Discussion of

Productivity Growth and Capital Flows: The Dynamics of Reforms

Francisco Buera  Yongseok Shin

Alberto Martin

CREI, Universitat Pompeu Fabra and Barcelona GSE

January 2013
Motivation

- Observed correlation between TFP growth and capital flows in developing countries
- Recent work on “allocation puzzle”
  - Gourinchas and Jeanne (forthcoming)
    - Negative correlation between productivity growth and capital inflows
  - Prasad et al. (2007)
    - Negative correlation between output growth and capital inflows
- Emphasis here: periods of high TFP growth followed by capital outflows
  - growth in savings
  - delayed response of investment'
This paper

- Develops and calibrates model to account for these facts
  - Reforms $\implies$ TFP growth and capital outflows

- Main idea: economy with idiosyncratic distortions (taxes and subsidies) and credit constraints
  - Idiosyncratic taxes and subsidies: inefficient entry
  - What are the effects of a reform that eliminates these distortions?
  - Answer: reform raises savings but has a delayed effect on investment

- Why is response of investment delayed?
  - Inefficient producers exit after reforms: $I \downarrow$
  - Efficient producers can expand only slowly because of credit constraints

- Why do savings increase after a reform?
  - Productive entrepreneurs make higher profits: higher gain from saving to relax constraint and expand output
Outline of model

- Infinite horizon economy populated by continuum of worker-entrepreneurs
- Financial intermediaries: perfectly competitive, take deposits, invest in $k$ and rent it to entrepreneurs
- At each point in time, individuals choose whether to work or to become an entrepreneur and run a firm
  - Individuals differ according to wealth and productivity
  - Wealth is the result of past savings, productivity changes stochastically over time
- Entrepreneur with productivity $z$ produces according to:
  \[ zf(k, l) = zk^\alpha l^\theta, \text{ with } \alpha + \theta < 1 \]
- Two types of distortions:
  - Individual-specific taxes ($\tau$) and subsidies ($\varsigma_i$): individual $i$’s entrepreneurial revenues given by
    \[ (1 - \tau)(1 + \varsigma_i)zf(k, l) \]
  - Credit constraints: twofold
    * In each period, entrepreneurs rent capital from intermediaries: can default and keep
      \[ (1 - \phi) \cdot [(1 - \tau)(1 + \varsigma_i)zf(k, l) - wl + (1 - \delta)k] \]
    * Note: default entails loss of financial assets ($a$) outside of the firm
    * Additionally, no intertemporal borrowing ($a \geq 0$)
Pointers

• Maximum borrowing by an entrepreneur increases in
  
  – Collateral \((a)\)
  
  – Revenues \((z, \varsigma)\)
  
  – Financial development \((\phi)\)

• Let \(\pi(a, z, \varsigma)\) denote entrepreneurial profits, with \(\pi\) weakly increasing in all arguments

• Marginal entrepreneur satisfies

\[
\pi(a, z, \varsigma) = w,
\]

so that entrepreneurs of given ability are more likely to choose entrepreneurship if wealth or subsidies are high
Main results: calibration

- Fraction of the population (3%) receives subsidies of 150%
  - What happens if unexpected reform eliminates subsidies and taxes?

**Main result 1** (small open economy):
  - Entrepreneurs that lose subsidies downsize or exit
  - Wages fall: productive entrepreneurs expand as their profits increase
  - TFP rises, but investment initially falls: productive entrepreneurs are constrained
  - Savings of productive entrepreneurs rise: profits particularly high right after reform
  - Capital outflows!

**Main result 2**: add financial reform (increase in $\phi$)
  - Allows entrepreneurs to expand borrowing
  - Investment now spikes after reform
  - Savings as before
  - Capital inflows!

- Welfare effects of financial liberalization with credit constraints: unequal gains
  - Poor unproductive individuals loose: capital outflows slow down capital accumulation
  - Rich and productive ones gain: they can save abroad at a higher interest rate
Comments

• I enjoyed reading this paper
  – Interesting quantitative assessment of the effect of different frictions on savings, investment and TFP

• Less convincing as an account of developing country reform episodes

• Some thoughts on
  – Motivating facts
  – Model
  – Calibration (pushing it....)
Motivating facts

- Paper is motivated on the observation that high TFP growth is accompanied by capital outflows
  - Growth in savings
  - Delayed response of investment
  - Good to stress timing: most previous work looks only at period averages

- In the model: everything driven by decentralized behavior of individuals

- In reality, government might play an important role: what happened to public savings during these episodes?

- Related to ongoing debate
  - Gourinchas and Jeanne (forthcoming) document negative correlation between inflows and productivity growth, but....
  - ...to a significant extent, this seems to be driven by public flows (Alfaro et al. (2010))

- Aguiar and Amador (2011) also study the relationship between public savings and growth

- None of this invalidates market-based stories, but it requires some thought
Model: savings

• In order for story to go through, reform must
  – raise savings
  – have delayed effect on investment

• How does this work? Some more discussion of model before calibration

• Focus first on savings
  – According to calibration, savings of productive entrepreneurs increase after reform
    * This is behind the increase in aggregate savings
  – But what about savings of unproductive individuals, i.e. workers?
    * They expect wages to increase and should spend
    * **However, they are not allowed to borrow**
      • All borrowing in the model is intratemporal, done by entrepreneurs
Model: investment

- In equilibrium, negative correlation between subsidy and productivity of active entrepreneurs
  - Reasonable and interesting feature of equilibrium
  - But does this imply that eliminating subsidies has a disproportionate impact on unproductive investment?
    * It depends on the sensitivity of borrowing to the subsidy, which is higher for more productive entrepreneurs

- Also, what are these individual distortions? Can we think of them as sectorial?
  - Once you do so, very close to Song et al. (2011)
    * Productive entrepreneurial sector grows at the expense of unproductive public sector (TFP ↑)
    * But entrepreneurial sector constrained: cannot absorb all capital liberated by public sector
    * ‘Excess’ capital flows abroad
    * Simpler story, with only financial frictions

- Other examples where financial frictions can account for ↑TFP and capital outflows
  - Ambiguous effects of financial reforms (Martin and Ventura 2012)
    * Financial reform enables productive entrepreneurs to expand investment
    * This raises the price of labor (or other NT factors): unproductive entrepreneurs exit (TFP ↑)
    * Overall effect on investment is ambiguous: depends on ‘mass’ of marginal entrepreneurs
Minor comments

• In the model, financing constraint does not affect tax collection
  – Is this reasonable?
  – Entrepreneur can hide output from creditors but not from government
  – Role for public intermediation

• In the model, entrepreneurs borrow to rent capital, but not to pay wages
  – This seems inconsistent: why can't they default on wages
  – Normally, with intertemporal borrowing, this problem does not appear
Final comments

- Overall, interesting quantitative exercise on effect of different frictions on TFP and capital flows

- As a portrayal of actual reform episodes, I remain to be convinced
  - Deeper discussion of motivating facts
  - More discussion of the model / sensitivity of results to particular calibration
    * Effect of eliminating subsidies on investment (how general is this?)
    * Effect of financial reform on investment
      - Martin and Ventura (2012): for instance, it is non-monotonic
  - How does it fare against (simpler) competing stories that do not rely on individual subsidies and taxes?
    * What are some alternative predictions?

- I look forward to seeing where it leads!