Seminar Series on Regional Economic Integration

Assessing the Impact of Regional Integration on Productivity and Income Inequality

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University of California Berkeley

4 July 2014, 2:00 pm–3:30 pm
ADB Headquarters
A Schematic “Atlas” of World Trade

Source: WTO, EUR=EU27, ASI=Asia, NAX=N. America, MEA=M. East & N. Africa, CIS=Former USSR, CSC=LAC

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Regionalism: Second best but Quite Popular

187 RTAs cover trade in goods; 73 trade in services; and 12 are accessions to existing RTAs

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How Bad Can it Get? African RTAs

ACRONYMS
AMU: Arab Maghreb Union
CBI: Cross Border Initiative
CEMAC: Economic and Monetary Community of Central Africa
CILSS: Permanent Interstate Committee on Drought Control in the Sahel
COMESA: Common Market for Eastern and Southern Africa
EAC: East African Community
ECCAS: Economic Community of Central African States
ECOWAS: Economic Community of Western African States
IGAD: Inter-Governmental Authority for Development
IOC: Indian Ocean Commission
SACU: Southern African Customs Union
SADC: Southern African Development Community
WAEMU: West African Economic and Monetary Union

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1/ Tanzania is also a member of the Nile Basin Initiative
Asia is the Place to Make This Work: Baseline Per Capita GDP Growth (annualized percent change, 2010-2030)

On a global basis, Asia continues to represent superior growth.

Sources: DRI, Oxford Econometrics, IMF.
By the end of this decade, South-South trade will surpass North-North trade.
Skill Premiums are Rising, Supporting Middle Class Emergence, but also Inequality

Ratio of skilled wages to unskilled wages

China | India | East Asia | Eastern Europe | Latin America | Middle East | South Asia | Sub-Saharan Africa | Developing | High income

2005 | 2030
In 2030, 80% of the world’s middle-class population will be living in countries currently defined as developing and Asia will be home to two-thirds of them.
Regional Drivers of Growth/Incomes

• Trade – A potent historical growth catalyst for Asia
• Capital Mobility – Foreign direct investment (good) and portfolio investment (less popular)
• Labor Mobility – Domestic and international migration
Over the last generation, global poverty has fallen and DC trade has increased sharply. What can we infer from this?

- Dollar and co-authors – Washington Consensus – Openness promotes growth
- Kremer and Maskin (2006) – Undeniable correlation, but big differences in policy effectiveness
- Harrison et al (2007) – Country case studies, quite diverse, but generally supporting the growth hypothesis
Incomes and Trade

The macro perspective (Dollar et al) is pretty simple, but the actual mechanisms and differences are far more challenging.

Share of Population in Poverty


Exports as a Percentage of GDP

Conclusions from the Trade Research Literature

- Trade integration associated with higher growth, growth associated with poverty reduction, but no evidence of significant link between trade and poverty
- Trade and financial integration associated with rising inequality, higher consumption volatility in poor countries
- Simple interpretations of orthodox trade models are of limited relevance, however, it appears generally that
  - Poor in expanding (FDI/exporting) sectors gain
  - Poor in contracting (import-competing) sectors lose—largely a consequence of labor immobility
- Financial crises hurt the poor
- Complementary policies are critical: trade policy must be part of a “package” of successful policies
• FDI has generally been strongly associated with growth and aggregate income gains. Impacts on poverty and inequality are more complex.

• Migration is the most complex. It is associated both with growth and contraction, poverty and prosperity, inequality and convergence. This topic requires the most careful interpretation.
The Holy Trinity of FDI Benefits

In a world of mobile capital, the only justification for higher wages is higher labor productivity.

Three cardinal benefits of FDI contribute to higher MRP for labor (wages).

1. External savings – capital accumulation
2. Market access – improved terms of trade
3. Technology transfer – direct increases in output per worker
Developing countries already absorb more than half of all FDI worldwide.
Technology and Innovation

• Technology can divide labor markets, generally it increases skill premiums and national income, but also inequality.

• Globally, innovation is less about invention than about technology adoption – doing things in a new way.

