

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

# Intellectual Property Rights and Technology Transfer: The Trade and Investment Dimensions

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Douglas Lippoldt  
OECD Trade Directorate

(Views expressed are not necessarily those of the OECD  
or its member countries)

# Organisation for Economic Co-operation and Development

- An inter-governmental organisation
- A forum for policy development and economic analysis covering all areas of gov't policy except culture and defence
- Promotes: growth/employment, economic development, expansion of trade
- 30 member countries: in Europe and North America, plus Japan, Korea, Australia, and New Zealand.
- Industrialised, market-oriented, democracies

# Why is IP important? Why study IP?

- The economic well-being of any nation is linked closely to the availability of resources and technology.
- Technological progress plays a central role in boosting output per worker and is an important determinant of income levels.
- If domestic innovation & technology transfer can be positively influenced by the IP regime in a country (or by the international IP regime), then there may be scope for IP policy measures to enhance the pool of available technology.
- A key motivating factor in OECD work on IPRs: understanding and promotion of econ growth in OECD countries & developing countries.

# What makes intellectual property special?

- Unlike a material resource, the same bit of intellectual property (IP) -- say, a patent -- can be made available simultaneously & repeatedly on a non-exclusive basis to multiple users, generally at a low marginal cost.
- The nature of IP: innovators face a challenge to appropriate the economic benefits of their ideas.
- Governments grant intellectual property rights (IPRs) to provide incentives for innovation and IP dissemination.

## Balancing IPR strength

- Some types of IP can be protected through “natural” protections or trade secrets (as with some high technology products that are difficult to reverse engineer, copy or imitate; cases of lead-time advantage).
- For others, weak IPRs mean rights holders could face difficulty in appropriating returns from the use of their intellectual property or they could risk abuse of their intellectual property by a competitor.
- Theoretically IPRs could be made too strong and confer excess market power on rights holders (not likely in most developing countries, given current IPR strength).

## Two OECD Trade Directorate studies consider recent IPR reform

- A significant number of countries ratified key WIPO IPR treaties during the first half of 1990s, *e.g.*
  - Bern Convention (copyrights): 36 of 157 total cos
  - Paris Convention (patents): 36 of 168 total cos
- The 1990s witnessed increased coverage of IPR issues via trade agreements: TRIPS & Regional Trade Agreements
- The TRIPS Agreement built on the framework of these WIPO-administered agreements and extended minimum protection across all WTO members

## Consequences of strengthened IPRs...

- Research indicates generally favourable initial results in developing countries: tendency for increased IPR stringency to yield gains in FDI, international licensing &, to some extent, merchandise trade.
- These flows embody technology transfer.

