

# Zugänge, Barrieren und Potentiale für die internationale Mobilität von Wissenschaftlerinnen

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Länderbericht Kolumbien

# Country dossier Colombia

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## **1 The Context of Colombian Higher Education**

### **1.1 Structure and Basic Characteristics**

Colombia's oldest university – Saint Thomas University – was opened in Bogotá in 1580. Until the country's independence in the early 19th century, the education system was described as rigidly elitist (Carroll, Reyes, and Trines, 2020). As of today, higher education in Colombia is regulated by the Ministry of National Education (MEN), which licenses higher education institutions – public and private – and also provides quality assurance with the help of the National Accreditation Council (CNA) and the National Commission of Quality Assurance for Higher Education (CONACES). Since 2003, the Ministry of Education has established minimum quality requirements and parameters for the operative purpose of the programs.

In Colombia, there are 360 higher education institutions (HEIs) with programs registered in the National Information System for Higher Education (SNIES). Some of these institutions have more than one branch in other parts of the country (Camacho, Messina, and Uribe, 2017) (Annex 1 – Table 1). The tertiary education system in Colombia can be divided into four categories: Professional Technical Institutes (8%); Technological Institutions (15%), which may offer only undergraduates programs; University Institutions, which offer professional programs (39%); and Universities (39%), the only HEIs that are entitled to confer post-graduate degrees, such as Master's or doctoral degrees (Camacho, Messina, and Uribe, 2017).

Colombian government expenditure on education as a percentage of gross domestic product (GDP) has decreased in the last five years, and is still failing to keep up with the emerging enrollments (Trading Economics, 2020). In 2014, government expenditure on education as a percentage of GDP was 4.63 percent compared with 4.46 percent in 2018 (UNESCO Institute for Statistics, UIS, 2020a). In the tertiary education sector, the country has seen a minor increase from 0.96 percent in 2014 to 1.04 percent 2018. In 2018, there was a budget deficit between operating and infrastructure expenses of US\$ 5.7 billion in public universities (Carroll, Reyes and Trines, 2020). According to data from the World Bank (2020b), expenditure on tertiary education as a percentage of government expenditure on education reached 23.31 percent in 2018.

### **1.2 Enrollment and gender participation in higher education**

In the last decades, there has been a massive increase in overall enrollments in the Colombian higher education system (Annex 2 – Graphic 1). In 2018, the gross enrollment ratio (GER) was 55.33 percent; this figure is based on 2,335,617 students in higher education, including postgraduates. The UIS data for the Colombian population in the age group 25+ years show an overall increase in the number of students enrolled in tertiary education in Bachelor's, Master's and doctoral-level programs in the five years from 2014–2018 (Annex 1 – Table 2). Increasing access to higher education, especially for lower-income people or those students who are the first generation in their family to go to university, has been a concern of recent governments. The differentiating factor was developed during 2002–2010 under the heading

"*educational revolution*," with which access to higher education was designated as a main axis of current public policy. Similarly, it was considered that this effort was a strategy to achieve a more inclusive educational system, and that in this way greater social equity would be achieved (Franco-Orozco and Franco-Orozco, 2018).

Between the years 2014 and 2018, there was a marginal increase in the share of women among graduates from Bachelor's (ISCED level 6) and Master's (ISCED level 7) programmes: The percentage of women among Bachelor's graduates rose from 58 percent in 2014 to 59 percent in 2018; among Master's graduates, the female share increased from 56.6 percent to 56.9 percent (Annex 1 – Table 3).

In 2018, over half (51 percent) of female tertiary graduates, but only 39 percent of male tertiary graduates, obtained their degrees in the field of business, administration and law. By contrast, 25 percent of male tertiary graduates obtained their degrees in the field of engineering, manufacturing and construction, whereas only 10 percent of female graduates did so (Annex 1 – Table 5).<sup>1</sup> Based on the Gender Parity Index (GPI) for at least Bachelor's or equivalent level (ISCED 6 or higher), the gross graduation ratio from first-degree programs (ISCED 6 and 7) increased by 0.07 percentage points between 2014 and 2018, when it reached 1.49 percent; this number represents the Colombian population aged 25+ years (Annex 1 – Table 4).

