Development Seminar

Does Aid Contribute to Economic Development?
UNU-WIDER and research on foreign aid

• Aid is diverse and **complex** – no single individual can encompass it all

• **ReCom** - A comprehensive, joint research, documentation and communications initiative (initiated in early 2011) within the framework of UNU-WIDER’s work programme

• A **partnership** involving Danida, Sida and UNU-WIDER

• And a series of **research collaborators** in the North and South (ex. AERC, DIIS, Sweden), and the global UNU-WIDER (cross-disciplinary) network of researchers and policy makers
Motivated by the desire to understand better four key questions about aid:

- What works?
- What could work?
- What is scalable?
- What is transferrable?
Five thematic focus areas

- Growth and employment
- Governance and fragility (including freedom, democracy and human rights)
- Gender equality
- Environment and climate
- Social sectors

Note: Poverty and associated human development issues are addressed throughout
The focus today

• Development aid and economic development – growth
• Is it an important issue?
  – For example for employment – but of course it is NOT the only issue, development is more than growth
• At the same time, the macro literature seems somehow elusive
  – Many critical voices
• They often frame and influence the development debate and there is frequently talk of a micro-macro paradox? What do we mean by that?
• But is it true that the impact of aid evaporates as we move from the project (micro) level up to the macro economy? What can ReCom say on balance?
WHY A LONG RUN PERSPECTIVE IS REQUIRED

+ A LOOK AT THE BIG PICTURE EVIDENCE

+ WHY IS IT SO DIFFICULT?
Q. Why are some countries poor?
A. Poor countries produce very little.

Q. Why do poor countries produce so little?
A. Poor countries employ rudimentary technology, possess limited stocks of human and physical capital, and have poorly functioning institutional structures.

Q. Why do poor countries lack the wherewithal to produce?
A. Poor countries have not managed to accumulate over time.

Growth is a long run and fragile process of accumulation. What does this mean for the analysis of aid and growth?
I have a “prior”

• Is aid always a waste? No!
  – I have seen aid working in many different contexts – not just some sort of idealistic belief
  – And what does macro economic (growth) theory suggest?

• And looking at the big non-econometric picture evidence it is striking that:
  Many countries that used to get lots of aid have “graduated” (e.g. Korea, India, Vietnam)
  • Lots of development going on out there! Also in Africa (Mozambique etc)
I have a second “prior”

• Is some aid *wasted*? Sure!
  – I have seen that happening as well! Aid can do *better*

• No *well-informed* individual believes that aid has been beneficial in all places at all times – aid is risky business

• But what can we say on *balance*?
Why is it difficult?

• Aside from ideological debates…..
• Data
• An key econometric challenge: attribution elusive
  – More growth is associated with less aid
  – Causality not so easy to establish – how to do it is far from simple? The need to use statistical methods.
Why is it difficult? (cont.)

- A key point: what does lack of statistical significance mean?

- “Absence of evidence” vs “evidence of absence”

- Just because economists have had a hard time at the macro level does not in and by itself prove aid impact is not there

- And time has been passing and the macro-evidence now piling up – and, yes we can say quite a lot – based on ReCom research
THE AGGREGATE IMPACT OF AID
WHAT CAN WE SAY ON BALANCE?
Recent Cross Country Literature

- Conclude: No detectable impact of aid on growth.
- Micro-macro paradox revived
Positive Contributions of RS08

• Establish a clear **prior** using modern growth theory.
  – If aid is 1% of GDP, then the per capita growth rate should increase by about .1 percentage points.

• Take a **long run** perspective.
  – Approach and data.

• Set the standard for addressing the “**endogeneity**” issue.
  – Faster growing countries eventually receive less aid.
What have we done in ReCom?

• Start from RS08
  – Same data
  – Same approach
  – Reproduce their results exactly

• Make three sets of improvements
  (1) Develop a treatment/control estimator
  (2) Improve the specification
  (3) Strengthen the instrument
### Results for 1970-2000

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Specification</th>
<th>RS08</th>
<th>AJT</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS08</td>
<td>RS08</td>
<td>0.10</td>
<td>.15*</td>
</tr>
<tr>
<td></td>
<td>AJT</td>
<td>0.10</td>
<td>.10*</td>
</tr>
<tr>
<td>AJT</td>
<td>RS08</td>
<td>.22*</td>
<td>.21*</td>
</tr>
<tr>
<td></td>
<td>AJT</td>
<td>.25**</td>
<td>.13***</td>
</tr>
</tbody>
</table>

**Note:** *, **, and *** indicate significantly different from zero for 90%, 95% and 99% confidence intervals respectively.
First conclusion
(based on cross-country data)

• On average and in the long run, aggregate aid contributes positively to growth at levels predicted by growth theory – aid has been associated with a growth bonus.
• So, there is no micro-macro paradox.
Evidence from time-series data

• Many different conclusions in literature based on the use of basically the same publicly available data bases

• Such differences have to be due to the choice of econometric/statistical methods:
  – Exogeneity/endogeneity assumptions
  – Data transformations
  – Single equation contra a system approach
The purpose of the ReCom time-series study

- To offer an econometrically coherent and transparent picture of how aid has worked in 36 countries in Sub-Saharan Africa
- To assess previous results in the literature within a econometrically broad framework
- To address the widespread misuse of 'statistical insignificance' as an argument for aid ineffectiveness
The econometric approach

The Cointegrated VAR model

• A system approach

• The empirical model specification is a broad statistical characterization of the data and is sequentially reduced by simplification testing

• Provides broad confidence intervals within which empirically relevant claims should fall
Second conclusion

• Aid has a positive long-run effect on key macro-variables (GDP, investment, consumption) for the vast majority of countries

• In only 3 out of 36 countries is there a negative effect of aid on GDP or investment

• The transmission of aid on the macro economy quite heterogeneous. Hence a country-specific approach is vital
Unpacking how aid works
Motivation

• Many studies ask: does aid increase growth?
  – Focus on a single outcome / result
  – Answers the question: should we give aid?
• BUT many possible paths linking aid to growth
  – Which ones matter?
  – What should we give aid for?
• Thus we want to open the ‘black box’
  – Identify key drivers linking aid to growth
  – Non-growth outcomes important \textit{per se}
    • \textit{e.g., poverty reduction, human capital etc. (MDGs).}
What have we done?