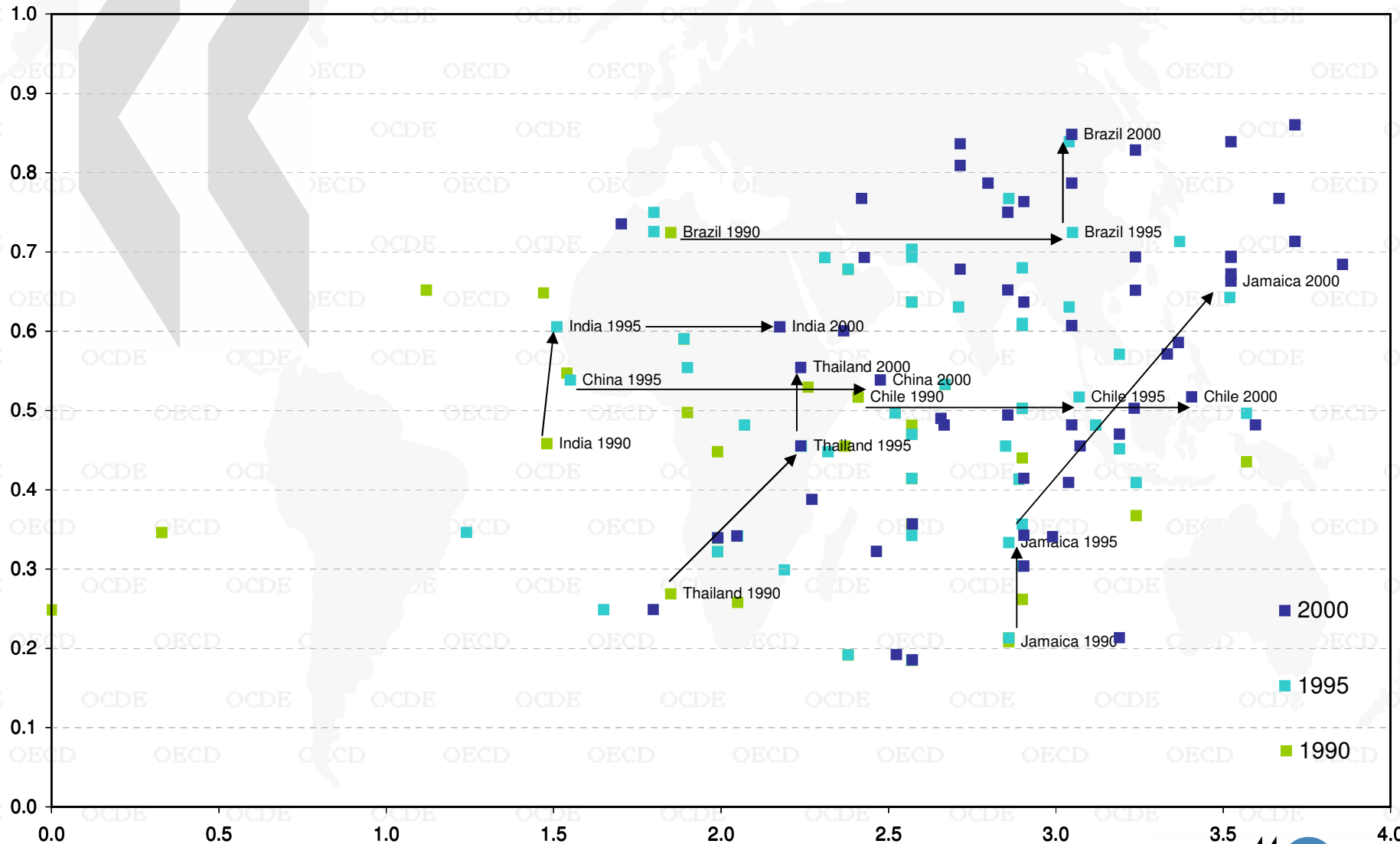
## OECD studies employ 4 IPR indices

The OECD studies use indices to measure IPR strength in broad samples of developing countries:

- **Patent index** (Ginarte-Park index), **Copyright index** (Reynolds) & **Trademark index** (Reynolds)
  - membership in international treaties
  - coverage
  - restrictions on rights
  - enforcement provisions
