

WIPO/JPI/BUE/06/9

ORIGINAL: English

DATE: May 26, 2006



NATIONAL INSTITUTE OF
INDUSTRIAL PROPERTY OF ARGENTINA



WORLD INTELLECTUAL
PROPERTY ORGANIZATION



NATIONAL DIRECTORATE
OF COPYRIGHT
MINISTRY OF JUSTICE AND
HUMAN RIGHTS OF ARGENTINA

REGIONAL MEETING OF DIRECTORS OF INDUSTRIAL PROPERTY OFFICES AND COPYRIGHT OFFICES OF LATIN AMERICA

organized by
the World Intellectual Property Organization (WIPO)
in cooperation with
the National Institute of Industrial Property of Argentina (INPI)
and
the National Directorate of Copyright
of the Ministry of Justice and Human Rights of Argentina

Buenos Aires, May 30 to June 2, 2006

**LATIN AMERICA. OPPORTUNITIES AND CHALLENGES
FOR TECHNOLOGICAL INNOVATION**

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Challenges and Opportunities for Innovation in LAC


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Regional meeting of Latin American Industrial
Property and Copyright offices

Buenos Aires 30 May – 2 June 2006

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Outline

- Growth in LAC
- Where do LAC Countries Stand?
- 9 Challenges + 1
- IPR-Related Policy Challenges
- IDB's Evolving Role Supporting STI in LAC

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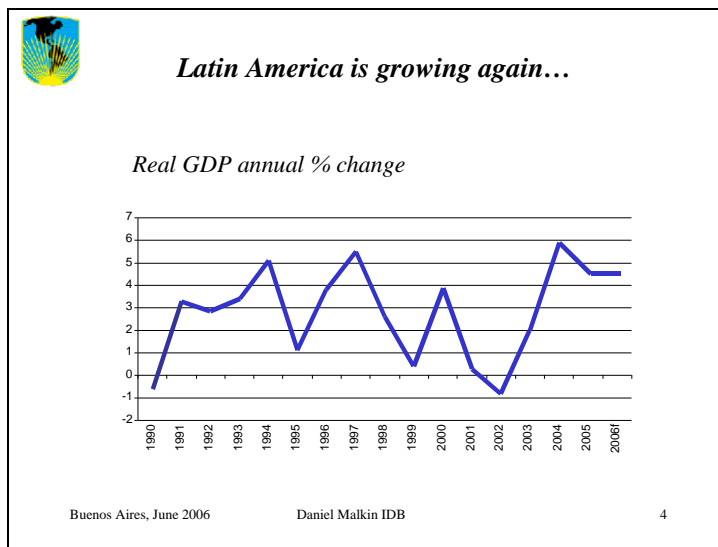
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- **LAC Growth Performance: Fair
but Fragile**

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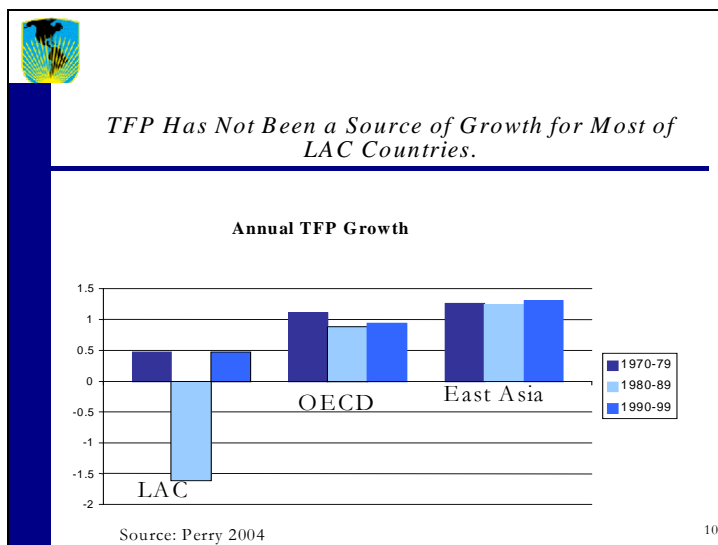
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Most of LAC countries currently enjoy a fair growth performance, mainly based on high demand for natural resources and/or low labor costs in manufacturing


- However, increased competition on domestic and international markets from other developing areas such as South-Eastern Asia and China in wide spectrum of mfg and service sectors
- Major challenge for LAC
 - Increase productivity and labor unit costs
 - Increase technological inputs to growth

