Intellectual Property and Innovation:
An Assessment of 10 Brazilian Institutions

PROSPECTIVA
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Introduction

Brazil has some of the most important elements for a new innovation boom...

- but still lack a “market oriented” dynamic (entrepreneurship and international strategy)
- and a better regulatory and institutional framework (IP procedures, high taxes for companies that outsource portions of their development programs)

There is a rare consensus in society that innovation is key for development

Introduction

Brazil has some of the most important elements for a new innovation boom...

- Local scientific base (10 thousand new PhDs a year, scientific production grows six times more than world average)
- Installed industrial capacity
- Market dimension and dynamism
- Several public institutions focus on research and innovation
- Purchasing power of the state
- IT and telecom infrastructure
- Multinational companies in the country for decades (emerging Brazilian multinationals)
- Biodiversity
- Macroeconomic stability

Introduction

…and significant progress has been made in the past decade to further improve Brazil's competitiveness.

- Passage of Law 9,279 in 1996 (industrial property law)
- Industrial, Technological and Foreign Trade Policy initiative (March 2004)
  - Creation of ABDI (coordination of government-private sector innovation efforts and internal policies)
  - Special innovation-driven credit lines by BNDES
  - Increase in Finep's budget from $216 million to $1.64 billion
  - Modernization of the patent office (INPI)
- Innovation Law (2004 - framework for public-private R&D partnerships)
- Good Law (2005 - tax benefits for companies that invest in R&D activities)
- Productive Development Policy (April 2008 – broadens industry scope of PITCE)

Introduction

The government is committed to advance Brazil's innovative potential...

- Increase investments in innovation from 1.02% to 2% of GDP (OEDC level)
- Companies expenditures with R&D equivalent to 0.65% of GDP
- World leadership (by companies and/or segments) in aerospace industry, mining, steel, paper and pulp, petrochemical and meats
- Building competitiveness in strategic areas: health, energy, ITC, defense, nanotechnology and biotechnology

…and more financial resources will be made available for that (2008-2010)

- BRZ 320 ($200) billion from BNDES loans
- BRZ 41 ($25.6) billion in the area of Science and Technology
- BRZ 21.4 ($13.4) billion in tax relief

Objective

To assess the Brazilian innovative process by mapping patents from 10 institutions and companies between 1990 and 2007

Methodology

Institutions selected by their relevance in the economic and social scenario of the country*

- **Universities**
  - Unicamp
  - UFMG
  - USP
- **Public research centers**
  - Embrapa
  - Fiocruz
  - Butantan Institute
- **Domestic companies**
  - Biolab
  - Embraer
  - Natura
  - Petrobras

