

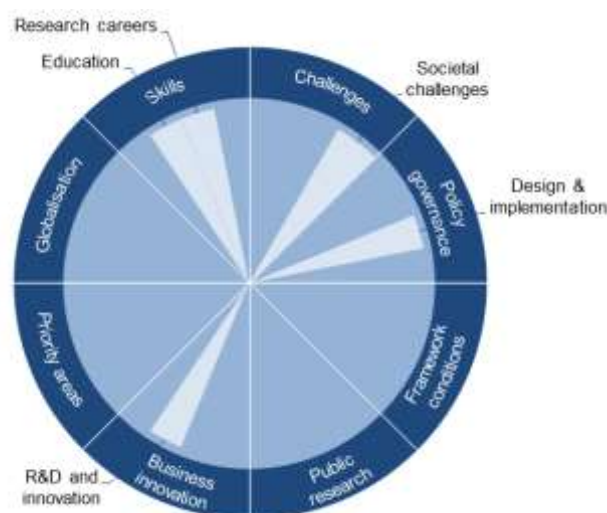
COLOMBIA

Colombia has racked up high economic growth during the past decade and shown resilience during the global financial crisis. The remarkable growth in this period was fed by the oil and mining boom, foreign direct investment in the commodity sector and broad-based investment. This has fostered a process of convergence with OECD economies in terms of gross national income per capita. However, productivity and investment remain low outside the oil and mining sectors, which are suffering from falling commodity prices. Colombia still faces the challenges of boosting productivity growth and diversifying its economy. The barriers to this are numerous and span beyond the areas of research and innovation to include social issues such as informality and social problems. However, the country has also engaged in initiatives to raise the level of educational quality, enhance labour skills, promote investment in R&D and reform a distortive tax system. In this context, the government has included the following STI hot issues in its National Innovation Strategy (2010-14).

Table 1. Gross domestic expenditure on R&D (GERD)

	COL	OECD
GERD		
USD million PPP, 2013	1 362	1 181 495
As a % of total OECD, 2013	0.1	100
GERD intensity and growth		
As a % of GDP, 2013	0.23	2.38
(annual growth rate, 2008-13)	(+3.3)	(+2.3)
GERD publicly financed		
As a % of GDP, 2013	0.10	0.61
(annual growth rate, 2008-13)	(+4.0)	(+2.5)

Figure 1. Major STI policy priorities, 2016





Hot issues

Improving the education system

With regard to education, the Ministry of National Education aims to promote international exchange programmes and accreditations to Colombia's higher education institutions (HEIs). By positioning Colombia's HEIs in an international context, the Ministry is seeking to boost the quality of higher education, promote international knowledge transfers and increase researchers' mobility.

Improving the attractiveness of scientific and research careers

Following the guidelines set out by the national STI strategic plan, several public bodies have prioritised the allocation of resources in regions, sectors and knowledge areas considered strategic for social as well as economic development. In 2012, the Administrative Department of Science, Technology and Innovation (Colciencias) created the Ideas for Change programme to support innovative solutions that address societal and environmental challenges at low cost. In 2012, the programme focused on access to water in remote regions of the country, funding 11 projects for USD 754 000 (COP 948.6 million). The programme is currently focused on the generation of clean and renewable energy in regions that are not connected to the central electrical grid. In addition, in 2012 and 2013 Colciencias issued a call for a dialogue about encouraging the development of research from an intercultural perspective. This should create opportunities for generating relevant knowledge in academic, ethnic, territorial and social communities, promoting traditional community knowledge, restoring the role of knowledge in constructing a social identity and diversifying options for socio-economic development. Moreover, Colombia is integrating its socially focused STI efforts into the design of a social innovation policy aimed at creating a favourable environment for developing social innovation.

Improving the design and implementation of STI policy

Colombia's innovation system is co-ordinated by the National Planning Department (DNP) and Colciencias, an agency that encompasses the roles of science ministry, research council and innovation agency. These two bodies were responsible for Colombia's National Innovation Strategy for 2010-14. In response to the growing importance of innovation in the national development strategy, in 2012 the government created iNNpulsa Colombia within the National Development Bank (Bancóldex) to promote high-growth innovative companies and to support competitiveness by better integrating the business support system and by interacting with other actors in Colombia's innovation and entrepreneurship ecosystems. Colciencias has adopted a new business model, using online tools to enhance transparency and effectiveness in managing calls for grants. Also has created a specific unit within its structure for designing and evaluating national STI policies.

