

Institutional and Political Determinants of Private Participation in Infrastructure

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Abstract

We assembled a large panel of project-level technical and financial data as well as country-level economic, institutional, political, and governance variables to assess the determinants of private financing of infrastructure in emerging markets and developing economies. Controlling for economic characteristics, we find that overall private participation of infrastructure financing increases with freedom from corruption, rule of law, quality of regulations, and decreases with court disputes. We provide plausible explanations of deviations from this pattern when data are disaggregated at the sectoral level. We also found that legal systems—types of democracy or dictatorship—do not play a role in whether the private sector invests in infrastructure, but it increases with third-party government oversight, namely opposition party activity. Furthermore, freedom from corruption and government effectiveness seem to be endogenous to the political system. Our results do not vary when controlling for income inequality and across quartiles of experience, country wealth, and per capita income. The study shows that upstream “enabling” institutions, policies, and regulations and sector economics need to be addressed simultaneously to facilitate private infrastructure investment financing.

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Keywords: Private Participation in Infrastructure, Bureaucracy, Corruption, Regulation, Rule of Law

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I. Introduction

The links between infrastructure and development are well established. They include the impact of infrastructure on poverty alleviation, equity, growth, and specific development outcomes such as job creation, market access, health, and education (Straub 2008; Calderón and Servén 2004, 2008, 2010). These relationships are complex and dynamic; even with respect to growth and job creation, infrastructure effects are felt through multiple channels.¹ The demand for infrastructure is rising with the accelerating pace of globalization and urbanization. Every month in the developing world, more than five million people migrate to urban areas. This trend is compounded by the growing need for low CO₂ and climate-resilient investments to combat the challenges of climate change (Fay and Toman 2010; Bhattacharya and Romani 2013).

As a result of the fiscal constraints in many economies caused by the onset of the global financial crisis, government budgets—traditionally the major source of financing for infrastructure—cannot alone be expected to finance the infrastructure needs in emerging markets and developing economies (EMDEs). Yet the volume of private participation in financing infrastructure projects in EMDEs remains modest with respect to OECD countries.

Although there has been a significant increase in private participation in infrastructure (PPI) annual commitments over the last two decades (from USD 22 million in 1990 to USD 150 million 2013),² total investment in projects with some private participation represent less than 20 percent of the overall current level of investment in EMDE infrastructure (see Figure 1).³ Moreover, sampling from that set of investments indicate that nearly two-thirds of debt in PPI and one-third of equity comes from public financial institutions, such as state development banks, infrastructure funds or government-owned commercial banks. Moreover, approximately one-third of all PPI remains in the telecommunications sector which, with the onset of mobile telephony and competitive forms of internet-based services, has lost many of its natural monopoly features over this growth period (see Figure 2).

¹ See Agénor and Moreno-Dodson (2006) for an overview and Estache *et al.* (2013) and Schwartz *et al.* (2009) for a treatment of infrastructure's effects on jobs and growth.

² Private participation in infrastructure can be treated as equivalent to public-private partnerships recognizing that these numbers also include divestitures, asset sales, and auctions.

³ Investment in this paper refers to the resources the project company commits to invest in facilities during the contract period. Investments can be either in new facilities or in the expansion and modernization of existing facilities. Data entry varies across sectors: For projects other than telecommunications and large energy utilities, the total cost of developing or expanding the facility during the contract period is entered as investment data during the year of financial closure (for which data are typically available). For telecommunications projects and some large energy utilities, annual investments on facility expansion and modernization are entered as investment data in the year of investment when information is publicly available. Investments are recorded in millions of US dollars in either the year of financial closure or the year of investment as indicated above.

Figure 1: This figure presents the value (color bars and left y-axis) and number of projects (black line and right y-axis) of private investment in infrastructure in low and middle income countries, disaggregated into new (greenfield) and additional (brownfield) investments. The value of investments is billions US\$, adjusted by the US consumer price index to year 2013.

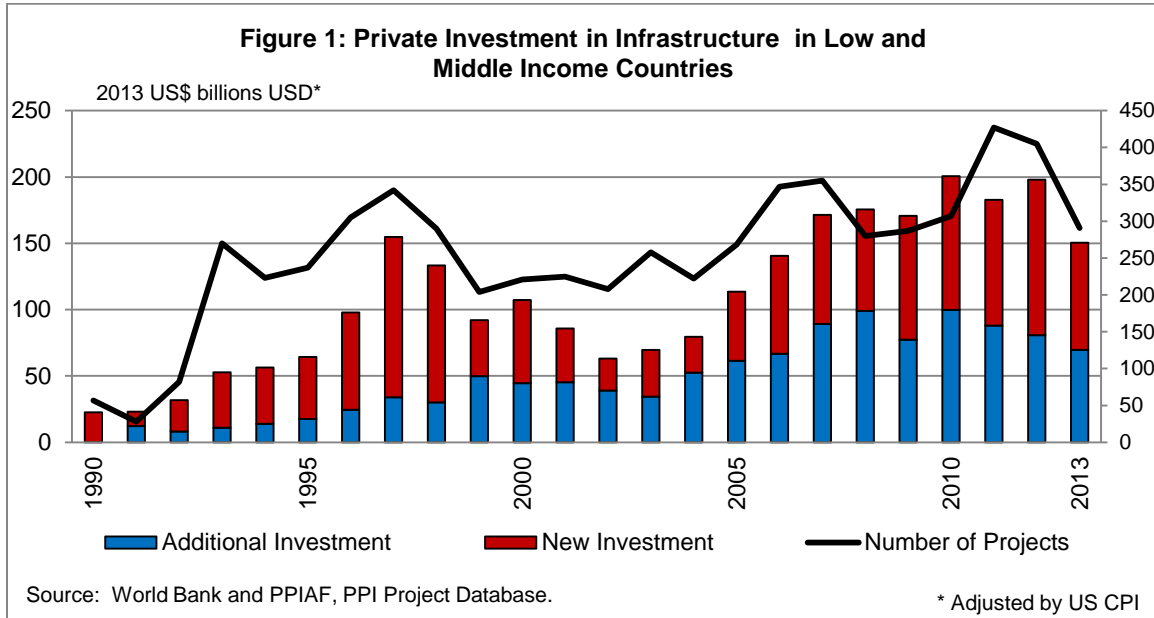
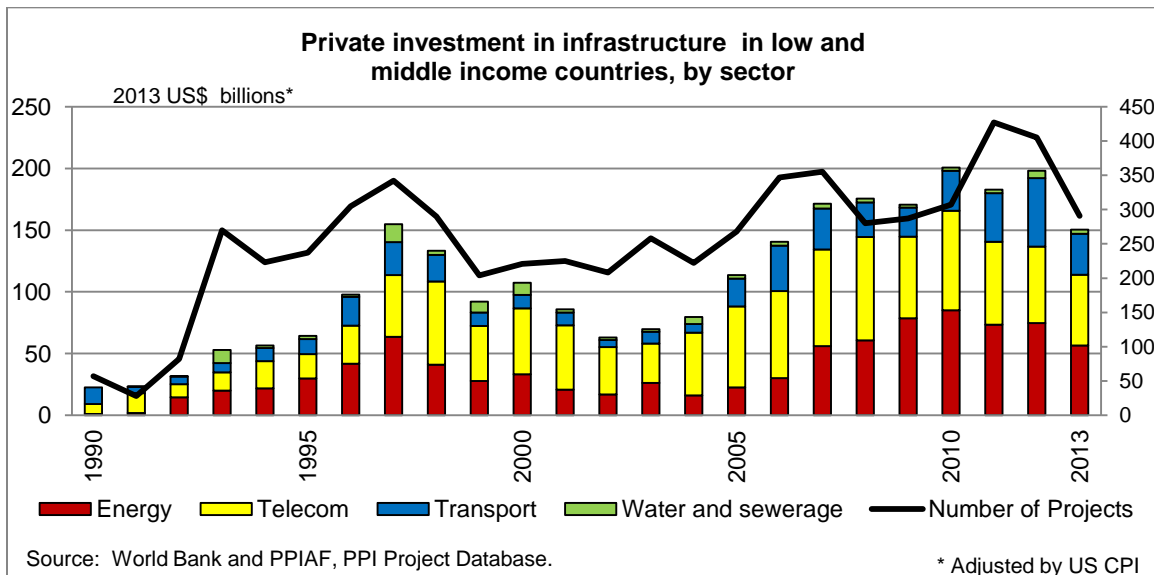


Figure 2: This figure presents the value (color bars and left y-axis) and number of projects (black line and right y-axis) of private investment in infrastructure in low and middle income countries by sector. The value of investments is billions US\$, adjusted by the US consumer price index to year 2013.



There is a number of current and emerging challenges that are expected to undermine the attractiveness of long-term private investments such as furthering infrastructure. The weakness in and deleveraging of commercial banks and the regulatory constraints such as Basel III is likely to persist into the medium term, which implies a growing mismatch between the time horizon of available capital and that of productive long-term investment projects (World Bank 2013).

Even under more normal credit conditions, the costs and risks faced by private investors in infrastructure are high, particularly in EMDEs, where economic and financial conditions tend to be weaker and less stable. Another critical and overarching precondition to attract private investors is an enabling institutional framework, including peace and stability, the rule of law, good governance with accountability and transparency, the absence of corruption, clear property rights, and enforceable contracts.

From a public policy perspective, given the positive economic, social, and environmental externalities that quality infrastructure can provide, efforts to lower the overall riskiness of infrastructure investments and enhance the availability of efficient risk-sharing instruments can have important implications in efficiency and distribution. At the same time, there is a need to ensure that efforts to encourage private sector participation in infrastructure offer optimal benefits but do not impose an inappropriate burden on the public sector.

Against this background, this paper aims to assess the determinants of private financing of infrastructure with a special focus on institutional, political, and governance characteristics. The paper then identifies areas in which additional efforts are required if the private sector were to play a larger role in financing infrastructure development in EMDEs.

II. Theoretical Background to Understand the Determinants of PPI

II.1 Existing Literature

There is considerable economic and financial literature attempting to explain the determinants of investment and the relationship between investment and risk. Most of the theoretical literature points to access to capital, investment efficiency, the social (as opposed to the financial) discount rate, operational efficiency, bundling of investment and operations, risk allocation, and contract flexibility as the main economic drivers of private investment in infrastructure (see Annex I for a literature taxonomy and mapping of these drivers).

The empirical literature is focused on foreign direct investment rather than infrastructure investments, and most of the works utilize cross-country specifications. For example,

Chakrabarti (2001) concludes that market size is a robust determinant of FDI, and Nunnenkamp (2002) identifies exchange rate, openness, growth rate, and trade balance as determinants of overall investment levels.

The literature on infrastructure investments and risk is thinner. Araya *et al.* (2013) analyses the relationship between private participation in infrastructure and country risk. They show that a difference of one standard deviation in a country's sovereign risk score is associated with a 27 percent increase in the probability of having private participation in infrastructure commitment and a 41 percent higher level of investment in dollar terms with the energy sector (among infrastructure sectors) and concessions (among contractual types). They also show that conflict-affected countries typically require six to seven years to attract significant levels or forms of private investments in infrastructure from the day that the conflict is officially resolved. Private investments in sectors in which assets are more difficult to secure—such as water, power distribution, or roads—are slower to appear or simply never materialize.

Hammami *et al.* (2006) use the World Bank PPI Database to analyze the determinants of PPI and conclude that lower levels of corruption and more effective rule of law are associated with more Public-Private Partnership projects. This study focuses on capturing the effect on the number of projects committed rather than investment levels per se. It breaks down the number of projects by sector, but not the levels, leaving room for further study, especially if we consider that bigger projects (committing more resources) may be more sensitive to the risk of the country.

The empirical evidence on determinants of PPIs uses a cross-country panel regression approach, looking at whether indicators of macroeconomic stability, measures of institutional and regulatory quality, and a variety of other controls impact the total amount of PPI received by a country. For example, there are papers that are region specific such as Pragal (2003) and Kirpatrick *et al.* (2006). They look at the importance of the regulatory framework as a determinant of PPI respectively for Latin America and the Caribbean (LAC) and the broader set of developing countries. Pragal (2003) finds that the most significant determinant of PPI is the passage of legislation liberalizing the investment regime, while Kirpatrick *et al.* (2006) find that institutional framework and regulation matter most.