In terms of funding, Colombia increased the number of Master's scholarships and loans for Master's programs between 2008 and 2014. According to data retrieved from the Colombian Observatory of Science and Technology (OCYT), between 2014 and 2016, there was a huge increase in the number of women and men receiving Master's scholarships and loans. However, these numbers dropped drastically in 2017, when the number of female beneficiaries was slightly lower than the number of male beneficiaries (OCYT, 2018).

With regard to doctoral student enrollment (Annex 2 – Graphic 2), the numbers more than doubled between 2010 and 2018. The field with the most enrolled students in doctoral programs is engineering, manufacturing and construction, closely followed by natural sciences, mathematics and statistics. In 2017 the tertiary graduation rate by gender in doctoral studies in Colombia was 59.74 percent for men and 40.26 percent for women (OECD, 2020) (Annex 1 - Table 6). In 2018, doctoral graduates (ISCED 8) as a percentage of all graduates in Colombia was just 0.17 percent (OEC). In 2018, 61.6 percent of all graduates from higher education were male; the female share of 38.4 percent was the lowest percentage since the 2016 peak of 40.7 percent (Annex 1 – Table 6).

Several studies around gender and higher education in Colombia and Latin America (Cruz Herrera & Moreno, 2012; Espinosa & Goetschel, 2012; Buquet, Cooper, Mingo, & Moreno, 2013) have identified a persistent inequality in the distribution of enrollment and graduation by gender. All of these studies agree that there is vertical and horizontal segregation that

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<sup>1</sup> Table 5 shows the total proportion of tertiary education students who graduated in 2018. Thus, the percentage of men and women who graduated from the natural sciences, mathematics and statistics is the result of the calculation in relation to the total population of tertiary education graduates in 2018. Also, these data correspond to those provided by UIS.Stat for "Distribution of tertiary graduates by field of study" (2021)

limits the participation of women in certain fields of knowledge and at the highest levels of formal education. Glass ceiling analyses have questioned the apparent parity of the figures for participation of women in the professional and labor areas, numerical equity vanishes when *the figures are* analyzed by organizational hierarchy rank: the higher the rank the lower the representation of women. Likewise, analyses of horizontal segregation – that is, the unequal distribution of the sexes across fields of knowledge – reveals the persistence of a traditional vocational orientation related to a sexual division of labor.

## 2 Higher Education and Research System

The Administrative Department of Science, Technology and Innovation, also known as Col-Ciencias,<sup>2</sup> was created in 1968. It was the main organism of the public administration to redirect state policy into promoting science, technology and innovation in Colombia. In January 2019, the National Government enacted a law enabling the transformation of ColCencias into the Ministry of Science, Technology and Innovation (MinCiencia, 2019).

### 2.1 Funding and Research

According to the World Bank (2020a), gross domestic expenditure on R&D (GERD) as a percentage of GDP in Colombia was 0.18 percent in 2007 and 0.24 percent in 2017. Various studies on science in Colombia identify three relevant issues: First, that investment in research is quite low compared with other Latin American countries. Second, there is concern within the country over the disparity in funding among the universities located in the municipalities outside the capital city, considering that most of these universities do not participate in the strategic direction of scientific and technological development in the country (Arango, 2013). Third, there is a large national discussion on the disconnection between the universities and the government initiatives on scientific development and other sectors (e.g., industry) (Mendivelso & Parra, 2018). According to information retrieved from the UIS database (2020b), in 2018, GERD by sector of performance was lowest in the government sector (10.1 percent) and highest in the business enterprise sector (44.9 percent).

Universities in the country have evolved gradually since the establishment of offices to manage research projects with funding organizations. The vice-rectorates for research in the universities have focused on the agency and promotion of research in each institution. The total number of research groups recognized by ColCencias increased by 25% between 2010 and 2014, with an average annual growth of 5.7%. These research groups are concentrated mostly in a minority group of universities: Universidad Nacional de Colombia, Universidad de los Andes, University of Antioquia, Universidad del Valle and Universidad Javeriana. It is these same institutions that have the greatest international visibility in terms of indexed

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<sup>2</sup> ColCencias is the Administrative Department of Science, Technology and Innovation. It promotes public policies to promote science, technology, and innovation (STI) in Colombia. The activities around the fulfillment of its mission involve agreeing on policies to promote the production of knowledge, build capacities for STI, and promote the circulation and use of the same for the integral development of the country and the well-being of Colombians. (Ministry of Sciences, 2021)

publications. Likewise, these universities have developed a strong research agenda that has allowed them to advance in the articulation of this activity with the interests of the State and the productive sector, reconciling the interests of the production of scientific and socially relevant knowledge for national development.

