New Development Economics and Randomized Controlled Experiments
Putting an instrument of proof and of government into perspective

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1. Introduction
The new Gold standard in development economics?

- Some statements by the 2010 Clark Medal award winner, Esther Duflo:
  - "Rigorous evaluations through randomized experiments can revolutionize the social policies of the 21\textsuperscript{th} century as randomized experiments have revolutionized the 20\textsuperscript{th} century medicine" (Duflo, 2004)
  - "Randomized experiment is the best method" (Duflo, 2009)

- A new one best way, producing "hard evidence" instead of the "wishy-washy evidence" of cross-country growth regressions and case studies (Banerjee, 2007)?
1. Development examined in its concrete dimensions
   A difference and a contribution to mainstream economics

These *in vivo* experiments make a decisive contribution to mainstream development economics by instilling a welcome concreteness into the core of the analysis, far away from the late Washington consensus.

- Contrary to standard neoclassical theory (see for instance endogenous growth theory), it scrutinizes concrete empirical aspects (distribution of schoolbooks, deworming programs for instance) instead of analyzing general relationships (ex: between education and growth, see Lucas, 1988). Social microstructures matter.

- A contribution to mainstream economics (theoretical references, institutions and publications)
1. The main thesis of the paper

I will focus on development economics as practiced by the J-PAL (MIT): Other practices of RCE are possible.

- This technique of proof is largely consolidated now. But the embeddedness of this novel instrument in a wider epistemological framework remains often fragmentary, leading to some blank spots and limits:
  - type of inference,
  - theoretical missing links,
  - micro-scope and historical specificity: ambiguous modes of generalization

- Like randomized clinical experiments, it is a social construct and not a purely objective technique, producing “hard facts”:
  - Experiment duration and time-sensitivity of experiments
  - Testing surrogate endpoints instead of development processes
  - Sponsors and potential bias
2. Epistemological blank spots and limits
« Pragmatic » discoveries: a well-defined technique, a fuzzy heuristic

- Far away from the deductive-nomological scheme (deduction-prediction-verification), there seems to be an *abductive moment* in this approach:
  - « Co-experimentation », fieldwork generates surprising facts and new hypothesis (close to Pierce).
  - « Field experiment have a *subversive power* which retrospective analysis and laboratory experiments have not. Scientists and field workers must accept to get contradicted and *surprised* » (Duflo, 2009, p. 69). « an experiment producing provocative results initiate debates and *new experiments*, [...] Scientists are inspired by theory [but experiments] can contradict theory » (Duflo, 2009, pp. 66-67).

- However, the heuristics at work have to be clarified and broadened:
  - The formulation of hypothesis remains more top-down than bottom-up in the practice of the J-PAL (topics determined by publication goals + division of labour between conception and execution through the ‘subcontracting’ of fieldwork).
  - No preliminary qualitative field enquiry.
2. Epistemological blank spots and limits
Which theoretical embeddedness?

- It is more and more clear that randomized experiments can contribute to the invalidation of alleged «universal laws» (ex. Supply-side economics: free access to medical devices does not reduce their use)

- However, the relationship to theory is weak, partial and often underdetermined, especially in the explanation of why experiments yield surprising results compared to theoretical expectations.

- Few theoretical references (and no heterodox ones) in the publications.

- Conceptual reflection is poor. Development and human development are not defined or theorized. *De facto*, development is equated with poverty reduction (see the Millennium goals). Poverty indicators are not really discussed (absolute poverty data) (2009, p. 15).
2. Epistemological blank spots and limits
Which theoretical embeddedness? Theoretical missing links

- The approach lacks an articulate theory of agents and cognitive processes.
  - Some behavioural effects are dispersedly hinted at.
  - But a theory as a coherent set of propositions regarding rationality, agents and agency is still missing.
  - It is all the more astonishing as the experiments focus on the actors’ level and their decision making processes.