A study by Tewodaj (2013) analyzes the determinants of private participation in infrastructure comparing Sub-Saharan Africa (SSA) with low and middle income countries (LMICs). The study finds that PPI investments in LMICs seem to be, in principle, determined by the expected factors (i.e., larger, open, more developed democracies with lower tax burden and more stable macroeconomic environment receive more PPI), PPI into SSA countries is—from a social planner's perspective—sub-optimally allocated. In particular, when it comes to larger PPI investments the findings

suggest that corrupt countries with inefficient governments seem to attract more PPI in infrastructure.

There are sector specific studies such as Jensen *et al.* (2005) that look at the water and sanitation sector and Gasmi *et al.* (2010) that look at the power sector. Jensen *et al.* (2005) analyze the institutional determinants of private sector participation in the water and sanitation sector in 60 developing countries. The regression results provide support for the hypotheses that PPI is greater in larger markets where the ability to pay is higher and where governments are fiscally constrained. The protection of property rights and the quality of the bureaucracy emerge as the most important institutions that encourage PPI. Gasmi *et al.* (2010) assess the extent the level of development of financial sector is a determinant of private investment in the power sector in 37 developing countries. The results suggest that investors tend to take countries' governance quality into account in their decisions to invest. The empirical results highlight that the development of the financial sector also plays a significant role in private investors' decisions to enter infrastructure sectors.

There are few papers in the literature that cover the basic infrastructure sectors (energy, water, transport and telecoms) in the developing world. In particular, when it comes to larger PPI investments the findings suggest that corrupt countries with inefficient governments seem to be associated with more PPI in infrastructure. Banerjee *et al.* (2006) using a sample of 40 developing countries over the period 1990-2000, look at the question of whether institutions matter for PPI. While their results indicate that property rights and bureaucratic quality play a significant role in promoting PPI, they find that countries with higher levels of corruption are associated with more PPI. Basilio (2011) using a sample of 72 developing countries shows that the market size and purchasing power are critical determinants of infrastructure flows, defined in her paper as real dollar levels of investment (unweighted by GDP). The institutional quality matters mostly for the decision to invest in emerging countries, but it is less important with regard to the intensity of the investment than financial and economic conditions.

The objective of this paper is to contribute to the literature by (i) disentangling the relevant institutional, political, and governance determinants of country risk at a granular level through providing a theoretical framework to derive the testable hypotheses; (ii) using an new empirical approach that to account for the fact that data is on discrete observations of commitments; (iii) using a novel dataset on quality of governance and on number of PPI disputes⁴ that allow to add new variables that were not previously considered due to data limitations; and (iv) extending previous analyses with a cross-

⁴ Previous literature has only used the number of calendar days to resolve a payment through courts from Djankov *et al.* (2007), but not PPI disputes specifically.

country panel of 130 developing countries for 1984-2012 period for transport, energy, telecoms and water sector.⁵

II.2 Methodology

The methodologies commonly used by governments to make decisions whether a private investment proposal offers value for money in comparison with the most efficient form of public procurement—e.g., Cost–Benefit Analysis (CBA) or Public Sector Comparator (PSC)⁶—rely on expected (volatile) cash flows and estimated discount rates.

Whereas there is a general consensus on calculation of expected cash flows, the literature on whether the public sector should apply a lower discount rate than the private sector is inconclusive.⁷ On one hand, Arrow and Lind (1970), Baumol (1968), Samuelson (1964), Solow (1965), and Vickrey (1964) claimed that the discount rate for public entities should be lower than for the private sector. On the other hand, Bailey and Jensen (1972), Brealey *et al.* (1997), Diamond (1967), Dreze (1974), Hirshleifer (1964), Kay (1993), and Klein (1997) held that the social discount rate should be higher than the plain public borrowing cost, equaling both public and private discount rates. They argued that the public sector's lower borrowing cost does not reflect a more efficient management of risk, but the fact that the public sector does not default and that it can levy taxes to repay debt.

To marry these two views and identify the determinants of PPI, we construct a toy model that captures institutional and political variables that captures the drivers of expected cash flows and discount rate heterogeneity.

Let's assume a three-stage—outlays, predictable cash flows, and terminal value—investment model:

1. In t_0 , the public agent and/or private investor invest I with certainty (construction risks are absorbed by the constructor; there may be a differential in investment efficiency though)
2. In $t_{1,2,\dots,n}$, predictable cash flows CF are realized (in financial modeling, these are cash flows broken down year by year, e.g., 5–8 years)

⁵ The latest study is Tewodaj (2013) that uses data up to 2008.

⁶ CBA is used by governments to appraise the desirability of a given policy, where benefits and costs are expressed in monetary terms and adjusted for the time value of money (Mishan and Quah 2007). The PSC estimates the hypothetical risk-adjusted cost if a project were to be financed, owned, and implemented by government (Coulson 2008; Quiggin 2004). Closely related, but slightly different, formal techniques include cost-effectiveness analysis, cost–utility analysis, risk–benefit analysis, economic impact analysis, fiscal impact analysis, and social return on investment analysis.

⁷ Writing in the 1980s on public sector discount rates and their relation to private sector discount rates, Lind (1982) pointed out that “the profession was no closer to agreement on the theory, on a procedure for computing the discount rate, or on the rate itself than it was in 1966.”

3. In $t_{n+1, \dots, \infty}$, the terminal value (TV) is realized with uncertainty (in a Discount Cash Flow—DCF—valuation, the TV accounts for ca. 40–70% of the present value of the asset, depending on the projected cash flows and discount rate)⁸
4. The public agent, unlike the private investor, can receive transfers TR conditional on states of TV : if TV is low, the public agent can levy taxes from the public at large and subsidize the project (i.e., the public sector can “winsorize” the left tail of TV through TR conditional on realized values of TV)
5. An increase in the skewness γ of the joint distribution of the terminal value and the conditional transfers compared to the terminal value alone—i.e., $\gamma(TV) < \gamma(TV+TR/TV)$ —implies changes in the first and second central moments of the joint distribution of the terminal value and conditional transfers compared to the terminal value alone: an increase in the mean $\mu(TV) < \mu(TV+TR/TV)$ and a decrease in the standard deviation $\sigma(TV) > \sigma(TV+TR/TV)$

The TV is relevant for the private investor inasmuch as she has a stake in the long-term operations of the asset. For institutional arrangements (e.g., joint ventures), the private investor has an interest in preserving the value of the assets. For finite-time contractual arrangements (e.g., concessions), the salvage value of the asset for the private investor is not greater than its market value. Therefore, the volatility of the TV increases in private ownership and decreases in contract duration, in line with assumption (5).

From Assumptions (1)–(5), the net present value (NPV) for public investments equals:

$$NPV_{pu} = -I_{pu} + \sum_{j=1}^n \frac{CF_{pu,j}}{(1+r_{pu})^j} + \frac{\mathbb{E}(TV+TR|TV)}{(1+r_{pu})^n} \quad (1)$$

and the NPV for private investments equals:

$$NPV_{pr} = -I_{pr} + \sum_{j=1}^n \frac{CF_{pr,j}}{(1+r_{pu})^j} + \frac{\mathbb{E}(TV)}{(1+r_{pr})^n} \quad (2)$$

where r_{pu} is the social discount rate and r_{pr} is the private discount rate equal to the social discount rate plus a risk premium for higher variance (higher *beta*) of TV without TR . Since $\sigma(TV) < \sigma(TV+TR/TV)$, then in equilibrium it must be that $r_{pu} < r_{pr}$.⁹ Under these assumptions the discount rate during the predictable period n is the same for both the

⁸ The following stylized numerical example illustrates this point: Let us assume a series of \$100 perpetual cash flows (CF) discounted at a rate (r) of 10% annually. The first 10 years (n) account for 61% of the present value, while the terminal value—i.e., the cash flows from year 11 onwards—for 39% of the present value. The shorter the period accounted for the foreseeable cash flows, the lower the discount rate, and the higher the terminal value cash flows growth in perpetuity are, the higher the proportion the terminal value will have in the present value. For example, for $n = 5$ and $r = 7\%$, the terminal value represents 71% of the present value.

⁹ Conf. CAPM; otherwise no investor would invest in a riskier project.

public and private sectors; the risk premium is only realized in the terminal value. The risks during the predictable period are absorbed in the expected value of the cash flows, not the discount rate. If the distribution of the cash flows is unknown, then n should be shortened and the discount rate accordingly adjusted.

Arguably, if investments and cash flows are different under public and private provision, so do cash flows after period n captured in the terminal value TV . For simplicity, we assume that TV is equal under public and private provision (secular trend) and all rents from the private to the public sector are extracted through transfers TR , in accordance with assumption (4).

At the margin (i.e., where the choice between traditional procurement and PPI is indifferent), $NPV_{pu} = NPV_{pr}$; therefore, the private participation constraint will be given by:

$$-I_{pr} + \sum_{j=1}^n \frac{CF_{pr,j}}{(1+r_{pu})^j} + \frac{\mathbb{E}(TV)}{(1+r_{pr})^n} > -I_{pu} + \sum_{j=1}^n \frac{CF_{pu,j}}{(1+r_{pu})^j} + \frac{\mathbb{E}(TV + TR|TV)}{(1+r_{pu})^n} \quad (3)$$

$$I_{pu} - I_{pr} + \sum_{j=1}^n \frac{CF_{pr,j}}{(1+r_{pu})^j} - \sum_{j=1}^n \frac{CF_{pu,j}}{(1+r_{pu})^j} > \frac{\mathbb{E}(TV + TR|TV)}{(1+r_{pu})^n} - \frac{\mathbb{E}(TV)}{(1+r_{pr})^n} \quad (4)$$

$$I_{pu} - I_{pr} + \sum_{j=1}^n \frac{CF_{pr,j} - CF_{pu,j}}{(1+r_{pu})^j} > \frac{\mathbb{E}(TV) + \mathbb{E}(TR|TV)}{(1+r_{pu})^n} - \frac{\mathbb{E}(TV)}{(1+r_{pr})^n} \quad (5)$$

Since $\mathbb{E}(TR|TV) > 0$ and $r_{pu} < r_{pr}$, the right-hand side of condition (5) is always positive. Therefore, *ceteris paribus*, in a partial equilibrium the private must be more efficient regarding capital expenditures ($I_{pu} - I_{pr}$) and/or operationally ($CF_{pr} - CF_{pu}$).¹⁰

This toy model yields the following comparative statics:

Variable	Meaning	Preference for PPI $\Pr[NPV_{pr} > NPV_{pu}]$	Captured econometrically by
$I_{pu} - I_{pr}$	Investment efficiency	+	Country dummies and subsample sector regressions; GDP per capita controls
$CF_{pr} - CF_{pu}$	Productivity differential	+	Country dummies and subsample sector regressions; GDP growth control

¹⁰ Note that even if $\mathbb{E}(TR|TV) = 0$ (e.g., the government subsidizes the utility in bad states of the world and cuts prices in good states of the world), the present value of $\mathbb{E}(TV + TR|TV)$ is lower than $\mathbb{E}(TV)$ due to $\sigma(TV + TR|TV) < \sigma(TV)$, which drives $r_{pu} < r_{pr}$.

Variable	Meaning	Preference for PPI $\Pr[NPV_{pr} > NPV_{pu}]$	Captured econometrically by
n	Industry stability (inverse of industry risk)	+	Subsample sector regressions; regulatory quality
$r_{pu} - r_{pr}$ $E(TR/TV)$	Political risks	-	Political variables: rule of law, corruption perception, regulatory quality, and number of disputes; corporate taxation and country exchange rate volatility controls

Controlling for economic and industry factors, we derive a number of testable predictions:

Prediction 1: An increase in the rule of law—following North and Weingast (1999)—will be associated with lower differential in the public and private discount rates and thus higher PPI.

Prediction 2: An increase in regulatory quality will be associated with higher predictability of cash flows and thus higher PPI.

Prediction 3: An increase in freedom from corruption will be associated with lower political risk premium and thus higher PPI.

Prediction 4: An increase in the number of disputes will be associated with higher political risk premium and thus lower PPI.

III. Data Description

Data is an unbalanced panel assembled from the World Bank’s Private Participation in Infrastructure dataset, Quality of Government dataset, UNCTAD Database of Treaty-based Investor-State Dispute Settlement Cases, and country-level economic variables from the World Development Indicators Database.

In order to obtain PPI levels, we utilized the World Bank PPI Database. This source offers detailed information by year, country, sector, and form of public-private partnership. Within sectorial categories, it distinguishes among primary and secondary sectors by investment.¹¹ It also provides the form of private investments, so we can

¹¹ As examples, Energy and Transport are “primary sectors,” whereas Electricity Distribution and Airports are “secondary sectors.”

distinguish between greenfield projects and concessions of existing assets among other types of partnerships and investments.