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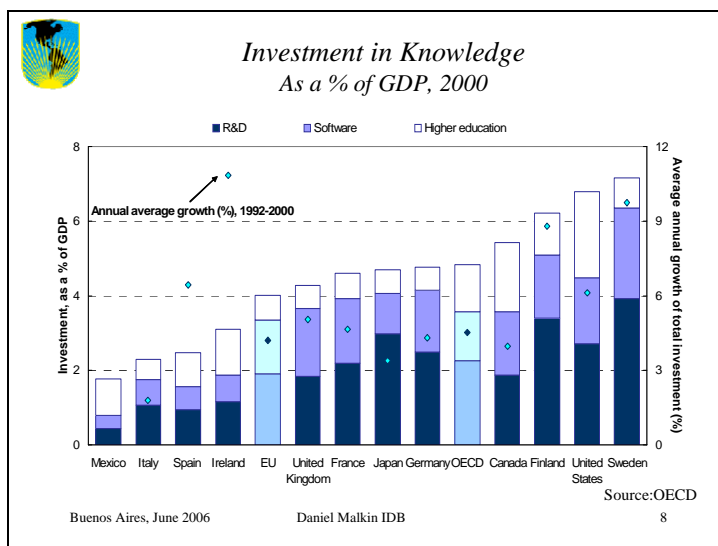


The growing role of intangible investment in wealth creation and development


- In developed countries more than half of total investment is devoted to intangibles: Education, R&D, software, design, organisation, logistics, marketing etc...
- Innovation has become the key driver of sustainable development
- Technology (and knowledge) are becoming increasingly commoditised
- Intangible assets (IPRs) represent the major share of stock market value (estimated at around two third in the US)
- IPRs play a crucial role in the creation of new S&T based firms

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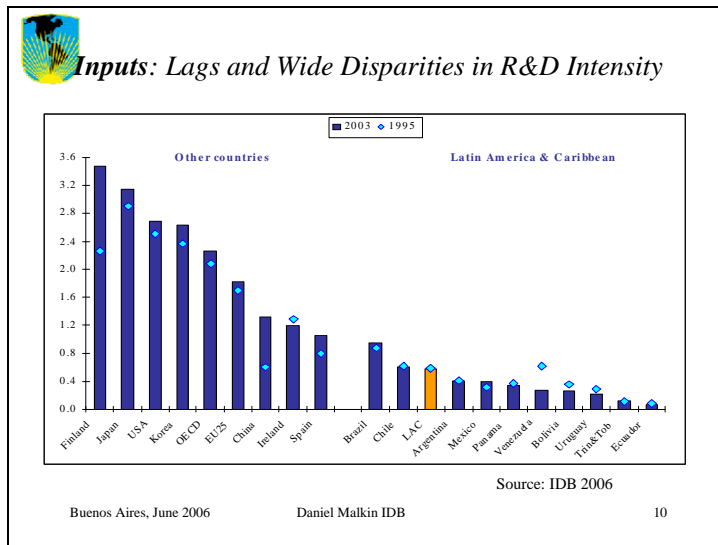
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• Where do LAC Countries Stand?

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Structure affects innovation accumulation,...

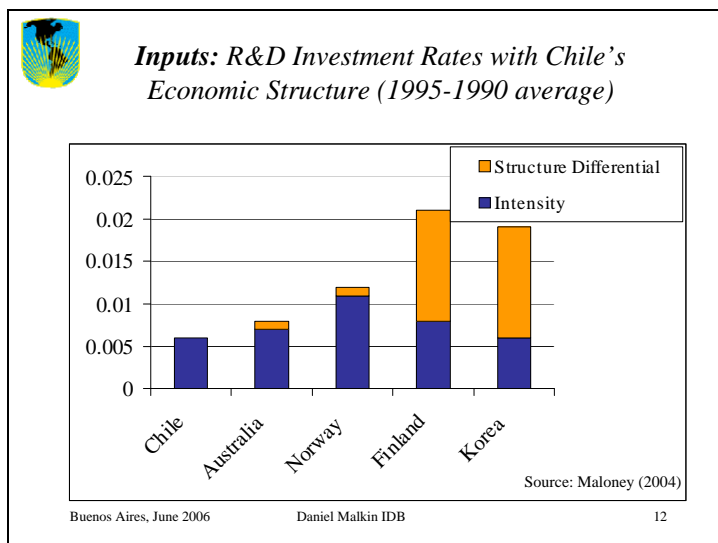
Chile's existing structure permits more investment in innovation measured as R&D than is presently the case. Some countries, Australia, Norway, would reach roughly 90% of their observed aggregate investment rates (0.08% and 0.012%), even with Chile's industrial structure. This suggests that a part of Chile's low performance arises from low investments in the sectors in which it presently has a comparative advantage.

