Os incentivos fiscais no contexto das políticas de inovação no Brasil

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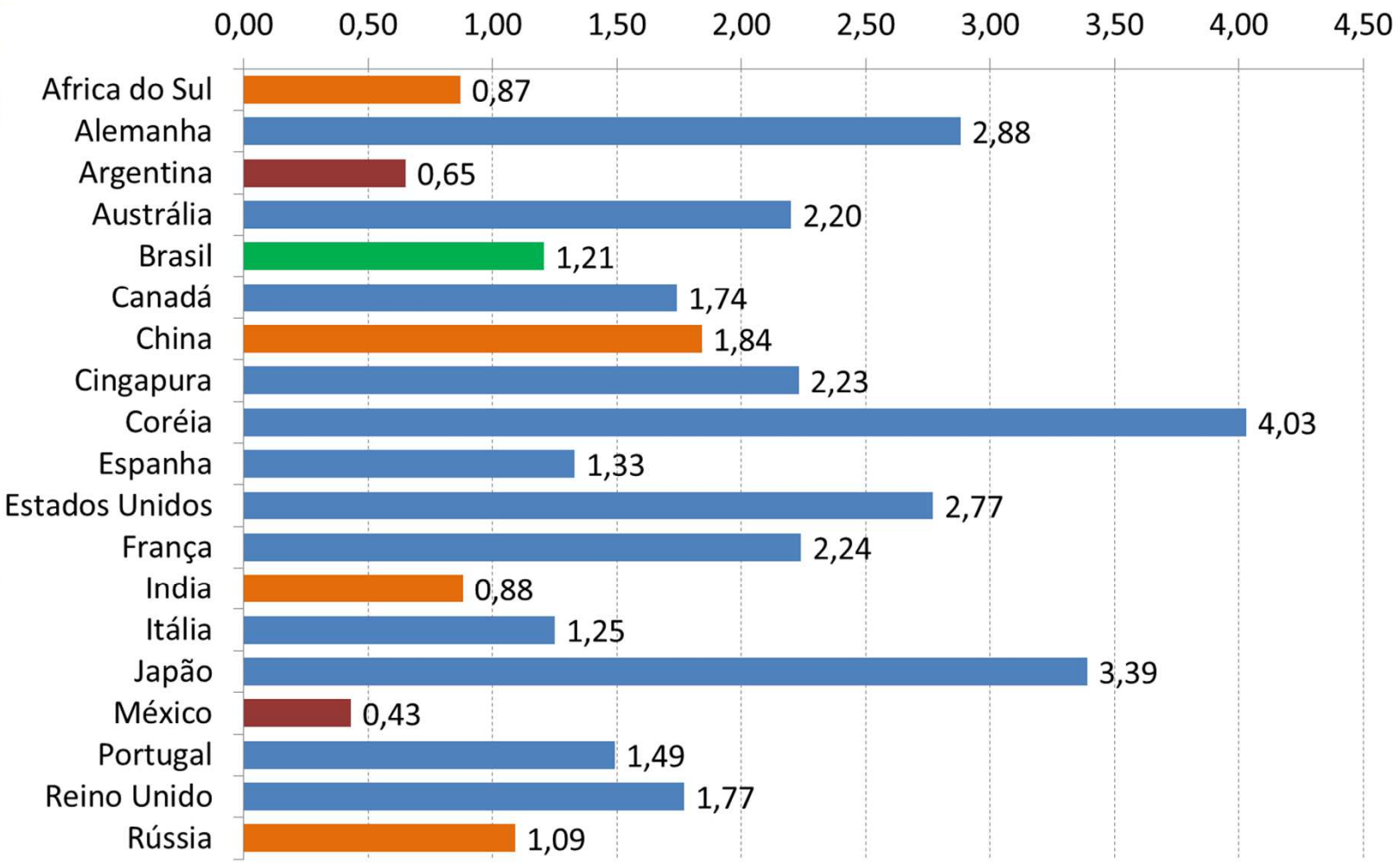
PERFORMANCE BRASILEIRA EM C&T