Colombia's publicly funded GERD is only 0.08% of GDP (2011), well below the medians for the OECD median (figure 4^a) and for other Latin American countries, for instance Argentina (0.57%) and Chile (0.14%). Colombia's STI strategic plan for 2010-14 sets the goal of raising GERD to 0.5% of GDP. The government has allocated 10% of the royalties from the exploitation of non-renewable resources to an STI fund. Between 2012 and 2020, the fund aims to disburse up to USD 636 million (COP 800 billion) per year for S&T projects (including R&D activities). Colciencias has been strengthening the capacity and public infrastructure for R&D through strategic actions such as support for the standardisation and accreditation of testing and calibration laboratories and the strengthening of research centres. Between 2010 and 2012, Colciencias supported 90 standardisation and accreditation projects with USD 14.5 million (COP 16 500 million), and between 2010 and 2013 it supported 74 projects targeted at strengthening research centres, with USD 51.8 million (COP 59 030 million).



Some key STI performance indicators

Figure 2. Environmental performance

Green productivity, GDP per unit of CO₂ emitted, index 2005=100

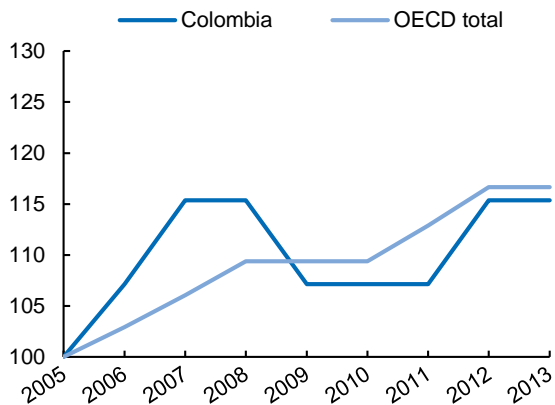
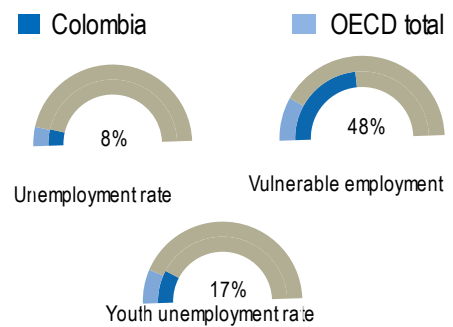


