Development Economics

Lecture 10: New Growth and Spillovers

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Today

1. Externalities, spillovers, coordination
2. A brief introduction to "New growth theory"
    1. The power of ideas!
3. Coordination failures and multiple equilibria overview

Externalities and spillovers

- Many of the approaches rely on the idea of an externality
  - If one firm's production affects the ability, profitability of another firm's production, that is an externality
- Often think about negative externalities
  - Pollution
- But positive externalities exist as well
  - Knowledge
  - Increased demand
  - Increased returns to the skills of others

Coordination, spillovers, externalities

- If there are positive externalities or spillovers,
  - Individuals don't capture all of the returns from their activities
  - Individuals will tend to underinvest
- If the externality is that my investment improves the returns on your investment
  - Tends to create **multiple equilibria** and **poverty traps**
  - Either everyone invests (rich countries) or no one invests (poor countries)
- May need to **coordinate** so everyone invests to escape poverty trap.

New Growth Theory

- Key idea: Knowledge has externalities
- Say I invent something cool
  - The myPad (which is totally original and not derivative of a fruit based company in any way)
- Once it has been invented, the idea of the myPad is costless to spread (anyone can learn how to make it)
- So now anyone can produce a tablet, and the next generation builds on the current knowledge (cheaper, faster, with Flash . . .)

New Growth Theory

- So the creation of new knowledge has externalities
  - We try to let people internalize the externalities through patents
  - Give temporary monopoly in exchange for knew knowledge
- Claim: Ideas don't have diminishing marginal returns
  - More ideas there are, the more we know, the more we can grow

Endogenous growth theory

- Most closely associated with Paul Romer
- Models the intentional creation of technology
  - Why does A grow? Model of R&D
  - What are the incentives to create new knowledge?
- As firms produce more, the incentives to create more ideas is stronger, so growth can continue
  - Creates an externality—my investment positively affects your production
  - Suggests why government should subsidize research
- Provides a reason why long-term growth exists

Coordination Failures in development

- An economy of two people A and B
  - A makes roads (and nothing else)
  - B makes cars (and nothing else)
- Cars are not much good without roads
- Roads are a waste without cars (assume charge tolls)
- A and B must decide to produce or not to produce, and how much each produces affects the profits of the other.
  - Costs 2 to produce, get 7 in revenue if other produces.

Coordination Failures

Costs 2 to produce;

Get 7 in revenue if produce and other produces

A's decision

B's decision	Produce	Not Produce
Produce	A gets 5 B gets 5	A gets 0 B gets -2
Not Produce	A gets -2 B gets 0	A gets 0 B gets 0

Equilibrium

Coordination Failures

- Problem: if both A and B start out not producing, then neither finds it profitable to produce by themselves
  - (Not Produce, Not Produce) is a Nash Equilibrium
- But if both agree to produce, both better off and willing to produce the next period.
  - Trapped by lack of coordination.
- A poor country starts out with no roads, so has no cars, so no incentive to build roads, so no one builds cars . . .

Coordination Failures

- Why can't they just both agree to produce?
  - Perhaps they can (or A and B can merge, so they endogenize the externality).
  - But there may be reasons why they cannot agree, or merge.
- Coordinator is called the "**super-entrepreneur**"
- The super-entrepreneur gets A and B to agree, or merges A and B, or does both A and B
  - Builds both cars *and* roads

Why doesn't the Super-entrepreneur exist?

- Capital market imperfections: maybe A can't buy B (or the other way around).
- Agency Problem and asymmetric information:
  - Maybe A can't monitor B effectively or hold them accountable to an contract. Or maybe A and B are from different ethnic groups—don't trust each other.
  - The super-entrepreneur may not have the cash to do both A and B, but investors may worry the super-entrepreneur may abscond with their money.
- Communication and information problems
  - How do you know who will be the super-entrepreneur?
  - How do you communicate who is producing what?

Why doesn't the Super-entrepreneur exist?

- Sometimes it does (large firms in developing countries tend to do many things)
  - Backward and forward linkages
  - But difficult to do all of the things needed (cars need steel, roads, rubber, glass, oil, . . .)
- Government action may be needed
  - Large state firms.
  - But governments not very good at directing production
- Always need some coordination.

When will coordination be a problem?

- Poorly functioning capital markets
- Lots of individuals firms
- Lots of linkages (need gas stations as well as roads and cars, and tire makers, and trucks to ship the gas, and people need places to put the cars)
- Information is costly, managers are hard to observe
- Courts function poorly, poor enforcement (corruption)
- Many possible equilibria (which one to choose?)

Many firms coordination problem

Each firm's investment affects profits of other firms
All firms are the same