* Some patents might not have been included for different reasons

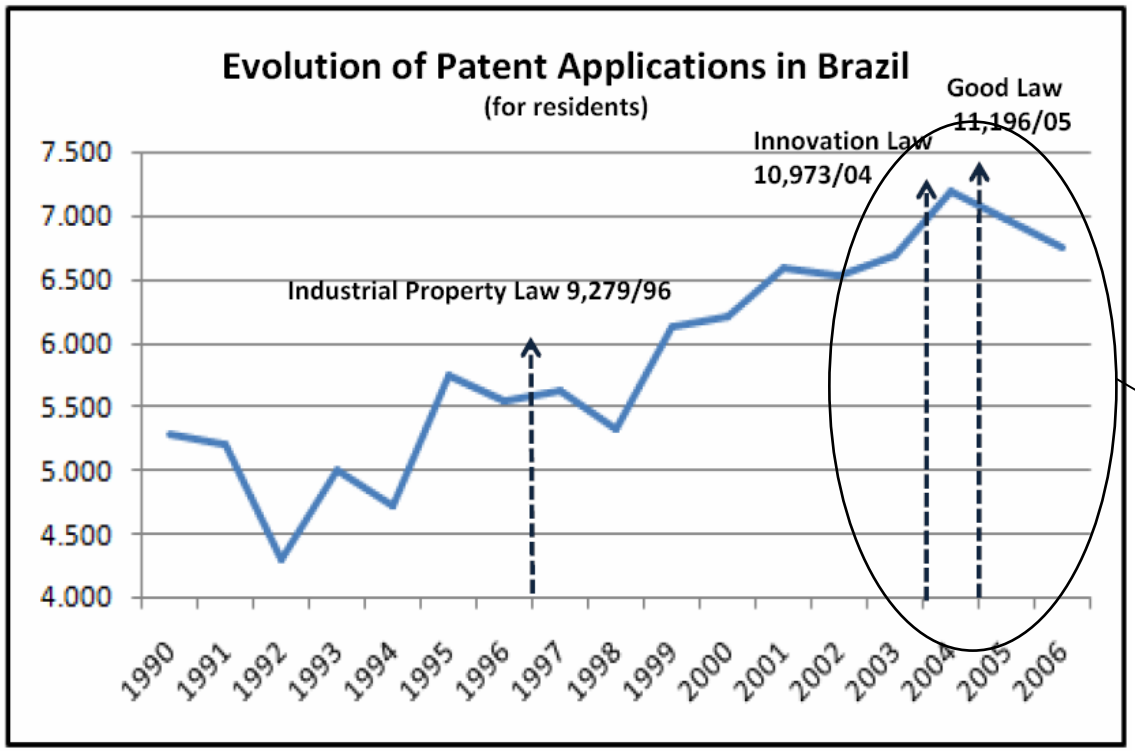
Methodology

Seven of the 10 institutions analyzed are in the ranking of patent deposits at INPI (between 1999 and 2006)

Institution/ Company	Applications		Utility Model	Qty of Grant
	Qty	The First		
Petrobras	774	1976	4	268
UNICAMP	550	1989	15	48
