THE PAST, PRESENT, AND FUTURE OF ECONOMIC CONVERGENCE

Dani Rodrik
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Global income disparities

Per capita income levels in different country groups (2012, in 2005 PPP$)

- Low income: $1,187 (0.8 billion people, Uganda)
- Lower middle income: $3,429 (2.5 billion people, India)
- Upper middle income: $9,214 (2.4 billion people, Peru)
- World: $10,283
- High income: $31,625 (1.3 billion people, Finland)
Recent evidence of convergence

Growth trends in developed and developing countries since 1950 (per-capita GDP)
The emergence of a global middle class?

Global income distribution, 1988 and 2005

Source: Rodrik (2012), via data from Milanovic (2011)
Is rapid convergence here to stay?

Last two decades have been particularly favorable to developing countries

- high commodity prices
- low interest rates
- plenty of foreign capital
- the Chinese exception?

So future may not look like recent past
Need to understand drivers of economic growth
Is rapid convergence here to stay?

Questions

• Why focus on growth of countries instead of poverty or poor people directly?
• What does history, theory, empirics tell us about the underlying dynamics of convergence?
• What can we conclude about future prospects?
Is rapid convergence here to stay?

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Poor people or poor countries?

Question: Would you rather be rich in a poor country, or poor in a rich country?

• Assume you care only about your own income and purchasing power
• Define rich and poor (within a country) as follows:
  • rich: having the same income level as people in the top ventile (5%) of a country’s income distribution
  • poor: having the same income level as people in the bottom ventile of a country’s income distribution
• Define rich and poor country as follows
  • rich country: a country that is in the top ventile of all countries ranked by per-capita GDP
  • poor country: a country that is in the bottom ventile of all countries ranked by per-capita GDP
• Which would you rather be?
And the answer is...

\[ y_j \] per-capita income (GDP) in country \( j \);
\[ \phi_{dj} \] income share of ventile \( d \) in country \( j \);
\[ y_{dj} \] average income level in ventile \( d \) (=1,2,..,20) in country \( j \).

\[ y_{dj} = 20 \times \phi_{dj} \times y_j \]

<table>
<thead>
<tr>
<th></th>
<th>( y_j )</th>
<th>( \phi_{dj} )</th>
<th>Representative income of ...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor country (Niger)</td>
<td>$573</td>
<td>income share of top 5% in poor country = 0.254</td>
<td>rich individual in poor country = ( $2,918 )</td>
</tr>
<tr>
<td>Rich country (Norway)</td>
<td>$47,547</td>
<td>income share of bottom 5% in rich country = 0.014</td>
<td>poor individual in rich country = ( $13,049 )</td>
</tr>
</tbody>
</table>

(all figures for 2012, in 2005 PPP-adjusted $)
Why growth (or lack thereof) matters

Accounting for the rise in global inequality

Why growth (or lack thereof) matters

Accounting for the rise in global inequality

It’s not just about money: life expectancy

Figure 1a: Life expectancy and GDP per capita
1930, 1960 and 2004

Source: Thomas (2007)
It’s not just about money: life satisfaction

Source: Deaton (2013)
Is rapid convergence here to stay?

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What do we mean by convergence?

Let $y_j$ stand for labor productivity (or GDP per worker) in country $j$, $\hat{y}_j$ its growth rate, and $*$ for “frontier” economies.

$$\hat{y}_j = \beta \ln y^* - \ln y_j + \varepsilon_j$$

$$\beta > 0, \quad E(\varepsilon_j) = 0.$$

Called $\beta$-convergence

Implies a scatter plot of $\hat{y}_j$ against $y_j$ would have a negative slope, given by $-\beta$
But convergence is historically the exception rather than the norm.

Unconditional versus conditional convergence

Latecomers have access to

- technology
- capital
- markets

But face other headwinds

- bad policies
- weak institutions
- geographical disadvantages
- poverty traps

So conventional theory: convergence is conditional:

\[ \hat{y}_j = \beta (\ln y^* - \ln y_j) + \sum_i \gamma_i C_{ij} + \varepsilon_j \]
And yet, there is unconditional convergence… in manufacturing industries.

Notes: Vertical axis represents growth in labor productivity over subsequent decade (controlling for period fixed effects). Data are for the latest 10-year period available. Source: Rodrik (2013)
Productivity convergence in manufacturing appears quite general – regardless of period, region, sector, or aggregation.

\[ \beta \approx 2.9\% \ (t\text{-stat} \approx 7) \], implying a half-life for full convergence of 40-50 years!

Notes: Data are for the latest 10-year period available. On LHS chart, each dot represents a 2-digit manufacturing industry in a specific country; vertical axis represents growth rate of labor productivity (controlling for period, industry, and period ×industry fixed effects). Source: Rodrik (2013)
What does this mean?

Generic explanations for underdevelopment, such as
  • corruption
  • poor protection of property rights
  • geography
  • poverty traps
  • …

… cannot be right, or at least need to be qualified
So why isn’t everyone already rich?