The database, however, captures both public contributions to the infrastructure investments as well as private contributions. That is, the database notes total project size in commitments, later adjusted to actual disbursements, investments, or transfers, where information is available. Those commitments combine private and, in many cases, public sources. Only projects that have come to financial closure are included in the database. If a purely public investment is carried out in tandem with a private operator or a private management contractor, the database does not include them. All project figures are noted in the year that the project comes to financial closure.

For the purpose of this paper, the PPI database is an appropriate source of information because it reports the commitments of the investments for each year by country and by sector once a contract has come to financial closure; that is, a license, sale, concession, lease, BOT, or other contractual agreement is signed by both parties and financial arrangement have been secured. Having the commitments instead of the actual investments allows us to establish a clearer relationship between investments and institutional, political, and governance variables at a given point in time. The decision of investing (commitment) and the willingness of financiers to come to closure on that commitment are made, *inter alia*, in the context of the political conditions, economic performance, sovereign credit worthiness, and fear of expropriation at the time of financial closure. Because there may be exogenous reasons for differentiation between an original commitment to invest and the eventual disbursement levels—including external shocks, canny renegotiations, or changes in tariffs or relative prices—the best time to value an investment relative to country risk is the moment at which the commitment comes to financial closure.

Taking the data from the PPI database, we gather information regarding 130 developing countries from 1990 to 2010. The panel data were complemented by data from World Development Indicators with variables such as GDP, GDP growth, inflation, country openness, and population.

The Quality of Governance Standard Database (Teorell et al. 2013) is a panel data that draws on a number of freely available data sources related to quality of governance and its correlates. This is our main source for the following variables: freedom from corruption, rule of law, quality of regulations, bureaucracy quality and political regimen, parliamentary democracy, mixed (semi-presidential) democracy, presidential democracy, civilian dictatorship, military dictatorship, royal dictatorship, government vote share, largest government party vote share, largest opposition vote share, total fractionalization, opposition fractionalization, margin, and left, right, and center party orientation. A detailed description of these variables is presented in Annex II.

Furthermore, we rely on the UNCTAD Database of Treaty-based Investor-State Dispute Settlement Cases to construct the variables on a number of disputes and average time to solve them by sector and country. This database has 394 observations covering disputed cases pending and concluded, which were disclosed by the parties or arbitral institutions from 1987 to 2010.

Summary statistics and the correlation of independent variables are presented in Annex III, Table 1 and 2.

IV. Results

The model is specified in logarithms. We use a moving average of 15 years for water projects, 10 years for energy (plants and transmission) projects, 8 years for transport projects, and 5 years for telecom projects—roughly 1/3 of the depreciation time estimated by the World Bank, i.e., arguably an approximation of refurbishing time—to account for the fact that data is on discrete observations of commitments.

We explore the intensity of the different determinants given that a country has received private investments in infrastructure. We run the following OLS regression with country-fixed effect and year dummies to capture for changes over time that are common across countries (e.g., the financial crisis):

$$\begin{aligned} \ln PPI_{it} = & \alpha_i + \beta_1 \log GDP_{it-1} + \beta_2 \log POP_{it} + \beta_3 \log GROWTH_{it-1} \\ & + \beta_4 \log INFLATION_{it-1} + \beta_5 \log OPENNESS_{it-1} \\ & + \beta_6 \log DEBT_{it-1} + \beta_7 \log ACCESSTOFINANCE_{it-1} \\ & + \sum \beta_j \log X_{itj} + \varepsilon_{it} \end{aligned} \quad (8)$$

Equation (8) shows our basic specification, where $\ln PPI_{it}$ equals the natural logarithm of the moving average of private investment in infrastructure for country i at the period t . Most econometric specifications dealing with GDP and Investments suffer from endogeneity. We address this problem by assuming that the investments are being affected by events of the previous year. GDP_{it-1} is the Gross Domestic Product purchasing power parity in current US millions dollars for the country i in the year $t-1$. $GROWTH_{it-1}$ is the GDP's growth and both are expected to have a positive impact on investment levels. POP_{it} captures the size of the population and $INFLATION_{it-1}$ captures the monetary instability for the country i in the year $t-1$ and is expected to have a negative impact. $OPENNESS_{it-1}$ is a proxy of the openness of the country calculated as the sum of exports and imports over the GDP; $ACCESSTOFINANCE_{it-1}$ captures the access to commercial bank credit for the country i in the year $t-1$ and is expected to have a positive impact; and X_{itj} are the political and institutional variables including for country i at time t : (a) freedom from corruption; (b) government effectiveness; (c) rule of

law; (d) quality of regulations; (e) number of court disputes; and (f) political regimens such as parliamentary democracy, mixed (semi-presidential) democracy, presidential democracy, civilian dictatorship, military dictatorship, and royal.

The regression results are presented in Tables 3–12. All specifications control for the main characteristics of the economies as commonly used in the previous literature:

- Size of the market: GDP and population. PPI tends to be more common in larger markets where demand is larger.
- Inflation: PPI is more prevalent in countries with more stable macroeconomic conditions. Higher inflation is less attractive for investors as it imposes inflation risk premium.
- Openness (proxied by trade): more open countries are more likely to attract big foreign investors.
- Debt: countries with higher levels of debt are more likely to require the private sector to invest in infrastructure. However, they could be perceived as a higher risk of default by the private sector. As a debt measure we use the total debt service divided by the gross national income.
- Access to finance, i.e., access to commercial bank credit.

Table 3 presents the results using country-fixed effect and year dummies. In these specifications, the overall R-squared is around 50 percent, a high value for a panel data model.¹²

The coefficients associated with large markets, stable inflation, access to finance, freedom from corruption, rule of law, quality of regulations, and number of disputes, are statistically significant indicating that they are relevant channels for the determination of investments in PPIs.

Interestingly, the political regimens such as parliamentary democracy, mixed (semi-presidential) democracy, presidential democracy, civilian dictatorship, military dictatorship, and royal dictatorship do not affect significantly the level of PPI infrastructure investment.

Countries with large markets and high demand for infrastructure (larger population and higher lagged GDP) tend to have more PPI.

Governments with less inflation have a more stable environment fostering private sector investments in infrastructure PPIs.

¹² R-square values over 10 percent are accepted in the common literature, due to the bi-dimensional nature (countries and time) of the panel data model.

The higher a country score on freedom from corruption, the higher the average level of investments with private participation in infrastructure. Decreasing corruption by 10 points can increase PPI by 6.7 percent. That is, if a country like Serbia lowers its corruption level by 10 points¹³ reaching for example the level of South Africa (which has a similar GDP per capita), the private sector will invest seven percent more.¹⁴

The higher a country score on rule of law, the higher the average level of investments with private participation in infrastructure. Improving rule of law by one standard deviation (i.e., by 0.1) can increase PPI by 4.3 percent. That is, if Bhutan improves its environment of property rights and enforceability of contracts and achieves the level of for example Jordan (which has a similar GDP per capita), infrastructure investment with private sector participation will increase by four percent.¹⁵

Breach of contract and regulatory issues remain the most important political risk concerns for investors into developing economies, according to the annual MIGA-EIU Political Risk Survey. Forty-five percent of investors in developing countries named breach of contract and 58 percent named adverse regulatory changes as the most important political risks they will face in the next three years. Forty percent of the survey respondents mentioned that they experienced financial losses through adverse regulatory changes and 34 percent through breach of contract over the past three years. Therefore, it is not surprising to observe that both quality of regulations and number of previous disputes are statistically significant.

The model also shows that an improvement of one standard deviation (0.1) in quality of regulation produces an average increase of 3.2 percent in the level of infrastructure investment in PPIs. For example, if we consider two countries with the same level of GDP per capita such as Mexico and Turkey, Mexico can gain three percent increase in infrastructure investments in PPIs if the country achieves the quality of regulations of Turkey.¹⁶

On disputes, the estimation indicates that the higher the number of disputes, the lower the level of investments. An increase in an additional project going to court decreases investments by four percent.¹⁷ We presumed that the number of disputes could have a non-linear effect on private investments (e.g., no disputes could also reflect an

¹³ As measured by the Transparency International's Corruption Perceptions Index (CPI).

¹⁴ In the year 2011, Serbia had a GDP per capita US\$9,687 and a freedom of corruption index of 35 while South Africa had a GDP per capita of US\$9,830 and a freedom of corruption index of 45.

¹⁵ In the year 2011, Bhutan had a rule of law index of 0.12 and a GDP per capita of US\$5,162, while Jordan had a rule of law index of 0.22 with a GDP per capita of US\$5,268. Cf. "rule of law" as measured by the World Bank Worldwide governance indicator.

¹⁶ In the year 2011, Mexico and Turkey had a GDP per capita of US\$12,813 and US\$13,468, respectively, while their quality of regulation indexes were .34 and .42, respectively

¹⁷ We used the number of disputes in the last 10 years before the commitment in order to capture the countries' reputation in this matter.

anticipation of risk and therefore lack of private investments); however adding disputes squared was found to be statistically not significant. Unfortunately the variable on time to solve a dispute was incomplete for half of the sample, impeding its proper use.

We estimate the determinants of PPI by sector to see whether the impacts vary among the energy, transport, telecom, and water sectors (see Table 4). Freedom from corruption is statistically significant for all sectors except for transport. While corruption generally reduces the prospects for investment in all sectors, the lack of sensitivity of the transport sector could be explained by the fact that corruption matters primarily regarding investors' decision to *enter* the transport market, not the subsequent level of investment, which may indicate that the investors are protected against such risks once they do invest.

Transport is perceived to be the infrastructure sector with the highest level of corruption. Kolstad and Wiig (2013) find that “increased corruption within a country is associated with increased extractive industry FDI, but at a diminishing rate as corruption increases grow large.” Thus, while threats to ownership rights deter investments into resource sectors (Bohn and Deacon 2000; Cust and Harding 2013), increased corruption would not follow this ‘rule’ because available measures of (perceived) corruption do not capture such a threat, because corruption has been a means of securing ownership rights, or because countries perceived as getting more corrupt offered better opportunities for FDI beyond ownership rights (such as geological prospects and reduced regulatory constraints). Although corruption may be costly, it is a cost that also offers flexibility and has helped secure deals for companies to maximize profits (Shaxson 2007).

Rule of law is statistically significant for overall PPI, but it is not significant at the sector level. The coefficients are of almost the same magnitude but not significant due to smaller sample size when we run regressions at the sector level.

Quality of regulation is statistically significant for all sectors except water. Regulatory quality includes measures of the incidence of price controls and perceptions of the burdens imposed by excessive regulation. Improving the quality of regulations in a country can attract more private investors to infrastructure PPIs, but since water is a socially sensitive sector and very likely to be politically influenced, investors may prefer price controls and strong regulation, as they limit *ex ante* the risk of domestic politics around water.¹⁸

The coefficient on disputes is statistically significant for all sectors except for energy. PPI investments in telecoms and water are particularly sensitive to the accumulated number

¹⁸ For a robustness check, we have added the Gini coefficient as an explanatory variable, expecting that, when controlling for income inequality, the coefficient will become significant for water. However, it is still not significant.

of disputes in that particular sector. An additional dispute can decrease PPI investments in those sectors by approximately 12 percent.

Variables in institutional and political regimens such as parliamentary democracy, mixed (semi-presidential) democracy, presidential democracy, civilian dictatorship, military dictatorship, and royal dictatorship were also included as controls, but none of them was statistically significant.

As a robustness check, we have run the regressions without year dummies (see Tables 5 and 6). Insignificant changes in the main results were found.

We expected that countries with more experience on PPIs and higher income would have PPI investments less sensitive to institutional and governance variables. However, we found that results did not vary by quartile of experience, GDP, and GDP per capita (see Table 7). According to field experts, it is not the quantity, but *quality* of experience (i.e., successful projects) what matters, for which we do not control.

V. Greenfield Investments versus Concessions

In order to explore the exceptions found in the energy and water sectors, we run our regressions separately for greenfield investments versus concessions to check whether some of our explanatory variables affect more one type of investment than the other.

The results in Table 8 show that access to finance has a significant impact in both types of investment: both greenfield projects and concession projects require access to the credit system to be financed.

Freedom from corruption and the rule of law are essential in attracting greenfield projects. Those governments that promote a corruption-free environment and where property rights are protected are able to attract more greenfield projects such as build, lease, and transfer (BLT), build, operate, and transfer (BOT), build, own, and operate (BOO).