...But it is not the Whole Story

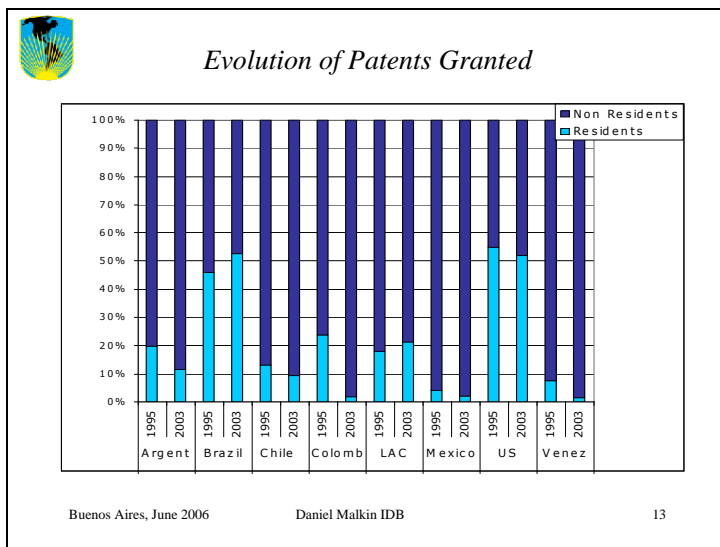
In high intensity countries (Finland, Korea) aggregate R&D investment in Finland and Korea would fall by two-thirds were these countries to have Chile's economic structure.