R&D expenditures/GDP, selected countries, last available year

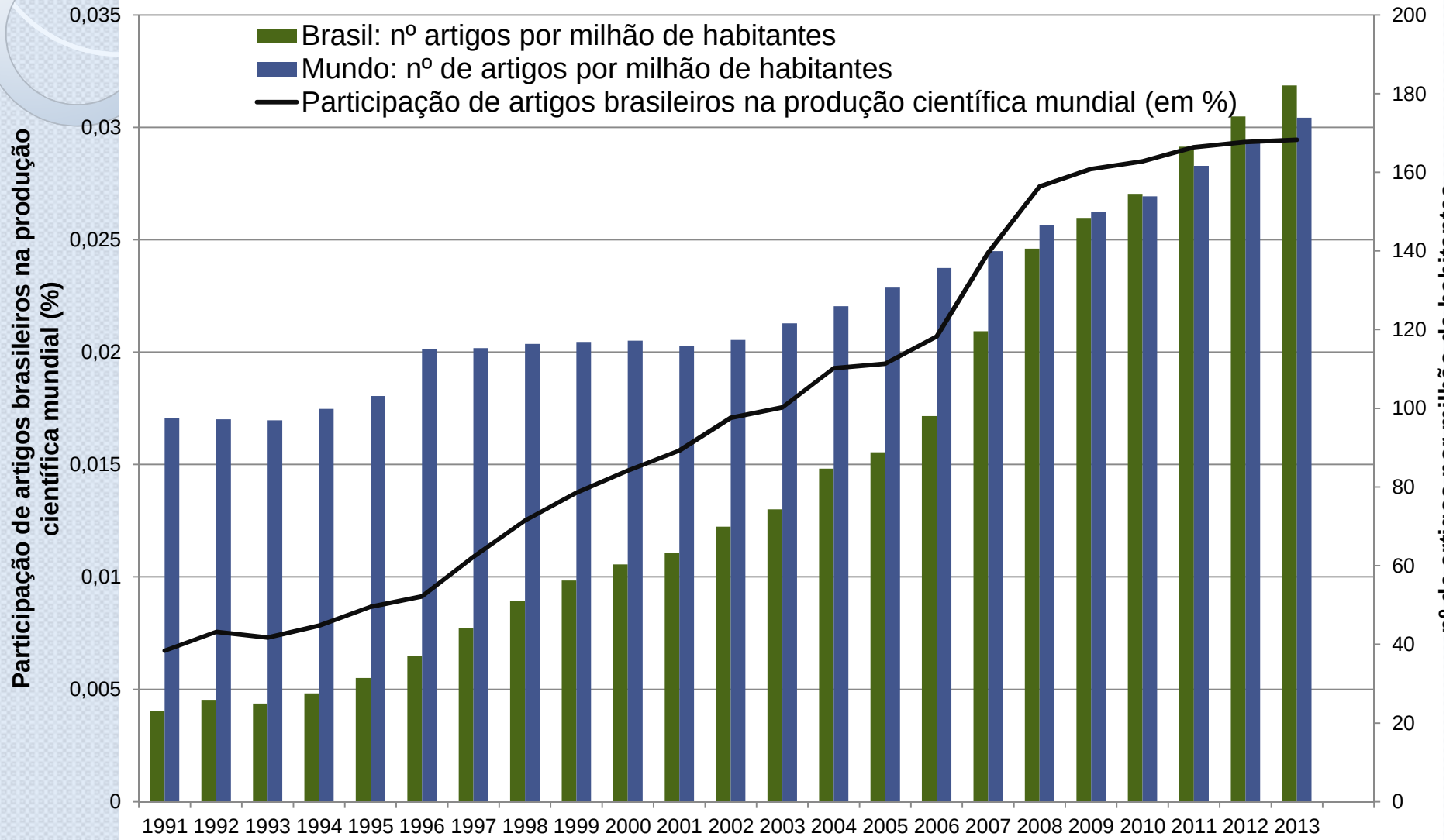


Sources: OECD / Brazilian Ministry of Science , Technology and Innovation / Industrial R&D in India: Broad Indications

Business R&D expenditures/GDP

	2005	2008	2011
Brazil	0.49%	0.56%	0.54%
United States	1.73%	1.97%	1.83%
Euro zone (17 countries)	1.16%	1.24%	1.34%
Spain	0.60%	0.74%	0.71%
China	0.91%	1.08%	1.39%