USP	409	1982	20	77
UFMG	368	1995	19	15
Embrapa	264	1989	30	29
Fiocruz	198	1998	4	64
Natura	128	1986	7	17
Butantan	34	1996	-	-
Biolab	23	2001	-	-
Embraer	20	2003	-	-
Total	2.768	1976	99	518

Source: INPI (2006 data are preliminary)

Total Patent Applications in Brazil (1990-2006)



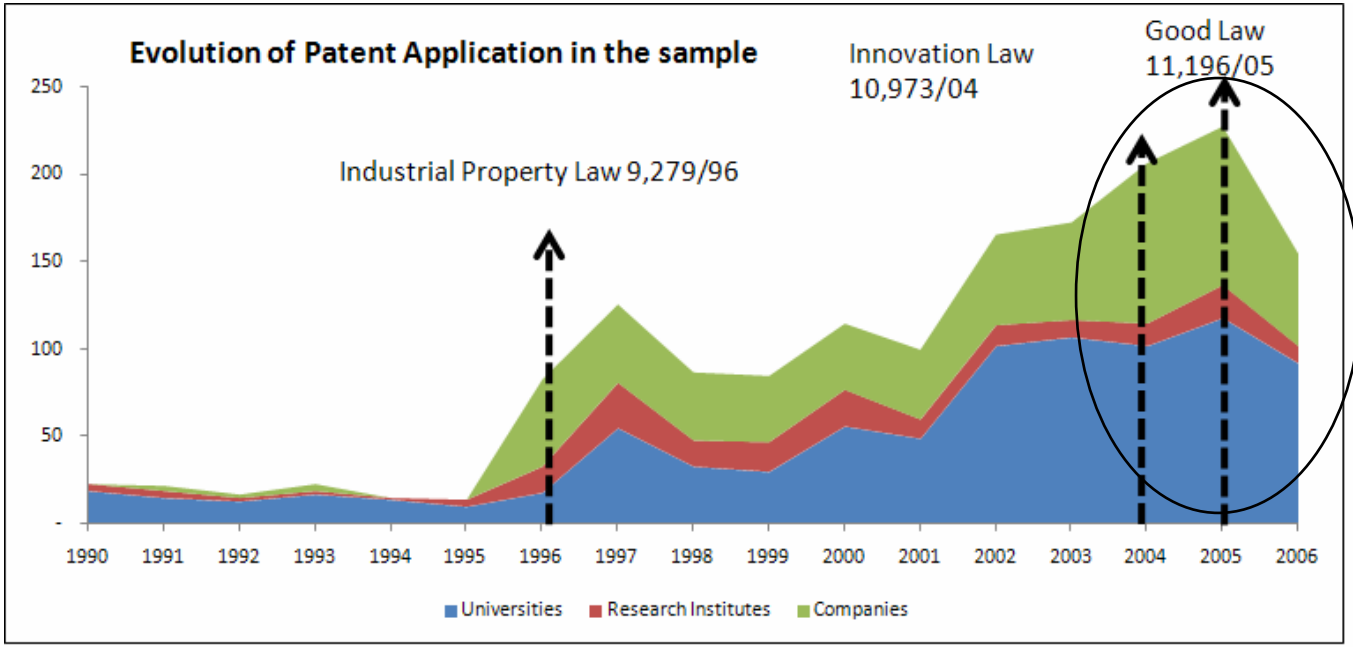
Source: INPI (2006 data are preliminary)