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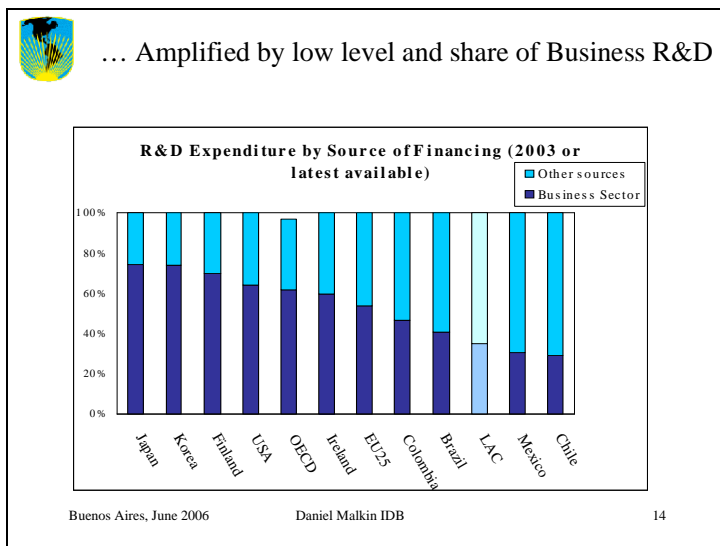
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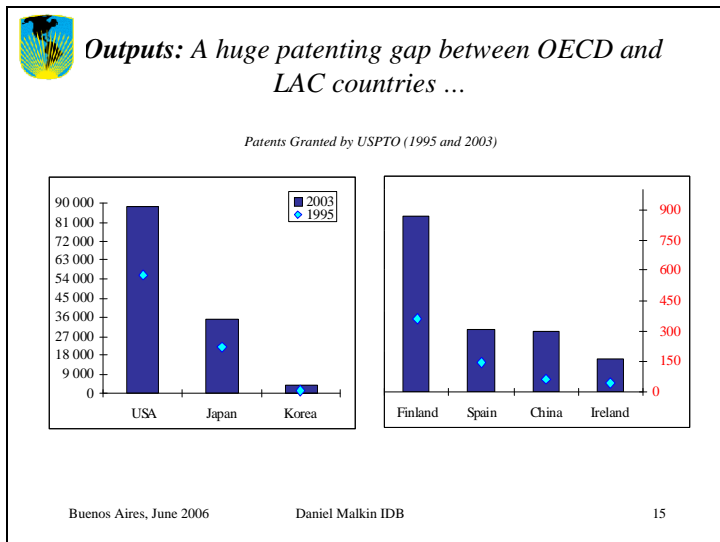
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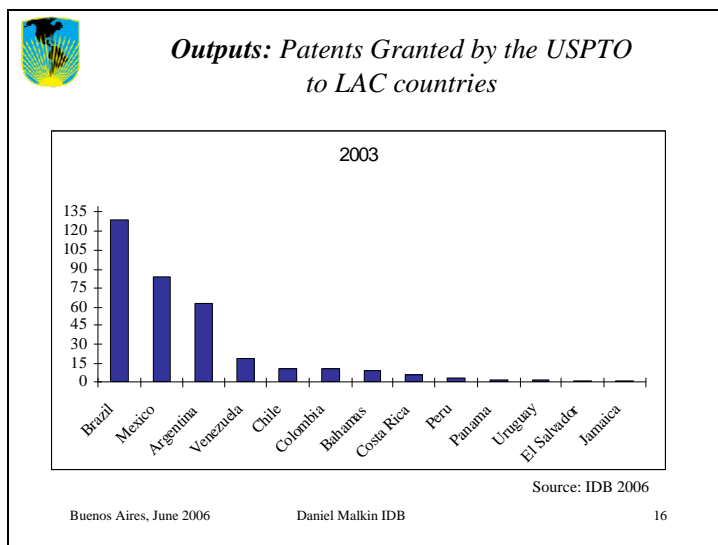
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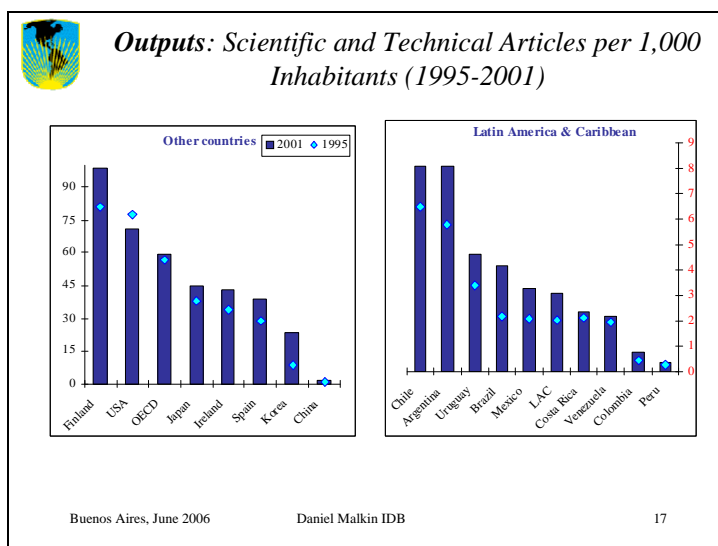
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National Innovation Systems

- Fragmented and/or incomplete (Diversity)
- Supply vs Demand
 - There has been more emphasis on the supply side, mainly through PRIs
 - Technology diffusion and labor force skills
 - Absorption
 - Lack of “innovation culture” in firms (Structure)
- Low articulation between public and private sector
- Framework conditions
 - Need to mainstream Innovation Policy, move it to the top of the agenda.
 - Need to look at framework conditions: Competition, labor markets, regulation, financial markets, **IPRs**

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- **Nine Challenges + 1**

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- Strengthen NIS (BR, AR, CH, ME) or develop tech infrastructure and absorption capacity (lesser developed countries)
- Improve supply and demand articulation
- Take advantage of globalization: Increase international linkages among technological institutions. Attracting FDI.

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Challenges (cont.)

- **Governance of NIS:**
 - Include all relevant stakeholders.
 - Priority setting
 - Foster relationships
 - Allocation of resources to PRIs.
- **PRIs**
 - Greater institutional autonomy public institution (Japan)
 - Balance between institutional funding and project-based competitive funding (UK)
 - Increase share of funding to HE sector
 - Co-operation with industry on long-term research
 - Develop evaluation mechanisms with implications for funding (e.g.UK, Australia, Japan, New-Zealand)

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Challenges (Cont.)

- **Adapt / Streamline support programs**
 - PPPs (OECD; Brazil; Chile)
 - Tax incentives, Public procurement
 - SMEs, Clusters
 - Tech. infrastructure
- **HRST**
 - Engineering; Mobility
- **Information systems and evaluation culture**
- **Regional cooperation**
 - Knowledge infrastructure; S&T for social needs

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Challenges (Cont.)

