruption*POLCOMP					0.0068***
					(0.0023)
Fixed Effects	Y	Y	N	Y	Y
N, #Countries	61, 9	215, 27	35, 4	35, 4	270, 36
R–squared	0.972	0.991	0.977	0.980	0.981

Notes: ***p = 0.01, **p = 0.05, *p = 0.10. Dependent variable is income inequality measured as Gini coefficients. All models are run with Prais–Winsten AR(1) estimation with robust standard errors in parentheses. Constant terms and control variables (with the exception of Polity) are included but not shown. Fixed effects are included in all models except model 6. Samples of high/low spending and competition can be found in Tables 2 and A3 (Supplementary Material).

levels of significance. The F-test shows they are jointly significant (Kam and Franzese, 2007). A graphical representation of the marginal effects of spending on inequality for low competition cases is presented in Figure 2 with the estimates from model 4. In this group of cases, spending significantly decreases income inequality when corruption is kept at a low level, and pushes up inequality when corruption is high. No significant results are found for the high competition group.

From models 4 and 5, it could be argued that the result is driven by outliers, particularly in the less competitive group. This is complicated by the fact that the POLCOMP < 7 group mainly consists of Asian cases given the higher level of political competition in Latin America, which could mean little even if model 4 resembles the estimates of the Asia model (model 3). It is imperative to identify the effects accurately, ideally in both regions.

Next, cases are classified by their level of competition by region (separate cut-off for each region).[13] The distribution of cases can be found in Table 2 and the Supplementary Material. I focus on the group of cases with low competition and high spending (including low/high corruption).[14] According to the argument, this group should demonstrate the most clear-cut effect of corruption on inequality (corruption is primarily looting under low competition; high spending amplifies its distributional effect). As there are only four cases, fixed effects are not included in model 6, and they are put back in model 7 (the standard set of controls are used in both; removing spending does not affect the significance of corruption). The results are the same, showing that corruption has a positive and significant effect on inequality. Finally, as I test an effect with only four cases, the impact of outliers arguably more acute, so model 8 tests all cases with all explanatory variables and their interaction terms included (spending, corruption, POLCOMP, the two interaction terms, and a term where all three variables interact). Although this is arguably the most proper way of testing

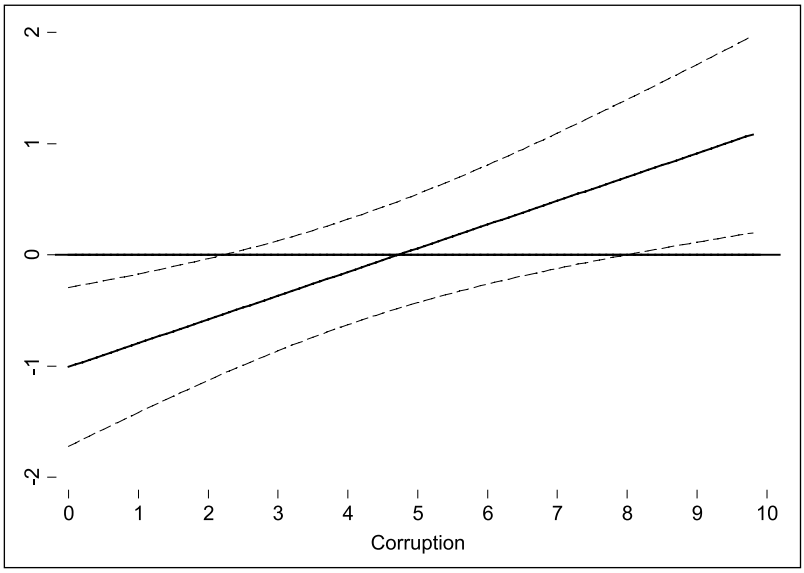

Figure 2. Marginal effects of spending on inequality when competition is low.
*Notes:*Graph of marginal effect of government spending on inequality in cases with low political competition. Plotted based on the estimations of model 4. Refer to Figure 1 for further information.

my arguments, interpreting the results would be extremely complicated (holding one dimension constant would take us back to the previous models). Most importantly, all interaction terms are significant, showing that the main results are not driven by outliers, and hold true for all countries in the sample. Further robustness tests on outliers can be found in the Supplementary Material.