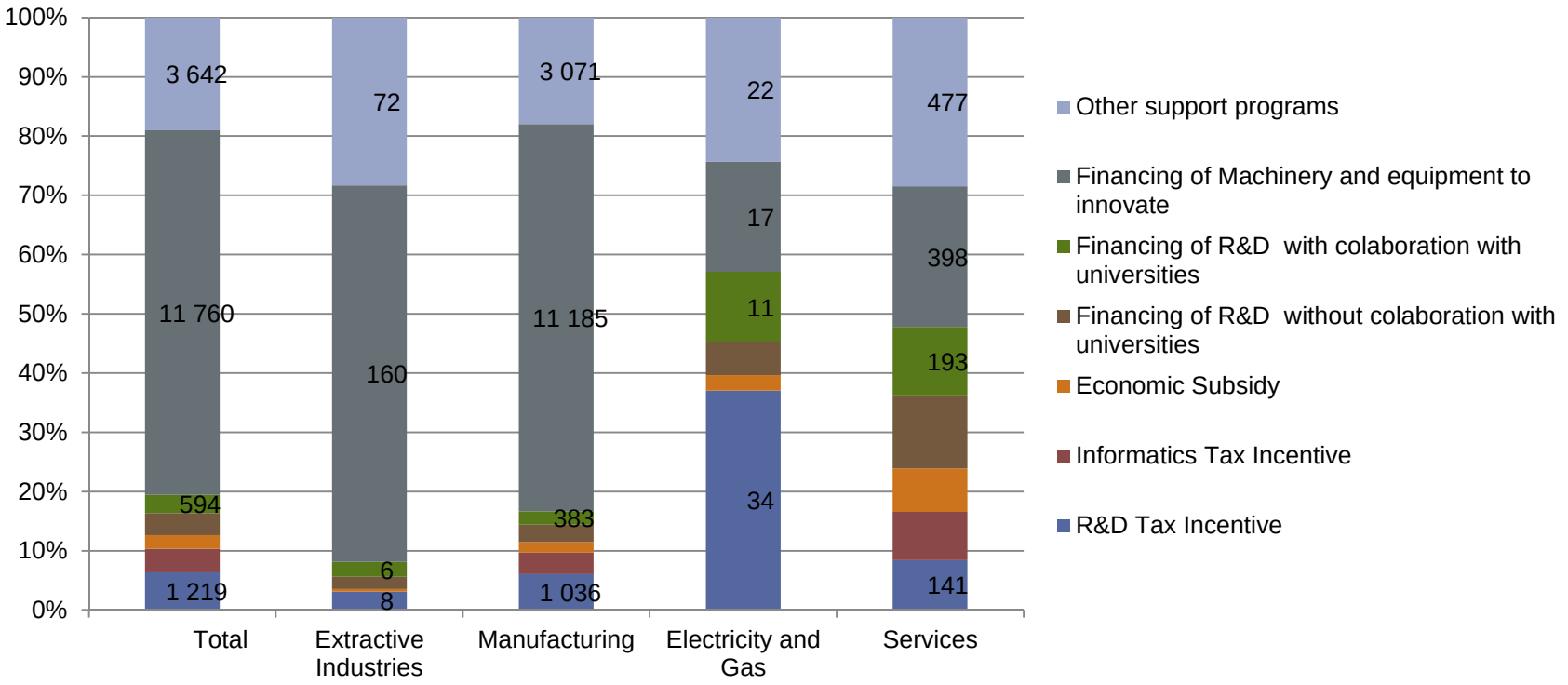
Scientific production in Brazil: indexed papers per million inhabitants



POLÍTICAS DE INOVAÇÃO: O QUE FIZEMOS?

