From growth models/empirics to growth strategy: an emerging consensus

Darryl McLeod
Economic Growth & Development
Econ 6470 Spring 2012
Convergence: poor countries grow faster than rich countries

• Convergence of almost every thing except income: neoclassical growth theory predicts rapid convergence…. Even in closed economies with no trade or capital flows.
• Absolute convergence failed
• Capital flows (and labor flows) should make convergence instantaneous, but it was not
• Poor countries seem to stuck in poverty: poverty traps? Barriers to growth
Figure 3: A decade of faster growth shrinks gap between rich and poor countries

Source: Per capita GDP growth from IMF, WEO, September 2011 (2011 forecast)
Falling severe $1.25 a day poverty now to $2.00/day makes see *See Chandy & Gertz (Brookings, Jan 2011)*
www.brookings.edu/papers/2011/01_global_poverty_chandy.aspx

**Table 1: Regional and Global Poverty, 2005, 2010, 2015**

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of poor (millions)</th>
<th>Poverty rate (% population)</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Asia</td>
<td>304.5</td>
<td>140.4</td>
</tr>
<tr>
<td>Europe and Central Asia</td>
<td>16.0</td>
<td>8.4</td>
</tr>
<tr>
<td>Latin America and Caribbean</td>
<td>45.0</td>
<td>35.0</td>
</tr>
<tr>
<td>Middle East and North Africa</td>
<td>9.4</td>
<td>6.7</td>
</tr>
<tr>
<td>South Asia</td>
<td>583.4</td>
<td>317.9</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>379.5</td>
<td>369.9</td>
</tr>
<tr>
<td>World</td>
<td>1,337.8</td>
<td>878.2</td>
</tr>
</tbody>
</table>

*Source: Authors' calculations*
Barriers to growth

- Poor institutions, property rights, credit markets etc. (corruption, misuse of aid)
- Resource curse.. Nigeria, Venezuelas
- Capital and trade flows: handmaidens
- Debt crises... many debt crises
- In Africa especially: poverty traps, low savings, low public investment, poor health rapid population growth...
Slaying the dragons

- Absolute convergence 2007-2008
- Reversal of fortune (China and India)
- Capital and trade flows: working in reverse
- Debt crises... odious debt
- In Africa especially: poverty traps, low savings, low public investment, poor health rapid population growth...
Flying Geese Justin Lin

Figure 5
Asian ‘wild geese flying’ pattern

Structural Transformation in East Asia

Country
Latest comers
Latecomers
ASEAN
NIEs
Japan
Garment Steel Popular TV Video HDTV

Time
Geese still flying (Akamatsu)

<table>
<thead>
<tr>
<th>Country</th>
<th>Live animals</th>
<th>Pharmaceuticals</th>
<th>Footwear</th>
<th>Iron &amp; steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>India</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Japan</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Korea Rep.</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Thailand</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plastics</th>
<th>Electrical machinery, parts</th>
<th>Television receivers</th>
<th>Toys</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>India</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Japan</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Korea Rep.</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Thailand</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: Rankings established from data at the two-digit level for exports in the WITS database.
Geese still flying (Akamatsu)

Table 2
Flying geese and the international division of production: Asian economies with a revealed comparative advantage in footwear, 1962–2000

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>Japan</td>
<td>China</td>
<td>Taiwan, Ch.</td>
<td>Taiwan, Ch.</td>
<td>China</td>
<td>Taiwan, Ch.</td>
<td>Taiwan, Ch.</td>
<td>Taiwan, Ch.</td>
<td>China</td>
</tr>
<tr>
<td>China</td>
<td>China</td>
<td>China</td>
<td>Taiwan, Ch.</td>
<td>Taiwan, Ch.</td>
<td>China</td>
<td>Taiwan, Ch.</td>
<td>Taiwan, Ch.</td>
<td>Taiwan, Ch.</td>
<td>China</td>
</tr>
<tr>
<td>Taiwan, Ch.</td>
<td>Taiwan</td>
<td>China</td>
<td>Taiwan, Ch.</td>
<td>Taiwan, Ch.</td>
<td>China</td>
<td>Taiwan, Ch.</td>
<td>Taiwan, Ch.</td>
<td>Taiwan, Ch.</td>
<td>China</td>
</tr>
<tr>
<td>S. Korea</td>
<td>S. Korea</td>
<td>S. Korea</td>
<td>S. Korea</td>
<td>S. Korea</td>
<td>S. Korea</td>
<td>S. Korea</td>
<td>S. Korea</td>
<td>S. Korea</td>
<td>S. Korea</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippines</td>
<td>Philippines</td>
<td>Philippines</td>
<td>Thailand</td>
<td>Indonesia</td>
<td>India</td>
<td>Thailand</td>
<td>Indonesia</td>
<td>India</td>
</tr>
<tr>
<td>Thailand</td>
<td>Thailand</td>
<td>Indonesia</td>
<td>India</td>
<td>Vietnam</td>
<td>Sri Lanka</td>
<td>S. Lanka</td>
<td>Myanmar</td>
<td>Bangladesh</td>
<td>Fiji</td>
</tr>
<tr>
<td>India</td>
<td>India</td>
<td>Indonesia</td>
<td>India</td>
<td>Vietnam</td>
<td>Sri Lanka</td>
<td>S. Lanka</td>
<td>Myanmar</td>
<td>Bangladesh</td>
<td>Fiji</td>
</tr>
</tbody>
</table>

