Global Infrastructure: Potential, Perils, and a Framework for Distinction

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Question

Is it true that poor countries (emerging and developing economies) have widespread potential for publicly efficient and privately profitable investment in infrastructure?

In April 2015, the World Bank and other multilateral development banks (MDBs), along with the IMF, issued a communique, launching a goal of leveraging billions of official development assistance (ODA) financing to mobilize trillions of private and public investment in infrastructure.

FROM BILLIONS TO TRILLIONS:

MDB Contributions to Financing for Development

In June 2016, McKinsey Global Institute published a report, claiming that the world had a ~ $1 trillion annual infrastructure investment gap.

“The United Nations estimates that achieving the SDGs by 2030…will require $5 to $7 trillion per year, with an annual investment gap of about $2.5 trillion in developing countries. By galvanizing private capital, the J.P. Morgan DFI aims to help narrow the funding gap.”

New York, January 21, 2020

CORE ISSUE
GLOBAL INFRASTRUCTURE GAP

2016-2040 Forecast

$79 trillion
CURRENT INVESTMENT TRENDS

$94 trillion
INVESTMENT NEEDED

$15 trillion
$875 b/year
INVESTMENT GAP

“There is a triple digit need for private sector investment – $600 B is a good estimate per year.” December 3, 2020

Source: Global Infrastructure Hub

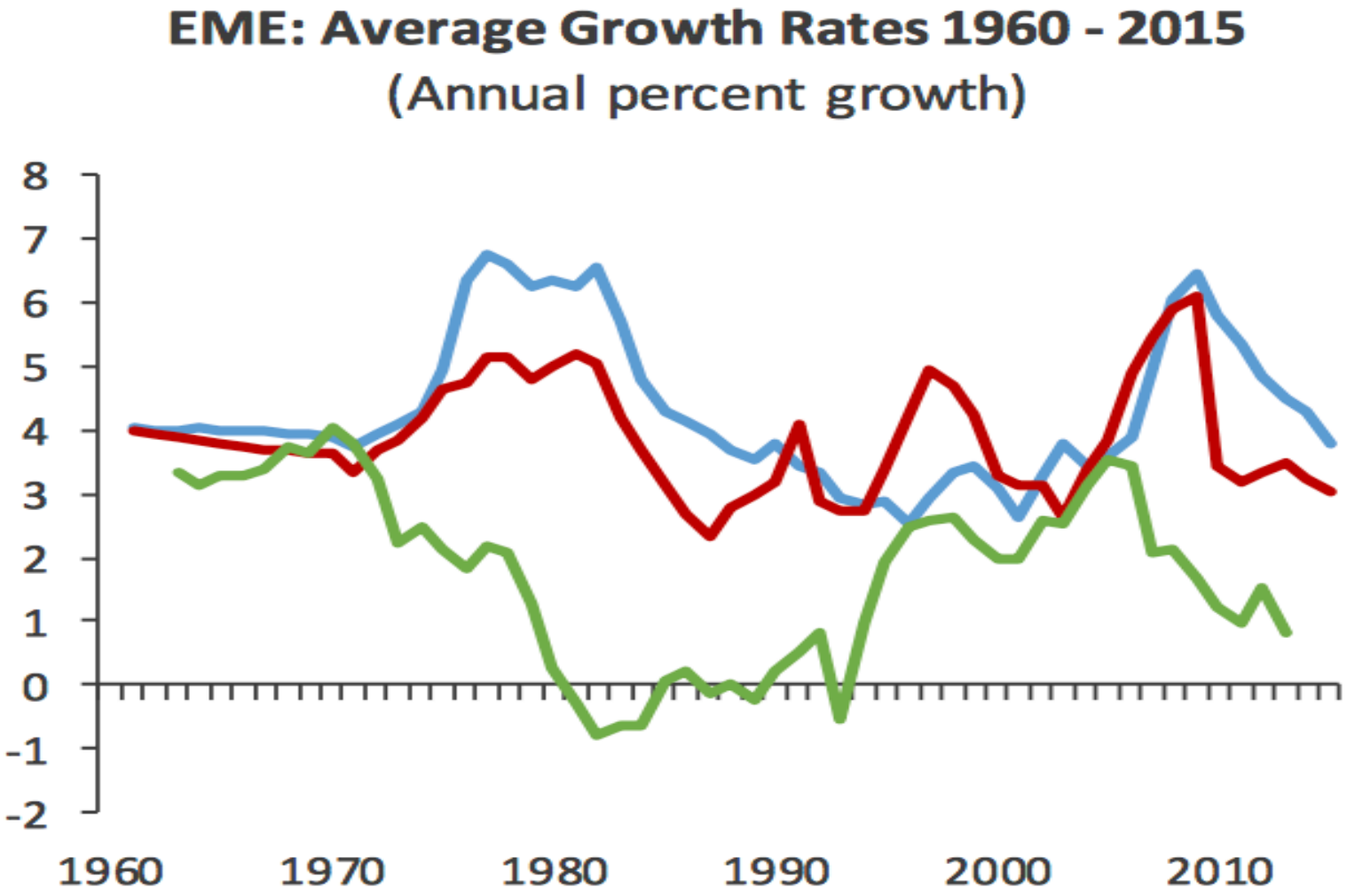
In failing to embrace positive equilibrium analysis, the normative notions of a "global infrastructure gap" and "needed investment" bear an unfortunate similarity to the "financing gap" of Harrod (1939) and Domar (1946).