Public support for innovation

- The percentage of firms that have declared getting governmental support to innovate increased from 19% in 2003 to 34% in 2011
- Most of public support (75%) is related to machinery financing programs
- The percentage of firms benefited from specific innovation instruments increased from 4,6% to 8,6% of innovative firms between 2003 and 2011



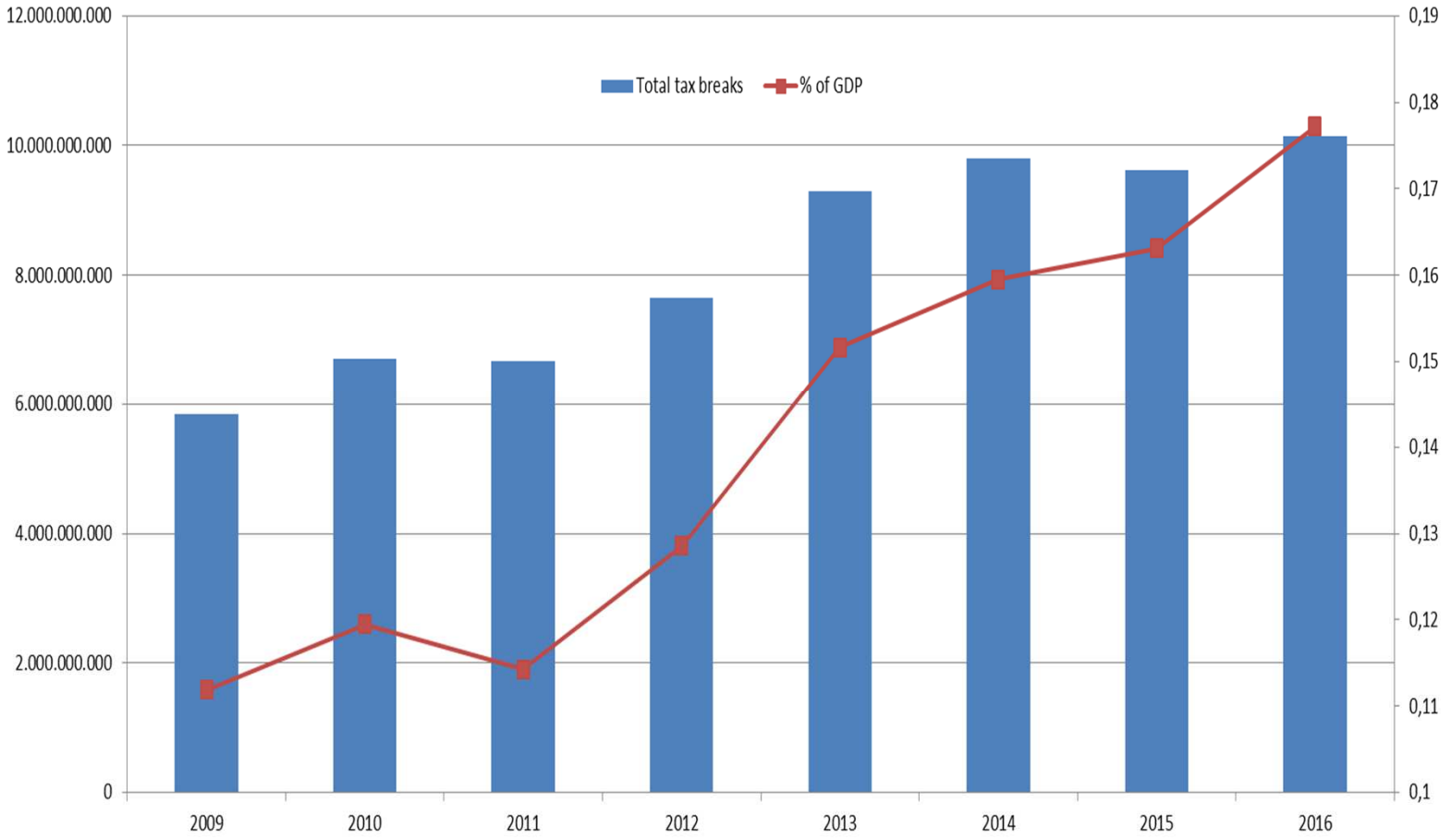
Main innovation policies in Brazil

Innovation and S&T policies and instruments (main sources of funding to S&T in Brazil)		Values in 2013 current Reais (thousands)
Tax Breaks	Informatics' Law (Laws nº 8.248/1991, nº 10.176/2001 and n° Lei 11.077/04)	4,934,898.6
	Business RD&I expenditures (Law nº 11,196/2005)	1,636,850.9
	Business S&T expenditures (Law n° 4.506/64 and Decree n° 756/69)	1,180,623.1
	RD&I in automotive sector (Law n° 12.715/12 and Decree n° 7.819/12)	852,539.4
	Other tax breaks	697,186.4
	TOTAL (tax breaks)	9,302,098.3
Subsidized credit for innovation (disbursements)	Total volume operated by FINEP	2,521,000.0
	Total volume operated by BNDES#	3,300,000.0
	TOTAL	5,821,000,0
S&T Public Investment	Central government (Federal) investments (excluding post grad expenditures)	23,176.100.0
	Subnational (State) investments (excluding post grad expenditures)	7,371,100.0
	TOTAL (excluding post grad expenditures)	30,547,200.0
	TOTAL public S&T investment (including post grad expenditures)	47,904,400.0
Counterpart in R&D by companies in regulated sectors (private compulsory investment)	Electricity Regulatory Agency (ANEEL) R&D program (approximate values)	344,666.6*
	The National Petroleum Agency (ANP) R&D program	1,259,866.9
	TOTAL	1,604,533.5

