

TRIPS at 20: Evidence on Innovation, Use, and International Technology Flows

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Globalization of the IP system

- TRIPS, WIPO efforts, RTAs, BITs, and unilateral reforms have had large impacts on measured levels of patent strength.
- There have also been large changes in copyrights, trademarks and plant variety legal protection.
- More recently we've seen significant legislative reforms in geographical indications.
- By some measures patent reforms were st plant

What is this reformed system supposed to accomplish?

- Reduce apparent distortions to trade arising from highly variable IP systems.
- Expand trade in high technology goods.
- Support markets for international knowledge transfer and diffusion.
- Improve global and national innovation incentives.
- Encourage R&D in technologies for the needs of poor countries.
- Improve consumer guarantees of product origin, thereby raising safety and investments in quality.
- Build and support global markets for creative activities.
- Facilitate price differentiation across markets.

Technology transfer and innovation: indirect evidence

- The period since TRIPS has seen growth in technology exports of major emerging economies (Table 1).
- Also have observed large increases in the participation of developing countries in global IP registrations:
 - DC patent apps abroad: 11,459(1995) to 95,168(2010)
 - DC TM apps abroad: 275,647(1995) to 478,718(2010)
 - DC PVP apps total: 671(1995) to 5,119(2010)
- And relatively fast growth in weighted R&D/GDP ratios (2000 2010):
 - 26 developing countries: 3.7% per year;
 - 35 emerging countries without China: 2.8% per year;
 - China: 9.5% per year;
 - 28 developed countries: 1.3% per year.

Patent reforms and innovation: mixed messages

- Later

IPR reforms and international technology transfer

- This is the primary area of inquiry for international trade economists.
- Development economists largely expected negative impacts.
- But IPRs should address market information problems in ITT via:
 - raising appropriability where imitation costs are low;
 - reducing contracting costs and raising legal certainty;
 - reducing opportunism through lower transactions costs;
 - Supporting markets for technology brokers.
- What are the channels of ITT?
 - High technology input trade;
 - Foreign direct investment (FDI);
 - Technology licensing;
 - Skilled labor mobility;
 - Information flows within production and research networks.

IPR reforms and ITT

- Casual evidence (ignoring great recession years):
 - N S Trade in high tech, intra firm inputs continues to rise faster than total trade (vertical production).
 - N S FDI and licensing volumes also rise relatively rapidly.
 - Rapid emergence of global innovation networks.
 - Little evidence of growth in ITT to poorest countries.

IPR reforms and ITT

- Econometric studies with recent data:
 - Patent laws matter to OECD firms in IPR sensitive sectors in choosing production locations in Eastern Europe (Javorcik EER 2004).
 - OECD exports of high technology goods rose faster to DCs with larger patent reforms post TRIPS (Ivus JIE 2010).
 - Manufacturing exports from middle income economies rose significantly over time in TRIPS period (Maskus Yang working paper 2015).
 - This study also finds that inward patent applications seem to support export growth.

IPR reforms and ITT

- Affiliate licensing, value added, sales, employment, and exports of US MNEs rose post reforms (Branstetter et al JIE 2011).
- Licensing by Japanese firms to affiliates and unaffiliated partners rise with patent strength (Wakasugi Ito JTT 2009).
- IPRs positively offset the costs of distance in monitoring affiliate sales, so high tech sales rise with patent rights (Keller and Yeaple AER 2013).
- IPR reforms above a threshold income level shift ITT from exports to FDI then to licensing (composition effect); (several studies).

Reasonably robust conclusions about ITT

- There does seem to be a positive and strong causal impact of IPR reforms on inward ITT.
- But not yet in the poorest countries.
- And in middle income and emerging economies there are threshold and complementarity effects:
 - Education and human capital;
 - Effective domestic competition;
 - Adequate governance and infrastructure.
- All of this suggests

Brief concluding observations

- The data and evidence suggest that WTO members have seen:
 - Substantial legal reforms in IPRs;
 - Increasing engagement with the utilization of IPRs;
 - Growing market transactions in technological information protected by IPRs.
- The extent of this engagement varies by income grouping.
- But there are many more issues to study, such as
 - Copyrights and creativity in developing economies;
 - How should we measure trade in intangibles?
 - How have