- **Sustained political commitment**

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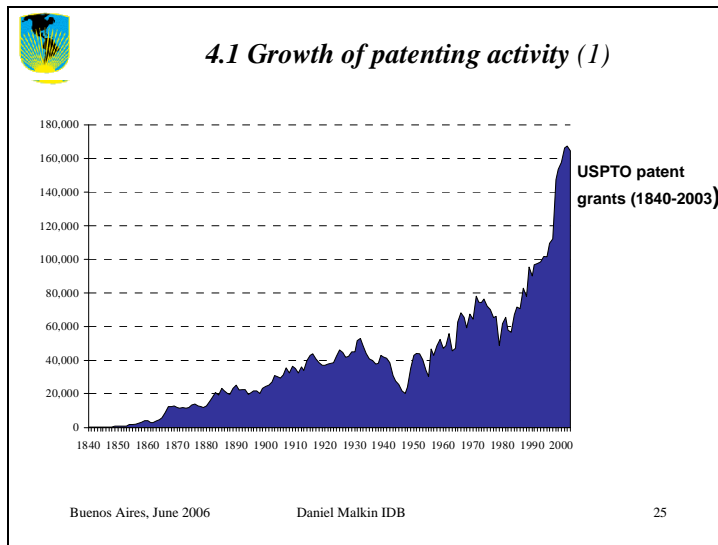
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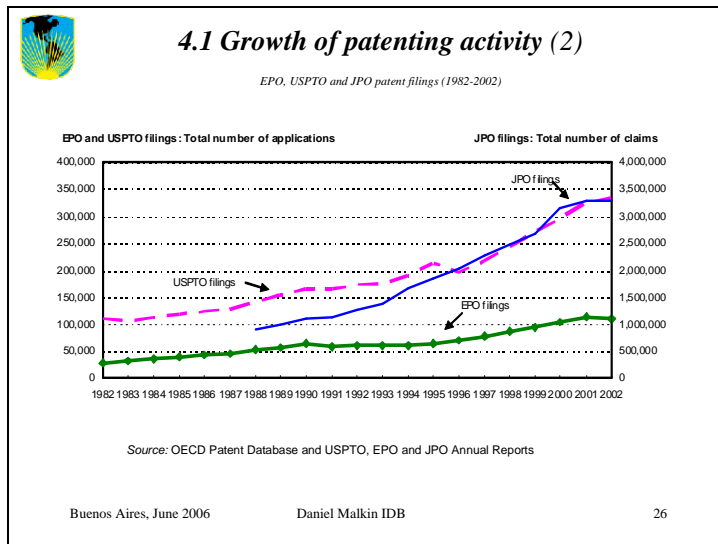
IPR-Related Policy Challenges

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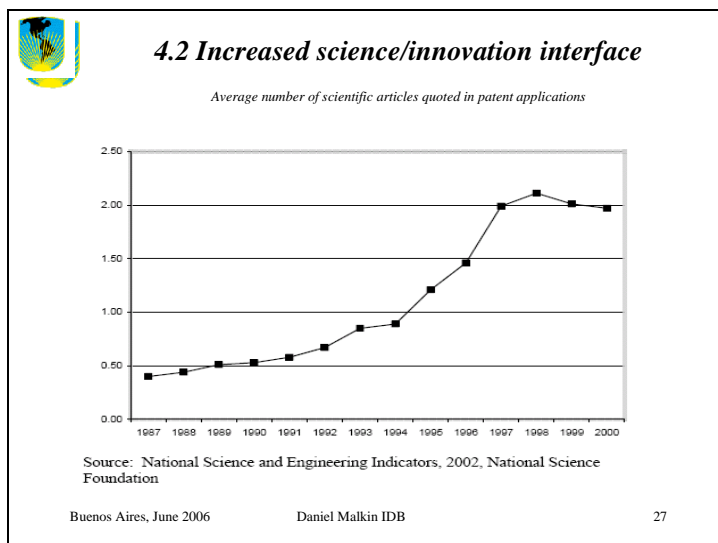
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4.3 Patents: Innovation, Competition and Technology Diffusion

