Article

Determinants of Infrastructure and Its Financing

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Abstract

Adequate infrastructure is a critical input for growth and development in all countries, and especially in emerging and developing countries. This article[1] examines the factors that have underpinned the stock of infrastructure across countries, including in Latin America and the Caribbean. We find that public finance and private sector participation both contribute to improving the stock of infrastructure. The impact of public finance depends on how capital investment is financed to meet the government's budget constraint. Total domestic finance of infrastructure depends, in turn, on domestic financial depth and links to the rest of the world through trade and foreign investment.

Keywords

Infrastructure, public investment, investment financing, Latin America and the Caribbean

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Introduction

The stock and quality of infrastructure is a principal input to growth and development in all countries, and especially in emerging and developing countries. Increases in infrastructure can support aggregate demand during the construction phase and is a complement to other inputs over the long term by raising their productive capacity. Empirical evidence supports the relationship between infrastructure and growth (Beaton, Cebotari, & Komaromi, 2017; Calderón & Servén, 2004; International Monetary Fund, 2017). Infrastructure also increases the probability of a surge in exports (Cerra & Woldemichael, 2017) and is essential for raising the quality of export products (Ding & Hadzi-Vaskov, 2017). The stock and quality of infrastructure is typically high in advanced countries, but also varies across regions of emerging and developing countries (Cerra et al., 2016). Latin America and the Caribbean (LAC) is a region that has been lagging on some indicators of infrastructure. Therefore, many countries in the region have turned their attention to public investment in infrastructure and have also been encouraging participation by the private sector.

There has also been a renewed interest in infrastructure financing. At the Third International Conference on Financing for Development in Addis Ababa, Ethiopia (July 2015), it was recognized that infrastructure financing is potentially transformational and its financing is challenging. Lack of funding for infrastructure can hold back development process (Ari & Toivanen, 2005). Governments' efforts to raise funding, in many cases, have been dampened by lack of fiscal space and limitations in regulatory frameworks. In order to adequately fund public infrastructure, governments have sought innovative funding mechanisms that safeguard the fiscal sustainability and encourage private sector participation. In this context, public–private partnerships and other private contributions to infrastructure financing constitute an alternative to public spending on infrastructure.

Due to the importance of infrastructure, this study examines the determinants of infrastructure based on evidence from a large sample of countries. We also compare determinants of infrastructure in LAC to that in the rest of the world based on the importance of the initiatives in that region. Since infrastructure projects require substantial financial investment, the subsequent section investigates the determinants of financing options. We then conclude with a few final remarks.

Selected Determinants of Infrastructure Investment

Methodology

To help identify some of the factors explaining differences in the levels and quality of infrastructure across countries, we estimate a model based on Agénor and Neanidis (2015) and Calderon and Serven (2010) using a variety of estimation techniques. The model is:

$$Infra_{it}^{n} = \beta_0^n GDP_{it-1} + \sum_{j=1}^{3} \beta_{1j}^n Infra_{it}^{j} + \sum_{k=1}^{K-1} \beta_{2k}^n Fisc_{it}^{k} + \sum_{l=1}^{m} \beta_{3l}^n X_{it}^{l} + \beta_4^n DEBT_{it} + u_{it}, \quad (1)$$

where i and t are the country and time indices, respectively; GDP_{it} is the log of GDP per capita (PPP, constant terms); $Infra_{it}^{j}$ is the log of infrastructure of type j (telecommunication, power, and transport, measured by fixed telephone lines per 100 people, electricity generation capacity, and road density in km of roads per km^2, respectively). This specification accounts for (a) the heterogeneity of infrastructure assets; (b) their interconnectedness in stock accumulation and growth processes; and (c) their different dynamics depending on policy priorities.

As in Agénor and Neanidis (2015), the model imposes the government budget identity $\sum_{k=1}^{K} Fisc_{it}^{k} = 0$ (tax revenue, non-tax revenue,

current expenditure, capital expenditure, primary balance, and as a percentage of GDP) excluding one fiscal variable (non-tax revenue) to avoid linear dependence. X_{it}^{I} are standard control variables for growth and infrastructure (private sector credit, inflation, trade openness, fertility rate, urbanization rate, population density, rule of law, and private sector investment). ε_{it} and u_{it} are the error terms for country- and time-specific effects.