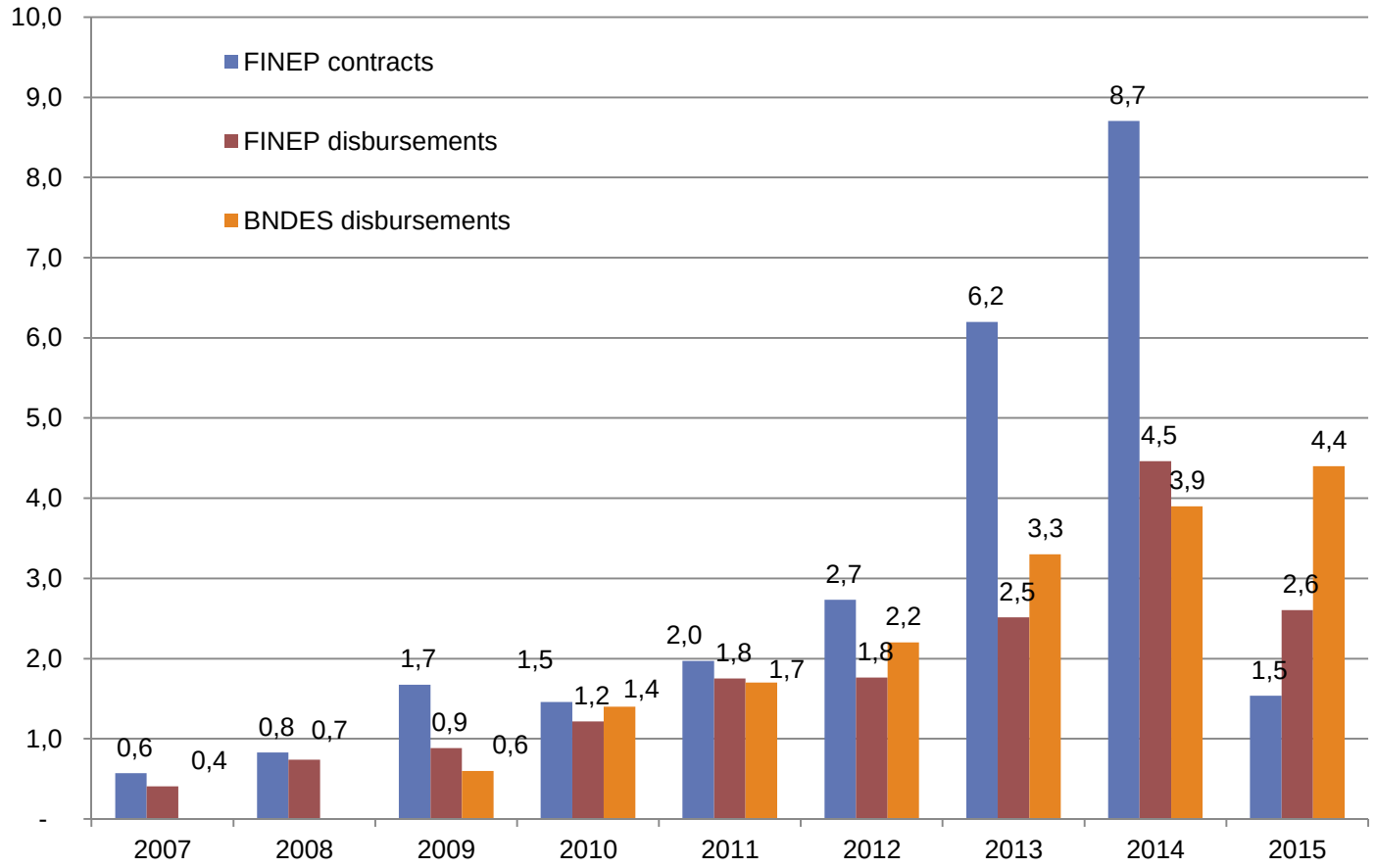
Incentivos fiscais para inovação

	2013	2014#	2015#	2016#
Informatics' Law	4,934,898,642	5,207,255,217	5,020,550,362	5,333,624,307
Business RD&I expenditures (LEI DO BEM)	1,636,850,880	1,742,243,034	1,826,446,366	1,924,991,682
Business S&T expenditures	1,180,623,055	1,256,654,535	1,317,415,079	1,390,657,671
RD&I in automotive sector	852,539,355	829,784,444	646,081,930	646,806,380
Importation for non-profit R&D	432,164,684	476,399,396	525,463,251	536,496,799