Based on reports created by the Inter-Universities Center of Development (CINDA), an organization of various Latin American universities, the limitations observed in the Colombian research system have to do with two dimensions: one is internal to the institutions; the other is external to them, coming from national policies that regulate science and research. Regarding the first dimension, the low salaries of researchers, the lack of a talent-retention policy in the institutions, and the low degree of competitiveness of Colombian universities with respect to the international academic market should be noted. Regarding external factors, there is general agreement regarding the non-existence of an aggressive policy in the field of advanced education, the lack of incentives for researchers, the lack of a stimulating regulatory framework for investment in research from the productive sector, and the low investment in science and technology by the government (García de Fanelli, 2016).

## 2.2 Science, Gender and Academic Career

In Colombian universities, the number of academic jobs has increased in the past years. Between 2008 and 2016, the total number of academic staff in the higher education system has almost doubled. In the academic hierarchy, there are three levels recognized by the Ministry of Education: affiliated, part-time, and full-time. Academic staff who teach one course are called affiliated (*catedrático*). They do not usually have doctoral degrees, and they represent almost 49% of the contracts (Annex 1 – Table 7). Beyond the percentages, it is considered positive that in Colombia the number of professors with Master's degrees and doctorates has increased. According to CINDA (2016), during the last decade a process of consolidation of the academic profession has taken place in Colombia, increasing the number of academics with Master's degrees and doctorates, although the number of staff who teach in higher education with only an undergraduate degree is problematic. However, as there is a law for the categorization of full-time academics established by merits based on their intellectual production, such as publications in prestigious indexed journals, it is becoming impossible to develop an academic career without a doctorate degree. In almost all of the universities there are incentive policies that allow the exclusive dedication of professors to do research and teaching activities. It is important to highlight that the professionalization of academic activity is recently part of the institutional policies in the universities (Melo-Becerra et al., 2017). Gradually, a change is occurring in the profile of the university professor – previously focused mainly on teaching and now focused on institutional profiles that involve management, new forms of knowledge production, and new financing schemes within the framework of a global economy (García de Fanelli, 2016).

Regarding teachers, according to the Ministry of National Education (MEN), in 2015 the higher education system had 148,689 teachers in higher education, of whom 45,362 (30.5%) worked on a full-time contract, 14,048 (9.4%) in the part-time modality, and 90,763 (61.0%) with a partial or professor-hour scheme. By level of training, 2.1 percent of these academic



staff had a technical or technologist degree, 29.9 percent had an undergraduate degree, 30.6 percent a specialization, 30.7 percent a Master's degree, and 6.7 percent a doctorate or post-doctorate. The high proportion of full professors (61%) and the low percentage of professors with a doctorate (6.7%), who, moreover, are concentrated in just a few universities, is striking. This situation may be affecting research activities, students' academic training and, in general, the results of the educational system (Melo-Becerra et al., 2017). In 2016, there were a total of 152,876 academics working in the system, 62% of whom were male and 38% were women (Ministry of National Education, 2017). The number of female academics increased by 86% between 2008 to 2016 (Annex 1 – Table 8). Between 2014 and 2018, the percentage of teachers in higher education who were female increased by 1.82 percentage points (UIS, 2020a).

Recently, the Economic Lab of Education (LEE) of the Universidad Javierana of Colombia conducted a study on the gender gap in research that found that the lack of women in research is a historical debt on which the country has made progress, with the female share of researchers recognized by the Ministry of Sciences (before the creation of ColCiencias) increasing from 36 percent in 2013 to 38 percent in 2019 (, 2021). This is slow progress considering that the increase was only 2 percentage points in 6 years. Analyzing the group of people who were recognized as researchers by the Ministry of Sciences in 2019, the study found that of the 16,796 researchers recognized in 2019, only 6,411 were female, which is equivalent to 38 percent of all researchers. In some areas of knowledge, the proportion of female researchers is even lower – for example, in engineering (mechanical, electrical, electronics, computer science and civil) and physical sciences, where the proportion of female researchers does not exceed 20%. In addition, the study found that the average age of female researchers was 44 years, whereas in the case of men, it was 40 years (LEE, 2021).