Like MGI conception, the Harrod-Domar Model asserts that a desired rate of growth requires a target level of investment.

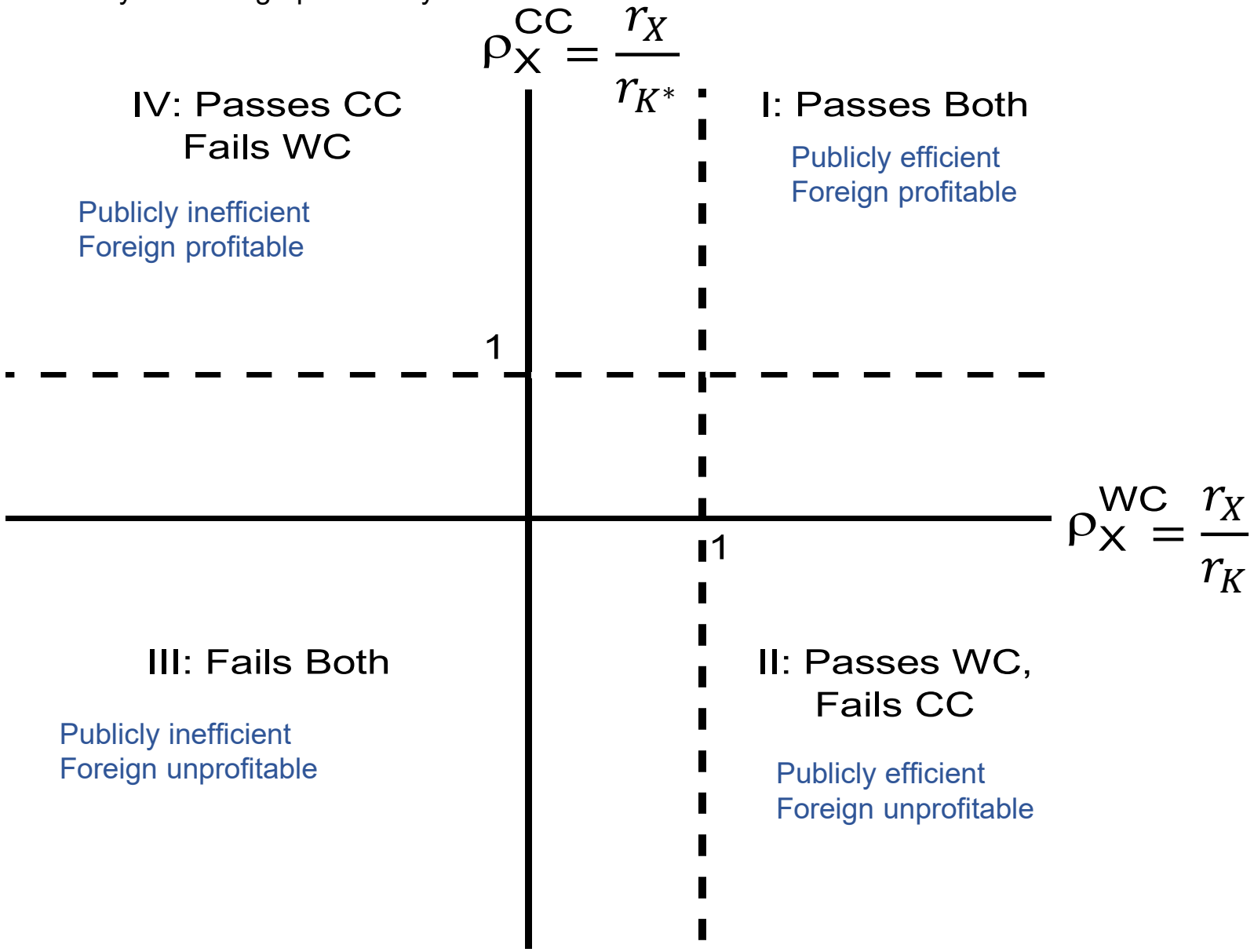
Given national savings (or scheduled investment in the case of MGI), target investment implies a financing gap equal to the difference between the two quantities.