Note: Revealed comparative advantage is calculated as the share of footwear in the economy’s exports divided by the share of footwear in global exports. The comparative advantage of a particular economy is ‘revealed’ when this ratio is greater than 1. All economies in the table except China are ranked by income level.

Source: UN COMTRADE data.
Summary

- Flying Geese (Justin Lin)
- Slain Dragons (barriers to growth overcome)
- From tigers to lions: boom spreads to Africa
- Monkeys jump between trees (industrial policy vs. free trade)
- Growth miracle? Africa can make MDG 1... if current growth continues and we focus on poverty gap.
Compare Sachs et al. (2004) to Africa’s Pulse September 2011 (World Bank)

**FIGURE 1**
Weak growth in high income countries

![Graph showing projected growth](image_url)

*Source: Global Economic Prospects (June 2011), World Bank*
Compare Sachs et al. (2004) to Africa’s Pulse September 2011 (world bank)

FIGURE 2, 3
Growth in Sub-Saharan Africa remains robust
Compare Sachs et al. (2004) to Africa’s Pulse September 2011

Fastest growing African economies in 2011

- Ghana
- China
- Congo
- Ethiopia
- India
- Mozambique
- Nigeria
- Rwanda
- Democratic Republic of Congo
- Zimbabwe
- Angola
- Botswana
- Tanzania
- Brazil
- Russia

Some of the fastest growing economies are in Africa.

Source: Development Prospects Group, World Bank Group
Food prices rise, but not everywhere
Today

• Conditional vs. Absolute convergence
• Three growth models
• Poverty traps
• Trade vs. industrial policy
• Rapid growth despite resources boom

New issues:
Migration, microfinance and climate change
Generic poverty trap from Banerjee and Duflo (2011) Poor Economics Chapter 1
Development imperatives

1. Climate change: adaptation vs. mitigation, migration vs. development

2. Food and commodity price increases (landless poor) slowing growth in yields per hectare.

3. High fertility rates: world population now 7 billion...

4. Migration and remittances... works (Kerala) but driven by 1-3 could be politically destabilizing.
Development outcomes

• Arab Spring: convergence in education and health (life span) governance
• Food and commodity price increases (landless poor)
• High fertility rates: world population now 7 billion...
• Migration and remittances... Kerala
• China and India: commodity prices
Consensus on growth strategies: post East Asian miracle (institutions?)

Early Washington Consensus
- Trade liberalization
- Open capital account
- Macroeconomic stability
- Privatization

Sachs-Warner Index:
- Tariffs < 10%, quotas <40%
- BMP < 20%
- Non-socialist government
- No export monopoly

Post EA miracle consensus
- Weak RER
- Macro stability
- Exports and FDI
- EPZ + socialism works too

Africa w/poverty traps:
- Levers for growth
- Macro stability, weak RER
- Aid OK, resource rents?
- Aid can break poverty trap
- Debt relief?
What about institutions?

**Institutions fundamental but,**

- Country specific (Rodrik) hard to change
- May be endogenous (Resource curse - Collier)
- Correlated with Geography (Sachs - malaria, landlocked)
- Some work-arounds: (Collier – ISA, military, EPZs)
- Asset redistribution shocks

**Not essential as there are other levers for growth** (Johnson et al. below)

- Trade - EPZs
- Competition, open capital markets
- FDI - new technologies
- Education
- Political coalitions (Marshal plan)
- Black and white cats both hunt mice... (China, HRS, etc.)
Institutional quality scores high

Institutional quality can boost income significantly, while global integration and geography, on their own, do not.

As institutional quality rises, so does income … but increases in integration may not help

… nor does a more benign geographic location.

