The Process of Economic Integration

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The Specialization / Diversification of economic activity is the outcome of economic integration

Structural change reflects the sequencing of integration

Integration has a local component - which is often overlooked.

Structural change is the result of both local and global economic integration. Local dimension is key.

It is a symptom rather than a policy tool or objective.
Sectors and Regions

- Sectoral diversification in early stages of development accompanied by geographic agglomeration.

- The range of activities expands and factors are allocated increasingly equally across sectors. New appearing sectors localize in specific, agglomerated regions. Regions become increasingly different.

- Sectoral concentration in later stages of development accompanied by geographic de-agglomeration.

- Reduced range of activities produced across all regions. Location of activity does not seem to matter. Regions become increasingly similar.

Imbs & Wacziarg (2010)
Mechanism

Two key assumptions:

- Integration goes from local to global.
- Regions are initially highly specialized - because of indivisibilities

Regions initially specialized in subsistence activities (AGR). Country formed by regions is specialized

As local barriers to trade fall, regions specialize in different activities. Activity agglomerates geographically - and country diversifies (sectorally). Regions become structurally different.

They also converge in terms of technology, income level, factor accumulation.
As integration proceeds to international borders, country’s constituent regions all specialize in country’s comparative advantage.

All the regions constituting a country produce a now reduced range of sectors, which is determined by international comparative advantage.

International comparative advantage now of the essence as regional convergence occurred with intra-national integration.

Activity de-agglomerates geographically - and country concentrates. Regions become structurally similar.
Measurement: Herfindahl Indexes

- A measure of (country) sectoral concentration. We compute the concentration of economic activities across sectors $s$ in country $i$ at time $t$ as

$$HC_{it} = \sum_s \left( \frac{\sum_j Y_{ijst}}{\sum_s \sum_j Y_{ijst}} \right)^2$$

where $Y_{ijst}$ denotes a measure of economic activity in sector $s$ of State $j$ in country $i$ at time $t$. Similar to Imbs-Wacziarg (2003)

- A measure of (regional) geographic agglomeration. Define

$$HA_{ist} = \sum_j \left( \frac{Y_{ijst}}{\sum_j Y_{ijst}} \right)^2$$

an Herfindahl index of agglomeration of sector $s$ in country $i$ at time $t$. Requires local / regional data.
A measure of (regional) structural similarity. For each State $k$ of country $i$, we compute

$$IS_{ikt} = \frac{1}{S} \sum_s \left| \frac{Y_{ikst}}{\sum_s Y_{ikst}} - \frac{\sum_{j \neq k} Y_{ijst}}{\sum_s \sum_{j \neq k} Y_{ijst}} \right|$$

where $S$ is the total number of sectors in country $i$. Requires local / regional data.
US State data from Bureau of Economic Analysis. Both employment and output (GSP). 78 sectors, at the 4-digit SIC level, covering all sectors.

India output data on the 28 States and Union Territories, observed for the 13 sectors comprising Net State Product. No information on Indian employment at this level of disaggregation.

NB: For now we use REAL net state product. Since all measures are based on ratios, will use nominal series. Coverage much broader: starts in 1960 instead of 1980.
Figure 1: Sectoral Concentration
Figure 2: Geographic Agglomeration
Figure 3: Structural Convergence
Our mechanism predicated on economic integration. Developing economies may actually not be integrated - domestically or internationally.

We split Indian sample into relatively open vs. closed regions. We compute the mileage of surfaced road per square kilometer at the State level, averaged using information from 1975 and 1982. States with less that 0.1 kilometer of surfaced road are relatively isolated, and, arguably, should not go through the stages of diversification and agglomeration just described.
Figure 4: Sectoral Concentration, India - Closed and Open States
Figure 5: Geographic Agglomeration, India - Open and Closed States
Figure 6: Structural Convergence, India - Open and Closed States
Proposed a mechanism that explains jointly structural change, geographic agglomeration and regional convergence.

Structural change is but a symptom of the very nature of economic integration. Local dimension is of the essence.

We begin to falsify argument using sample split in (too recent) Indian data.

Extensions: Chinese data, Brazilian data, European regions, European countries. In fact, potentially sub-groups of countries more generally.