This study further showed that the low proportion of women in research contrasts with the increase in women who have graduated from different academic levels. While the total number of women who graduated from higher education increased by 53.84 percent between 2013 and 2019, the percentage of women in research experienced only a slight increase of two percentage points. In the case of postgraduates, the study noted that the number of women graduates increased by 48% between 2013 and 2019 (from 24,900 to 37,048). In the case of Master's degrees, the increase was 150% – from 3,125 to 7,825 female graduates. In the case of doctorates, the increase was greater, as the number of women graduates rose from 73 in 2013 to 244 in 2019 – a growth of over 234 percent (LEE, 2021, p. 5). Therefore, the study concluded that it was evident that the number of female graduates was not growing at the same rate as the number of researchers recognized by the Colombian Ministry of Sciences.

A study on senior leadership positions in Colombian universities (FEGES, 2015) found that of a total of 310 rector positions, only 21.6 percent were held by women; women accounted for 35 percent of vice-rectors and 32 percent of deans. Furthermore, on average, 31 out of every 100 academics were women (FEGES, 2015). Thus, women are concentrated at the base of the pyramid, and the higher the level of the pyramid, the lower the rate of female participation. This situation affects women's salaries, which tend to be lower in correspondence with the positions of lower hierarchy in which the majority of women academics are located (Fuentes,

2016). Salary gaps are related to a number of factors, for example: the cult of meritocracy in academia even when there is no equal opportunity; competition for incentives based on publications or so-called academic productivity; the "neutral" criteria and processes for promotion and evaluation; the majority male composition of the evaluation committees; and the overvaluation of research over teaching and outreach activities, which usually fall to female academics (Olavarria, 2011; Fuentes, 2016).

Between 2013 and 2017, the representation of Colombian female researchers in other sectors of employment, such as business enterprise, decreased. Female researchers as a percentage of total researchers in the business enterprise sector (in full-time equivalents, FTE) decreased from 37.5 percent in 2013 to 34.6 percent in 2017 – a decline of 2.9 percentage points. Thus, in 2017, this was the sector with the lowest share of female researchers in terms of FTE. By contrast, in terms of headcount (HC), the decrease in female researchers as a percentage of total researchers was lowest (0.7 percentage points) in the private non-profit sector. In the government sector, female researchers as a percentage of total researchers (FTE) increased by 8.8 percentage points, and in the higher education sector, the increase in terms of HC was 3.6 percentage points (Annex 1 – Table 9).

Data from the above-mentioned study conducted by the OCYT (2018), show that between 2009 and 2016 more young female than male researchers were supported by ColCiencias. However, by 2017, the numbers had become very similar (Annex 2 – Graphic 3 and 4). A young researcher is defined as someone who graduated less than three years ago or whose degree is pending at the time of applying for a research grant. However, the data show that the overall tendency is that there are more male researchers than female researchers. This gap gets dramatically bigger when we analyze age ranges from 50 years and older.

### **2.3 Publications**

In the context of publication tendency, the number of articles indexed in the Science Citation Index (SCI) per [US\$ 1 million of] I&D expenditure in 2018 was 8.9726 (Annex 2 – Graphic 5). Compared with other countries in the region, in terms of the number of articles per country indexed in SCOPUS in the year 2018, Colombia had 13,277, while countries with the same population characteristics had 15,127. When it comes to the number of articles indexed in SCI per inhabitant in the same year, Colombia had 14.0919 and Argentina 27.8978.

## Annex 1: Tables

**Table 1 Type of higher education institutions in Colombia**

Type of institution	Percentage	Frequency
Professional technical institute	8%	29
Technological institution	15%	53
University institution / Technological School	39%	139
University	39%	139
<b>Total</b>	<b>100%</b>	<b>360</b>

Source: Own elaboration. Information obtained from the National Higher Education Information System (SNIES), 2020.