With respect to concession projects, there are two drivers that are pivotal: government effectiveness and quality of regulation. On the one hand, less effective governments (i.e., bureaucratic and susceptible political pressure governments) are those that most in need of this type of investments to rehabilitate their infrastructure through rehabilitate, operate, and transfer (ROT), rehabilitate, lease or rent, and transfer (RLT) and build, rehabilitate, operate, and transfer (BROT). However, on the other hand, friendly market policies and regulation play an important role when explaining the commitments on concessions.

VI. Foreign Direct Investments

As a robustness check, we rerun our basic specifications with foreign direct investments (FDI) as the dependent variable to check whether infrastructure follows the same sensitivity patterns as FDI generally or is especially sensitive to these institutional and political determinants.

The evidence presented in Table 9 shows that FDI is less sensitive to institutional variables than PPI, with the exception of quality of regulation, which refers to the incidence of market unfriendly policies and excessive regulation that affect in every scenario private investments either in infrastructure or not. In every specification the coefficients associated to freedom from corruption, government effectiveness and rule of law are not statistically significant.

VII. Political Environment

We suspect that some of our institutional variables may be stunted by—and even endogenous to—the political environment. We selected political variables that proxy the level of political ideology, competition, and fragmentation. A description of these variables can be found in Appendix II.

We proceed first to identify the relevant political variables. Table 10 presents the results of univariate OLS regressions of PPI on economic controls and political variables introduced one a time. A strong opposition party and a larger fractionalization of the opposition are positively correlated with PPI. This may be due to, correspondingly, a higher likelihood of partisan cooperation over long-term policies when political competition is tight (De Figueiredo 2002) and to an increase in third-party oversight and scrutiny from political opponents (Moszoro and Spiller 2014) that provides a higher degree of reliability and predictability that is essential for the private sector to invest.

Further, we run our preferred specification regressions with institutional variables (presented in Table 3), introducing the political variables one at a time to check their impact on the former. Results are presented in Table 11. Cross correlations between institutional and political variables are low as shown in Table 2. Quality of regulation and number of disputes are statistically significant in all specifications. Freedom from corruption and government effectiveness lose significance when adding political variables. Point estimates related to rule of law are inconsistent in their sign and significance.

Finally, we run multivariable regressions with political variables interacted with institutional variables. Results are shown in Table 12. Consistent with our previous results, an increase in the quality of regulation and a decrease in the number of disputes

are associated with an increase in PPI and the magnitude of the impact remains the same, independently of the political environment.

A strong government facilitates PPI, but it also increases in opposition fractionalization. This may be due to an increase in oversight over the ruling party, limiting its ability to distribute rents through a large public sector. Moreover, this third-party oversight and scrutiny from political opponents provides a higher degree of reliability and predictability that is essential for the private sector to invest.

Finally, our results show that PPI is germane to parties from the center, as both an increase in free from corruption right and left parties are associated with less PPI.

VIII. Conclusions

Fostering private sector investment in infrastructure depends on investors facing an appropriate investment climate. Currently private sector investment is a small portion of the total infrastructure investment (less than 20 percent). The costs and risks faced by investors are high, particularly in emerging market and developing economies (EMDEs) where the economic, institutional, and financial conditions are weaker and less predictable. One of the main concerns of private sector investors considering investment in infrastructure in EMDEs is the quality of the underlying investment climate.

A supportive enabling environment reduces the costs and risks of investing in infrastructure. The investment climate is affected by many factors, including political instability, regime uncertainty, rule of law and property rights, government regulations, and government transparency and accountability. The existence of a stable and predictable environment in which both domestic and foreign investors can operate is vital for providing confidence to investors.

This paper provides empirical evidence of the relationship between institutional, political, and governance variables and the level of PPI investments in infrastructure in developing countries. Our results support the arguments that industry and political stability are key ingredients to increase the level of PPI investments in infrastructure.

We conclude that PPI investment in infrastructure is highly sensitive to the quality of government variables such as freedom from corruption, rule of law, quality of regulations, and the number of disputes in the sector; decreasing corruption by 10 points can increase PPI by 6.7 percent, improving rule of law by one standard deviation (i.e., by 0.1) can increase PPI by 4.3 percent, improving quality of regulation by one standard deviation (0.1) produces an average increase of 3.2 percent in the level of infrastructure investment in PPIs, and having one more project going to court decreases investments by four percent.

These results hold when data is disaggregated at the sectoral level. However, transport investments are not found to be sensitive to improvements in “freedom from corruption,” water investments to improvements in quality of regulations, and energy investments to the number of accumulated disputes in the sector. Further work needs to be done to understand the cause of these discrepancies.

Importantly, the evidence does not show any significant difference in the results across experience and economic level quartiles.

When controlling for the type of project, we find that freedom from corruption and the rule of law are key in attracting greenfield projects, while government effectiveness and quality of regulation play a decisive role for concession projects. We also find that PPI follows a different pattern than FDI: FDI is sensitive to quality of regulation, but less so to freedom from corruption, government effectiveness, and rule of law.

A strong government facilitates PPI, but it also increases in opposition fractionalization. This third-party oversight and scrutiny from political opponents to the ruling party provides a higher degree of reliability and predictability that is essential for the private sector to invest.

While our results with regard to the sensitivity of investment to corruption appear to differ from Banerjee *et al.* (2006), this may be explained by the relationship of the variables being considered in both papers to questions of governance. That is, corruption when considered on its own, necessarily draws together a larger set of governance failures which explains the linkages revealed in Banerjee *et al.*'s (2006) regressions. When several of those elements of governance are considered independently, as has been done in our paper, the remaining variable of corruption shows little or no direct impact.

A sound investment climate is a critical factor affecting the supply of private infrastructure investment financing. The challenges from upstream “enabling” institutions, policies, and regulations and sector economics down to pipeline development need to be addressed simultaneously. Tackling such a complex and interconnected agenda requires building the institutional capacity and the quality of regulations and governance, as well as, analysis of synergies and adoption of a holistic approach to infrastructure development.

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Annexes

Annex I. Determinants of PPI—Literature Taxonomy and Mapping

		Theoretical Framework			Empirical Studies
		Economics/Finance	Political Economy	Institutional Analysis	
Variables	Discount rate	Social discount rate (Arrow & Lind 1970); interest rate differential (Moszoro 2014a)	Lower government beta and access to capital vs. investment efficiency and productivity differential (Grout 2003)		
	Access to capital	Access to external financing (Esty 2011)			
	Investment efficiency	Lower investment outlays and shorter investment period (Moszoro 2014a)			
	Productivity differential	Lower operational costs (Moszoro 2014b)			
	Bundling	Incentive theory and economies of scope (Iossa & Martimort 2013)	Expropriation risk and LPVR (Engel, Fischer & Galetovic 2001)	Incomplete contract theory: bundling of investment and operations (Hart 2003; Hart, Shleifer & Vishny 1997); governance of hybrids and boundaries of bureaucracy (Williamson 1979, 1999)	
	Risk allocation	Post-tender renegotiations (Iossa & Martimort 2011)			
	Contracting flexibility & regulation			Regulatory and institutional framework (Pragal 2003; Kirpatrick <i>et al.</i> 2006; Basilio 2011); property right and quality of the bureaucracy (Jensen <i>et al.</i> 2005).; corruption and rule of law (Hammami <i>et al.</i> , 2006); bureaucratic quality (Barnejee <i>et al.</i> 2006; Gasmi <i>et al.</i> 2010; Tewodaj 2013)	
	Corruption, political stability & rule of law				
	Bureaucracy		Low third-party opportunism risk (Moszoro & Spiller 2014); higher partisan cooperation when political competition is tight (De Figueiredo 2002)		

Annex II. Definition of Institutional and Political Variables

Institutional Variables

Quality of Government is the mean value of the International Country Risk Guide (ICRG) variables “Corruption,” “Law and Order,” and “Bureaucracy Quality,” scaled 0-1. Higher values indicate higher quality of government.

Freedom from Corruption relies on Transparency International’s Corruption Perceptions Index (CPI), which measures the level of corruption in 152 countries to determine the freedom from corruption scores of countries that are also listed in the *Index of Economic Freedom*. The CPI is based on a 10-point scale, in which a score of 10 indicates very little corruption, and a score of 0 indicates a very corrupt government. In scoring freedom from corruption, the authors convert each of these raw CPI data to a 0-100 scale by multiplying the CPI scores by 10.

Government Effectiveness combines into a single grouping responses on the quality of public service provision, the quality of the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government’s commitment to policies. The main focus of this index is on the “inputs” required for the government to be able to produce and implement good policies and deliver public goods.

Rule of Law includes several indicators which measure the extent to which agents have confidence in and abide by the rules of society. These include perceptions of the incidence of crime, the effectiveness and predictability of the judiciary, and the enforceability of contracts. Together, these indicators measure the success of a society in developing an environment in which fair and predictable rules form the basis for economic and social interactions and the extent to which property rights are protected. This indicator is part of the World Bank worldwide governance indicators project.

Regulatory Quality includes measures of the incidence of market-unfriendly policies such as price controls or inadequate bank supervision as well as perceptions of the burdens imposed by excessive regulation in areas such as foreign trade and business development. This indicator is part of the World Bank worldwide governance indicators project.

Regimen Institutions: The classification contains the following regimes: parliamentary democracy, mixed (semi-presidential) democracy, presidential democracy, civilian dictatorship, military dictatorship, and royal dictatorship. This classification was elaborated by Cheibub, Gandhi, and Vreeland (2010).

Political Variables

Government Vote Share (%) is the total vote share of the all government parties in percent.

Largest Government Party Vote Share (%) is the total vote share of the all government parties in percent.

Largest Opposition Party Vote Share (%) is the share of votes of the largest opposition party in percent.

Total Fractionalization measures that two randomly chosen deputies in the legislature belongs to the same party.

Opposition Fractionalization measures the probability that two randomly chosen deputies belonging to the parties in the opposition will be of different parties.

Margin is difference between the largest government party vote share and the largest opposition party vote share.

Left, Right, and Center: Party orientation with respect to economic policy, coded based on the description of the party in the sources, using the following criteria: Left: for parties that are defined as communist, socialist, social democratic, or left-wing. Right: for parties that are defined as conservative, Christian democratic, or right-wing. Center: for parties that are defined as centrist or when party position can best be described as centrist (e.g., party advocates strengthening private enterprise in a social-liberal context). Party orientation is not described as centrist if competing factions “average out” to a centrist position (e.g., a party of “right-wing Muslims” and “Beijing-oriented Marxists”).

Annex III. Tables

Table 1: This table presents summary statistics of economic, institutional, and political variables in our sample. Data is an unbalanced panel assembled from the World Bank’s Private Participation in Infrastructure dataset, Quality of Government dataset, UNCTAD Database of Treaty-based Investor-State Dispute Settlement Cases, and country-level economic variables from the World Development Indicators Database.

Variable	Observations	Mean	Std. Dev.	Min	Max
lnGDP_1	7388	22.76985	2.411881	15.99307	30.33849
lnInfl_1	6588	1.95406	1.402989	-13.43789	10.19474
lnTrade_1	6938	4.141784	0.6387575	-1.175052	6.13225
debt_1	4242	4.927175	6.766934	0	208.0971
growth_1	7140	2.05112	6.012271	-50.29035	92.58597
ln Population	8178	15.33762	2.106291	8.982059	21.01901
Freedom from corruption	2987	40.07265	23.22481	0	100
Government effectiveness	2437	-0.059279	0.9977787	-2.454161	2.407654
Rule of law	2492	-0.0674134	0.9935579	-2.670146	2.001923
Quality of regulation	2438	-0.0671135	0.9919873	-2.675439	2.247345
Gini coefficient	2710	41.53993	9.80825	20.96	74.33
Access to finance	2291	7.47474	17.92406	0	150
Number of disputes	4780	0.6876569	3.303972	0	65
Right	3723	0.3507924	0.4772822	0	1
Left	3723	0.5401558	0.4984519	0	1
Government vote share	6252	37.48805	35.60405	0	100
Largest government party vote share	4832	42.40433	33.25937	0	100
Opposition fractionalization	3950	0.4506429	0.2937469	0	1
Largest opposition party vote share	4992	14.81261	15.89043	0	57.1
Total fractionalization	5278	0.4699042	0.3025829	0	1
Margin	4742	27.07289	36.6454	-34.8	100

Table 2: This table presents cross correlations of economic, institutional, and political variables in our sample.