Figure 3. Unemployment

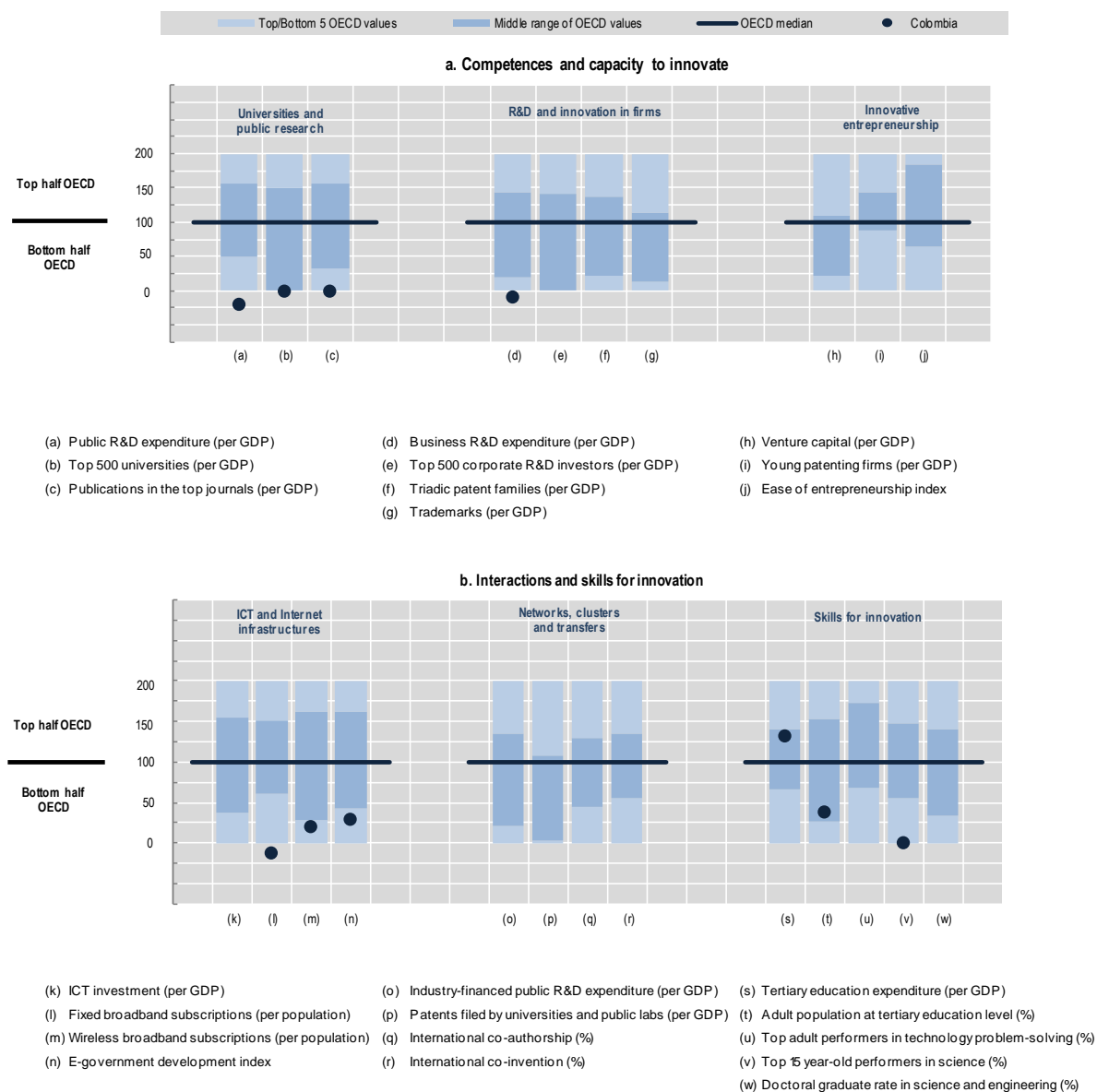
2015 or latest year available, percentages



Benchmarking national STI systems

Figure 4. Science and Innovation in Colombia

Comparative performance of national science and innovation systems, 2016



Note: Normalised index of performance relative to the median values in the OECD area (Index median=100).



Highlights of the Colombian STI system

New sources of growth

The Ministry of Information and Communication Technologies (MinCIT) has devoted USD 281 million (COP 320 billion) during 2010-13 to two programmes: Vive Digital and APPS.co. The former supports projects promoting regional innovation and technological development through ICTs, while the latter fosters the creation of ICT companies that aim to develop mobile applications, software and Internet content.

Innovation in firms

At 0.05% of GDP, BERD is lower than that in not only all of the OECD countries (figure 4^d) but also other Latin American countries such as Argentina (0.16%). To address this situation, the government is using three main mechanisms to support business R&D investment. First, under the guidance of Colciencias and other relevant government bodies, Bancóldex provides preferential credits for innovation projects at below-market interest rates. Second, a tax incentive scheme offers tax exemptions of up to 175% of the R&D investments made during the taxable period. Third, a variety of government agencies provide subsidies for firms' STI activities. iNNpulsa provides non-refundable grants of up to USD 278 000 (COP 350 million) per beneficiary. Colciencias recently expanded its Innovation Management programme to further support the development of innovative capabilities in Colombian firms. In 2013, it allocated around USD 19 million (COP 21.4 billion) to fund knowledge-intensive business services from international entities specialising in business innovation. reaching more than 9,89 million of broadband connections

Innovative entrepreneurship

With a budget of USD 138 million (COP 174 billion) for 2012-13, iNNpulsa Colombia seeks to promote business growth and to build an innovation culture in the society. Colciencias' Innovation Management Programme directed 70% of its 2013 budget of USD 20 million (COP 22.4 billion) to micro and SMEs, while Colombia's business environment has improved in recent years.