PADIS	125,204,913	132,013,998	136,834,279	144,446,270
Scientific nonprofit organization	102,896,780	109,523,276	114,818,840	121,202,272
Training in ICT	35,527,668	37,815,631	39,644,056	41,848,094
PATVD	1,018,176	1,083,746	1,136,146	1,199,311
Importation for profit R&D	374,137	437,830	458,999	484,518
Total	9,302,098,290	9,793,211,107	9,628,849,308	10,141,757,304

Tax breaks to innovation: 2009 to 2016 (R$ bi and % of GDP)



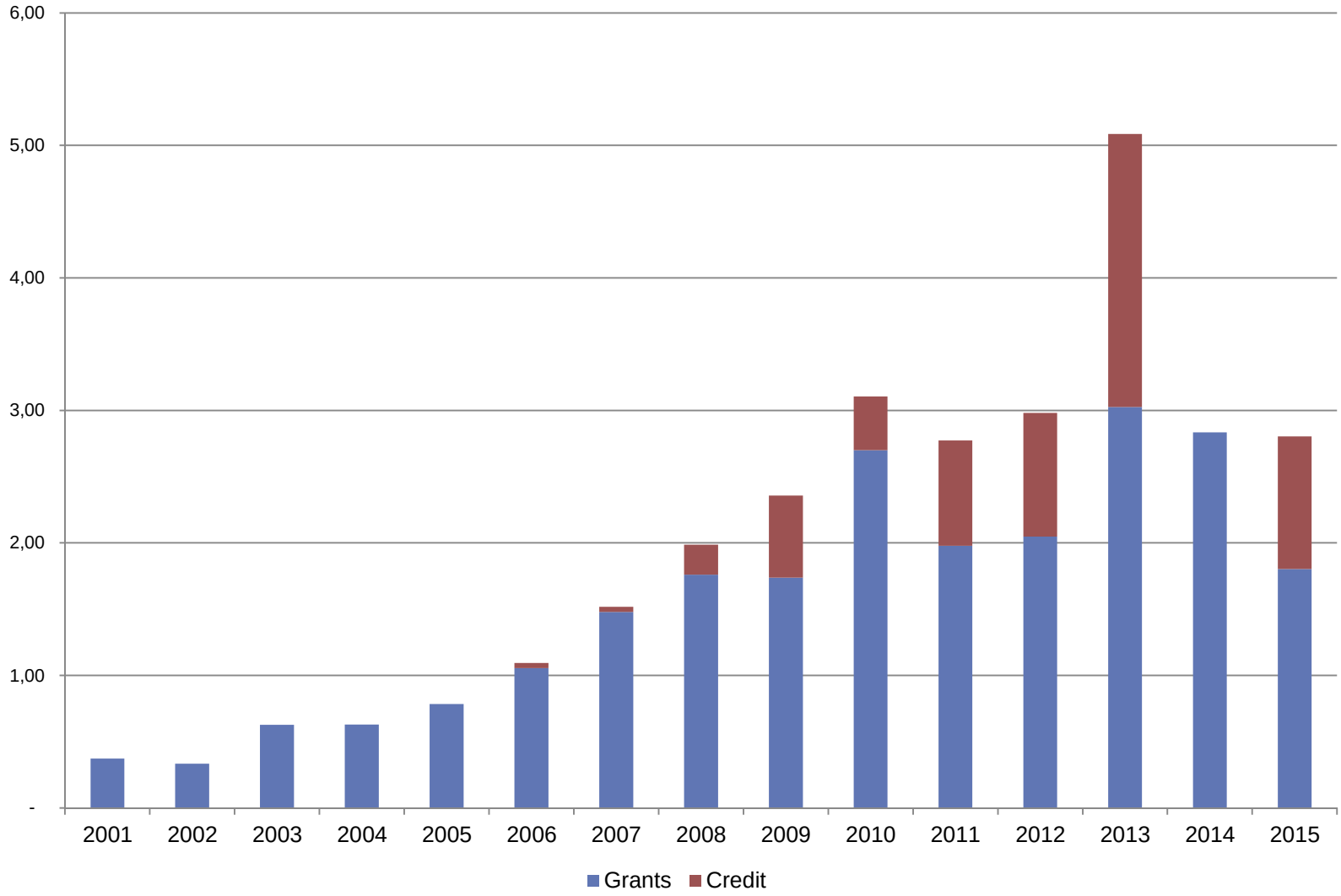
Credit for innovation: 2007-2014 (R$ bi)