**Table 2 Enrollment in tertiary education, ISCED levels 6, 7, 8, Both Sexes**

Enrollment in tertiary education, both sexes	2014	2015	2016	2017	2018
ISCED 6: Bachelor's or equivalent	1369149	1431983	1513288	1548587	1557594
ISCED 7: Master's or equivalent	135784	138888	154124	159612	157581
ISCED 8: Doctoral or equivalent	4428	5158	5713	6071	6225

Source: UNESCO Institute for Statistics (UIS), 2020a

**Table 3 Student Graduation Percentage by Sex**

	Sex	2013	2014	2015	2016	2017	2018
<b>Bachelor's or equivalent level (ISCED 2011 level 6)</b>	Women	<i>M</i>	58.0	<i>m</i>	58.4	58.6	59.0
	Men	<i>M</i>	42.0	<i>m</i>	41.6	41.4	41.0
<b>Master's or equivalent level (ISCED 2011 level 7)</b>	Women	<i>M</i>	56.6	<i>m</i>	56.1	57.0	56.9
	Men	<i>M</i>	43.4	<i>m</i>	43.9	43.0	43.1

Source: OECD, 2020b.

**Table 4 Gross Graduation Ratio of Tertiary Education**

	2014	2015	2016	2017	2018
<b>Gross graduation ratio from first degree programmes (ISCED 6 and 7) in tertiary education, gender parity index (GPI)</b>	1.42	1.38	1.45	1,46	1.49

Source: OECD, 2020.

**Table 5 Tertiary Graduates by Field of Study and Sex (Percentage)**

Field of knowledge	Total by area	Women	Men
Education	8	10	6
Arts and humanities	4	3	4
Social sciences, journalisms and information	7	9	5
Business, administration and law	<b>46</b>	<b>51</b>	<b>39</b>
Natural sciences, mathematics and statistics	<b>1</b>	<b>1</b>	<b>1</b>
Information and communication technologies	5	2	8
Engineering, manufacturing and construction	17	10	25
Agriculture, forestry, fisheries and veterinary	2	1	2
Health and welfare	6	8	4
Services	4	3	5
<b>Total</b>	<b>100</b>	<b>98</b>	<b>99</b>

Source: OECD, 2020.

**Table 6 Percentage of Total Graduates in Higher Education by Sex**

	2013	2014	2015	2016	2017	2018
<b>Women</b>	<i>m</i>	39.0	<i>m</i>	40.7	40.3	38.4
<b>Men</b>	<i>m</i>	61.0	<i>m</i>	59.3	59.7	61.6

Source OECD, 2020.

**Table 7 Academic Staff Hierarchy Levels in Universities**

Year	Affiliated	Part time	Full time	Undisclosed	Total
2008	50382	12280	28321	<i>m</i>	77109
2010	60069	13534	31087	<i>m</i>	104690
2012	64467	19280	33393	<i>m</i>	117140
2014	73606	27478	41971	<i>m</i>	143055
2016	75597	15981	47651	13647	152876

Source: Own elaboration. Information obtained from Statistical Yearbook of Colombian Higher Education, 2016 and 2017.

**Table 8 Academic Staff by Sex**

Year	Women	Men	Total
2008	30287	60686	<b>90983</b>
2010	35351	69339	<b>104690</b>
2012	40729	76411	<b>117140</b>
2014	52159	90896	<b>143055</b>
2016	56633	96243	<b>152876</b>

Source: Own elaboration. Information obtained from the Statistical Yearbook of Colombian Higher Education, 2016 and 2017.

**Table 9 Female Researchers as a Percentage of Total Researchers by Sector of Employment (FTE and HC)**

		2013	2014	2015	2016	2017
Female researchers as a percentage of total researchers - Business enterprise	FTE	37.5	35.5	32.1	34.6	34.6
	HC	34.7	34.2	33.2	34.3	34.3
Female researchers as a percentage of total researchers - Government	FTE	40.0	52.4	51.9	48.8	48.8
	HC	44.6	50.8	50.0	47.6	47.6
Female researchers as a percentage of total researchers - Higher education	FTE	34.1	35.4	35.2	37.6	37.6
	HC	33.7	35.2	35.3	37.3	37.3
Female researchers as a percentage of total researchers - Private non-profit	FTE	33.3	37.5	27.6	36.7	36.7
	HC	34.0	33.3	30.6	33.3	33.3

Source: UNESCO Institute for Statistics (UIS), 2020a

**Table 10 GERD by Sector of Performance (%)**

Colombia	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Business enterprise	21.19	23.15	23.99	29.56	23.96	42.62	44.65	48.39	49.1	44.9
Government	6.65	8.86	7.24	8.64	15.03	8.95	9.64	6.47	8.58	10.15
Higher education	43.68	40.82	37.35	37.84	38.11	31.06	29.05	27.8	23.23	25.08
Private non-profit	28.47	27.17	31.42	23.97	22.9	17.37	16.66	17.34	19.09	19.87
Not specified	0	0	0	0	0	0	0	0	0	0

Source: UNESCO Institute for Statistics (UIS), 2020b).