In summary, the main hypotheses are supported when the level of political competition is low, i.e. income inequality decreases with government spending at low levels of corruption and vice versa. No consistent results are found when the political system is highly competitive. This confirms H4, but not H5. I suggest that as the system becomes more competitive (therefore more cheating than looting), the adverse effect of corruption on inequality is diluted and becomes insignificant. The insignificant result of H5 should not be considered as a weakness of this research. I will explain this further in the conclusion.

Finally, there is the issue of endogeneity. As noted, the literature is not conclusive on the exact relationship (positive/negative association and causal direction) of the main variables, and similarly I find that the same pair of variables can be correlated in opposite directions across regions. For example, while POLCOMP is correlated with corruption at 0.32 in Asia, for Latin America it is −0.56 (full descriptive statistics are in the Supplementary Material). Discussions and tests of endogeneity are provided in the Supplementary Material, but these are by no means perfect fixes.[15] A comprehensive assessment of alternative causal accounts would not be easy, given the number of factors in the research.[16] I argue that the suggested causal scenario is the most likely, as it can explain the unique empirical patterns reported.

Conclusion

This study investigates the dynamics of corruption and spending on the distribution of income in Asia and Latin America. Corruption has not been found to be directly associated with income

inequality, but it strongly conditions the distributive consequence of government spending. Increased spending in corrupt systems is expected to produce a concentration of resources in the hands of the elites. However, initial analysis shows that only Asian cases fit this argument, and the opposite is found for Latin America.

Without resorting to cultural explanations, the seemingly irreconcilable difference between Latin America and Asia can be explained with a nuanced conceptualization of corruption. Following Nyblade and Reed (2008), I distinguish between two forms of corruption. Looting approximates the traditional definition of corruption as the abuse of power for private benefits. Cheating refers to the use of illicit means, notably vote-buying, to increase the chance of winning an election. This can offset or reverse the effect of corruption on income inequality, if resources are diverted to build clientelistic networks for electoral purposes.

I argue that the level of political competition can capture this view of corruption. Less competitive elections enable politicians to engage in looting as they are less concerned about their electoral performance. The initial hypotheses applies to Asia, as its countries are generally less democratic and competitive. Corruption more often comes in the form of looting (relative to cheating). Conversely, Latin American countries are much more competitive, so cheating is the more common form of corruption. This offsets the hypothesized effects of spending on inequality. After political competition levels are included in the empirical analysis, significant results emerge even when all countries are pooled together. In other words, the divergent regional-specific consequences of corruption are explained away. As my theoretical arguments only suggest that cheating has an opposite distributive effect, there is no way to tell if an insignificant or a significant but opposite pattern will emerge. As the actual distributive outcome in competitive systems depends on a range of factors, including the exact proportion of cheating versus looting and their respective effects on inequality, at this point no systematic patterns can be expected. If Nyblade and Reed's (2008) hypothesis is correct, competition might increase cheating rather than looting, but the correlation between competition and 'overall corruption' may be zero, leading to the erroneous conclusion that political competition (or democracy) does not affect corruption. Policymakers must address the form of the underlying corruption when assessing the effectiveness of anti-corruption measures.

A major limitation of my empirical section is the problem of causal identification. I acknowledge potential endogeneity has not been thoroughly addressed in this study, for both practical (the number of variables I focused on) and theoretical (a lack of reliable, conclusive literature) reasons. A more rigorous treatment of this issue in future studies would be beneficial, and an in-depth investigation of the other determinants of inequality to understand more clearly the distributive effects of corruption. In addition, political competition is used as a proxy for cheating/looting on account of the lack of appropriate data. This analysis should be regarded as preliminary and interpreted with caution. The fact that the hypotheses are supported by suboptimal data should encourage future efforts to collect better quality and more reliable data.

That equality can be improved by corruption is not that surprising, as a negative association between corruption and income inequality in Latin America is reported by others, including Dobson and Ramlogan-Dobson (2010, 2012), who suggest using the size of the informal sector as an intervening variable. Corruption is less harmful to equality when there is a large informal sector as businesses can operate informally and bypass poor institutions, boosting overall production and growth (Dobson and Ramlogan-Dobson, 2012). To the extent that the political economic environment of Latin America discussed (i.e. clientelistic resource distribution) is related to its informal sector, the two theoretical arguments are actually quite similar, but this interpretation is of course highly tentative and a more detailed analysis is out of the scope of this research.