   - Cross-check with other final outcomes (e.g., poverty)
2. Quantify causal impact of aid on a range of intermediate outcomes
   - Example: aid $\rightarrow$ education
   - Example: aid $\rightarrow$ health $\rightarrow$ growth
Results: Impact of aid

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Baseline</th>
<th>+$25 p.c./year</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP per capita growth</td>
<td>1.7</td>
<td>2.2</td>
</tr>
<tr>
<td>Poverty headcount at $1.25 / day</td>
<td>21.7</td>
<td>18.2</td>
</tr>
<tr>
<td>Agriculture (% GDP)</td>
<td>20.7</td>
<td>13.2</td>
</tr>
<tr>
<td>Investment (% GDP)</td>
<td>17.2</td>
<td>18.7</td>
</tr>
<tr>
<td>Av. years total schooling, 15+</td>
<td>4.9</td>
<td>5.3</td>
</tr>
<tr>
<td>Life expectancy at birth (years)</td>
<td>61.0</td>
<td>62.3</td>
</tr>
</tbody>
</table>

Note: baseline is the observed median of the outcome variables
Results:
What do they mean for a typical low income country?

• Assume a country of 30 million people (1970) receiving US$ 1.25 billion/year over 37 years (Vietnam as example)

• Our estimates imply:
  – Growth effect of aid delivers a 16% internal rate of return (IRR) [income gain net of the cost of aid]
  – 70 million poverty years avoided [1.9 million fewer poor per year on average]
  – 16 million schooling years added by 2007
## Results: impact channels

- Aid $\rightarrow$ Investment $\rightarrow$ Growth (75%)
- Aid $\rightarrow$ Education $\neq$ Growth (0%)
- Aid $\rightarrow$ Health $\rightarrow$ Growth (25%)

<table>
<thead>
<tr>
<th>Channel (Y)</th>
<th>Aid $\rightarrow$ Y</th>
<th>Y $\rightarrow$ Growth</th>
<th>Aid $\rightarrow$ Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment</td>
<td>0.41</td>
<td>0.52</td>
<td>0.21</td>
</tr>
<tr>
<td>Education</td>
<td>0.27</td>
<td>-0.07</td>
<td>-0.02</td>
</tr>
<tr>
<td>Health</td>
<td>0.11</td>
<td>0.56</td>
<td>0.06</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td><strong>1.01</strong></td>
<td><strong>0.26</strong></td>
<td></td>
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</table>
The education puzzle

• Why do we **NOT** find a robust link between education and macroeconomic growth?
• Difference between private and social returns
• Hotly debated topic in education economics
• Numerous possible reasons:
  – Measurement & aggregation problems
  – Low quality of schooling (esp. in SSA)
  – Long time horizon
  – Labour market imperfections
Third conclusion

• Consistent and coherent pattern of results across meso- and macro-outcomes
• Cumulative (long-run) impact of aid, NO quick wins
• Internal rate of return from aid (to growth) = 16%
• Ambiguous link from education to growth is found elsewhere
  – Remember: positive impact of aid on education
• Aid supports key building-blocks for growth:
  – physical investment
  – human capital (health)
What does META Analysis Reveal?
Background

- A commonly applied approach in medical science research (contested in social sciences)
- Main idea: to quantitatively combine empirical results from a range of independent studies & get a single effect estimate
- In doing so, one can either allow for or ignore the heterogeneity (differences) among studies...
• Ignoring heterogeneity (fixed effects model)
  - All studies estimate the same ”one” single true effect (of aid on growth)
  - Any variation = due to chance/sampling error only

• Allowing for heterogeneity (random effects model)
  - Each paper tries to estimate a true effect – but this effect will vary
  - Variation = chance + true variation in effect size
Data and Methodology

• A database of 68 aid-growth empirical studies identified by Doucouliagos and Paldam (2008) henceforth DP08...
• DP08, using a meta-analysis of the 68 aid-growth studies reach a pessimistic conclusion...
• We thus make a careful assessment of their analysis and fully replicate their results
• We then proceed to make three key analytical improvements: economic model, statistical choices and data
Fourth conclusion

- DP08 ignore heterogeneity – problematic for theoretical reasons
  - They simply mis-measure the partial effect of aid for those papers which include an interaction term with the aim of capturing the non-linearity in the aid-growth relation
- The assumption of heterogeneity in the true effect of aid on growth across studies is confirmed.
  - Statistical tests + graphical tools
- Controlling for heterogeneity, the weighted average effect of aid on growth is found to be positive & statistically significant
Overall conclusions

• Evidence on aid’s growth impact mounting
• The need to move beyond growth – The development agenda post-2015
• UNU-WIDER project on growth, poverty and inequality
• Inclusive growth
• A few key messages – many more
• Visit www.wider.unu.edu for more research on foreign aid and much more
• Thank you!