To verify the robustness of results, we estimate four alternative model specifications. We first estimate a standard OLS panel regression technique controlling separately for country- and time-specific effects using the fixed effects estimator and a bias corrected version (LSDVC), which follows Bruno (2005). Then, we estimate a difference and system IV-generalized method of moments estimators based on Arellano and Bond (1991) and Arellano and Bover (1995). These estimators separately control for country-fixed effects and address potential endogeneity of the right-hand-side variables. We verified the validity of instruments in the GMM approach by applying specification tests, including the Hansen (1982) J-test of over-identifying restrictions to examine the exogeneity of the instruments and the Arellano and Bond (1991) test for serial correlation, the existence of which can cause bias to both the estimated coefficients and standard errors. To avoid dynamic panel bias, we instrument for regressors that are not strictly exogenous (e.g., using the control variables).

Data Sources

The model is estimated using a dynamic panel of 110 countries (advanced Europe, Canada and the United States, emerging Asia, LAC, and sub-Saharan Africa) during 1990–2013. Data sources include Dealogic, the Energy Information Agency, IMF's World Economic Outlook and the Fiscal Affairs Department's Government Finance Statistics, the IMF's Fiscal Affairs Department, the International Telecommunication Union, the World Bank, the World Economic Forum, and Worldwide Governance Indicators. A complete list of variables and data sources is presented in Table 1.

Table 1. Data

Variable	Scale	Source	Notes
1. Infrastructure quantitative and qualitative indicators			
Road network	Kilometers of road	International Road Federation	
Road density	Kilometers of road per square kilometers of land area	IMF Staff estimates from International Road Federation (IRF) and World Bank data	Calculated from road network and landmass
Road rural access index	Road access in percent of total population	World Bank	
Roads paved	Percent of total	World Bank, World Development Indicators	
Mobile phone lines	Per 100 persons	World Bank, World Development Indicators	
Fixed telephone lines	Per 100 persons	International Telecommunication Union	
Fixed telephone access	Percent of total population	International Telecommunication Union	

(Table 1 Continued)

(Table 1 Continued)

Variable	Scale	Source	Notes
Fixed telephone faults	Faults reported over a year per 100 fixed telephone lines	International Telecommunication Union	
Electricity generation capacity	Million kilowatts	Energy Information Agency	
Access to electricity	Percent of total population	World Bank	
Electricity distribution losses	Percent of total electricity	World Bank	
Infrastructure quality, overall	Index (0 to 7)	World Economic Forum, Global Competitiveness Report	
Infrastructure quality, electricity	Index (0 to 7)	World Economic Forum, Global Competitiveness Report	
Infrastructure quality, roads	Index (0 to 7)	World Economic Forum, Global Competitiveness Report	
2. Infrastructure financing indicators			
Infrastructure financing, bonds	Current U.S. dollars	IMF Staff estimates from Dealogic data	Includes all bonds and syndicated loans to infrastructure-focused companies, defined as those falling in the following categories: (a) Transportation; (b) Construction/ Building; (c) Telecommunications; (d) Utilities; (e) Water & Sewage.
Infrastructure financing, loans	Current U.S. dollars	IMF Staff estimates from Dealogic data	
Infrastructure financing, local currency, bonds	Current U.S. dollars	IMF Staff estimates from Dealogic data	
Infrastructure financing, local currency, loans	Current U.S. dollars	IMF Staff estimates from Dealogic data	
Infrastructure financing, foreign currency, bonds	Current U.S. dollars	IMF Staff estimates from Dealogic data	
Infrastructure financing, foreign currency, loans	Current U.S. dollars	IMF Staff estimates from Dealogic data	
3. Real and monetary indicators			
Per capita gross domestic product	Constant PPP U.S. dollars, per person	World Bank, World Development Indicators	
Public investment	Billion constant PPP U.S. dollars	IMF, Fiscal Affairs Department	
Public capital stock	Billion constant PPP U.S. dollars	IMF, Fiscal Affairs Department	

(Table 1 Continued)

(Table 1 Continued)