  - duration of protection
- **Enforcement effectiveness index:** based on business perceptions of enforcement effectiveness
- All 4 indices are correlated.

# IPRs STRENGTHENED – 1990 – 1995 – 2000

## Copyright Index



# Channels of Technology Transfer

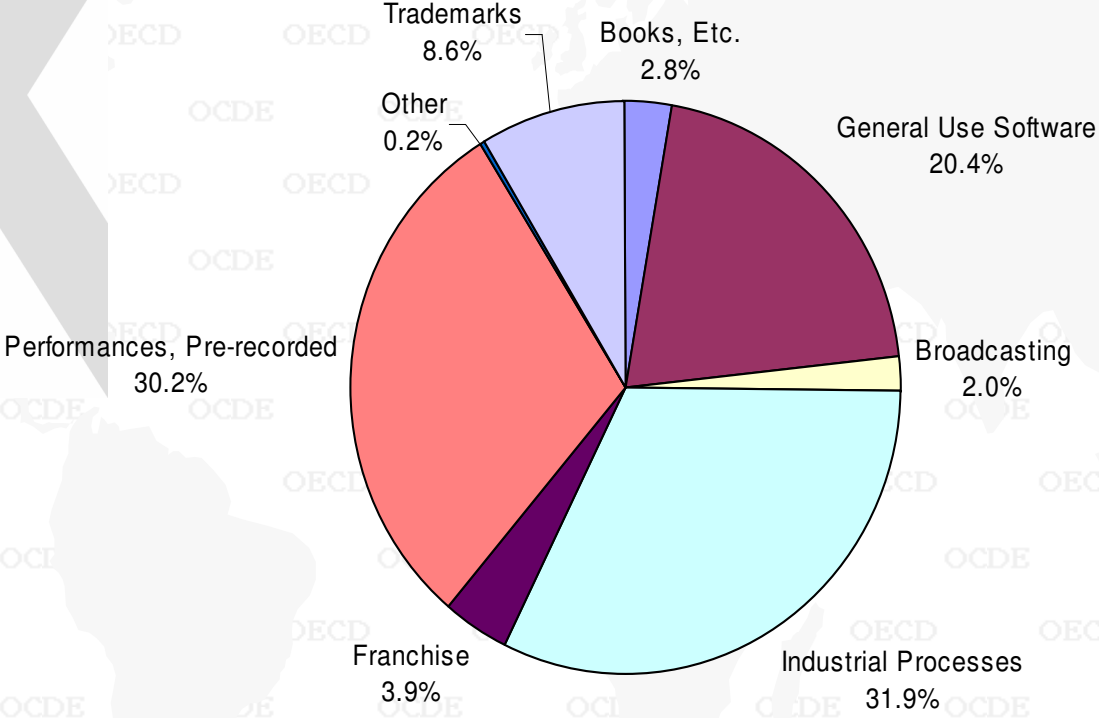
Keith Maskus (2004) points to 5 main channels for *market-mediated* technology transfer:

1. Trade in goods and services
2. Foreign direct investment
3. Joint ventures
4. Licensing
5. Cross-boarder movement of personnel

**Large flows from commercial transactions related to direct technology transfer (sale or use of IP):**

**=> US\$105bn, total in 2001 for 17 OECD member countries**

### Sources of U.S. royalty & licensing fees from intangible assets, 1992-99

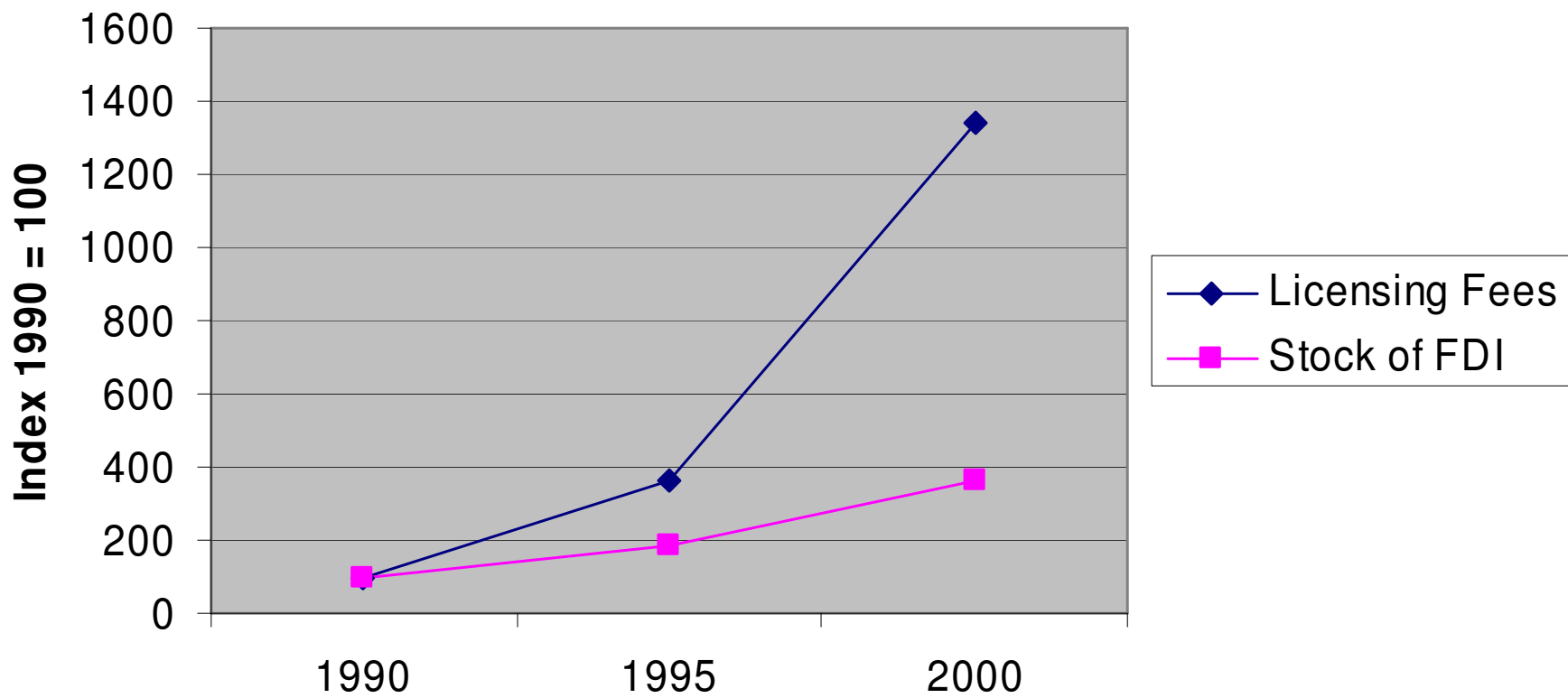


Source: Park & Lippoldt (2004)

## Hypothesis: Increased IPR strength influences technology transfer flows

- Firms holding IP assets enter new markets abroad via three main channels:
  - Trade in goods that embody the IP
  - Foreign direct investment:
    - 1) wholly owned; 2) joint ventures
  - Licensing & trade in services (affiliated & unaffiliated)
- Increased IPR stringency in dev'g cos has tended to help increase technology transfer via these channels (in some cases a progression)
- Economists are still assessing impacts of IPR reform

## Indicators Related to US Technology Transfer (to a sample of 29 developing countries)



# OECD Study #1: Patent Rights, Trade & FDI in Developing Countries

- Using regression analysis, we examined the association of change in the Index of Patent Rights with change in trade & FDI
- The dependent variables for the analysis were: trade and stock of FDI, each considered as a ratio to GDP
- The analysis controlled for various other factors that influence trade and FDI (*e.g.* risk)
- Period considered was 1990 to 2000

# OECD Study #1: Results -- FDI

- Patent rights had positive effects on inward FDI: a 1% increase in the patent rights index is associated with a 0.5% increase in the stock of FDI
- The effect is stronger for LDCs than for other developing countries
- For US outward FDI, the impact of IPRs varies by industry and destination (ability to imitate); strong influence in such sectors as petroleum, finance, services (*e.g.* computer-related) and R&D (*esp.* chemicals and Rx)

# OECD Study #1: Results -- Trade

- Strength of patent rights only modestly influenced total *imports*
  - Influence was relatively strong in some sectors such as textiles, drugs, industrial chemicals
  - But for other sectors such as computers & office equipment, IPRs appeared to be important primarily where there was a threat of imitation (*i.e.* not in less developed countries)
- Patent rights not a significant influence on developing country *exports*

## OECD Study #2: International Licensing & Strengthening of IPRs

- Use of 4 indices to characterise the strength of intellectual property regimes around the world: patent rights, copyrights, trademark rights and enforcement effectiveness.
- Hypothesis: That the strength of the various types of IPRs influences US licensing revenue, with variation by industry and by source of licensing income.

# International Licensing Transactions

- Licensing transactions - a means for transfer of technology from one party to another.
- Licensee acquires the right to use new technology (subject to conditions) without having to undertake costly R&D; can capitalise on licensor's reputation & expertise.
- Licensor derives fees/royalties; can capitalise on the licensee's local reputation & knowledge; may obtain reciprocal licenses to any technical improvements made by the licensee.
- Licensing can yield mutual benefits