S&T Federal Investment – 2015

MINISTRIES	R$ MILLION	%
TOTAL FEDERAL BUDGET TO S&T	24.675,7	100
Ministry of Education (MEC) – mainly CAPES	8.103,1	32,8
Ministry of Science, Technology and Innovation (MCTI)	7.246,7	29,4
Ministry of Agriculture (MAPA) – mainly Embrapa	3.135,5	12,7
Ministry of Health (MS) – mainly Fiocruz	2.273,7	9,2
Ministry of Development, Industry and Foreign Trade (INMETRO and INPI)	1.042,4	4,2
Ministry of Planning (IBGE)	1.237,1	5,0
Others	1.637,1	6,6
MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION – DETAILED BREAKDOWN		
MCTI – TOTAL	7.246,7	100
FNDCT# (Sectoral Funds)	2.803,4	38,7
National Counsel of Technological and Scientific Development (CNPq)	1.914,0	26,4
Headquarters and MCTI research institutions	1.757,0	24,2
Space program (Brazilian Space Agency - AEB)	220,7	3,0
Nuclear program (National Nuclear Energy Commission - CNEN)	551,6	7,6

FNDCT's budget: 2000-12



AVALIAÇÕES DOS INCENTIVOS FISCAIS

Avaliações da Lei de Informática

Author/year	Main objective	Method	Main finding
RIBEIRO, E.; PROCHNIK, V.; DENEGRI, J. (2011).	Impacts on the productivity	Logit model based on input and output differentials	The Program doesn't affects the participants productivity
SALLES FILHO et al. (2012).	Effects on productive and technological density	Qualitative approach with in deep interviews and secondary data	There is no effects on productive and technological density of the ICT national productive chain
KANNEBLEY e PORTO (2012).	Impact assessment of the participation in the program	Quasi-experiment	The participation on the Program causes Crowding out effect in terms of private R&D investment.
PROCHNIK et. al. (2015)	Assessment of the polictical forces behind the maintenence of ICT Law	Political economy analises tools	The main reason behind the ICT law is to create some political balance between firms in the tax free zone of Zona Franca de Manaus and firms in the State of São Paulo