**Table 11 Percentage of Female Teachers in Tertiary Education**

	2014	2015	2016	2017	2018
<b>Percentage of teachers in tertiary education who are female</b>	<b>36.46</b>	<b>36.79</b>	<b>37.05</b>	-	<b>38.28</b>

Source: UNESCO Institute for Statistics (UIS), 2020a.

**Table 12 Academic Hierarchy Levels in Universities by 2019**

Year	Affiliated		Full time		Part time		Undisclosed		Total
	F	%	F	%	F	%	F	%	
2008	50382	55.4%	28321	31.1%	12280	13.5%	<i>m</i>		90983
2010	60069	57.4%	31087	29.7%	13534	12.9%	<i>m</i>		104690
2012	64467	55.0%	33393	28.5%	19280	16.5%	<i>m</i>		117140
2014	73606	51.5%	41971	29.3%	27478	19.2%	<i>m</i>		143055
2016	75597	49.4%	47651	31.2%	15981	10.5%	13647	8.9%	152876

Source: Own elaboration. Information obtained from Statistical Yearbook of Colombian Higher Education, 2016 and 2017.



**Table 13 Academic Staff Grade or Postdoctoral Researcher in Academia by Sex**

Academic staff grade	Sex	2013		2014		2015		2016		2017		2018	
		F	%	F	%	F	%	F	%	F	%	F	%
Undergraduate student	Women	396	36%	215	31%	42	23%	118	29%	155	24%	450	29%
	Men	712	64%	481	69%	140	77%	290	71%	501	76%	1122	71%
	Total	1108	100%	696	100%	182	100%	408	100%	656	100%	1572	100%
Bachelor	Women	789	39%	561	36%	625	37%	15240	36%	9879	35%	9743	36%
	Men	1260	61%	1004	64%	1046	63%	26799	64%	18138	65%	17336	64%
	Total	2049	100%	1565	100%	1671	100%	42039	100%	28017	100%	27079	100%
Technician	Women	266	28%	312	30%	259	25%	216	28%	128	32%	136	31%
	Men	699	72%	742	70%	796	75%	563	72%	267	68%	298	69%
	Total	965	100%	1054	100%	1055	100%	779	100%	395	100%	434	100%
Technologist	Women	315	33%	448	27%	572	27%	396	25%	251	32%	237	29%
	Men	654	67%	1202	73%	1559	73%	1170	75%	524	68%	575	71%
	Total	969	100%	1650	100%	2131	100%	1566	100%	775	100%	812	100%
Specialization	Women	13374	36%	16066	37%	16696	38%	17178	38%	17447	38%	17194	39%
	Men	23511	64%	27402	63%	27809	62%	27881	62%	28495	62%	27372	61%
	Total	36885	100%	43468	100%	44505	100%	45059	100%	45942	100%	44566	100%
Professional	Women	14077	35%	14563	35%	14894	36%	-	-	-	-	-	-
	Men	26005	65%	26461	65%	26619	64%	-	-	-	-	-	-
	Total	40082	100%	41024	100%	41513	100%	-	-	-	-	-	-
Master	Women	10612	38%	16049	38%	16831	38%	18675	38%	22375	39%	24108	40%