7% fall in the number of patents filed after 2005

Source: INPI (2006 data are preliminary)

The study shows an important correlation between the approval of the IP Law and the increase in the number of patents filings

Composition of Domestic Deposits in the Sample

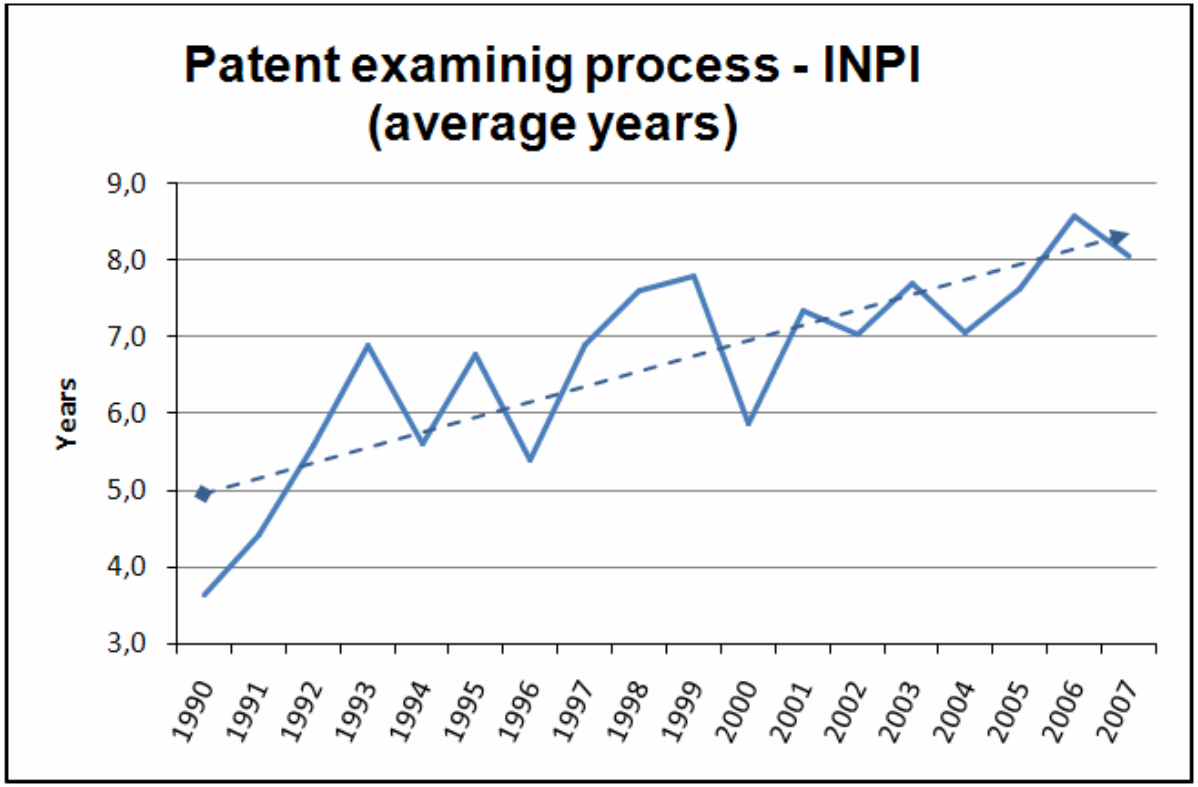


30% fall in the number of patents filed after 2005

Source: INPI (2006 data are preliminary)

Up to 1995 patents filed almost exclusively by universities.
After that increase in the share of companies and research institutes

Average Time for Patent Granting in the Sample



Source: INPI (2006 data are preliminary)

Average time for patent granting at INPI: 7.2 years (increase trend).
Average at international patent offices: 2.4 years

General Analysis

Patents filed at INPI and International Offices (1990-2006)

Global Analysis

	Annual Average of Applications		
	Domestic	International	Total
A – until 1996	28,1	11,3	39,4
B - after 1997	144,2	71,5	215,7
B/A	5,1	6,3	5,5

Source: INPI (2006 data are preliminary)