• By this measure, innovation and productivity gains can propagate extensively via technology diffusion.
Regional Asian FDI has World Leading Technology Potential

**Annual International Patent Approvals**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Japan</td>
<td>274,791</td>
</tr>
<tr>
<td>2</td>
<td>United States</td>
<td>253,155</td>
</tr>
<tr>
<td>3</td>
<td>China</td>
<td>217,105</td>
</tr>
<tr>
<td>4</td>
<td>South Korea</td>
<td>113,467</td>
</tr>
<tr>
<td>5</td>
<td>European Patent Office</td>
<td>65,665</td>
</tr>
</tbody>
</table>

**Applications/GDP, 2012**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Applications/GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>South Korea</td>
<td>10,584</td>
</tr>
<tr>
<td>2</td>
<td>Japan</td>
<td>7,160</td>
</tr>
<tr>
<td>3</td>
<td>China</td>
<td>4,980</td>
</tr>
<tr>
<td>4</td>
<td>Germany</td>
<td>2,596</td>
</tr>
<tr>
<td>5</td>
<td>Switzerland</td>
<td>2,575</td>
</tr>
</tbody>
</table>

Source: WIPO, 2012

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Evidence on FDI’s Contribution

- Contribution to growth is uncontroversial
- Poverty reduction depends strongly on labor market complementarities and factor mobility (like trade).
- For skilled workers, evidence is dramatic. Very strong correlation between FDI and returns to education.
Risks and How to Mitigate Them

- Rural marginalization
  - Agrifood marketing – indirect participation in urban growth
  - Migration
- Regional hierarchy: value-added ladders
  - Technology diffusion = local innovation
  - Convergence - this takes time
- National political economy
  - Market enlargement
  - Tech transfer again – joint ventures
Asia will continue to develop its own approach to RCI. There are limits to the relevance of the EU example.

In particular,

- Europe is much smaller geographically and more cohesive institutionally
- In Asia we are unlikely to see the kind of microeconomic management practiced in Brussels
- Promoting Western “competitiveness” has not been a leading national development strategy in Asia

Pragmatism and market forces will be primary drivers, complemented by determined commitments to:

- National investment strategies
- Adherence to standards (technical and legal)
Notes on “Soft Infrastructure”

- Much emphasis is given to physical infrastructure and its many direct and indirect services, but there is also a broad universe of “soft” infrastructure.
- Concentrated in national and multilateral public institutions, they constitute an essential element of trade facilitation.
- Trade negotiating institutions are only the most conspicuous members of a large family of institutions promoting more coherent market linkages and policy dialogue. In this context, Asian “OECD” policies can make important contributions.
- Another essential category is information services that support more effective public and private agency.
How ADB Can Help

1. Promote regional, evidence-based dialog
2. Propagate standards and indicators (e.g. MDGs, IDGs)
3. Promote capacity and commitment to
   - Information sharing
   - Modeling and scenario analysis
   - Impact evaluation
Example of Information Services: Economic Modeling and Assessment

- Good precedence here – GTAP provides a solid foundation
- Regional Models (GMS, CAREC, etc.) can be consistently disaggregated into national models, supporting evidence-based domestic policy and regional dialog
- By establishing standards and capacity, ADB can contribute to, and participate in, this process directly
A new CAREC regional model has been developed as part of TA-8259, Assisting The Central Asia Regional Economic Cooperation Institute Knowledge Program.

- The most advanced, up-to-date, and detailed model of its kind.
- The current version has 19 countries/regions, up to 57 sectors.
- Could be decomposed into individual member country models (TA-8259, Phase II).
- Results communication takes two forms:
  - Traditional technical reporting
  - A user-friendly data/results browsing app for dissemination to decision makers.
Central Asian Regional General equilibrium mOdel (CARGO)

<table>
<thead>
<tr>
<th>Countries/Regions</th>
<th>Sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Afghanistan</td>
<td>1 Crops</td>
</tr>
<tr>
<td>2 Azerbaijan</td>
<td>2 Livestock &amp; Fishery</td>
</tr>
<tr>
<td>3 China</td>
<td>3 Coal</td>
</tr>
<tr>
<td>4 Kazakhstan</td>
<td>4 Oil</td>
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<tr>
<td>5 Kyrgyz Rep</td>
<td>5 Gas</td>
</tr>
<tr>
<td>6 Mongolia</td>
<td>6 Other Minerals &amp; Mining</td>
</tr>
<tr>
<td>7 Pakistan</td>
<td>7 Processed Food</td>
</tr>
<tr>
<td>8 Russian Federation</td>
<td>8 Textiles &amp; Apparel</td>
</tr>
<tr>
<td>9 Tajikistan</td>
<td>9 Light Manufacturing</td>
</tr>
<tr>
<td>10 Turkmenistan</td>
<td>10 Heavy Manufacturing</td>
</tr>
<tr>
<td>11 Uzbekistan</td>
<td>11 Utilities</td>
</tr>
<tr>
<td>12 Xinjiang</td>
<td>12 Transportation</td>
</tr>
<tr>
<td>13 India</td>
<td>13 Services</td>
</tr>
<tr>
<td>14 High Income Asia</td>
<td></td>
</tr>
<tr>
<td>15 Rest of Asia</td>
<td></td>
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<tr>
<td>16 Europe</td>
<td></td>
</tr>
<tr>
<td>17 United States</td>
<td></td>
</tr>
<tr>
<td>19 Rest of World</td>
<td></td>
</tr>
</tbody>
</table>