• Manufacturing industry is typically a very small share of economy in poor countries ($\alpha < .10$)
• And industrialization ($d\alpha$) typically takes place very slowly, despite very large productivity gaps between manufacturing and non-manufacturing parts of the economy
Analytics: the role of reallocation towards manufacturing

Equation of motion of GDP per worker ($y$):

$$\dot{y} = g + \alpha \theta_m \beta (\ln y^* - \ln y_m) + (\theta_m - \theta_n) \, d\alpha$$

Notes: The economy is divided into manufacturing ($m$) and non-manufacturing ($n$). A “$^*$” over a variable denotes proportional growth rates, $g$ is the underlying long-term growth rate of the economy, $\alpha$ is the employment share of manufacturing, $\theta_m$ and $\theta_n$ are the productivity premia/discounts of the two sectors $\theta_m = y_m / y$ and $\theta_n = y_n / y$, and $\beta$ is the convergence coefficient for manufacturing.

So growth equals an exogenous (or country-specific) component, a manufacturing convergence factor (that is decreasing in the level of manufacturing productivity), and a reallocation term.
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Growth  =  
   country-specific (idiosyncratic) term
   +  manufacturing convergence term
Analytics: the role of reallocation towards manufacturing

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\[
\text{Growth} = \text{country-specific (idiosyncratic) term} + \text{manufacturing convergence term} + \text{rereallocation (structural change) term}
\]
Rapid industrialization has been the common feature of countries that sustained high growth.

<table>
<thead>
<tr>
<th>Countries that have grown at 4.5 per annum per capita (or faster) over 30 years or more</th>
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<tbody>
<tr>
<td><strong>Before 1950</strong></td>
</tr>
<tr>
<td><strong>Country</strong></td>
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<tr>
<td>Before 1900</td>
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<tr>
<td>Australia</td>
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<td>New Zealand</td>
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<td><strong>Between 1900 and 1950</strong></td>
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<td>Venezuela</td>
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Industrializers in the European periphery
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<td>Oman</td>
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<td>North Korea</td>
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<tr>
<td>South Korea</td>
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<td>Hong Kong</td>
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</tbody>
</table>

Asian manufacturing miracles

- Japan
- South Korea
- Indonesia
- Singapore
- Malaysia
- China
Industrialization and de-industrialization were at the root of the “Great Divergence” as well.

Table III.1: Industrialization before the First World War

Per-capita levels of industrialization (U.K = 100 in 1900)

<table>
<thead>
<tr>
<th></th>
<th>1750</th>
<th>1800</th>
<th>1830</th>
<th>1860</th>
<th>1880</th>
<th>1900</th>
<th>1913</th>
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<tbody>
<tr>
<td>Developed countries</td>
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<tr>
<td>U.K.</td>
<td>10</td>
<td>16</td>
<td>25</td>
<td>64</td>
<td>87</td>
<td>100</td>
<td>115</td>
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<tr>
<td>U.S.</td>
<td>4</td>
<td>9</td>
<td>14</td>
<td>21</td>
<td>38</td>
<td>69</td>
<td>126</td>
</tr>
<tr>
<td>Germany</td>
<td>8</td>
<td>8</td>
<td>9</td>
<td>15</td>
<td>25</td>
<td>52</td>
<td>85</td>
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<tr>
<td>Japan</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>9</td>
<td>12</td>
<td>20</td>
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<tr>
<td>Developing countries</td>
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<tr>
<td>China</td>
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<tr>
<td>India</td>
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<td>6</td>
<td>6</td>
<td>3</td>
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<tr>
<td>Brazil</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Mexico</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>

Source: Bairoch (1982)
From mechanics to policies: how did successful countries promote rapid industrialization?

- macro “fundamentals”
  - *reasonably* stable fiscal and monetary policies
  - *reasonably* business-friendly policy regimes
  - steady investment in human capital and institutions
    - but more important for sustaining growth past middle income than launching it
- pragmatic, opportunistic, often “unorthodox” government policies to promote domestic manufacturing industries
  - protection of home market, subsidization of exports, managed currencies, local-content rules, development banking, special investment zones, … with specific form varying across contexts
- a development-friendly global context
  - access to markets, capital and technologies of advanced countries
  - benign neglect towards industrial policies in developing countries
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Problem: premature deindustrialization is increasingly common

Peak manufacturing levels

- USA. 1953
- GER. 1970
- SWE. 1961
- UK. 1961
- KOR. 1989
- MEX. 1990
- BRA. 1986
- COL. 1970
- CHN. 1996
- IND. 2002
What will be different going forward?

- Troubled times in advanced countries
  - high public debt
  - structural problems of the euro zone
  - distributional struggles related to decline of middle class
  - declining political support for globalization and economic openness
- China’s difficulties
  - the double challenge of economic and institutional transformation
- Earlier onset of deindustrialization
  - manufacturing becomes increasingly skill- and capital-intensive
  - challenge of green technologies
  - reduced capacity for large-scale employment absorption
- A less benign global environment for manufactured-exports-based growth strategies
So baseline

- Growth in emerging markets have been unsustainably high in last decade, and will come down by a couple of points
- Convergence will continue, but not as rapidly, and in large part because of low growth in advanced economies
- As domestic rather than global trends drive growth, significant heterogeneity in long-term performance across developing countries is likely