Armed with this framework, rich countries sought to help poor countries grow by filling the gap. They failed because they did not ask whether filling the gap with "needed" investment would actually correct some market failure, incentivize production, and endogenously raise incomes.

Déjà vu all over again…(Rogoff 1991; Easterly 2001; Signe 2018; Horn, Reinhart, and Trebesch 2019; Gallagher and Ray 2020)



Equilibrium Approach: For a given country and type of prospective infrastructure investment, the **Dual-Hurdle Framework** sorts each country-infrastructure observation into one of four quadrants in accordance with its potential for public efficiency and foreign profitability.



Data

- Canning and Bennathan (2000): 53 poor countries; social rates of return on paved roads, electricity generating capacity; rates of return on all capital. Same data for 16 rich countries.

- 26 poor countries have data on roads, 49 on electricity; **Caution:** data on cost of infrastructure provided by the World Bank is from 1985!

- Generate 75 country-infrastructure return observations, $(\rho_X^{WC}, \rho_X^{CC})$, and subject them to the dual-hurdle framework.

The prevalence of efficient and profitable infrastructure opportunities in poor countries paled in comparison with conventional wisdom.

- 39 of 75 observations (across 32 countries) sorted into Quadrant I.
- 21 of 53 countries did not clear the dual hurdles for roads or electricity.
- Of the 32 countries with projects that cleared the dual hurdles, only 7 do so in both roads and electricity.
- The reality that less than 1/7 of countries in 1985 presented a data driven case for efficient and profitable investment raises questions about the wisdom of today's indiscriminate approach of "billions to trillions".

For countries that did clear the dual hurdles, however, the unrealized gains appeared quite large.

- For Quadrant I road opportunities, the average social rate of return was 10.2 times greater than the return on private rich-country capital.

- The average excess-return multiple that existed on poor-country roads in 1985 was 6-fold the excess-return multiple that existed on poor-country portfolio equity.

- The potential welfare gains of capital flows from private-rich capital to public-poor capital appear larger than those from private-rich to private-poor (Lowe, Papageorgiou, and Perez-Sebastian 2018).

Tradable claims on poor-country infrastructure still do not exist at scale; the dual-hurdle analysis provides a framework for distinguishing countries where the creation of tradable claims might be beneficial from those where it would not.

Too much has happened since 1985 to draw distinctions based on information from that year, but new analysis of old data:

- (a) provides a template that can readily be applied to updated, cross-country data on the social return on infrastructure; and

- (b) demonstrates the urgency of the World Bank collecting and disseminating that data as soon as possible.