Note: The first 12 economies comprise the membership of CAREC. China component does not include Xinjiang, which has been disaggregated as a separate CAREC economic region.
CARGO represents a new generation of policy simulation models, combining
- Detailed structural data
- State-of-the-art forecasting model
- User-friendly, interactive, interface

A Policy Dashboard for results communication and scenario assessment.
Information Services to Support Evidence-based Regional Dialog

Regional Model
CAREC CARGO Model
Manila/Urumqi

National Models
Afghanistan

National Capitals
Xinjiang

Dashboard Browser Interface
Policy Makers

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CARGO Dashboard: Economic Statistics

<table>
<thead>
<tr>
<th>Economy</th>
<th>Energy</th>
<th>Emissions</th>
</tr>
</thead>
</table>

**Annual Growth in Real GDP Per Capita, 2010-2030**

**Shares of Global GDP, 2030**

**Shares of Employment Growth, 2010-2030**
Maps:
CAREC Corridor Shipments by Country and Commodity

Pie charts show monitored carriage (weight*distance) by commodity class. Diameters are proportional to total national monitored carriage.
Maps:
Kazakhstan - Oblast GRP and Income per Capita
Sub-National Modeling

- Given the heterogeneity of impacts, institutional and spatial disaggregation should be a high priority
- Administrative vs spatial frameworks – legacy issues with data and authority
- Initial conditions and capacity for data development vary widely
- Begin with simple frameworks and local buy-in, expanding as time and resources permit
- Agreement on some standards/indicators (e.g. MDG’s) could facilitate coordinated investments by countries and development partners
Modeling Priorities

- Real economy interactions – a strong empirical tradition, easy to extend
  - Neoclassical efficiency and growth
  - Unit cost effects – technological change, margins, real productivity
  - “New institutional” economics – much new data needed, for Asia, scenario analysis is a beginning

- Financial interactions
  - Flow of funds, macro balances – all fine
  - FDI – yes, but caveats regarding micro-data (see below)
  - Portfolio behavior – good luck with this

- Labor markets
  - Domestic human capital, mobility, and market structure are very important (plenty of tools for this)
  - International migration is also possible, but probably not the highest priority (some exceptions: e.g. Philippines, new ASEAN scenarios).

- Competitiveness – This kind of analysis (Melitz and Redding, Brunner et al) is certainly feasible, but will require huge data investments or scenario analysis where great care is taken interpreting differences in domestic market conditions.
Infrastructure’s contribution to growth and distribution can be modeled from three economic perspectives:

1. Keynesian – Aggregate demand and employment stimulus.


Keynesian Stimulus

• Infrastructure spending is a popular means of direct long term or transitory employment stimulus
  – Examples: WPA (US), Work Relief (PRC), Japan (heavy counter-cyclical and recurrent fiscal commitments)

• Because of its generality, this kind of spending can be targeted across a wide spectrum of regions and socio economic groups

• For public goods, infrastructure multiplier effects are generally quite substantial
Ricardian Stimulus

By reducing trade margins, hard and soft infrastructure:

1. Intensify comparative advantage \((H=\text{home and } F=\text{foreign})\)

\[
\frac{P_{H+M}}{P_{F+M}} \xrightarrow{M \to \infty} \]

2. Improve international terms of trade

\[
M \downarrow \Rightarrow \frac{\text{PWE} - M}{P_D} \uparrow \text{and} \frac{\text{PWM} + M}{P_D} \downarrow
\]

1. Improve rural terms of trade (pro-poor)

\[
\rho = \frac{P_R^R}{P_U} = \frac{P_D - M}{P_D + M} \quad \text{and} \quad \frac{\partial \rho}{\partial M} = -2 \frac{P_D}{(P_D + M)^2}
\]

2. Extend the horizon of profitable investment and marketing (falling MC = economies of scale)
Modern economic theory recognizes many endogenous growth factors, and these can be greatly facilitated by infrastructure:

– Productivity enhancement
– Technology diffusion
– Supply chain and other network externalities
– Human capital development
– Competitive discipline, everybody knows this is important, but animal spirits are notoriously difficult to quantify
4. Conclusions

- Expanding trade and lowering trade costs will continue to benefit the region.
- Greater financial integration (supporting FDI) can promote convergence and poverty alleviation, but domestic labor mobility and human capital development will be needed to amplify these effects and limit inequality.
- International migration will have a small, and largely self-limiting, influence.
- Inequality vs poverty: both important, but different; a need to set priorities.
- Most OECD economies have not targeted inequality through technology or competitiveness policy.