- Randomized experiments evaluate in most cases the efficiency of a special intervention but they do not uncover the underlying causal agencies. It is the same for clinical studies:
  - There is clinical evidence that acupuncture can prevent postoperative nausea and vomiting (Lee & Done, 1999) but the causal mechanisms remain unidentified.
2. Epistemological blank spots and limits
   Ambiguities in the generalization process (1): historical specificity

- The question of **historical specificity** (Hodgson, 2001) is almost completely avoided:
  - Some vague statements like “context can matter”...
  - ... coexisting with the postulate that incentives produce the same outcomes everywhere.
  - It is thus completely unclear if the J-PAL is aiming at universal laws or at regularities specified in time and space.

- It is no accident that the **paradigmatic case** (in the ethymological sense: example to teach and learn) of the J-PAL is the deworming experiment by Kremer & Miguel.
  - In this experiment, **the remedy and the intermediary endpoint are clinical ones** (deworming improves the health of children, who in turn are more able to attend school). There is a **perfect fit with a technique coming from clinical studies**.
  - For me, it is very different from other experiments where social structures, learning processes and institutions are more crucial. That could explain why the outcomes of the same experiments vary across countries or professions.
2. Epistemological blank spots and limits

Ambiguities in the generalization process (2): the primacy of micro

- Duflo and Banerjee (2008) acknowledge now that the results of their micro experiments cannot simply be extrapolated to the macro level because of « general equilibrium effects », when a program is generalised.
- But « macroeconomic models are constructed like a meccano [erector set for children], based on microeconomic building blocks [...] In each case, basic elements are microeconomic elements » (Duflo 2009).
- There is a strong reductionism. Composition effects, emergent properties (Lewes, 1875) are out of the picture.
- Development phenomena have to be scrutinised at the meso or macro levels too: Dutch disease, terms of trade, forward and backward linkages (Hirschman, 1958), global value chains (Henderson et alii, 2002) etc.
2. Epistemological blank spots and limits

Development as non-linear combination of factors and the limits of the isolating method

- Randomized experiments are a wonderful tool to isolate the effect of a special action favouring development but they do not grasp the interaction between multiple actions. It is common knowledge in pharmacology that clinical studies do not take into account:
  - synergy effects between drugs
  - potentiation effects (the action of one component intensifies the action of the drug: \( a + b = B \))
  - Antagonistic effects between drugs

- Comparable effects are present in development processes. Development is a non-linear structural process involving a complex combination of factors, cumulative and circular causation (Myrdal, 1957), threshold and irreversibility (Boyer, Chavance & Godard, 1991), agglomeration and junction effects (Perroux, 1961).

- Thus, all development issues cannot be solved by punctual treatments and micro devices, even if they are applied to whole countries. They are no panacea deemed to replace “old” development economics. It is a far cry from deworming children to developing an entire country.
3. Clinical experiments as social constructs: Experiment duration: The issue of time-sensitivity (1)

- As shown by some social science studies (Abraham & Reed, 2002, Marks, 1997), clinical experiments are not simply hard science but social constructs subjects to controversial interpretations, lobbying processes etc.. I argue that the same is true for randomized evaluations in development economics.

- As far as clinical experiments are concerned, many effects appear only in the long run, when identified by post-clinical studies (which are rare).
  - In April of 2002, the Journal of the American Medical Association (JAMA) published a study led by Dr. Karen Lasser of Cambridge Hospital and Harvard Medical School which concluded that one in five new drugs has unrecognized adverse drug reactions (ADRs) that do not show up until after the drug has been approved. 12.2% of the approved drugs were later given a serious side-effect warning or even taken off the market completely.
3. Clinical experiments as social constructs: Experiment duration: The issue of time-sensitivity (2)

- **Sustainable development is a matter of time** too. Some recent experiments by the J-PAL reveal the sensitivity of the results to the duration of the experiment.
  - I found some illustrations of this regarding microcredit (Duflo, 2010b, p. 43) and the promotion of export-oriented crops in Kenya (Ashraf, Giné & Karlan, 2008) or on the RSA experiment in France.

- This time-sensitivity is all the more crucial as actors learn, interact and evolve over time, as well as the institutional matrix.