	In GDP_1	In Inflation_1	In Trade_1	Debt_1	Growth_1	In Population	Freedom from corruption	Government effectiveness	Rule of law	Quality of regulation	Access to finance	Disputes	Gini	Government vote share	Largest government party vote share	Largest opposition party vote share	Opposition fractionalization	Total fractionalization	Left	Right	Margin	
In GDP_1	1.00																					
In Inflation_1	0.00	1.00																				
In Trade_1	-0.58	0.01	1.00																			
Debt_1	-0.02	0.19	0.12	1.00																		
Growth_1	-0.12	-0.12	0.19	-0.14	1.00																	
In Population	0.80	0.14	-0.58	-0.08	-0.05	1.00																
Freedom from corruption	0.36	-0.13	-0.15	0.15	-0.15	0.01	1.00															
Government effectiveness	0.46	-0.15	-0.23	0.02	-0.15	0.11	0.82	1.00														
Rule of law	0.24	-0.10	-0.10	0.06	-0.13	-0.03	0.77	0.86	1.00													
Quality of regulation	0.45	-0.18	-0.29	0.03	-0.16	0.07	0.77	0.84	0.76	1.00												
Access to finance	0.32	0.02	-0.09	0.24	-0.10	0.20	0.14	0.20	0.15	0.24	1.00											
Number of disputes	0.60	0.00	-0.41	0.02	-0.05	0.52	0.10	0.19	0.06	0.15	0.16	1.00										
Gini coefficient	0.29	-0.10	-0.22	0.01	-0.24	0.14	0.27	0.25	0.11	0.26	0.00	0.14	1.00									
Government vote share	-0.06	0.00	0.11	0.02	0.07	-0.05	0.11	0.21	0.10	0.03	0.05	-0.16	-0.13	1.00								
Largest government party vote share	-0.24	0.01	0.34	0.03	0.14	-0.16	0.10	0.12	0.06	-0.10	-0.06	-0.31	-0.18	0.77	1.00							
Largest opposition party vote share	-0.15	-0.02	0.19	-0.01	-0.04	-0.17	0.04	-0.01	0.11	0.04	-0.14	-0.05	0.03	-0.47	-0.25	1.00						
Opposition fractionalization	0.36	-0.03	-0.27	0.04	-0.03	0.29	0.02	0.01	-0.07	0.01	0.16	0.17	0.07	-0.16	-0.15	-0.55	1.00					
Total fractionalization	0.36	0.03	-0.33	0.00	-0.06	0.23	-0.05	-0.04	-0.06	0.14	0.13	0.32	0.16	-0.59	-0.84	0.13	0.32	1.00				
Left	0.04	-0.02	0.06	0.06	0.14	0.08	0.17	0.18	0.22	0.00	0.06	0.06	-0.11	0.23	0.20	-0.24	0.01	-0.22	1.00			
Right	-0.08	0.06	0.00	-0.09	-0.20	-0.11	-0.11	-0.13	-0.17	0.02	-0.17	-0.07	0.10	-0.17	-0.17	0.30	-0.11	0.18	-0.8	1.00		
Margin	-0.10	0.02	0.16	0.03	0.12	-0.03	0.06	0.10	-0.01	-0.09	0.03	-0.20	-0.15	0.81	0.87	-0.70	0.17	-0.69	0.27	-0.28	1.00	

Main Results

Table 3: This table presents OLS regressions of the institutional determinants of private participation in infrastructure. The dependent variable is the natural logarithm of total private investments in infrastructure. Controls include economic variables, country fixed effects, and year dummies. Standard errors are in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

VARIABLES	(1) ln_PPI	(2) ln_PPI	(3) ln_PPI	(4) ln_PPI	(5) ln_PPI	(6) ln_PPI
ln GDP_1	0.699*** (0.145)	0.605*** (0.152)	0.694*** (0.144)	0.104 (0.180)	0.103 (0.208)	0.579*** (0.150)
ln Inflation_1	-0.0561* (0.0305)	-0.0242 (0.0309)	-0.0504* (0.0302)	-0.0643* (0.0331)	-0.0732** (0.0368)	-0.0173 (0.0305)
ln Trade_1	0.0736 (0.183)	-0.147 (0.186)	0.141 (0.182)	-0.115 (0.209)	-0.150 (0.230)	-0.0775 (0.184)
Debt_1	-0.00509 (0.00553)	-0.000334 (0.00561)	-0.00444 (0.00548)	-6.26e-05 (0.00608)	-0.00268 (0.00619)	-2.83e-05 (0.00554)
Growth_1	-0.0161** (0.00643)	-0.00844 (0.00669)	-0.0130** (0.00641)	0.00111 (0.00745)	-0.00243 (0.00840)	-0.00409 (0.00668)
ln Population	2.304*** (0.610)	1.434** (0.639)	2.062*** (0.607)	0.716 (0.692)	0.116 (0.792)	1.189* (0.633)
Freedom from corruption	0.00718* (0.00406)	0.0166*** (0.00420)	0.00669* (0.00402)	0.0110** (0.00459)	0.0161*** (0.00497)	0.0155*** (0.00416)
Government effectiveness	0.0587 (0.178)	-0.107 (0.180)	0.120 (0.177)	-0.109 (0.201)	0.0178 (0.215)	-0.0461 (0.179)
Rule of law	0.404** (0.180)	0.279 (0.179)	0.431** (0.178)	0.463** (0.201)	0.436** (0.219)	0.325* (0.177)
Quality of regulation	0.431*** (0.152)	0.638*** (0.150)	0.317** (0.153)	0.660*** (0.173)	0.598*** (0.185)	0.515*** (0.150)
Access to finance	0.00455** (0.00196)	0.00539*** (0.00195)	0.00355* (0.00195)	0.00205 (0.00220)	0.00251 (0.00244)	0.00405** (0.00195)
Gini coefficient		0.00318 (0.00967)			0.00757 (0.0116)	-0.000675 (0.00959)
Number of disputes			-0.0385*** (0.00908)	-0.0378*** (0.0104)	-0.0350*** (0.0105)	-0.0380*** (0.00844)
Dispute time				0.0335 (0.0223)	0.0237 (0.0227)	
Constant	-50.19*** (10.74)	-33.81*** (11.57)	-46.44*** (10.67)	-10.15 (12.26)	-0.475 (14.47)	-29.32** (11.46)
Observations	1,041	867	1,041	771	651	867
R-squared	0.487	0.547	0.497	0.528	0.540	0.559
Number of countries	111	98	111	108	95	98

Table 4: This table presents OLS regressions of the institutional determinants of private participation in infrastructure by sector. The dependent variable is the natural logarithm of total private investments in infrastructure. Controls include economic variables, country fixed effects, and year dummies. Standard errors are in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

VARIABLES	(7) ln_PPI_energy	(8) ln_PPI_energy	(9) ln_PPI_energy	(10) ln_PPI_energy	(11) ln_PPI_transport	(12) ln_PPI_transport	(13) ln_PPI_transport	(14) ln_PPI_transport
ln GDP_1	0.510** (0.213)	0.415* (0.229)	0.506** (0.213)	0.406* (0.229)	0.518** (0.257)	0.399 (0.258)	0.567** (0.256)	0.455* (0.258)
ln Inflation_1	-0.0349 (0.0453)	0.00567 (0.0478)	-0.0347 (0.0453)	0.00601 (0.0478)	-0.0840* (0.0499)	-0.0377 (0.0499)	-0.0754 (0.0497)	-0.0299 (0.0497)
ln Trade_1	-0.0952 (0.268)	-0.286 (0.285)	-0.0910 (0.268)	-0.281 (0.285)	1.337*** (0.296)	1.323*** (0.300)	1.374*** (0.295)	1.367*** (0.299)
Debt_1	0.00177 (0.00685)	0.00279 (0.00749)	0.00181 (0.00686)	0.00282 (0.00749)	0.00420 (0.0115)	0.0213 (0.0146)	0.00510 (0.0115)	0.0217 (0.0145)
Growth_1	-0.0162* (0.00955)	-0.00894 (0.0100)	-0.0158 (0.00963)	-0.00822 (0.0101)	-0.0586*** (0.0113)	-0.0431*** (0.0116)	-0.0540*** (0.0114)	-0.0389*** (0.0116)
ln Population	-2.214** (0.988)	-3.010*** (1.070)	-2.237** (0.992)	-3.052*** (1.073)	0.152 (1.229)	-0.818 (1.217)	0.152 (1.221)	-0.785 (1.211)
Freedom from corruption	0.0121** (0.00567)	0.00811 (0.00605)	0.0120** (0.00569)	0.00782 (0.00608)	0.00217 (0.00777)	0.00617 (0.00801)	0.00259 (0.00772)	0.00688 (0.00797)
Government effectiveness	-0.218 (0.243)	-0.297 (0.260)	-0.217 (0.243)	-0.298 (0.260)	-0.500* (0.291)	-0.771*** (0.294)	-0.484* (0.290)	-0.753** (0.293)
Rule of law	-0.115 (0.252)	0.160 (0.268)	-0.112 (0.253)	0.172 (0.269)	0.359 (0.297)	0.176 (0.302)	0.501* (0.301)	0.326 (0.307)
Quality of regulation	0.466** (0.214)	0.460** (0.224)	0.455** (0.218)	0.438* (0.228)	1.081*** (0.236)	1.500*** (0.238)	0.995*** (0.237)	1.415*** (0.239)
Access to finance	0.00553** (0.00243)	0.00435* (0.00250)	0.00549** (0.00243)	0.00426* (0.00250)	0.0108*** (0.00264)	0.00972*** (0.00257)	0.00984*** (0.00265)	0.00886*** (0.00259)
Gini coefficient		0.0369** (0.0144)		0.0361** (0.0145)		0.0215 (0.0150)		0.0166 (0.0150)
Number of disputes energy sector			-0.00626 (0.0208)	-0.0119 (0.0210)				
Number of disputes transport sector							-0.0676** (0.0262)	-0.0589** (0.0250)
Constant	27.64 (17.71)	42.96** (19.74)	28.09 (17.79)	43.92** (19.82)	-17.41 (22.43)	0.429 (22.64)	-18.76 (22.31)	-1.420 (22.53)
Observations	754	660	754	660	577	512	577	512
R-squared	0.249	0.280	0.249	0.281	0.275	0.327	0.285	0.335
Number of countries	87	75	87	75	76	67	76	67

Table 4 (continued): This table presents OLS regressions of the institutional determinants of private participation in infrastructure by sector. The dependent variable is the natural logarithm of total private investments in infrastructure. Controls include economic variables, country fixed effects, and year dummies. Standard errors are in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

