IPR, Innovation , Economic Growth and Development

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Motivation

- International harmonization of IPR protection
  - TRIPs of the Uruguay round
  - Resistance of the developing world to adopting the developed world's standard of IPR protection
- The economics literature has been inconclusive in producing intellectual support for the international harmonization of IPR protection.

Research questions

- What can we learn from the economics literature about the rationale and impact of the international harmonization of IPR protection?
- What policy lessons can we draw?

Key insights

- Rigor of IPR protection is correlated with level of economic development:
  - Countries tend to strengthen IPR protection as they become richer.
- International harmonization of IPR protection would entail the North gaining at the expense of the South.
- A nuanced and differentiated approach to international harmonization of IPR protection is likely to be more productive.

Why IPR and what IPR?

- The fundamental tradeoff
  - static inefficiency vs. dynamic efficiency (Nordhaus, 1969)
- Patent design: breadth and length
  - Gilbert and Shapiro (1990) and Klemperer (1990)
- Sequential innovation
  - Inter-temporal knowledge spillover
  - Scotchmer and Green (1990), Green and Scotchmer (1995)
- Premise of the literature
  - Returns to innovation proportional to IPR

Does IPR work?

- U.S. patent policy changes represent "pseudo-natural" experiments
  - Bayh-Dole Act, CAFC and expanded patentability
- A large empirical literature ensued
  - Cohen et al (1997), Henderson et al (1998), Kortum and Lerner (1998), Hall and Ziedonis (2001), Jensen and Thursby (2001), Lanjouw and Cockburn (2001), Moser (2005)
  - "…robust conclusions regarding the empirical consequences for technological innovation of changes in patent policy are few." (Jaffe 2000)

International harmonization of IPR protection: theory

- Fundamental tradeoff in a global context
- Imitative/less innovative South vs. innovative North
- The South necessarily loses and the North does not necessarily gain from harmonization (Helpman, 1993)
- Non-cooperative equilibrium: weak IPR in the South
- Global welfare could be enhanced if South strengthens IPR; harmonization of IPR is neither necessary nor sufficient to maximize global welfare (Grossman and Lai, 2004)
- North can compensate South by liberalizing trade in traditional goods (Lai and Qiu, 2003)

International harmonization of IPR protection

- Diwan and Rodrik (1991)
  - The South may benefit from harmonization
  - IPR necessary for R&D resources to be allocated to product needs specific to the South
  - Lanjouw and Cockburn (2001): malaria drugs
- McCalman (2001)
  - Only empirical estimation of rents transfer implied by TRIPs
  - U.S. receives a transfer of 40% of total gains from global trade liberalization; developing countries give up 64% of total trade liberalization gains.
  - Absolute magnitudes are not large.

Does stronger IPR lead to more export and FDI?

- Impact of IPR on export
  - Market power vs. market expansion (Helpman and Krugman, 1985)
  - Empirical estimates: market expansion dominates market power (Maskus and Penubarti, 1995; Smith, 1999, 2001)
- IPR on FDI location choice
  - IPR considered important for R&D facilities but not for sales and distribution functions (Mansfield, 1994)
  - Importance of IPR varies by industry (Mansfield, 1994)
  - Stronger IPR encourages more arm's length transactions (McCalman, 2004)

Does stronger IPR lead to greater technology transfer?

- Royalty payments and patent rights
  - Royalty payments from US companies' foreign affiliates had increased by 30% after patent reform in host countries
  - Affiliate R&D and patent filings had also increased (Branstetter, Fisman and Foley, 2006)
  - Royalty payments from unaffiliated foreign sources to US multinationals also increase with patent rights,but more prominent in developed countries (Park and Lippoldt, 2005).
- Welfare consequences less clear
  - Price effect vs. volume effect

IPR and economic development

- IPR is dependent on level of economic development

  "Many rich countries used weak IPR protection in their early stages of industrialization to develop local technological bases, increasing protection as they approached the leaders" - Lall (2003)

- Cross-country and historical evidence
  - Lerner (2002)
    - Wealthier countries more likely to adopt stronger patents
  - Maskus (2000) and Chen and Puttitanun (2005)
    - U-shaped relation between rigor of patent system and level of economic development ($523 in 1984 and $854 in 1995)
  - Khan (2004)
    - U.S. benefited from piracy in the 19th century.

Concluding remarks

- Countries in the process of catching up have typically adopted weak IPR system.
- International harmonization of IPR protection necessitates welfare gain by the North at the expense of the South.
- Strengthening IPR in the South could potentially lead to global welfare gain, but it may not take the form of international harmonization.
- A differentiated approach that takes into account a Southern country's level of economic development may well be more productive.