ICT and Internet infrastructures

While the numbers of fixed and wireless broadband subscriptions remain well below the OECD level (figure 4^{l,m}), substantial progress has nevertheless been made in this area in recent years. MinCIT is on its way to meet the target of quadrupling connections across all regions between 2010 and 2014. In addition, a broadband infrastructure is being deployed throughout the country. This initiative helped the number of connected municipalities grow from about 200 in 2010 to 777 by mid-2013.

Technology transfer and commercialisation

Colciencias organises regional Innovation Business Conferences aimed at strengthening technology transfer and university-industry linkages. Colciencias also has allocated up to USD 510 000 (COP 550 million) per year since 2009 to support collaborative projects between companies and universities or research centres.

Clusters and regional policies

Since 2005, Colciencias has organised 25 regional Innovation Business Conferences in nine regions. Furthermore, the Regional Innovation Alliances (also co-ordinated by Colciencias) aims to foster public-private partnerships within regions. In collaboration with the DNP and several ministries, iNNpulsa designed Competitive Routes, a regional programme that designs roadmaps to support productivity growth and the formation of clusters in key sectors (e.g. ceramics, tourism, coffee, leather and agribusiness). This programme has covered 18 of Colombia's 32 administrative divisions.

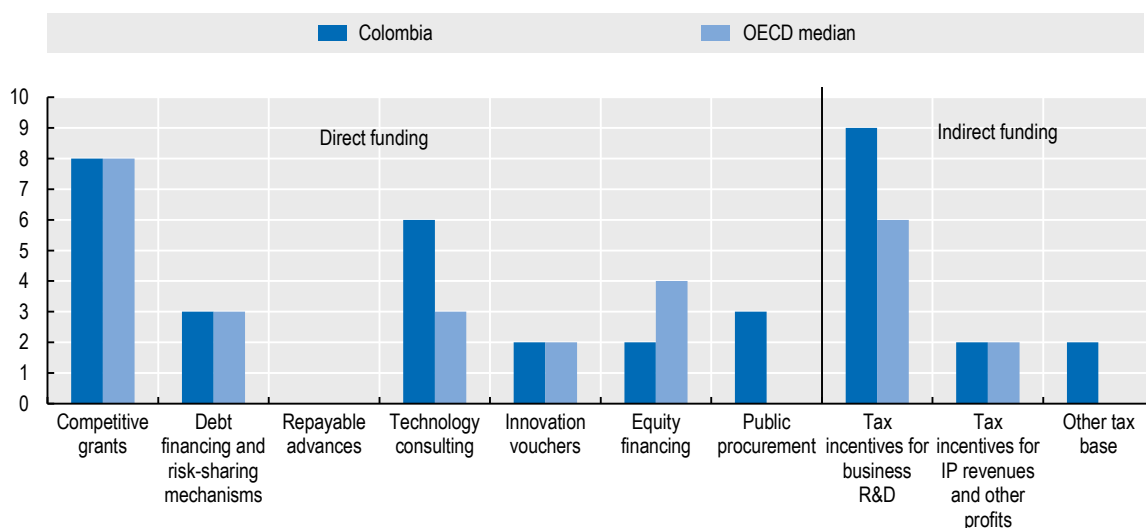


Skills for innovation

The Colombian government has prioritised increasing the number of researchers. In particular, two programmes promote the training and employment of PhDs. Colciencias' Doctoral Training Support Programme funds graduate studies both domestically and abroad. It aims to double the current number of 7 000 PhDs by awarding 1 000 scholarships per year over the next four years. The programme will allocate USD 678 million (COP 752 billion) during 2011-14, targeting researchers in the business sector, academics and people working in strategic technology fields.

National STI policy mix

Figure 5. Most relevant policy instruments of funding for business R&D, 2016
Country self-assessment, index (9 = high and increasing relevance to 0 = not used)



Note: Policy information comes from country responses to the EC/OECD International Survey on STI Policies (STIP) 2016 and 2014. Colombia's responses are available in the EC/OECD International Database on STI Policies, edition 2016 at http://qdd.oecd.org/DATA/STIPSurvey/COL...STIO_2016.

Source: See the reader's guide and methodological annex.

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