VARIABLES	(15) ln_PPI_telecom	(16) ln_PPI_telecom	(17) ln_PPI_telecom	(18) ln_PPI_telecom	(19) ln_PPI_water	(20) ln_PPI_water	(21) ln_PPI_water	(22) ln_PPI_water
ln GDP_1	0.579*** (0.152)	0.528*** (0.173)	0.590*** (0.151)	0.529*** (0.172)	0.671*** (0.250)	0.657** (0.263)	0.731*** (0.247)	0.701*** (0.259)
ln Inflation_1	-0.0323 (0.0316)	-0.0283 (0.0349)	-0.0305 (0.0315)	-0.0249 (0.0349)	-0.00966 (0.0510)	0.00134 (0.0528)	0.00749 (0.0506)	0.0153 (0.0522)
ln Trade_1	0.161 (0.193)	-0.0617 (0.216)	0.163 (0.192)	-0.0560 (0.215)	1.441*** (0.324)	1.134*** (0.337)	1.627*** (0.324)	1.328*** (0.339)
Debt_1	0.00187 (0.00577)	0.00583 (0.00625)	0.00278 (0.00577)	0.00618 (0.00624)	0.0118 (0.0101)	0.0255* (0.0152)	0.0120 (0.00999)	0.0255* (0.0150)
Growth_1	0.00335 (0.00669)	0.00173 (0.00759)	0.00436 (0.00669)	0.00334 (0.00761)	-0.0251** (0.0110)	-0.0211* (0.0115)	-0.0189* (0.0110)	-0.0141 (0.0116)
ln Population	2.572*** (0.653)	1.904** (0.741)	2.649*** (0.653)	1.912*** (0.740)	-2.784** (1.250)	-2.941** (1.313)	-2.920** (1.232)	-2.938** (1.293)
Freedom from corruption	0.0129*** (0.00450)	0.0231*** (0.00497)	0.0129*** (0.00449)	0.0229*** (0.00496)	0.0165** (0.00745)	0.0161** (0.00815)	0.0164** (0.00734)	0.0154* (0.00803)
Government effectiveness	-0.294 (0.189)	-0.321 (0.205)	-0.258 (0.189)	-0.277 (0.206)	0.239 (0.338)	0.414 (0.359)	0.324 (0.334)	0.483 (0.355)
Rule of Law	0.350* (0.192)	0.276 (0.207)	0.298 (0.193)	0.234 (0.208)	0.296 (0.298)	0.339 (0.306)	0.357 (0.294)	0.395 (0.302)
Quality of regulation	0.548*** (0.159)	0.570*** (0.170)	0.566*** (0.159)	0.579*** (0.170)	-0.183 (0.231)	-0.208 (0.248)	-0.285 (0.230)	-0.298 (0.246)
Access to finance	0.00155 (0.00203)	0.00237 (0.00219)	0.00115 (0.00203)	0.00194 (0.00220)	0.000438 (0.00271)	-0.000832 (0.00285)	-4.93e-05 (0.00268)	-0.00135 (0.00281)
Gini coefficient		-0.0122 (0.0112)		-0.0124 (0.0112)		0.0178 (0.0171)		0.0205 (0.0169)
Number of disputes								
Number of disputes telecom sector			-0.142** (0.0614)	-0.141** (0.0689)				
Number of disputes water sector							-0.122*** (0.0399)	-0.120*** (0.0406)
Constant	-53.31*** (11.49)	-40.45*** (13.35)	-54.85*** (11.48)	-40.63*** (13.32)	26.47 (24.30)	30.14 (25.63)	26.43 (23.94)	27.98 (25.25)
Observations	977	821	977	821	334	308	334	308
R-squared	0.493	0.492	0.496	0.495	0.452	0.473	0.470	0.490
Number of countries	106	91	106	91	40	36	40	36

Table 5: This table presents OLS regressions of the institutional determinants of private participation in infrastructure. The dependent variable is the natural logarithm of total private investments in infrastructure. Controls include economic variables and country fixed effects (no year dummies). Standard errors are in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

VARIABLES	(1) ln_PPI	(2) ln_PPI	(3) ln_PPI	(4) ln_PPI	(5) ln_PPI	(6) ln_PPI
ln GDP_1	0.830*** (0.0795)	0.843*** (0.0798)	0.863*** (0.0801)	0.801*** (0.0942)	0.856*** (0.101)	0.874*** (0.0803)
ln Inflation_1	-0.138*** (0.0284)	-0.137*** (0.0288)	-0.140*** (0.0283)	-0.148*** (0.0313)	-0.171*** (0.0338)	-0.141*** (0.0287)
ln Trade_1	0.298* (0.170)	0.201 (0.178)	0.366** (0.171)	0.296 (0.204)	0.311 (0.228)	0.273 (0.179)
Debt_1	0.000734 (0.00562)	0.00780 (0.00581)	0.00130 (0.00560)	0.00493 (0.00635)	0.00396 (0.00643)	0.00805 (0.00579)
Growth_1	-0.0128** (0.00631)	-0.00323 (0.00652)	-0.0113* (0.00631)	-0.00323 (0.00750)	-0.00163 (0.00824)	-0.00153 (0.00653)
ln Population	4.337*** (0.497)	4.466*** (0.524)	4.401*** (0.496)	4.245*** (0.590)	3.999*** (0.674)	4.569*** (0.523)
Freedom from corruption	0.00720* (0.00417)	0.0159*** (0.00442)	0.00692* (0.00416)	0.0111** (0.00484)	0.0169*** (0.00527)	0.0153*** (0.00441)
Government effectiveness	0.197 (0.182)	0.124 (0.188)	0.241 (0.182)	-0.109 (0.210)	0.120 (0.226)	0.171 (0.188)
Rule of law	0.387** (0.183)	0.267 (0.187)	0.395** (0.182)	0.408* (0.209)	0.466** (0.227)	0.285 (0.186)
Quality of regulation	0.227 (0.153)	0.419*** (0.155)	0.140 (0.155)	0.465*** (0.178)	0.388** (0.192)	0.332** (0.158)
Access to finance	0.00126 (0.00154)	0.00211 (0.00162)	0.000943 (0.00153)	0.00246 (0.00185)	0.00239 (0.00207)	0.00174 (0.00162)
Gini coefficient		0.00454 (0.0100)			0.00257 (0.0120)	0.00139 (0.0101)
Number of disputes			-0.0256*** (0.00917)	-0.0234** (0.0109)	-0.0214** (0.0109)	-0.0237*** (0.00872)
Dispute time				0.0755*** (0.0226)	0.0653*** (0.0230)	
Constant	-86.38*** (6.838)	-89.73*** (7.458)	-88.43*** (6.853)	-83.75*** (8.221)	-81.97*** (9.777)	-92.26*** (7.484)
Observations	1.041	867	1.041	771	651	867
R-squared	0.446	0.483	0.451	0.458	0.468	0.488
Number of countries	111	98	111	108	95	98

Table 6: This table presents OLS regressions of the institutional determinants of private participation in infrastructure by sector. The dependent variable is the natural logarithm of total private investments in infrastructure. Controls include economic variables and country fixed effects (no year dummies). Standard errors are in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

VARIABLES	(7) ln_PPI_energy	(8) ln_PPI_energy	(9) ln_PPI_energy	(10) ln_PPI_energy	(11) ln_PPI_transport	(12) ln_PPI_transport	(13) ln_PPI_transport	(14) ln_PPI_transport
ln GDP_1	0.625*** (0.111)	0.688*** (0.115)	0.624*** (0.112)	0.685*** (0.115)	0.515*** (0.133)	0.556*** (0.130)	0.532*** (0.133)	0.569*** (0.130)
ln Inflation_1	-0.130*** (0.0421)	-0.116** (0.0448)	-0.130*** (0.0422)	-0.115** (0.0449)	-0.115** (0.0452)	-0.0886** (0.0449)	-0.117*** (0.0450)	-0.0907** (0.0448)
ln Trade_1	0.344 (0.244)	0.232 (0.262)	0.341 (0.246)	0.226 (0.264)	1.500*** (0.272)	1.489*** (0.274)	1.516*** (0.271)	1.505*** (0.273)
Debt_1	0.00716 (0.00703)	0.00859 (0.00767)	0.00715 (0.00704)	0.00859 (0.00767)	0.0128 (0.0114)	0.0353** (0.0143)	0.0137 (0.0114)	0.0360** (0.0142)
Growth_1	-0.0116 (0.00903)	-0.00905 (0.00937)	-0.0116 (0.00907)	-0.00920 (0.00940)	-0.0491*** (0.0101)	-0.0393*** (0.00999)	-0.0467*** (0.0101)	-0.0375*** (0.0100)
ln Population	1.395* (0.771)	1.414* (0.833)	1.392* (0.773)	1.403* (0.836)	0.843 (0.918)	0.816 (0.890)	0.974 (0.917)	0.923 (0.889)
Freedom from corruption	0.00996* (0.00587)	0.00747 (0.00629)	0.00998* (0.00588)	0.00756 (0.00631)	0.00173 (0.00779)	0.00551 (0.00800)	0.00222 (0.00776)	0.00601 (0.00798)
Government effectiveness	0.00755 (0.248)	-0.0750 (0.267)	0.00752 (0.248)	-0.0744 (0.267)	-0.296 (0.290)	-0.505* (0.291)	-0.263 (0.289)	-0.472 (0.291)
Rule of law	-0.0307 (0.260)	0.164 (0.277)	-0.0314 (0.260)	0.161 (0.277)	0.310 (0.296)	0.0489 (0.296)	0.415 (0.298)	0.150 (0.302)
Quality of regulation	0.125 (0.215)	0.0560 (0.226)	0.128 (0.219)	0.0649 (0.231)	0.888*** (0.232)	1.296*** (0.233)	0.808*** (0.234)	1.226*** (0.236)
Access to finance	0.000128 (0.00189)	0.00139 (0.00201)	0.000128 (0.00189)	0.00139 (0.00201)	0.00368* (0.00191)	0.00496** (0.00194)	0.00327* (0.00191)	0.00456** (0.00195)
Gini coefficient		0.0520*** (0.0146)		0.0524*** (0.0147)		0.0297** (0.0148)		0.0265* (0.0149)
Number of disputes energy sector			0.00178 (0.0212)	0.00431 (0.0214)				
Number of disputes transport sector							-0.0579** (0.0262)	-0.0452* (0.0248)
Constant	-35.66*** (10.97)	-39.25*** (12.10)	-35.57*** (11.03)	-38.98*** (12.18)	-29.01** (13.19)	-31.27** (12.99)	-31.63** (13.19)	-33.28** (13.01)
Observations	754	660	754	660	577	512	577	512
R-squared	0.170	0.196	0.170	0.196	0.230	0.285	0.238	0.291
Number of countries	87	75	87	75	76	67	76	67

Table 6 (continued): This table presents OLS regressions of the institutional determinants of private participation in infrastructure by sector. The dependent variable is the natural logarithm of total private investments in infrastructure. Controls include economic variables and country fixed effects (no year dummies). Standard errors are in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

VARIABLES	(15) ln_PPI_telecom	(16) ln_PPI_telecom	(17) ln_PPI_telecom	(18) ln_PPI_telecom	(19) ln_PPI_water	(20) ln_PPI_water	(21) ln_PPI_water	(22) ln_PPI_water
ln GDP_1	0.860*** (0.0809)	0.872*** (0.0874)	0.870*** (0.0811)	0.878*** (0.0878)	0.474*** (0.122)	0.519*** (0.128)	0.485*** (0.123)	0.529*** (0.129)
ln Inflation_1	-0.0993*** (0.0293)	-0.114*** (0.0319)	-0.101*** (0.0293)	-0.115*** (0.0320)	-0.125** (0.0500)	-0.117** (0.0519)	-0.126** (0.0500)	-0.118** (0.0520)
ln Trade_1	0.404** (0.176)	0.295 (0.200)	0.414** (0.176)	0.304 (0.200)	1.690*** (0.284)	1.395*** (0.307)	1.734*** (0.295)	1.445*** (0.318)
Debt_1	0.00559 (0.00579)	0.0114* (0.00629)	0.00631 (0.00581)	0.0116* (0.00629)	0.0180* (0.0105)	0.0407*** (0.0156)	0.0182* (0.0106)	0.0412*** (0.0156)
Growth_1	-0.000759 (0.00645)	-8.70e-05 (0.00717)	-3.02e-05 (0.00647)	0.000437 (0.00721)	-0.0332*** (0.0102)	-0.0289*** (0.0106)	-0.0326*** (0.0103)	-0.0282*** (0.0106)
ln Population	4.505*** (0.538)	4.383*** (0.607)	4.629*** (0.545)	4.449*** (0.614)	0.187 (0.932)	0.761 (0.999)	0.278 (0.946)	0.896 (1.024)
Freedom from corruption	0.0132*** (0.00457)	0.0235*** (0.00507)	0.0132*** (0.00457)	0.0234*** (0.00507)	0.0174** (0.00777)	0.0149* (0.00850)	0.0175** (0.00778)	0.0147* (0.00852)
Government effectiveness	-0.174 (0.190)	-0.117 (0.207)	-0.146 (0.190)	-0.0966 (0.209)	0.669* (0.346)	0.760** (0.369)	0.702** (0.351)	0.792** (0.373)
Rule of law	0.278 (0.194)	0.206 (0.210)	0.247 (0.195)	0.191 (0.211)	0.603* (0.308)	0.641** (0.318)	0.622** (0.310)	0.659** (0.320)
Quality of regulation	0.423*** (0.158)	0.401** (0.171)	0.426*** (0.158)	0.399** (0.171)	-0.545** (0.233)	-0.569** (0.250)	-0.577** (0.240)	-0.602** (0.256)
Access to finance	0.00175 (0.00158)	0.00174 (0.00177)	0.00145 (0.00159)	0.00161 (0.00178)	-0.00415** (0.00189)	-0.00539*** (0.00204)	-0.00422** (0.00190)	-0.00544*** (0.00204)
Gini coefficient		-0.0145 (0.0113)		-0.0146 (0.0113)		0.0315* (0.0177)		0.0321* (0.0178)
Number of disputes telecom sector			-0.0869 (0.0614)	-0.0498 (0.0692)				
Number of disputes water sector							-0.0238 (0.0404)	-0.0260 (0.0417)
Constant	-91.61*** (7.488)	-89.87*** (8.700)	-93.89*** (7.656)	-91.12*** (8.873)	-19.26 (14.14)	-30.47* (15.64)	-21.22 (14.54)	-33.24** (16.27)
Observations	977	821	977	821	334	308	334	308
R-squared	0.465	0.454	0.466	0.455	0.352	0.367	0.353	0.368
Number of countries	106	91	106	91	40	36	40	36