Variable	Scale	Source	Notes
Private investment	Billion constant PPP U.S. dollars	IMF, Fiscal Affairs Department	
Private capital stock	Billion constant PPP U.S. dollars	IMF, Fiscal Affairs Department	
Private participation in infrastructure	Constant U.S. dollars	IMF Staff estimates from World Bank data	
Credit to private sector	Share of GDP	IMF, International Finance Statistics	Labelled in the IFS as "claims on the private sector"
Consumer price inflation	Year over year percent change	IMF, World Economic Outlook	
4. Fiscal indicators			
Government total revenues	Share of GDP	IMF, Government Finance Statistics	
Tax revenues	Share of GDP	IMF, Government Finance Statistics	
Government total expenditures	Share of GDP	IMF, Government Finance Statistics	
Public capital expenditures	Share of GDP	IMF, Government Finance Statistics	
Public current expenditures	Share of GDP	IMF, Government Finance Statistics	
Government interest expenditures	Share of GDP	IMF, Government Finance Statistics	
Public debt	Share of GDP	IMF, World Economic Outlook	
Primary balance	Share of GDP	IMF, Government Finance Statistics	
5. External indicators			
Trade openness	Share of GDP	IMF Staff estimates from World Economic Outlook data	Calculated as the sum of exports and imports to GDP
Terms of trade	Index	IMF, World Economic Outlook	
Foreign direct investment (net)	Billion current U.S. dollars	IMF, World Economic Outlook	
6. Institutional quality and social indicators			
Rule of law governance indicator	Index, (–2.5 to +2.5)	Worldwide Governance Indicators	

(Table 1 Continued)

(Table 1 Continued)

Variable	Scale	Source	Notes
Fertility rate	Births per woman	World Bank, World Development Indicators	
Urbanization rate	Percent of total population	World Bank, World Development Indicators	
Population	In million persons	World Bank, World Development Indicators	
Landmass	In square kilometers	World Bank, World Development Indicators	

Source: Authors' own work.

Results

The empirical analysis reveals a dispersion of regression estimates. Nevertheless, in general, results suggest that, in addition to the dynamism of each economy (represented by its GDP growth), the following factors tend to matter for infrastructure investment (Tables 2 and 3).[2]

- **The public sector's budget constraint:** Fiscal consolidation in the form of a higher primary fiscal surplus tends to reduce the indicator for telephone lines (although estimates are not statistically significant), but not necessarily other types of infrastructure; and higher public investment appears less important than one might expect in the regressions for road density and telephone lines. These results might, in part, reflect the increasing obsolescence of fixed telephone lines, and the increasing role of the private sector in the development of roads as discussed below. A higher debt burden appears to deter increases in electricity generation capacity.
- **Private sector participation:** An increase in private investment is generally associated with stronger infrastructure accumulation, especially in electricity generation. A negative association with fixed telephone lines may reflect again the obsolescence of fixed lines and the role of private firms in developing mobile telephony.
- **Interdependence among types of infrastructure:** Power, road, and telephone infrastructure stocks are positively linked in many of the specifications. This suggests a tendency among countries to adopt broad-ranging infrastructure strategies.
- **Other determinants:** Infrastructure investment in LAC generally appears responsive to controls that measure aspects of economic or social development, such as the level of income, the degree of urbanization, population density, fertility, rising financial depth, and rule of law.

The results are qualitatively similar for both the full and LAC samples, although some of the results appear stronger in the LAC sample. The net impact of public investment on electricity and transport infrastructure stocks may depend on how the investment is financed (new debt, tax increases, or current spending cuts). For example, a 1 percent increase in the public capital-to-GDP ratio financed through debt will lead to an increase in road density of up to 0.041 percent for the full sample and 0.173 percent for LAC. A 1 percent increase in the public capital-to-GDP ratio fully financed (in the same year) by an equivalent 1 percent rise in the tax-to-GDP ratio would lead to an average increase in road density of up to 0.035 percent for the full sample and to 0.163 percent for LAC. A 1 percent increase in capital spending financed by a 1 percent