This study contributes to the development of a more systematic account of corruption. A noteworthy contribution is Johnston's (2005) four-fold typology, namely Influence Markets, Elite

Cartels, Oligarchs, and Official Moguls. To summarize briefly, the first two types tend to be more competitive and require more funding for electoral campaigns. Political elites in Oligarchs, and particularly Official Moguls, 'enrich themselves through corruption more or less at will' (Johnston, 2005: 155). Most of Asian cases are classified as these two types, which fit the logic of uncompetitive systems and looting. The more democratic Asian cases of Japan and Korea are, however, examples of Influence Markets and Elite Cartels. This should not be too surprising as the Polity score is also used by Johnston (2005) as an indicator for regime classification, but this provides a way for my findings to be generalized and interpreted against the wider phenomenon of corruption. My results can also empirically complement Johnston's (2005) typology, focusing on the aspects of competition and distributive outcomes.

Finally, the severe limitations of narrowly focusing on government spending or corruption are exposed. Corruption changes the behavior of bureaucrats and politicians and how the money is actually spent. The two-way interaction between spending and corruption explains the distributive outcome in Asia when corruption alone is examined, but not in Latin America. The regional patterns can only be accounted for when the level of political competition is considered and a more comprehensive definition of corruption is used. The results call for a more careful investigation of the actual meanings of commonly-used concepts and indicators such as corruption and government spending. A more positive contribution of this study is that divergent patterns across continents, which could be simply put down to cultural differences, can be bridged and satisfactorily explained when a more rigorous theoretical framework is formulated.

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Notes

1. They find the significance of corruption decreased once measures of GDP are included, but make no explicit reference as to whether this relates to the mechanism of economic growth.
2. It is noted that certain policies could be implemented as a result of corruption without involving spending, such as tariffs and the granting of monopoly control. However, they are not focused here as they do have a clear and direct effect on society-wide income distribution. Compared with an increase in public spending, which would create some beneficiaries in the economy immediately, these activities are causally more distant to income inequality, and their distributional effect depends on many other factors. I would like to thank an anonymous reviewer for pointing this out.
3. The Supplementary Material for this article is available at http://ips.sagepub.com.
4. Transparency International website: http://cpi.transparency.org/cpi2011/in_detail/#myAnchor6. Compared with the TI, the WGI dataset increases the number of available observations in this panel by about 30%. Some indices cover a longer time period (e.g. the International Country Risk Guide from 1984) but do not directly measure corruption.
5. World Governance Indicators website: http://info.worldbank.org/governance/wgi/index.aspx#faq-10. Some scholars contest that the WGI could not reflect changes over time because of its imprecision and various methodological issues (e.g. Knack, 2006; Treisman, 2007). These criticisms are dismissed by the WGI team (Kaufmann et al., 2007, 2010). Robustness tests transforming the panel into 5-year averages (to reduce measurement error and focus on long-term changes) can be found in the Supplementary Material.