Table 7: This table presents OLS regressions of the institutional determinants of private participation in infrastructure by quartiles of experience, GDP, and GDP per capita. The dependent variable is the natural logarithm of total private investments in infrastructure. Controls include economic variables, country fixed effects, and year dummies. Standard errors are in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

VARIABLES	EXPERIENCE				GDP				GDP per capita			
	(1) ln_PPI	(2) ln_PPI	(3) ln_PPI	(4) ln_PPI	(1) ln_PPI	(2) ln_PPI	(3) ln_PPI	(4) ln_PPI	(1) ln_PPI	(2) ln_PPI	(3) ln_PPI	(4) ln_PPI
ln GDP_1	-2.818*** (0.802)	-0.260 (0.422)	1.360*** (0.382)	0.662*** (0.141)	-1.111 (0.839)	0.218 (0.399)	1.361*** (0.253)	0.870*** (0.241)	0.395 (0.464)	1.458*** (0.286)	0.592** (0.259)	0.855*** (0.312)
ln Inflation_1	-0.0446 (0.0996)	0.0228 (0.0480)	-0.118* (0.0672)	-0.00677 (0.0294)	-0.0748 (0.144)	-0.0610 (0.0701)	-0.121*** (0.0457)	0.0200 (0.0523)	0.0107 (0.0809)	0.0394 (0.0461)	0.00834 (0.0539)	-0.148*** (0.0543)
ln Trade_1	-4.217*** (1.006)	-1.226*** (0.385)	0.338 (0.506)	0.318* (0.175)	-1.613 (0.994)	-1.135** (0.457)	0.449 (0.310)	0.668** (0.315)	0.148 (0.377)	-0.989*** (0.306)	-0.275 (0.330)	1.743*** (0.481)
Debt_1	0.0969** (0.0452)	0.0119 (0.0221)	-0.00242 (0.00633)	0.000204 (0.00719)	0.00247 (0.00857)	0.0398 (0.0286)	-0.0296** (0.0124)	0.00572 (0.0138)	0.00175 (0.00752)	0.0242 (0.0176)	0.0201 (0.0189)	-0.0202* (0.0114)
Growth_1	-0.0420** (0.0208)	-0.0210* (0.0123)	-0.0354*** (0.0121)	-0.00495 (0.00634)	-0.0140 (0.0250)	-0.00375 (0.0136)	-0.0443*** (0.0126)	-0.0108 (0.0108)	0.0274 (0.0186)	-0.00949 (0.00995)	-0.0217** (0.00982)	-0.0653*** (0.0128)
ln Population	0.792 (6.280)	-0.822 (2.706)	3.914* (2.350)	-0.397 (0.801)	6.224** (2.948)	1.256 (1.548)	7.124*** (1.177)	0.254 (1.220)	6.589** (2.976)	6.065*** (1.269)	-0.103 (1.035)	-3.833** (1.506)
Freedom from corruption	-0.0361 (0.0221)	0.00768 (0.00901)	-0.00848 (0.0104)	-0.00907* (0.00544)	0.0459* (0.0230)	0.0171 (0.0104)	0.0120* (0.00673)	0.0168** (0.00703)	0.00433 (0.00987)	0.00494 (0.00730)	0.00869 (0.00650)	-0.00896 (0.00780)
Government effectiveness	-0.315 (0.688)	-0.300 (0.438)	0.522 (0.476)	0.0248 (0.191)	0.676 (0.735)	-0.0960 (0.468)	1.527*** (0.340)	-0.440 (0.282)	-0.0386 (0.489)	0.405 (0.279)	0.179 (0.275)	0.509 (0.384)
Rule of law	-0.102 (0.724)	-0.101 (0.394)	0.679 (0.467)	0.110 (0.182)	1.090 (0.771)	0.288 (0.474)	1.144*** (0.333)	-0.175 (0.270)	0.193 (0.412)	0.110 (0.307)	0.287 (0.292)	0.812** (0.388)
Quality of regulation	-0.137 (0.541)	0.216 (0.394)	-0.0276 (0.351)	0.648*** (0.151)	-1.302 (0.894)	0.384 (0.459)	-0.688*** (0.236)	0.731*** (0.222)	-0.192 (0.390)	0.729*** (0.278)	0.320 (0.236)	-0.137 (0.271)
Access to finance	0.00586 (0.00601)	-0.000321 (0.00608)	0.000102 (0.00435)	0.00173 (0.00157)	0.0255 (0.0178)	0.00472 (0.00629)	-0.00287 (0.00328)	0.00637** (0.00255)	0.0215** (0.00925)	0.00503 (0.00309)	0.00303 (0.00348)	0.00501 (0.00327)
Constant	69.54 (98.53)	25.25 (40.77)	-89.58** (39.31)	-4.662 (14.84)	-55.09 (43.07)	-17.75 (26.06)	-141.5*** (19.90)	-24.02 (23.85)	-114.8** (46.29)	-125.5*** (23.02)	-7.397 (18.15)	40.06 (28.19)
Observations	120	206	320	392	90	234	341	365	184	267	245	334
R-squared	0.661	0.461	0.227	0.499	0.580	0.494	0.610	0.494	0.635	0.750	0.579	0.410
Number of countries	55	79	82	63	19	35	43	38	26	38	39	43

Table 8: This table presents OLS regressions of the institutional determinants of private participation in infrastructure by types of investment: greenfield projects versus concessions. The dependent variable is the natural logarithm of total private investments in infrastructure. Controls include economic variables, country fixed effects, and year dummies. Standard errors are in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

VARIABLES	Greenfield						Concessions					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
	ln_PPI_g	ln_PPI_g	ln_PPI_g	ln_PPI_g	ln_PPI_g	ln_PPI_g	ln_PPI_c	ln_PPI_c	ln_PPI_c	ln_PPI_c	ln_PPI_c	ln_PPI_c
ln GDP_1	0.714*** (0.171)	0.770*** (0.195)	0.708*** (0.170)	0.226 (0.230)	0.278 (0.266)	0.752*** (0.195)	0.318 (0.331)	0.102 (0.342)	0.315 (0.331)	-0.823** (0.384)	-0.870** (0.406)	0.0800 (0.342)
ln Infl_1	-0.000324 (0.0365)	-0.0111 (0.0403)	0.00416 (0.0364)	-0.0607 (0.0432)	-0.0803* (0.0482)	-0.00673 (0.0402)	0.00832 (0.0725)	-0.00192 (0.0777)	0.00881 (0.0727)	-0.0138 (0.0735)	-0.00238 (0.0819)	0.000732 (0.0778)
ln Trade_1	0.628*** (0.214)	0.384 (0.238)	0.680*** (0.214)	0.414 (0.264)	0.183 (0.293)	0.429* (0.239)	1.245*** (0.386)	0.890** (0.411)	1.248*** (0.387)	1.197*** (0.445)	1.091** (0.476)	0.906** (0.412)
Debt_1	0.00101 (0.00636)	0.00245 (0.00707)	0.00147 (0.00634)	0.00325 (0.00760)	0.000592 (0.00778)	0.00261 (0.00705)	0.00199 (0.0179)	0.00152 (0.0187)	0.00205 (0.0180)	-0.0162 (0.0209)	-0.0126 (0.0223)	0.00118 (0.0187)
Growth_1	-0.0108 (0.00759)	-0.0167* (0.00859)	-0.00845 (0.00761)	-0.00254 (0.00946)	-0.00650 (0.0107)	-0.0138 (0.00866)	-0.0449*** (0.0143)	-0.0423*** (0.0151)	-0.0444*** (0.0147)	-0.0141 (0.0164)	-0.0148 (0.0178)	-0.0385** (0.0156)
ln Population	2.171*** (0.719)	2.094** (0.825)	2.001*** (0.719)	0.687 (0.875)	0.772 (1.016)	1.951** (0.826)	5.264*** (1.848)	5.157*** (1.916)	5.208*** (1.883)	0.650 (2.101)	0.686 (2.183)	4.774** (1.952)
Freedom from corruption	0.0195*** (0.00480)	0.0263*** (0.00539)	0.0193*** (0.00479)	0.0267*** (0.00586)	0.0318*** (0.00635)	0.0258*** (0.00538)	0.00736 (0.0105)	0.00612 (0.0110)	0.00713 (0.0106)	0.0169 (0.0111)	0.0173 (0.0117)	0.00453 (0.0111)
Government effectiveness	-0.166 (0.209)	-0.0609 (0.231)	-0.118 (0.209)	-0.0537 (0.256)	0.160 (0.277)	-0.0177 (0.231)	-0.952** (0.433)	-1.127** (0.450)	-0.951** (0.434)	-1.982*** (0.444)	-1.986*** (0.471)	-1.125** (0.450)
Rule of law	0.540** (0.211)	0.622*** (0.230)	0.565*** (0.211)	0.536** (0.255)	0.642** (0.280)	0.654*** (0.230)	0.304 (0.435)	0.749 (0.456)	0.311 (0.438)	2.560*** (0.502)	2.661*** (0.532)	0.810* (0.460)
Quality of regulation	0.0289 (0.179)	0.0190 (0.192)	-0.0583 (0.182)	0.00839 (0.220)	-0.0625 (0.236)	-0.0614 (0.195)	0.815** (0.347)	0.786** (0.364)	0.805** (0.353)	-0.208 (0.386)	-0.239 (0.405)	0.715* (0.370)
Access to finance	0.00597*** (0.00226)	0.00788*** (0.00246)	0.00524** (0.00226)	0.00476* (0.00275)	0.00682** (0.00307)	0.00704*** (0.00248)	0.0108*** (0.00386)	0.00896** (0.00399)	0.0107*** (0.00391)	0.00355 (0.00387)	0.00364 (0.00413)	0.00828** (0.00405)
Gini coefficient		0.0193 (0.0126)			0.0243 (0.0150)	0.0164 (0.0126)		-0.0243 (0.0227)			0.0191 (0.0238)	-0.0286 (0.0231)
No. of disputes telecom sector			-0.0283*** (0.0105)	-0.0219* (0.0130)	-0.0159 (0.0132)	-0.0240** (0.0108)			-0.00223 (0.0141)	-0.0404*** (0.0140)	-0.0373** (0.0147)	-0.0151 (0.0147)
No. of disputes water sector				-0.0111 (0.0280)	-0.0296 (0.0288)					0.0852** (0.0396)	0.0919** (0.0412)	
Constant	-51.76*** (12.58)	-52.00*** (14.85)	-49.07*** (12.57)	-15.61 (15.51)	-18.08 (18.54)	-49.30*** (14.86)	-98.21*** (33.06)	-88.72** (34.37)	-97.24*** (33.66)	6.794 (37.85)	7.087 (39.57)	-81.61** (35.06)
Observations	1,007	847	1,007	749	635	847	518	477	518	339	317	477
R-squared	0.431	0.437	0.435	0.411	0.435	0.441	0.157	0.151	0.157	0.309	0.313	0.153
Number of countries	110	97	110	107	93	97	72	66	72	63	58	66

Table 9: This table presents OLS regressions of the institutional determinants of foreign direct investment. The dependent variable is the natural logarithm of total foreign direct investment (FDI). Controls include economic variables, country fixed effects, and year dummies. Standard errors are in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