Table 2. Determinants of Infrastructure: Latin America and Caribbean

	Dependent Variable: Log Fixed Telephone Lines Per 100 People								Dependent Variable: Log Electricity Generation Capacity								Dependent Variable: Log Road Density (Km of Roads Per Square Km)							
	(1) LSDV		(2) LSDVC		(3) Diff. GMM		(4) Sys. GMM		(1) LSDV		(2) LSDVC		(3) Diff. GMM		(4) Sys. GMM		(1) LSDV		(2) LSDVC		(3) Diff. GMM		(4) Sys. GMM	
Lagged variables																								
LN GDP per capita, constant PPP (t-1)	0.333	**	0.304	***	0.405	***	0.007		0.356	***	0.327	***	0.359	***	–0.039		–0.012		–0.032		–0.004		–0.029	***
LN fixed telephone lines per 100 people (t-1)	0.812	***	0.918	***	0.757	***	0.985	***	0.033		0.023		0.032		0.023		–0.046	**	–0.030		–0.055	**	0.025	***
LN electricity generation capacity (t-1)	0.154	**	0.127	*	0.180	**	0.000		0.442	***	0.526	***	0.430	***	0.998	***	0.033		0.030		0.020		0.002	
Road density (km of roads per square km) (t-1)	–0.193		–0.060		–0.307	**	–0.010	***	–0.047		–0.050		–0.055		–0.001		0.720	***	0.839	***	0.696	***	1.003	***
Fiscal																								
Tax revenues, share of GDP	0.517		0.303		0.187		0.105		–0.640		–0.651	*	–0.649		–0.059		–0.238		–0.231		–0.280		–0.001	
Current expenditures, share of GDP	0.438		0.430		0.505	*	–0.105		0.541	**	0.536	*	0.541	**	0.122		–0.159		–0.136		–0.199		–0.061	
Capital expenditures, share of GDP	0.326		0.323		0.387		0.186		0.832	**	0.788	***	0.838	**	0.339	*	0.002		0.038		–0.035		0.164	*
Primary balance, share of GDP	–0.036		–0.007		0.062		–0.156		0.815	***	0.805	**	0.802	***	0.199		0.028		0.021		–0.014		–0.035	
Debt to GDP ratio	0.015		0.014		–0.001		–0.041		–0.060		–0.056		–0.064		–0.074	***	–0.001		0.005		–0.001		0.009	

(Table 2 Continued)

(Table 2 Continued)

	Dependent Variable: Log Fixed Telephone Lines Per 100 People				Dependent Variable: Log Electricity Generation Capacity				Dependent Variable: Log Road Density (Km of Roads Per Square Km)			
	(1) LSDV	(2) LSDVC	(3) Diff. GMM	(4) Sys. GMM	(1) LSDV	(2) LSDVC	(3) Diff. GMM	(4) Sys. GMM	(1) LSDV	(2) LSDVC	(3) Diff. GMM	(4) Sys. GMM
Macro												
Private participation in investment, constant USD	–0.309 ***	–0.305 ***	–0.298 ***	–0.002	0.123 *	0.094	0.130 **	0.006	0.022	0.023	0.040	0.005 **
Consumer price inflation, yearly average	–0.004	0.009	0.139	–0.028	0.013	0.018	0.010	0.116	–0.062	–0.061	–0.047	–0.079 **
Trade openness, share of GDP	0.069	0.032	0.079	0.010	–0.031	–0.026	–0.027	0.005	0.033	0.034	0.052	0.004
Credit to private sector, share of GDP	–0.203 ***	–0.185 **	–0.207 ***	–0.019	0.031	0.022	0.033	0.022	0.047	0.044	0.063 *	0.006
Observations	356	314	170	314	352	314	170	314	352	314	170	314
Number of countries	24	23	21	23	24	23	21	23	24	23	21	23
Chi-sq.			137.3	174.5			152.3	200.6			137.3	174.5
Sargan–Hansen Statistic, p-value			0.78	0.81			0.79	0.89			0.79	0.81

Source: Authors' estimates.

Notes: Robust standard errors in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; LSDV = least square dummy variable; LSDVC = least square bias-corrected dummy variable, following Bruno (2005); Diff. GMM = difference GMM, following Arellano and Bond (1991); Sys. GMM = system GMM, following Arellano and Bover (1995). All of the regressions also include a vector of control with the following variables which are not reported in the table: fertility rate; urbanization rate; population density; rule of law governance indicator.