- Because of their costs, experiments are often limited to a short period.
3. Clinical experiments as social constructs: Experiment goals: The issue of surrogate endpoints

- Many medicines are approved on the basis of what scientists call **surrogate endpoints**, like proof that they lower cholesterol, rather than because they have been shown to reduce the risk of death or disease (Abraham & Davis, 2007, pp. 8-9). But several drugs approved this way have recently proved ineffective or even dangerous.
  - The medicine *ezetimibe* has been proved to lower patients’ LDL, or bad, cholesterol by 15 to 20 percent. Decades of research links lower cholesterol to a reduced risk of heart attacks for a class of molecules called statins. But statins work very differently than *ezetimibe*, and no one has proved that ezetimibe offers the same benefits as statins. Recent clinical studies even show greater risk of cancer (Berenson, 2008).

- Randomized controlled experiments in development studies focus on surrogate endpoints, like for instance the increased use of fertilizers by farmers through various devices, notably because it is easy to measure. It is implicitly assumed that the use of fertilizers (surrogate endpoint) is necessarily a development factor (primary endpoint) via the augmentation of crop yield and the supposedly coupled ‘increase of farmers’ incomes. Yet there is no guaranty that it is always the case and no alternative (like organic cultural methods) are discussed.
3. Clinical experiments as social constructs:
Sponsors and potential evaluation bias

- **Costs** of experiments are variable but often high. The need of **sponsors** could jeopardize the conduct of trials, especially if randomized experiments become the standard prerequisite for development projects.

- This is a well-known problem in pharmacology, which is - in most cases - financed by the industry:
  - There are **several high-profile cases of suppression of trial results, changing endpoints** etc. Clinical trials can be designed to show the new drug in the best light – and sometimes fail to indicate the true effects of a medicine on health outcomes relevant to the patient. The suppression of negative clinical trial findings leads to a body of evidence that does not reflect the true risk. In a recent JAMA editorial the editors deplore “Impugning The Integrity Of Medical Science: The Adverse Effects Of Industry Influence” (De Angelis & Fontanarosa, 2008).
  - They are **selective publication** and **ghost writing strategies** by the pharmaceutical industry. Ross et alii (2008), document it for instance for the Vioxx case (Rofecoxib).
  - From evidence-based medicine to **evidence-biased medicine**.
Some conclusions

- A **weak anchoring in theory** (weak theoretical syntax as well as semantics)

- This technique can be a **useful complement** but not a universal substitute to development mesoeconomics and political economics.

- Its scientific and political success can produce a **crowding out effects** on other development approaches (especially heterodox).

- It is an instrument of proof but also a very **trendy instrument of government** – in the Foucaldian sense.
  - Its manifold applications remind of other forms of social engineering like **design economics** (Roth) and even call to mind some features of the approach developed by the German **cameralist** Hans-Peter Frank.
  - Scrutinizing key topics in Duflo’s work as individual responsibility, entrepreneurship or market self-regulation, I found that the stance purported by Esther Duflo belongs to a type of governmentality noticeably distinct from the neoliberal tradition in development studies as represented for instance by William Easterly.
The full paper

1. Development in its concreteness: the contribution of in vivo experiments to mainstream economics
1.1. From clinical studies to post-Washington consensus development economics
1.2. Field instead of laboratory experiments: epistemic effects & intervention practices
1.3. Development concretely: focusing on micro social structures

2. Some epistemological blank spots and limits
2.1. « Pragmatic » discoveries: a well-defined technique, a fuzzy heuristic
2.2. Which theoretical embeddedness? Concepts, agent and knowledge theories
2.3. Micro-scope and historical specificity: ambiguous modes of generalization
2.4. Clinical studies as social constructs: duration, endpoints and practical constraints

3. The empowerment of a new technology of government?
3.1. The remarkable take-off of an economic technology
3.2. The economist as a plumber: extending mainstream economics to social devices
3.3. A technology of government: back to the cameralist tradition?
3.4. A type of governmentality distinct from the neoliberal tradition