6. As Taiwan is not included in the WDI database, all variables from WDI are instead taken from its National Statistics database.
7. Gaps are linearly interpolated. Unemployment figures for Mongolia and inflation figures for Chile and Venezuela are taken from the IMF World Economic Outlook for better coverage.
8. Government revenue (% GDP) and rate of economic growth are also tested as control variables, but do not affect the results and are insignificant in all models.
9. The original wording for this question is: 'Were the regulations governing the use of campaign resources observed?' (Birch, 2011: 177). This could potentially capture vote-buying and other pork-barrel activities, at least during the election period. While another question probes the extent of vote-buying, the author cautions that it might be biased (Birch, 2011: 48).
10. Kitschelt's (2013) project provides survey data on perceptions of the amount of effort parties spend on attracting voters. It gives cross-sectional (2008–2009) aggregate measures of 'preferential benefits' including components such as favorable regulations and access to government contracts, which are less relevant (the most relevant components are only available at the party-level). Interestingly, it is found that POLCOMP correlates with the aggregate measure (variable b15; the sum of five variables measuring the efforts in different aspects; a higher figure represents more effort; excludes perfect democracy with Polity score +10) at 0.47 in Asia, but is uncorrelated ($r = 0.00$) for Latin American cases. Whether this contrast is cultural (different conceptions of vote-buying) or operational (what is the comparative benchmark for 'major' or 'moderate' effort) must be left for further studies.
11. The opposite and significant effect of Log GDPPC could be explained by a further interactive effect between corruption and economic development, which is stronger in Latin America (same effect, but insignificant for Asia). Once this is included, the direction of the coefficient of GDPPC becomes the same as in the Asia model, and the original interactive effect remains.
12. Preliminary analysis shows that no significant results emerge even when a global sample is used.
13. Though the absolute level of competition (POLCOMP) in the 'low' group in Latin America is comparable to the 'high' group in Asia, comparing all cases only based on their political competition level would bring us back to the previous analysis (i.e. models 4 and 5).
14. The four cases are Bolivia, China, Colombia, and Malaysia. Refer to the Supplementary Material for detailed classifications.
15. For example, even the study by You and Khagram (2005: 153) focusing on corruption and inequality could not comprehensively tackle the confounding impact of reverse causality.
16. To highlight this, I argue that when holding spending constant at a high level, corruption will increase inequality when competition is low and reduce it under high competition. It could be suggested that a higher level of competition is made possible by less inequality (reversing the causal direction); and corruption and spending are unrelated. While this simple counter-argument could be ruled out empirically (1. the divergent pattern exists even before we introduce competition above; and 2. the interaction effects remain even when competition is held constant in Table 4), the point is that there are too many possibilities to be covered in a single article.

References

Ablo, Emmanuel and Ritva Reinikka (1998) *Do Budgets Really Matter? Evidence from Public Spending on Education and Health in Uganda*. Washington, DC: World Bank.

Andres, Antonio and Carlyn Ramlogan-Dobson (2011) Is Corruption Really Bad for Inequality? Evidence from Latin America. *Journal of Development Studies* 47(7): 959–976.

Birch, Sarah (2011) *Electoral Malpractice*. New York: Oxford University Press.

Brambor, Thomas, William Roberts Clark and Matt Golder (2006) Understanding Interaction Models: Improving empirical analyses. *Political Analysis* 14: 63–82.

Calvo, Ernesto and Maria Victoria Murillo (2004) Who Delivers? Partisan clients in the Argentine electoral market. *American Journal of Political Science* 48(4): 742–757.

Cameron, David (1978) The Expansion of the Public Economy: A comparative analysis. *American Political Science Review* 72(4): 1243–1261.

Chong, Alberto and Cesar Calderon (2000). Institutional Quality and Income Distribution. *Economic Development and Cultural Change* 48(4): 761–786.

Debs, Alexandre and Gretchen Helmke (2010) Inequality Under Democracy: Explaining the left decade in Latin America. *Quarterly Journal of Political Science* 5: 209–241.

Delavallade, Clara (2006) Corruption and Distribution of Public Spending in Developing Countries. *Journal of Economics and Finance* 30(2): 222–239.

Diaz-Cayeros, Alberto and Beatriz Magaloni (2009) Aiding Latin America's Poor. *Journal of Democracy*, 20(4): 36–49.

Dobson, Stephen and Carlyn Ramlogan-Dobson (2010) Is There a Trade-off Between Inequality and Corruption? Evidence from Latin America. *Economics Letters* 107(2): 102–104.

Dobson, Stephen and Carlyn Ramlogan-Dobson (2012) Why is Corruption Less Harmful to Income Inequality in Latin America? *World Development* 40(8): 1534–1545.

Doig, Alan (1984) *Corruption and Misconduct in Contemporary British Politics*. Harmondsworth: Penguin.

Goldstone, Jack, Robert Bates, David Epstein, Ted Gurr, Michael Lustik, Monty Marshall, Jay Ulfelder and Mark Woodward (2010) A Global Model for Forecasting Political Instability. *American Journal of Political Science* 54(1): 190–208.

Gupta, Sanjeev, Hamid Davoodi and Rosa Alonso-Terme (2002) Does Corruption Affect Income Inequality and Poverty? *Economics of Governance* 3: 23–45.

Haggard, Stephan and Robert Kaufman (2008) *Development, Democracy, and Welfare States*. Princeton, NJ: Princeton University Press.

Huber, Evelyn and John Stephens (2012) *Democracy and the Left: Social Policy and Inequality in Latin America*. Chicago, IL: University of Chicago Press.