Table 3. Determinants of Infrastructure: Full Sample

	Dependent Variable: Log Fixed Telephone Lines Per 100 People				Dependent Variable: Log Electricity Generation Capacity				Dependent Variable: Log Road Density (Km of Roads Per Square Km)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	LSDV	LSDVC	Diff. GMM	Sys. GMM	LSDV	LSDVC	Diff. GMM	Sys. GMM	LSDV	LSDVC	Diff. GMM	Sys. GMM
Lagged variables												
LN GDP per capita, constant PPP (t-1)	–0.054	–0.095	0.126 ***	–0.014	0.084 **	0.082 **	–0.110	0.035 *	0.006	0.001	0.009	–0.005 **
LN fixed telephone lines per 100 people (t-1)	0.937 ***	1.043 ***	0.670 ***	1.016 ***	–0.006	–0.006	–0.022 ***	0.007	–0.001	–0.002	0.007 ***	0.001
LN electricity generation capacity (t-1)	0.068	0.063	0.132 ***	0.004	0.588 ***	0.674 ***	0.610 ***	0.998 ***	–0.001	–0.001	–0.005	0.001
Road density (km of roads per square km) (t-1)	0.168 *	–0.113	–0.385 ***	–0.004	–0.016	–0.015	0.459 **	0.008	0.907 ***	0.969 ***	0.886 ***	1.000 ***
Fiscal												
Tax revenues, share of GDP	0.008	–0.113	0.602 *	–0.088	0.015	–0.058	0.801 **	–0.202	–0.011	–0.000	0.000	–0.008
Current expenditures, share of GDP	–0.134	–0.189	0.077	0.110	–0.165	–0.145	0.245	–0.036	–0.025	–0.025	–0.019 **	–0.019
Capital expenditures, Share of GDP	0.089	0.033	–0.090	–0.137	0.438 **	0.423 **	0.322	0.223	0.038	0.049	–0.023 **	0.043 *
Primary balance, share of GDP	0.080	0.095	0.000	–0.047	0.166 *	0.189 **	0.296 ***	0.064	–0.011	–0.009	–0.030 ***	–0.038 *

(Table 3 Continued)

(Table 3 Continued)

	Dependent Variable: Log Fixed Telephone Lines Per 100 People				Dependent Variable: Log Electricity Generation Capacity				Dependent Variable: Log Road Density (Km of Roads Per Square Km)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	LSDV	LSDVC	Diff. GMM	Sys. GMM	LSDV	LSDVC	Diff. GMM	Sys. GMM	LSDV	LSDVC	Diff. GMM	Sys. GMM
Debt to GDP ratio	0.010	0.027	–0.002	–0.028 **	–0.056 **	–0.047 ***	–0.063 ***	–0.021 *	–0.000	–0.003	–0.003 *	–0.002
Macro												
Private participation in investment, constant USD	0.017	0.012	–0.103 ***	0.002	0.073 ***	0.051 **	0.268 ***	–0.005	0.005	0.001	0.010 ***	0.001
Consumer price inflation, yearly average	–0.042	–0.043	–0.001	–0.021	–0.014	–0.013	–0.056 ***	0.004	0.012	0.011	0.013 **	0.004
Trade openness, share of GDP	0.079	0.074	0.034 *	0.007	–0.052 *	–0.056 *	–0.044 **	0.009	0.004	–0.000	0.009 ***	0.003
Credit to private sector, share of GDP	–0.010	0.007	–0.159	–0.025	0.009	0.007	–0.196 **	0.009	0.005	0.000	0.009	0.001
Observations	789	789	702	789	790	790	703	790	713	713	630	713
Number of countries	83	83	78	83	83	83	78	83	79	79	73	79
Chi-sq.			43.46	48.36			47.16	49.96			47.77	43.62
Sargan–Hansen Statistic, p-value			0.99	0.99			0.99	0.99			0.99	0.99

Source: Authors' estimates.

Notes: Robust standard errors in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; LSDV = least square dummy variable; LSDVC = least square bias-corrected dummy variable, following Bruno (2005); Diff. GMM = difference GMM, following Arellano and Bond (1991); Sys. GMM = system GMM, following Arellano and Bover (1995). All of the regressions also include a vector of control with the following variables which are not reported in the table: fertility rate; urbanization rate; population density; rule of law governance indicator.

cut in current spending will raise road density up to 0.062 percent for the full sample and up to 0.225 percent for LAC. A similar exercise for electricity generation suggests that the reaction to debt-financed public investment is stronger in LAC than in the full sample, whereas the reaction to public investment that is financed with savings elsewhere in the budget is stronger in the full sample. (The significance of these net effects has not been tested in the tables, which show individual coefficients' significance levels as measured by *p*-values.)