Source: Authors
Note: The graphs capture the causal impact of each of the determinants on income, after controlling for the impact of the others. The indicators of integration and geography used are the ratio of trade to GDP and distance from the equator, respectively. For further details, see Rodrik, Subramanian, and Trebbi (2002).
1Expressed in terms of purchasing power parity. 1995.
Rodrik and Subramanian (2003) F&D

Chart 1

The “deep determinants” of income

Development and its determinants are related in multiple and complex ways, making the task of determining and quantifying causality difficult.
Levers for growth in Africa

### Showing promise

Some African countries show strong potential when compared with developing countries that have previously managed sustained growth.¹

<table>
<thead>
<tr>
<th>Measures of Broad Institutions</th>
<th>Economic Outcomes</th>
<th>Potential Policy Levers</th>
<th>Key characteristics of recent sustained growth cases, with weak initial institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic Institutions</td>
<td>Growth</td>
<td>Export performance</td>
<td>Trade openness²</td>
</tr>
<tr>
<td>Political Institutions</td>
<td>Average past 10 years¹</td>
<td>Exports to GDP⁴</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>(percent)</td>
<td>Manufacturing exports to GDP⁵</td>
<td>0.83</td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>9.0</td>
<td>3.0</td>
<td>1.00</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>7.0</td>
<td>3.0</td>
<td>1.00</td>
</tr>
<tr>
<td>Ghana</td>
<td>6.8</td>
<td>4.0</td>
<td>1.00</td>
</tr>
<tr>
<td>Mali</td>
<td>7.5</td>
<td>5.0</td>
<td>1.00</td>
</tr>
<tr>
<td>Mozambique</td>
<td>8.0</td>
<td>6.0</td>
<td>1.00</td>
</tr>
<tr>
<td>Senegal</td>
<td>7.5</td>
<td>3.0</td>
<td>1.00</td>
</tr>
<tr>
<td>Tanzania</td>
<td>9.0</td>
<td>3.0</td>
<td>0.79</td>
</tr>
<tr>
<td>Uganda</td>
<td>7.9</td>
<td>3.9</td>
<td>1.00</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>7.5</td>
<td>3.7</td>
<td>0.48</td>
</tr>
<tr>
<td>Sustained growth countries (SGCs)</td>
<td>6.4</td>
<td>2.1</td>
<td>0.65</td>
</tr>
<tr>
<td>Developing world</td>
<td>8.3</td>
<td>4.4</td>
<td>0.44</td>
</tr>
</tbody>
</table>

Source: Compiled by authors.

¹Data are for the most recent period available, except for the SGCs. For the SGCs, see note to each column.
²The risk rating, from the International Country Risk Guide Economic Rating, is the sum of three components (contract viability, payment delays, and profit repatriation) and varies from 0 (high risk) to 12 (low risk).
³For SGCs, data refer to the mid-1980s.
⁴The measure, which is an assessment of the operational independence of the chief executive of the country, varies from 0 (no constraint) to 7 (maximum constraint) and is from the Polity IV database. For SGCs, data refer to the start of the growth episode (T).
⁵For SGCs, values are averages over the period T to T+7 (World Bank's World Development Indicators).
⁶For SGCs, values are averages over the period T to T+5 (World Bank's World Development Indicators).
⁷The measure combines five criteria—tariffs, non-tariff barriers, black market premium, state monopoly over exports, and socialist economic system—for determining openness. It is based on Sachs and Warner (1995) as updated by Romain Wacziarg and Karen Horn Welch. It varies from 0 (closed regime) to 1 (open regime). For SGCs, values are averages over the period T to T+5.
⁸The measure is the percentage overvaluation of the real exchange rate in 2000. Overvaluation is measured as the deviation of a country's actual exchange rate from a benchmark rate related to a country's per capita income measured in purchasing power parity terms. For SGCs, values are averages over the 10-year period from T-5 to T+5.
⁹For SGCs, data refer to the most recent period (IMF's International Financial Statistics).
¹⁰Measured as the gross enrollment ratio (World Bank's World Development Indicators). For SGCs, data refer to the year T.
No holding them back

Many of the countries that experienced sustained growth started with weak institutions.

Sources: World Bank, World Development Indicators database, and Polity IV.

Note: The following notation applies to all the charts: countries with weak initial institutions are represented by country codes in the case of sustained growers and by circles in the case of unsustained growers, and countries with strong initial institutions by triangles (see text for definitions). T refers to the start of the growth acceleration as identified in Hausmann, Pritchett, and Rodrik, (2004), or to 1970 for countries without accelerations. The growth rate is the average from T to the most recent period for which data are available.
Competitive RER

Chart 2

Getting the currency right
The sustained growers avoided prolonged bouts of currency overvaluation.

![Chart showing the relationship between annual average per capita GDP growth and maximum percentage overvaluation of the real exchange rate.](chart)

Sources: World Bank, World Development Indicators database, and IMF staff estimates.

Note: Overvaluation is measured as the residual from a regression of the real exchange rate against per capita income, measured in terms of purchasing power parity.
Figure 1 SSA Per capita GDP Growth rate

Average 1982-95 -1.4%

Average 1996-08 2.4%

Source: IMF WEO April 2010 Database (population weight average GDP per capita) not including Liberia, Eritrea,
References

• References:
• International Monetary Fund, 2003, World Economic Outlook, September (Washington).