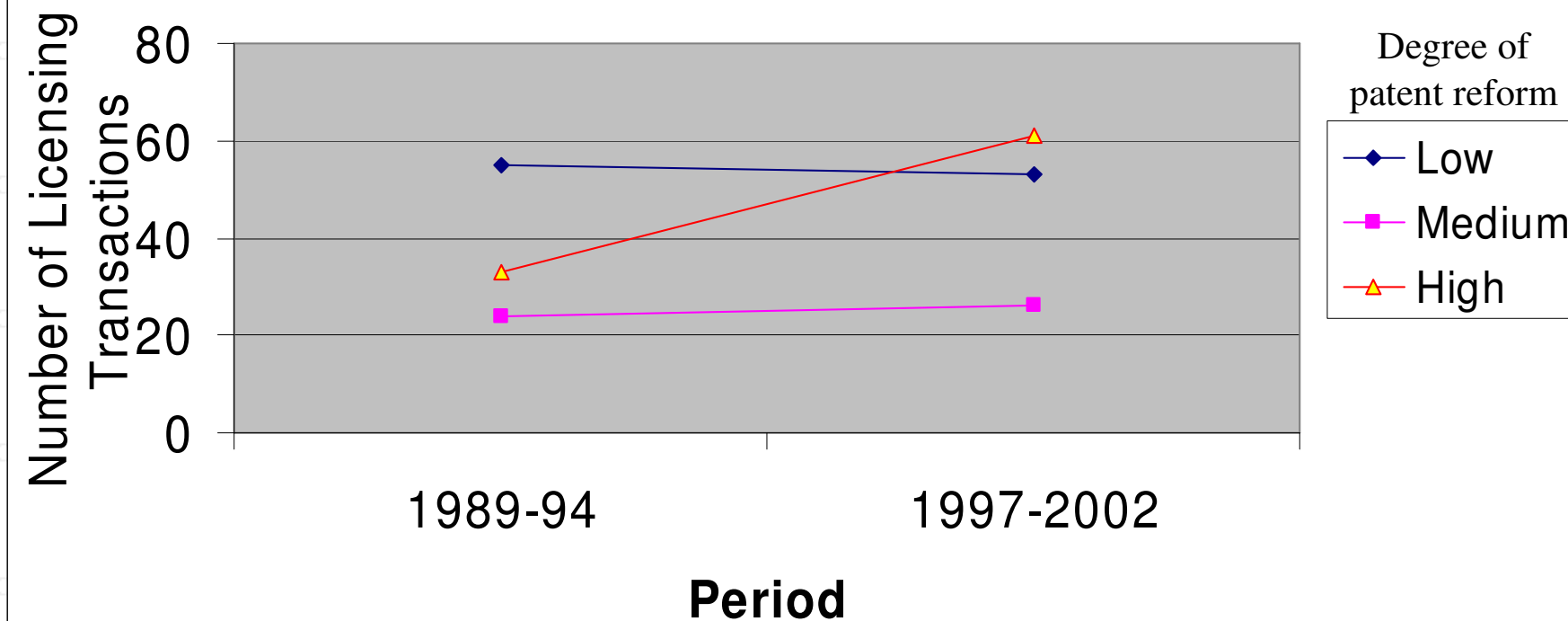
# OECD Study #2: IPRs & International Licensing, Results

- Analysis: considers the relationship of changes in IPR stringency to changes international licensing by US enterprises.
- Controlling for other factors (productivity, corruption, tariff rates & country risk), patent rights & effective enforcement tend to positively influence licensing.
- Strong IPRs enhance the degree of appropriability of the returns to innovation, increase the value of the intangible asset to be licensed.

# OECD Study #2: IPRs & International Licensing, Results By Sector

- Patent rights are found to be relatively influential for licensing for services, electrical/electronics, & transportation industries (less so for machinery & wholesale trade industries).
- Copyrights are important for the licensing of books, trademarks, franchising & broadcasting.
- Enforcement effectiveness is especially important in the chemicals, electrical/electronic and services industries.

# Patent Regime Strengthening and Licensing Transactions



## Conclusions

- The 1990s witnessed increased coverage of IPR issues via trade agreements, as evidenced by TRIPS and RTAs.
- The tendency is for strengthening of IPRs to have positive influence on FDI and Int'l Licensing and a moderately favourable influence on Trade

## Conclusions (con't)

- The effect of IPR reform is stronger, the weaker the initial IPR regime
- Some indication of differentiation of IRP influence by sector and modes
- Developing countries on average may be able to accelerate technology transfer by enhancing their IPR regimes (which also stimulates domestic innovation)

## A comment on competition & IPRs

- Some caution merited: theoretical potential for overly stringent IPRs to convey excess market power to technology suppliers.
- It appears this level of stringency has generally not been attained in developing countries.
- Where IPR protections are boosted at the same time as trade is liberalised, you may get increased competition from suppliers of alternative technologies; this helps to limit the ability of a particular IPR holder to extract rents unduly.

## A few other caveats

- IPRs: not a silver bullet policy solution; account for just a portion of the variation in the economic indicators considered here.
- Implementation of IPR regimes depends on complementary factors such as the quality of legal institutions, markets, infrastructure, etc.
- The efficacy of intellectual property reform on trade and FDI is ultimately subject to the environment in which IPRs operate.

**Thank you for your attention.**