- International fillings: 6.3 times
- Domestic filings: 5.1

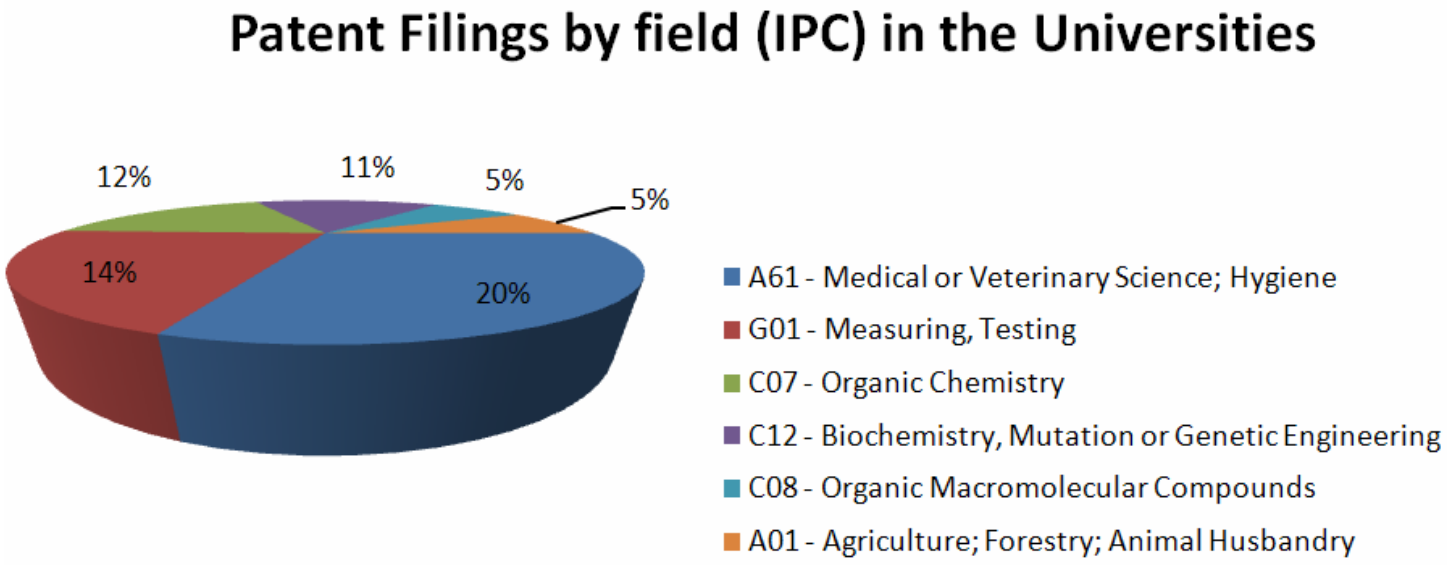
By Institution

	Quantity of Applications			
	Domestic	International	Total	% International
Fiocruz	49	120	169	71%
Butantan	16	16	32	50%
USP	167	152	319	48%
Embrapa	121	108	229	47%
Embraer	4	3	7	43%
Biolab	12	8	20	40%
Natura	74	38	112	34%
Petrobras	513	219	732	30%
UFMG	230	92	322	29%
UNICAMP	453	38	491	8%
TOTAL	1.796	972	2.768	35%

Source: INPI (2006 data are preliminary)

Motivation for R&D activities in the sample might be to reach international markets

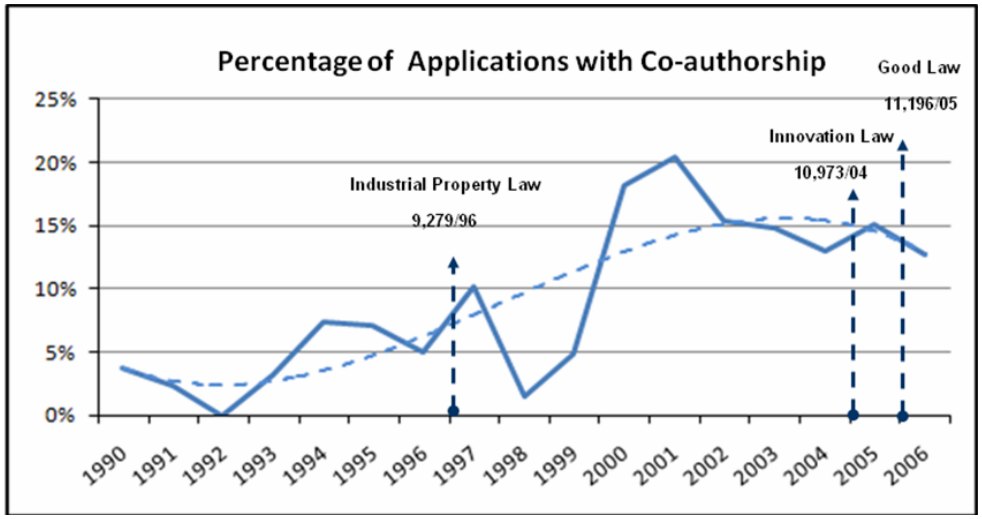
Areas of Concentration



Source: INPI
Elaboration: Prospectiva

68% of the university deposits from 1990 to 2006 were in the areas of health, pharmaceutical or food

Evolution in the number of patents in partnership



Source: INPI (2006 data are preliminary)

Partnerships by institution

	Total of Applications	Co-authorship Frequency
Biolab	20	74%
USP	322	23%
Embrapa	229	22%
UNICAMP	491	21%
UFMG	319	15%
Embraer	7	10%
Butantan	32	3%
Petrobras	732	0%
Fiocruz	169	0%
Natura	112	0%
TOTAL	1.796	9 %

Source: INPI (2006 data are preliminary)

Increase in the patent deposits in partnerships in the sample (from 8% in 1997 to around 15% after that). Asymmetrical trend.

Conclusions

Increase in the number of patents filings domestically and internationally between 1999 and 2005: signals of a new approach by Brazil to innovation

- IP Law (1997)
- Growing awareness about importance of patenting
- Increase of financial sources for R&D
- Increase in the number of researchers

Reduction of domestic patent filings after 2006!? (not internationally)

- Disenchantment with patent processes with backlog at INPI
- Lost of credibility of the process because of contradictory positions on the topic by the Brazilian government (international agenda)