VARIABLES	(1) ln_FDI	(2) ln_FDI	(3) ln_FDI	(4) ln_FDI	(5) ln_FDI	(6) ln_FDI
ln GDP_1	-0.212 (0.162)	-0.175 (0.185)	-0.219 (0.162)	-0.327 (0.224)	-0.183 (0.261)	-0.180 (0.185)
ln Infl_1	0.0447 (0.0357)	0.0106 (0.0381)	0.0472 (0.0357)	0.0809* (0.0439)	0.0356 (0.0465)	0.0123 (0.0382)
ln Trade_1	0.578*** (0.209)	0.547** (0.227)	0.612*** (0.210)	0.624** (0.268)	0.590** (0.286)	0.562** (0.228)
Debt_1	-0.00253 (0.00573)	-0.00803 (0.00599)	-0.00223 (0.00573)	-0.00382 (0.00690)	-0.00876 (0.00671)	-0.00787 (0.00600)
Growth_1	0.0248*** (0.00719)	0.0103 (0.00797)	0.0261*** (0.00722)	0.0294*** (0.00894)	0.00789 (0.00993)	0.0112 (0.00805)
ln Population	0.902 (0.646)	0.388 (0.751)	0.776 (0.649)	-0.140 (0.827)	-1.004 (0.950)	0.329 (0.754)
Freedom from corruption	0.00403 (0.00457)	0.000189 (0.00498)	0.00373 (0.00457)	0.00199 (0.00589)	-0.00769 (0.00613)	-3.87e-06 (0.00498)
Government effectiveness	-0.264 (0.203)	-0.245 (0.219)	-0.241 (0.203)	-0.362 (0.257)	-0.281 (0.267)	-0.234 (0.220)
Rule of law	0.186 (0.201)	0.0793 (0.216)	0.204 (0.201)	0.108 (0.258)	-0.0121 (0.276)	0.0905 (0.217)
Quality of regulation	1.309*** (0.174)	1.334*** (0.183)	1.252*** (0.177)	1.488*** (0.222)	1.500*** (0.231)	1.304*** (0.186)
Access to finance	0.00323 (0.00234)	0.00531** (0.00248)	0.00272 (0.00236)	0.00162 (0.00293)	0.00341 (0.00311)	0.00500** (0.00250)
Gini coefficient		0.0151 (0.0113)			0.0134 (0.0145)	0.0142 (0.0114)
Number of disputes			-0.0191* (0.0107)	-0.0144 (0.0139)	-0.00318 (0.0133)	-0.00925 (0.0106)
Dispute time				-0.00213 (0.0292)	0.0150 (0.0286)	
Constant	12.23 (11.53)	19.65 (13.83)	14.28 (11.57)	31.21** (14.89)	42.41** (17.75)	20.74 (13.88)
Observations	1,064	886	1,064	793	666	886
R-squared	0.360	0.344	0.362	0.323	0.296	0.344
Number of countries	115	102	115	112	100	102

Table 10: This table presents OLS regressions of the political determinants of private participation in infrastructure. The dependent variable is the natural logarithm of total private investments in infrastructure. Controls include economic variables, country fixed effects, and year dummies. Standard errors are in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

VARIABLES	(1) ln_PPI	(2) ln_PPI	(3) ln_PPI	(4) ln_PPI	(5) ln_PPI	(6) ln_PPI	(7) ln_PPI
ln GDP_1	0.748*** (0.113)	0.273** (0.126)	1.009*** (0.135)	0.416*** (0.120)	0.863*** (0.121)	0.392*** (0.127)	0.844*** (0.169)
ln Inflation_1	-0.132*** (0.0262)	-0.140*** (0.0281)	-0.137*** (0.0291)	-0.122*** (0.0275)	-0.126*** (0.0275)	-0.127*** (0.0285)	-0.137*** (0.0370)
ln Trade_1	0.374*** (0.140)	0.0289 (0.163)	0.535*** (0.164)	0.198 (0.162)	0.599*** (0.153)	0.203 (0.165)	0.185 (0.195)
Debt_1	-0.00247 (0.00443)	-0.00192 (0.00406)	-0.000103 (0.00475)	0.00188 (0.00410)	0.00119 (0.00464)	0.000911 (0.00410)	-0.0126* (0.00763)
Growth_1	0.0170*** (0.00555)	0.0124** (0.00597)	0.00944 (0.00633)	0.0143** (0.00604)	0.0104* (0.00602)	0.0113* (0.00612)	0.0203** (0.00842)
ln Population	1.349*** (0.471)	-0.538 (0.551)	0.756 (0.518)	-0.307 (0.546)	1.206** (0.481)	-0.741 (0.559)	1.288* (0.752)
Gov. vote share	0.00184 (0.00112)						
Largest gov. party		0.00210 (0.00189)					
Opposition fractionalization			0.291** (0.133)				
Largest opposition party vote share				0.00795*** (0.00289)			
Total Fractionalization					0.354** (0.169)		
Margin						-0.00114 (0.00177)	
Right							-0.000412 (0.193)
Left							-0.0806 (0.179)
Constant	4.615 (9.632)	-35.08*** (8.875)	-3.121 (9.496)	-39.59*** (8.413)	13.52 (10.99)	-37.83*** (12.75)	-19.51 (13.46)
Observations	1,133	1,403	1,156	1,552	877	952	670
R-squared	0.666	0.619	0.678	0.632	0.692	0.604	0.678
Number of countries	104	104	104	112	83	79	68

Table 11: This table presents OLS regressions of the political determinants of private participation in infrastructure. The dependent variable is the natural logarithm of total private investments in infrastructure. Controls include economic and institutional variables, country fixed effects, and year dummies. Standard errors are in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

VARIABLES	(1) ln_PPI	(2) ln_PPI	(3) ln_PPI	(4) ln_PPI	(5) ln_PPI	(6) ln_PPI	(7) ln_PPI
ln GDP_1	0.685*** (0.144)	0.267* (0.161)	0.806*** (0.156)	0.399*** (0.154)	0.747*** (0.144)	0.317* (0.162)	0.532*** (0.193)
ln Inflation_1	-0.0512* (0.0305)	-0.000173 (0.0326)	-0.0894*** (0.0319)	0.0212 (0.0314)	-0.0741** (0.0298)	0.00421 (0.0332)	-0.0329 (0.0438)
ln Trade_1	0.141 (0.182)	-0.326 (0.206)	0.0819 (0.199)	-0.340* (0.202)	0.299 (0.192)	-0.240 (0.207)	-0.578** (0.238)
Debt_1	-0.00447 (0.00550)	-0.00116 (0.00498)	-0.00195 (0.00545)	0.00409 (0.00505)	-0.00301 (0.00532)	0.00131 (0.00505)	-0.0199** (0.00923)
Growth_1	-0.0126* (0.00650)	-0.00825 (0.00680)	-0.0149** (0.00652)	-0.00677 (0.00695)	-0.0159** (0.00628)	-0.0103 (0.00702)	-0.00953 (0.00966)
ln Population	2.040*** (0.612)	0.0815 (0.698)	2.164*** (0.631)	-0.271 (0.701)	2.099*** (0.610)	-0.343 (0.719)	1.220 (0.954)
Freedom from corruption	0.00689* (0.00404)	0.00400 (0.00424)	0.00407 (0.00441)	0.00675 (0.00420)	0.00708* (0.00413)	0.00385 (0.00437)	-0.00914* (0.00550)
Government effectiveness	0.133 (0.179)	0.127 (0.196)	0.0712 (0.198)	0.206 (0.190)	0.00644 (0.182)	0.166 (0.200)	1.101*** (0.254)
Rule of law	0.419** (0.179)	-0.227 (0.191)	0.424** (0.195)	-0.142 (0.193)	0.412** (0.183)	-0.203 (0.197)	0.457* (0.242)
Quality of regulation	0.321** (0.153)	0.586*** (0.169)	0.376** (0.172)	0.467*** (0.162)	0.367** (0.155)	0.504*** (0.172)	-0.00304 (0.214)
Access to finance	0.00354* (0.00196)	0.00123 (0.00217)	0.00413* (0.00212)	0.00270 (0.00218)	0.00331* (0.00192)	0.00209 (0.00219)	-0.00133 (0.00262)
Number of disputes	-0.0386*** (0.00911)	-0.0438*** (0.0119)	-0.0481*** (0.0110)	-0.0436*** (0.0119)	-0.0491*** (0.0107)	-0.0445*** (0.0119)	-0.0302*** (0.00940)
Government vote share	-8.60e-05 (0.00124)						
Largest government party		0.00541** (0.00214)					
Opposition fractionalization			0.226 (0.141)				
Largest opposition party vote share				0.00227 (0.00319)			
Total Fractionalization					0.0192 (0.177)		
Margin						0.00362* (0.00198)	
Right							-0.0780 (0.218)
Left							0.119 (0.211)
Constant	-45.97*** (10.78)	-3.287 (12.26)	-50.56*** (11.15)	-0.441 (12.34)	-49.06*** (10.81)	2.252 (12.67)	-25.11 (16.18)
Observations	1,029	719	872	741	959	701	541
R-squared	0.498	0.556	0.521	0.538	0.508	0.535	0.514
Number of countries	106	94	100	95	106	93	69

Table 12: This table presents multivariable OLS regressions of the political determinants of private participation in infrastructure. The dependent variable is the natural logarithm of total private investments in infrastructure. Covariates include political variables and interacted institutional and political variables. Controls include economic and institutional variables (columns 4–6), country fixed effects, and year dummies. Standard errors are in parenthesis; * denotes significance at 10%, ** significance at 5%, and *** significance at 1%.

VARIABLES	(1) ln_PPI	(2) ln_PPI	(3) ln_PPI	(4) ln_PPI	(5) ln_PPI	(6) ln_PPI
ln GDP_1	0.543*** (0.157)	0.706*** (0.209)	0.780*** (0.218)	0.168 (0.169)	0.563** (0.220)	0.729*** (0.219)
ln Inflation_1	-0.115*** (0.0310)	-0.0976*** (0.0367)	-0.00406 (0.0457)	-0.0208 (0.0321)	-0.00230 (0.0453)	-0.00180 (0.0443)
ln Trade_1	0.464** (0.196)	0.552** (0.238)	-0.468* (0.280)	-0.331 (0.212)	-0.329 (0.285)	-0.252 (0.273)
Debt_1	-0.00116 (0.00428)	-0.00643 (0.00745)	0.00786 (0.00895)	-0.00101 (0.00461)	0.00399 (0.00883)	0.00758 (0.00865)
Growth_1	0.0100 (0.00714)	0.00284 (0.00913)	-0.0183* (0.00974)	-0.00548 (0.00674)	-0.0146 (0.00983)	-0.0135 (0.00963)
ln Population	-1.363*** (0.609)	-1.364* (0.806)	-1.057 (0.995)	-0.0778 (0.700)	-0.872 (1.024)	-0.0828 (1.028)
Freedom from corruption				0.00417 (0.00450)	-0.00304 (0.00538)	0.0134** (0.00663)
Government effectiveness				-0.0579 (0.201)	0.0841 (0.251)	0.0814 (0.246)
Rule of law				-0.100 (0.206)	-0.184 (0.271)	-0.464 (0.289)
Quality of regulation				0.733*** (0.175)	0.540** (0.216)	0.561*** (0.212)
Access to finance				0.00351 (0.00231)	-0.00144 (0.00349)	-0.00328 (0.00370)
Number of disputes				-0.0446*** (0.0121)	-0.0410*** (0.0126)	-0.0400*** (0.0122)
Government vote share	0.00933* (0.00481)	0.0146*** (0.00560)	0.0137** (0.00608)	0.0186*** (0.00471)	0.0124** (0.00606)	0.0195*** (0.00607)
Opposition fractionalization	0.677*** (0.205)	2.005*** (0.281)	1.868*** (0.322)	0.989*** (0.226)	1.681*** (0.318)	2.003*** (0.318)
Total fractionalization	-1.267*** (0.409)	-1.260** (0.537)	-2.257*** (0.569)	-2.430*** (0.402)	-1.962*** (0.560)	-2.371*** (0.549)
Margin	-0.0122*** (0.00442)	0.00228 (0.00876)	0.00741 (0.00794)	-0.0190*** (0.00462)	0.0148 (0.0113)	0.00833 (0.00855)
Margin x Right		-0.0157* (0.00909)			-0.0200* (0.0121)	
Margin x Left		-0.0267*** (0.00915)			-0.0334*** (0.0125)	
Freedom from corruption x Margin x Right			-0.000531*** (0.000190)			-0.000821*** (0.000226)
Freedom from corruption x Margin x Left			-0.000697*** (0.000171)			-0.000901*** (0.000213)
Rule of law x Margin x Left			0.00913 (0.00617)			0.0109* (0.00654)
Rule of law x Margin x Right			-0.0116 (0.00934)			-0.0130 (0.00932)
Access to finance x Margin x Left			1.71e-05 (7.94e-05)			5.34e-05 (8.39e-05)
Constant	4.475 (9.809)	-21.53 (13.52)	4.580 (16.94)	2.169 (12.04)	5.903 (17.21)	-11.65 (17.47)
Observations	1,090	637	354	587	353	353
R-squared	0.669	0.470	0.654	0.613	0.666	0.690
Number of countries	102	74	51	79	51	51