Rethinking Growth Policy
The Schumpeterian Perspective
EEA Meeting
Geneva, August 2016
Schumpeterian growth theory

• Long-run growth driven by innovations
• Innovations result from entrepreneurial activities motivated by prospect of innovation rents
• Creative destruction: new innovations displace old technologies
Some first policy implications

• (Intellectual) property right protection matters
• Macroeconomic stability matters
• Education matters
Competition and growth
Competition and growth: theoretical prediction
Competition and growth: empirical relationship
Schumpeterian model with step by step innovation

- Escape competition effect for frontier firms
- Schumpeterian effect for catching-up firms
Competition, growth and distance to frontier
Competition and growth: the inverted-U relationship
Applications of the step-by-step model

• Patent policy versus competition policy
• Industrial policy versus competition policy
Frontier innovation vs catch up growth

\[ A_{t+1} - A_t = \mu_n (\gamma - 1) A_t + \mu_m (\overline{A}_t - A_t) \]

\[ g_t = \frac{A_{t+1} - A_t}{A_t} = \mu_n (\gamma - 1) + \mu_m \left( a_t^{-1} - 1 \right) \]

\[ \rightarrow \text{policies aimed at influencing } \mu_n \text{ and } \mu_m \text{ will affect a country’s growth performance differently depending upon its proximity to frontier as measured by } a \text{ (Acemoglu-Aghion-Zilibotti (2003))} \]
Enhancing productivity growth in advanced countries

- Investment in higher education
- Liberalization of product/labor market
- Equity financing
Fig. 3
Long-term growth effects of $1000 per person spending on education, US States

States at the frontier

States distant from frontier

Without mobility

With mobility

Research type education

Two years college education

Research type education

Two years college education

Source: Aghion, Boustan, Hoxby and Vandenbussche (2005)
Figure 1: Average growth rate and Proximity to the frontier for the Bank-Based (left) and Market-Based (right) countries (per capita GDP growth rate)
Enhancing productivity growth in emerging market economies

• Foster technology transfers
• Reallocate factors
• Improve management practices
Average management scores across countries are strongly correlated with GDP per capita

Data includes 2013 survey wave as of 9/20/2013. Africa data not yet included in the paper.
Wide variation in management: US and Japan leading, developing nations trailing (includes 2013 wave)

Average Management Scores, Manufacturing

- United States: N=1289
- Japan: N=176
- Germany: N=658
- Sweden: N=412
- Canada: N=80
- Great Britain: N=87
- France: N=122
- Italy: N=74
- Australia: N=50
- Poland: N=120
- Mexico: N=127
- Singapore: N=840
- New Zealand: N=558
- Northern Ireland: N=1111
- Portugal: N=755
- Republic of Ireland: N=581
- Greece: N=269
- Chile: N=160
- China: N=306
- Brazil: N=307
- Argentina: N=150
- India: N=136
- Colombia: N=364
- Kenya: N=515
- Zambia: N=313
- Nicaragua: N=632
- Ethiopia: N=120
- Ghana: N=306
- Tanzania: N=515

Note: Firms between 50 and 5000 employees, Raw data

- Africa
- Asia
- Australasia
- Europe
- Latin America
- North America
Growth and firm dynamics

• The empirical literature has documented various stylized facts on firm size distribution and firm dynamics using micro firm-level data.
  • the firm size distribution is highly skewed;
  • firm size and firm age are highly correlated;
  • small firms exit more frequently, but the ones that survive tend to grow faster than the average growth rate.
Firm Size Distribution with Multiproduct Firms

Figure 1.4 Firm size distribution.
Applications of the Klette-Kortum model

• Industrial policy
• R&D policy
• Growth meets development
Applications of Klette-Kortum

• Implications for industrial policy and R&D policy
• Implications for growth and development
Link between the age and the size of firms
Outstanding policy debates

