Infrastructure Connectivity: Definition, Importance, and Challenges

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Overview of Presentation

- Definition and Measurement
- Assessment of Impact of Connectivity
- Role of Private Investment in Connectivity
- Challenges in Connectivity Initiatives
Growing demands for connectivity

- Culminated in the launch of a **G20 Global Connectivity Alliance**, first coordination meeting among MDBs in Washington DC, October 2016.
Importance of connectivity for inclusive growth has long been recognised ...

“Good roads, canals, and navigable rivers, by diminishing the expense of carriage, put the remote parts of the country more nearly upon a level with those of the neighborhood of the town. They are upon that, the greatest of all improvements.”

Adam Smith, An Inquiry into the Nature and Causes of the Wealth of the Nations
...but connectivity has become more complex and cross-cutting: new dimensions

- Digital connectivity
- Soft connectivity
- Quality of connectivity
- Integrated connectivity
- Multi-scale connectivity
Despite indicator proliferation, we do not have an all-encompassing metric for connectivity.

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- DEFINITION AND MEASUREMENT
- ASSESSMENT OF IMPACT OF CONNECTIVITY
- ROLE OF PRIVATE INVESTMENT IN CONNECTIVITY
- CHALLENGES IN CONNECTIVITY INITIATIVES
OECD Trade in Value-Added data suggests varying degrees of participation of countries in GVCs

Foreign value added in gross exports, %

To what extent does infrastructure have a catalytic effect?

What type of connectivity matters most for countries by level of development and structure of trade?

Problem: endogeneity

Source: OECD (2016), OECD-WTO Trade in Value Added Database.
Proxies for physical and digital connectivity, covering hardware and software

Source: OECD, preliminary estimates, forthcoming study.
Composite indicator of connectivity

OECD Average

G20 Average
Strong evidence of impact of connectivity in countries’ participation in GVCs

1. **ICT connectivity** is found to have the *largest effect in GVC participation, and this increases with the level of income*

- The finding that the impact increases with the level of income suggests ICT requires more skills, institutions to be leveraged.
- Findings suggest that improvements in ICT have effect not only on the volume of trade, but also on the structure of trade (i.e., greater specialisation in intermediate and capital goods, tasks, services).

2. **Transport connectivity** is found to be more a important driver of participation in GVCs for *lower-income countries*

- Transport also has high effect on GVC participation which, in contrast to the case of ICT, grows inversely to the level of income.
- No discernible evidence of one mode of transport having a greater effect: complimentary effects and importance of multi-modality.
- The effects of soft infrastructure are as important as those of soft infrastructure, particularly border efficiency and control of corruption.
Evidence of structural transformation and positive spill-overs (neighborhood effects) from connectivity

3. The impact connectivity infrastructure, especially ICT, is higher on trade in intermediates than on trade in final goods

- Connectivity infrastructure has a greater effect on Global Value Chains than in overall trade flows (i.e., elasticity for trade in intermediates higher trade in final goods): Just-in-time production
- The larger the supply chain is (manufacturing), the more important the effect is: delays and disruptions have higher repercussions.

4. There is a positive externality on improvements in infrastructure connectivity, especially ICT: free-rider problem

- Better connectivity infrastructure in country A (domestic and cross-border) is associated with better trade performance of country B.
- The benefits cannot be internalised by country A: require multi-country investments and supra-national coordination.
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Investments in transport have low and declining levels of fixed capital formation: under-provision of connectivity?

Source: OECD National Accounts statistics, Capital Formation by activity, ISIC4; UN National Accounts Official Country data. Coverage limited to 26 OECD countries for which data are available.
Very limited number of cross-border projects found in available PPI databases: more information needed

Key challenges of cross-border infrastructure projects

- Returns more exposed to a range of non-physical connectivity barriers
- Externalities, network effects and asymmetric distribution of costs and benefits across the border
- Multiple constituencies involved: more difficult to obtain consistent prioritisation and support
- More complex project governance for preparation, tendering and monitoring
- Network interface barriers (e.g. technical standards and communications systems)
- Legal and regulatory differences that require harmonization

Only 6 cross-border projects in the WB PPI, 1995-2014

- South Africa - Zimbabwe (Beitbridge Border)
- Mozambique - South Africa (Maputo Corridor)
- Mali - Senegal (Dakar-Bamako Railway)
- Kenya-Uganda (Kenya-Uganda Railways)
- Burkina Faso - Côte d'Ivoire (Abidjan-…
- Argentina - Brazil (Sao Borja Toll Bridge)

~1400 is the total # of transport projects in the PPI database
Private participation has increased, yet highly concentrated: 10 countries account for 60% of global private investments.

A. # of countries recurring to private investment every year

- Approximately 30 countries recur to PPI every year in the recent past.

B. Geographic distribution

Overall, similar concentration in terms of number of deals.

*Source*: OECD (2016), based on Dealogic Projectware data. Covers 31 OECD and 80 non-OECD countries.
Foreign participation likely to matter for connectivity: 60% of private investments in OECD, 36% in non-OECD

Source: OECD (2016), based on Dealogic Projectware data. Covers 31 OECD and 80 non-OECD countries.
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Common challenges for cross-border initiatives:
In search of problem definition and good practice

- Asymmetric distribution of gains (costs) across countries
- Coordination demands are higher across countries
- Harmonization of different standards & regulations
- Foreign policy dimension (inc. national security)
Insights from Investment Policy Reviews of ASEAN (OECD Policy Framework for Investment)

Key take-away: most strategies for infrastructure investments in ASEAN remain domestic; connectivity by definition cross-border!

Common problems:

- **Improving physical infrastructure and notably regional links** remains a key challenge for boosting productivity in the region:

- **Short-sighted infrastructure services regulations** sometimes hinder greater connectivity and trade & investment integration.

- **Limited planning and co-ordination** impede exploiting policy complementarities, private investments and great efficiencies in infrastructure investments (e.g. lack of multimodality planning; lack of integrated infrastructure)

- **Lack of modern regulatory and institutional frameworks** is also a constraint for mobilising more efficiently private participation in infrastructure, although most countries have advanced in this reform agenda in the recent past (e.g. lack of sound legal frameworks for investments in PPPs; lack of PPP units or adequately staffed equivalent authorities; lack of consistent Value for Money assessment frameworks)
Connectivity requires innovative forms of financing and strong trans-national governance

ASEAN Infrastructure Fund
- Provides loans of around $300 million/year to finance infrastructure projects in the transport, energy, water, and sanitation, environment, and rural development
- Mobilizes regional savings, including foreign exchange reserves

Africa50 Infrastructure Fund
- Objective to reach $1 billion in early 2017
- Mobilize long term savings from within and outside Africa and private investors
- Focuses on sectors mostly in the energy, transport, ICT, and water sectors
Need to identify elements of good practice to inform connectivity initiatives: TEN-T

1. long term vision and leadership (2015-2030)
2. strong transnational governance
3. Integrated strategy and co-ordination
4. careful management of local and environmental impacts (quality investments)
Thank you for your attention!

*Is our work on the right track?*

*How can it be more relevant for the region?*

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