Johnston, Michael (2005) *Syndromes of Corruption: Wealth, Power, and Democracy*. New York: Cambridge University Press.

Kam, Cindy and Robert Franzese (2007) *Modeling and Interpreting Interactive Hypotheses in Regression Analysis*. Ann Arbor: University of Michigan Press.

Kaufmann, Daniel, Aart Kraay and Massimo Mastruzzi (2007) *The Worldwide Governance Indicators Project: Answering the Critics*. Washington, DC: World Bank.

Kaufmann, Daniel, Aart Kraay and Massimo Mastruzzi (2010) *The Worldwide Governance Indicators: Methodology and Analytical Issues*. Washington, DC: World Bank.

Kitschelt, Herbert (2000) Linkages between Citizens and Politicians in Democratic Polities. *Comparative Political Studies* 33(6/7): 845–879.

Kitschelt, Herbert (2013) *Democratic Accountability and Linkages Project 2008–2009 Dataset*. Durham, NC: Duke University.

Knack, Steven (2006) *Measuring Corruption in Eastern Europe and Central Asia: A Critique of the Cross-country Indicators*. Washington, DC: World Bank.

Kuznets, Simon (1955) Economic Growth and Income Inequality. *American Economic Review* 45: 1–28.

Lindert, Peter (2004) *Growing Public: Social Spending and Economic Growth Since the Eighteenth Century*. New York: Cambridge University Press.

Marshall, Monty, Keith Jaggers and Ted Gurr (2011) *Polity IV Project: Regime Characteristics 1800–2010*. College Park: University of Maryland.

Mauro, Paulo (1998) Corruption and the Composition of Government Expenditure. *Journal of Public Economics* 69(2): 263–279.

Meltzer, Allan and Scott Richard (1981) A Rational Theory of the Size of Government. *Journal of Political Economy* 89: 914–927.

Montinola, Gabriella and Robert Jackman (2002) Sources of Corruption: A cross-country study. *British Journal of Political Science* 32: 147–170.

Nyblade, Benjamin and Steven Reed (2008) Who Cheats? Who Loots? Political competition and corruption in Japan, 1947–1993. *American Journal of Political Science* 52(4): 926–941.

Olken, Benjamin (2009) Corruption Perceptions vs Corruption Reality. *Journal of Public Economics* 93: 950–964.

Persson, Torsten and Guido Tabellini (2003) *The Economic Effects of Constitutions*. Cambridge: MIT Press.

Pritchett, Lant (1996) *Mind your Ps and Qs: The Cost of Public Investment is not the Value of Public Capital*. Washington, DC: World Bank.

Rajkumar, Andrew Sunil and Vinaya Swaroop (2008) Public Spending and Outcomes: Does governance matter? *Journal of Development Economics* 86: 96–111.

Ross, Michael (2001) Does Oil Hinder Democracy? *World Politics* 53(3): 325–361.

Ross, Michael (2006) Is Democracy Good for the Poor? *American Journal of Political Science* 50(4): 860–874.

Schlesinger, Thomas and Kenneth Meier (2002) Variations in Corruption Among the American States. In Arnold Heidenheimer and Michael Johnston (eds) *Poitical Corruption: Concepts and Contexts* 3rd edn. New Brunswick, NJ: Transaction Publishers.

Shleifer, Andrei and Robert Vishny (1993) Corruption. *Quarterly Journal of Economics* 108: 599–617.

Solt, Frederick (2009) Standardizing the World Income Inequality Database. *Social Science Quarterly* 90: 231–242.

Stokes, Susan (2005) Perverse Accountability: A formal model of machine politics with evidence from Argentina. *American Political Science Review* 99(3): 315–325.

Tanzi, Vito (1998) Corruption Around the World: Causes, consequences, scope and cures. *IMF Staff Papers* 45: 559–594.

Treisman, Daniel (2007) What Have We Learned about the Causes of Corruption from Ten Years of Cross-national Empirical Research? *Annual Review of Political Science* 10: 211–244.

Xin, Xiaohui and Thomas Rudel (2004) The Context for Political Corruption: A cross-national analysis. *Social Science Quarterly* 85(2): 294–309.

You, Jong-sung and Sanjeev Khagram (2005) A Comparative Study of Inequality and Corruption. *American Sociological Review* 70: 136–157.

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