

**CONDITIONS FOR INNOVATION IN BRAZIL:
A REVIEW OF KEY ISSUES AND POLICY CHALLENGES****Pluvia Zuniga**

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The aim of this paper is to present some of the main indicators of innovation in Brazilian economy and the main challenges related to achieve higher levels of innovation. The paper also analyzes the policies implemented in recent years to foster innovation in the country and give some policy advices.

Although recent improvements in innovation policies in Brazil, the country has not been able to enhance the development and diffusion of innovation in its economy, as one can see from the indicators presented in the first session of the paper. The Brazilian business sector is not investing as much as peer economies and OECD countries in several critical areas of innovation – including in R&D, other intangible assets, and most importantly, in technology adoption. The benchmarking exercise demonstrates that Brazilian firms are trailing behind peers from other emerging and developed economies in several aspects of innovation. Incentives to innovate by the business sector are affected by weaknesses and deficiencies in the framework conditions dissuading such investments.

There are important constraints discouraging firm innovation in Brazil. On the demand side, weak market competition, lack of information, or insufficient ability to appropriate returns to knowledge accumulation (e.g. deficient intellectual property protection) can dilute firms' incentives to invest in knowledge and lead them instead to stagnate or at best replicate existing forms of production. On the supply side, deficiencies in human capital formation affecting both workers

and managers, lack of mission-oriented policies, and insufficient collaboration and other forms of linkages between private firms and the public sector in the generation and use of knowledge all hinder innovation investment by firms in Brazil.

Over the last decade, Brazil has undertaken a number of actions to reinforce its national innovation capacity, ranging from programmatic funding support, support through broader industrial policies, and additional regulatory reforms. In the early 2000s, a series of public policies were implemented, initially with the sectoral funds (created in 1999), the Innovation Law (Law n. 10,973, of December 2004) and the "Lei do Bem" (Law n. 11,196, of November 2005). However, the results in terms of innovation performance of the business sector have been relatively weak. This conclusion is supported by the evidence of business R&D and investment in intangibles as well as in terms of innovation output proxies such as patents and high technology exports.

This situation suggests opportunities to improve existing policies for innovation to ensure that they are more responsive and cost-effective in light of national needs. Such a strategic shift could begin with more rigorous evaluations of the actual impact of existing policies relative to their costs, and consideration of alternative policies. In addition, we suggest some actions that could improve the development and the diffusion of innovations in Brazil, such as:

- improve framework and regulatory conditions for innovation in Brazil;
- gradual and steady opening of Brazilian economy to improve competition in the domestic market and to facilitate the access and adoption of foreign technology;
- reformulate the Brazilian Procurement Law (Law n. 8,666) to foster R&D and technology services acquisition by public organizations through private suppliers;
- there is a strong need for a long term technological development plan with well-defined priorities;
- Brazil needs to reinforce research capabilities in engineering and applied sciences to boost technological performance;
- expand public support (funding and technical assistance) to firm technology adoption and incremental innovation;
- the public research system (and participating institutions) needs to have a better balance between “mission-oriented” research and curiosity-driven research;
- widening the approach to technology transfer and boosting strategic R&D collaboration through long-run schemes (e.g. consortia and centers of excellence) in strategic areas for Brazil’s economy;
- improving and streamlining legal frameworks to facilitate industry-science collaboration;
- improving policy coordination; and
- improving policy learning, effectiveness, and accountability through the more systematic adoption of public expenditure review and monitoring and evaluation frameworks.

EXECUTIVE SUMMARY