Determinants of Domestic Financing of Infrastructure

Methodology

To evaluate the importance of financial market depth and openness in determining the degree of domestic financing for infrastructure investment, we estimate the model:

$$domestic_{i,t} = \gamma\, depth_{i,t} + \theta\, financial\ openness_{i,t} + \phi\, trade\ openness_{i,t} + f_i + \delta_t t + e_{i,t}, \quad (2)$$

where $depth_{i,t}$ is the credit-to-GDP ratio, which is taken as a proxy for domestic financial depth; $finanical\ openness_{i,t}$ is the FDI-to-GDP ratio, which proxies for financial openness; $trade\ openness_{i,t}$ is trade openness (the sum of the absolute values of imports and exports); f_i is a vector of country-specific time-invariant intercepts; δ_t are the coefficients for time fixed effects; and $e_{i,t}$ is a vector of residuals. Two different proxies for domestic infrastructure financing ($domestic_{i,t}$) are used: the share of domestic financing in total infrastructure financing and total domestic infrastructure financing as a share of GDP. Parameters of interest (γ, θ, and ϕ) are assumed to be homogeneous across panel members.

Results

Not surprisingly, the estimation results show that financial market depth and the degree of openness (both trade and financial) lead to higher levels of domestic infrastructure financing across countries (Table 4). The preferred specification, which incorporates country-and time-fixed effects, suggests that a 1 percent increase in credit-to-GDP, FDI-to-GDP, or trade-to-GDP increases the share of domestic financing in total infrastructure financing by 0.40 percent, 0.48 percent, and 0.34 percent, respectively. Likewise, when using total domestic infrastructure financing as a share of GDP as the proxy for domestic financing, the results suggest that a 1 percent increase in credit-to-GDP, FDI-to-GDP, or trade-to-GDP increase domestic infrastructure financing by 0.016 percent, 0.015 percent, and 0.021 percent of GDP, respectively.

Conclusions

Progress in improving infrastructure is necessary to spur economic growth and development by reducing costs of production and transport and facilitating communications and trade. For emerging and developing countries, such as those in LAC, infrastructure shortfalls will need to be overcome to avoid hampering the countries' growth potential.

Fiscal policy plays a critical role in improving the infrastructure network. The extent of fiscal space to sustainably support infrastructure investment, and the level and composition of public financing instruments matter significantly for infrastructure stock accumulations. However, public money is not the only mechanism for enhancing infrastructure; private sector participation in providing infrastructure is a useful complement. Both of these options require a suitable macroeconomic and regulatory environment. In addition, financial depth and strong links to

Table 4. Determinants of Infrastructure: Domestic Financing

	Dependent Variable: Change in Share of Domestic Financing in Total Infrastructure Financing						Dependent Variable: Change in Domestic Infrastructure Financing as a Share of GDP					
	(1) OLS Random Effects		(2) OLS Fixed Effects		(3) OLS Fixed Effects and Time Effects		(1) OLS Random Effects		(2) OLS Fixed Effects		(3) OLS Fixed Effects and Time Effects	
Change in credit to GDP	0.361	**	0.38	**	0.402	**	0.016	**	0.018	**	0.016	*
	(0.182)		(0.194)		(0.196)		(0.007)		(0.008)		(0.008)	
Change in FDI to GDP	0.505	***	0.501	***	0.477	***	0.015	**	0.015	**	0.015	**
	(0.151)		(0.157)		(0.156)		(0.006)		(0.007)		(0.007)	
Change in trade to GDP	0.267	*	0.251		0.343	*	0.015	**	0.017	**	0.021	***
	(0.148)		(0.161)		(0.185)		(0.006)		(0.007)		(0.008)	
Constant PPP GDP per capita growth	–0.535	*	–0.449		–0.469		–0.014		–0.016		–0.017	
	(0.323)		(0.361)		(0.419)		(0.012)		(0.015)		(0.018)	
Constant	0.001		0.005		–0.093	*	0.000		0.000		–0.001	
	(0.020)		(0.015)		(0.056)		(0.001)		(0.001)		(0.002)	
Country fixed-effects	No		Yes		Yes		No		Yes		Yes	
time dummies	No		No		Yes		No		No		Yes	
Observations	878		878		878		879		879		879	
Number of countries	91		91		91		91		91		91	
R-squared within	0.0201		0.0202		0.0706		0.0178		0.0178		0.0402	
R-squared between	0.0459		0.0378		0.0119		0.0765		0.0764		0.0532	

Source: Authors' estimates.
Notes: Robust standard errors in parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

the rest of the world through trade and foreign investment are associated with raising domestic finance for infrastructure investment.

Notes

1. The views expressed in this article are those of the authors and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.
2. For robustness, we estimated parsimonious specifications of the equations with fixed country and time effects, using a general to specific regression approach (results not shown, but available upon request).

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