- Patent regimes matter: Trade off between positive and negative effects on innovation and diffusion depend on features of patent regimes (and levels of development)
 - Patent requirement (degree of inventiveness)
 - Patent subject matter (what is patentable)
 - Patent breadth (coverage and anti-competitive strategic behaviour)
 - Patent costs (SMEs)
 - Infringement and enforcement procedures

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4.4 IPRs in Public Research Organisations (1)

- **Main rationale:** Foster commercial exploitation of government-funded research and increase social and economic benefits of public research; facilitate industry/PRO collaboration
- Landmark US Bayh-Dole Act (1980) granting recipients of federal R&D funds to patent and license inventions, transferring rights to PROs
- Many countries have followed suit with variation on ownership regimes (most OECD, China, Chile, etc...)
- PRO IPR regime/management affect efficiency of patenting
 - **Professor vs institution ownership of rights (move towards instit)**
 - **Establishment of institution vs autonomous TTO/TLO**
 - **Exclusive vs non-exclusive licensing**
 - **Research statute: Right to create (have a stake in) a spin-off firm**

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4.4 IPRs in Public Research Organisations (2)

- **Facts**
 - Rapid growth of PRO patenting, mainly universities (more than 33,000 patents granted to US universities since 1993; more than 3,500 in 2004)
 - But only a small percentage (circa 10%) give rise to licensing and commercial applications
 - Only a few patents generate the overwhelming share of revenues
- **Challenges**
 - Impact of direction of research (fundamental vs applied)
 - Scope of patenting (research tools)
 - Access to public knowledge and data (time of disclosure)
 - Research exemptions (variation across countries)

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4.5 Patents and transfers of technology (1)
Under weak IPR regimes in early stages of technological development

- Licensing agreement and reverse engineering
- Patent infringement and piracy !!
- **Foreign direct investment**
 - Strong protection and enforcement has a positive impact on FDI flows (although there is evidence that tech transfer is higher with host country affiliates)
 - Large flows of FDI can nevertheless co-exist with weak enforcement because of market size (e.g. China)
 - High tech FDI may be limited by scarcity of skills
- **Licensing**
 - Facilitated by adequate IPR protection regime and enforcement
 - Conditioned by existence of domestic technological capacity and spurred by technological complementarity.

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4.5 Patents and transfers of technology (2)
But possible adverse effects of strengthening patent regimes

- Higher costs of basic products (pharmaceuticals)
- Anti-competitive behaviour (refusal to license)
- Local closures of domestic firms liable of infringement
- Absorption of local firms by global ones and foreign appropriation of local knowledge
- Restriction to diffusion of “public knowledge” (e.g. research tools)
- Limited domestic expertise in IPR management

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• **IDB’s Role Supporting STI Activities in LAC**

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S&T Lending at IDB 1962-2006

S&T Loans: about \$2.2 B


59 projects

17 countries

S&T and related investments (higher education & training; agricultural research,) together, about \$4 B

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IDB S&T Lending by Objective

1961-1987	Capacity Development	<ul style="list-style-type: none"> ▪ Human & Physical Infrastructure (Universities) ▪ Science funding agencies ▪ Laboratories & research institutions (esp. agriculture)
1988-1998	Institutional Strengthening	<ul style="list-style-type: none"> ▪ Technology, partnerships, applied research
1998- ff:	Innovation Systems	<ul style="list-style-type: none"> ▪ Technology devt (infrastructure and diffusion) ▪ Private Sector support (SMEs and clusters) ▪ Financial mkts ▪ Information Technology

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Country Trends in Borrowing

1962-1992


- The most active S&T borrowers: Argentina, Brazil, Mexico, Colombia, Chile and Venezuela;
- 37 projects, 75% of all IDB S&T approved loans
- US\$ 0.8 B, 90 % of total value of all S&T loans

1993-2006

- 19 Loan projects (14 under execution)
- US\$ 1.4 billion
- Increase in small country borrowing: e.g.: EC, PN, GU, NI, JA, DR, PR.

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New initiatives

- **New EST department**
 - Increased emphasis on assessment driven-operations and NIS/tech. infrastructure strengthening
 - Mainstream innovation in country strategies
 - Increased TC means
- **Regional Policy Dialogue**
 - Focus on regional policy priorities and exchange of best practices
- **Regional cooperation projects**
 - IPR harmonization ?

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Gracias

danielma@iadb.org

IDB (2006). Education, Science and Technology: A Statistical Compendium of Indicators

<http://www.iadb.org/publications>

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