• Optimal taxation and innovation-led growth
• Structural reforms and macroeconomic policy
Inequality and innovation-led growth
<table>
<thead>
<tr>
<th>Share of income held by</th>
<th>(1) Countries from group 1</th>
<th>(2) Countries from group 1</th>
<th>(3) Countries from group 2</th>
<th>(4) Countries from group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Top 1%</td>
<td>Top 0.1%</td>
<td>Top 1%</td>
<td>Top 0.1%</td>
</tr>
<tr>
<td><em>Growth TFP</em></td>
<td>3.951*</td>
<td>6.415**</td>
<td>6.992***</td>
<td>9.515***</td>
</tr>
<tr>
<td></td>
<td>(1.93)</td>
<td>(2.53)</td>
<td>(2.99)</td>
<td>(3.28)</td>
</tr>
<tr>
<td><em>Growth LP</em></td>
<td>-7.154</td>
<td>-21.539</td>
<td>-3.526</td>
<td>-17.181</td>
</tr>
<tr>
<td></td>
<td>(-0.49)</td>
<td>(-1.20)</td>
<td>(-0.24)</td>
<td>(-0.96)</td>
</tr>
<tr>
<td><em>gdp</em></td>
<td>-0.002</td>
<td>0.004</td>
<td>-0.002</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>(-0.43)</td>
<td>(0.59)</td>
<td>(-0.39)</td>
<td>(0.62)</td>
</tr>
<tr>
<td><em>R²</em></td>
<td>0.635</td>
<td>0.596</td>
<td>0.642</td>
<td>0.602</td>
</tr>
<tr>
<td><em>N</em></td>
<td>299</td>
<td>299</td>
<td>299</td>
<td>299</td>
</tr>
</tbody>
</table>

Notes: ***p-value < 0.01. **p-value < 0.05. *p-value < 0.10. t/z statistics in brackets.

Group 1: Above median TFP/LP; Group2: Below median TFP/LP
Structural reforms and macropolicy

- Debate on structural reforms and policy stimulus
  - Are they mutually exclusive or complementary?
- Structural reforms are found to be complementary to counter-cyclical monetary policy
  - counter-cyclical monetary policy benefits more the more financially constrained sector when barriers to entry are relatively low
## Competition, Monetary cyclicality and Growth

<table>
<thead>
<tr>
<th>Dependent variable: Labour productivity Growth</th>
<th>Dummy Interaction</th>
<th>(i)</th>
<th>(ii)</th>
<th>(iii)</th>
<th>(vi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>log of initial hourly labour productivity</td>
<td></td>
<td>-3.438***</td>
<td>-3.461***</td>
<td>-3.539**</td>
<td>-3.522**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.093)</td>
<td>(1.116)</td>
<td>(1.178)</td>
<td>(1.186)</td>
</tr>
<tr>
<td>Interaction (Asset Tangibility and Barriers to</td>
<td></td>
<td>-12.01</td>
<td></td>
<td>-9.149*</td>
<td>-13.72**</td>
</tr>
<tr>
<td>Trade and Investment)</td>
<td></td>
<td>(9.343)</td>
<td></td>
<td>(4.344)</td>
<td>(5.778)</td>
</tr>
<tr>
<td>Interaction (Asset Tangibility and Interest</td>
<td></td>
<td></td>
<td>-14.89***</td>
<td>-10.08**</td>
<td></td>
</tr>
<tr>
<td>rate counter-cyclicality)</td>
<td></td>
<td></td>
<td>(3.772)</td>
<td>(3.473)</td>
<td></td>
</tr>
<tr>
<td>Interaction (Asset Tangibility and Interest</td>
<td>Below median BT1</td>
<td></td>
<td></td>
<td></td>
<td>-13.19***</td>
</tr>
<tr>
<td>rate counter-cyclicality)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(3.237)</td>
</tr>
<tr>
<td>Interaction (Asset Tangibility and Interest</td>
<td>Above median BT1</td>
<td></td>
<td></td>
<td>-1.330</td>
<td></td>
</tr>
<tr>
<td>rate counter-cyclicality)</td>
<td></td>
<td></td>
<td></td>
<td>(7.865)</td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td></td>
<td>552</td>
<td>552</td>
<td>552</td>
<td>552</td>
</tr>
<tr>
<td>R-squared</td>
<td></td>
<td>0.354</td>
<td>0.359</td>
<td>0.365</td>
<td>0.365</td>
</tr>
</tbody>
</table>
The growth benefit to countercyclical Monetary Policy

- Low Barriers to Trade and Investment
- High Barriers to Trade and Investment
Conclusion

• Schumpeterian paradigm provides new lenses to analyze growth policy design
• For a New Growth Pact in Europe