Avaliações da Lei do Bem

Author/year	Main objective	Method	Main findings
ARAÚJO (2010)	Marginal costs of R&D after tax breaks	Descriptive statistics	Favorable tax environment for R&D investments. Brazil is among the most generous countries in this matter.
KANNEBLEY and PORTO (2012)	Impact assessment of the participation in the program	Quasi-experiment	The participation on the Program increases the private R&D investments in 7% to 11%. Crowding in effect.
SHIMADA, KANNEBLEY and DE NEGRI (2014)	Impact assessment of the participation in the program	Panel data	High increases on private R&D investment and on the number of technical personal available
PORTO et al. (2014)	Exploratory study on direct and indirect effects of the	Qualitative approach with in deep interviews	Regular and stable financial availability

PRINCIPAIS DESAFIOS PARA AS POLÍTICAS DE INOVAÇÃO

1.Increase Mission Oriented R&D

Public S&T spending in Brazil is not mission-oriented

MINISTRIES	%
Ministry of Science, Technology and Innovation (MCTI)	36%
Ministry of Education (MEC)	19%
Ministry of Agriculture (MAPA)	13%
Ministry of Health (MS)	11%
Ministry of Development, Industry and Foreign Trade (INMETRO and INPI)	6%
Ministry of Planning (IBGE)	6%

Only 30% of S&T investments are attached to institutions with problem-solving missions

DEPARTAMENTS	%
Department of Defense (DoD)	49%
Department of Health (DHHS)	23%
Departmente of Energy (DOE)	8%
NASA	9%
National Science Foundation (NSF)	4%
Departament of Agriculture (USDA)	2%
Others	5%

More than 90% of S&T investments are mission-oriented

2. Incluir, na lei 8.666 , a possibilidade de aquisição de P&D

Não há uma regulação clara para a aquisição de P&D pelo poder público

- The Brazilian Procurement Law (Lei 8.666) doesn't mention R&D acquisition.
- The law establishes, since 2010, a margin of preference for products produced in Brazil (up to 20%) and for products with Brazilian technology (up to 25%)
- There is no a special part devoted to R&D acquisition as there is in the American Federal Acquisition Regulation.
- The Innovation Law (*20th Article)* prescribes that Brazilian government can hire a company to do R&D to develop new products and process.
- However, this possibility has never been used up to now (difficulties of implementation?)
- The Knowledge Platform Program (launched last year but not implemented) is a good example of using public procurement to foster innovation.

3. Diversificar o Sistema de C&T brasileiro

- The Brazilian S&T institutions are mainly public. It's necessary to allow and facilitate the operation of private research institutions.
- Reinforce different models of institutions, such the so called Social Organizations (OS), that are *Government-owned and privately-operated* institutions.
- Create different ways in which the public sector can foster innovation, besides the existing ones (grants, credit and direct investment in public research institutions): i) R&D acquisition; ii) Venture capital and seed money funds; iii) Cooperation agreements and so on.
- Create different models of public agencies to foster innovation: the recent creation of Embrapii (inspired in the Fraunhofer model) is a good example of institutional diversification. Others examples are necessary.

4. Melhorar o ambiente de negócios para a inovação

- Besides improving general business environment, allowing more competition and entrepreneurship, specific actions are needed:
- Reduce bureaucracy associated with research and development. Examples: biological research; patent application mechanisms…
  - One important improvement was the Biodiversity Law (recently approved).
- Reformulate and update the Innovation Law. Created in 2004, some articles have never been used.
- Facilitate the ways for researchers and professors in public institutions to work for companies.
  - The S&T Code (now in National Congress) adress some of the legal problems.

5. Construir uma economia mais aberta e competitiva

- Brazil is a very closed economy. It's necessary (not sufficient but necessary) to open the economy and to import more technology and knowledge.
- Increase the internationalization of Brazilian Science (the "Science without borders" program is a good iniciative)
- Facilitate imports of research equipments and inputs
- Increase the presence of foreign reserachers in Brazilian Institutions.

6. Investir em big science e em infraestrutura de pesquisa

- Brazil needs scale up it's research infrastructure
- Create new, big and mission oriented research institutions
- The size of Brazilian research laboratories is not enough to make a competitive science.

7. Aprimorar indicadores de acompanhamento e avaliação das políticas

- Maior transparência nas políticas
- Estabelecer processos claros, objetivos e transparentes de análise, seleção e apoio a projetos