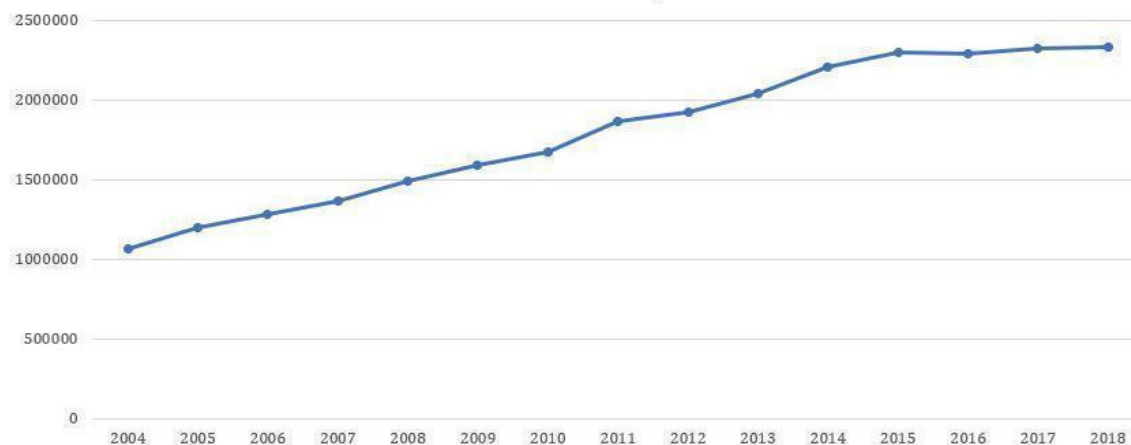


	<b>Men</b>	<b>17332</b>	<b>62%</b>	<b>25826</b>	<b>62%</b>	<b>27025</b>	<b>62%</b>	<b>30371</b>	<b>62%</b>	<b>34816</b>	<b>61%</b>	<b>36235</b>	<b>60%</b>
	<b>Total</b>	<b>27944</b>	<b>100%</b>	<b>41875</b>	<b>100%</b>	<b>43856</b>	<b>100%</b>	<b>49046</b>	<b>100%</b>	<b>57191</b>	<b>100%</b>	<b>60343</b>	<b>100%</b>
<b>Doctor</b>	<b>Women</b>	<b>1998</b>	<b>31%</b>	<b>2783</b>	<b>32%</b>	<b>2987</b>	<b>32%</b>	<b>3489</b>	<b>33%</b>	<b>4356</b>	<b>33%</b>	<b>4622</b>	<b>34%</b>
	<b>Men</b>	<b>4410</b>	<b>69%</b>	<b>5932</b>	<b>68%</b>	<b>6317</b>	<b>68%</b>	<b>7212</b>	<b>67%</b>	<b>8702</b>	<b>67%</b>	<b>9037</b>	<b>66%</b>
	<b>Total</b>	<b>6408</b>	<b>100%</b>	<b>8715</b>	<b>100%</b>	<b>9304</b>	<b>100%</b>	<b>10701</b>	<b>100%</b>	<b>13058</b>	<b>100%</b>	<b>13659</b>	<b>100%</b>
<b>Postdoctoral</b>	<b>Women</b>	<b>148</b>	<b>37%</b>	<b>67</b>	<b>38%</b>	<b>60</b>	<b>35%</b>	<b>45</b>	<b>32%</b>	<b>152</b>	<b>34%</b>	<b>50</b>	<b>38%</b>
	<b>Men</b>	<b>252</b>	<b>63%</b>	<b>111</b>	<b>62%</b>	<b>113</b>	<b>65%</b>	<b>97</b>	<b>68%</b>	<b>295</b>	<b>66%</b>	<b>83</b>	<b>62%</b>
	<b>Total</b>	<b>400</b>	<b>100%</b>	<b>178</b>	<b>100%</b>	<b>173</b>	<b>100%</b>	<b>142</b>	<b>100%</b>	<b>447</b>	<b>100%</b>	<b>133</b>	<b>100%</b>
<b>Does not in- form</b>	<b>Women</b>	<b>-</b>	<b>-</b>	<b>1095</b>	<b>39%</b>	<b>1958</b>	<b>40%</b>	<b>1276</b>	<b>41%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
	<b>Men</b>	<b>-</b>	<b>-</b>	<b>1735</b>	<b>61%</b>	<b>2932</b>	<b>60%</b>	<b>1860</b>	<b>59%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
	<b>Total</b>	<b>-</b>	<b>-</b>	<b>2830</b>	<b>100%</b>	<b>4890</b>	<b>100%</b>	<b>3136</b>	<b>100%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

Source: Own elaboration. Information obtained from the consolidated enrollment bases (2000 - 2013, 2014, 2015, 2016, 2017, 2018) published by the National Higher Education Information System (SNIES)

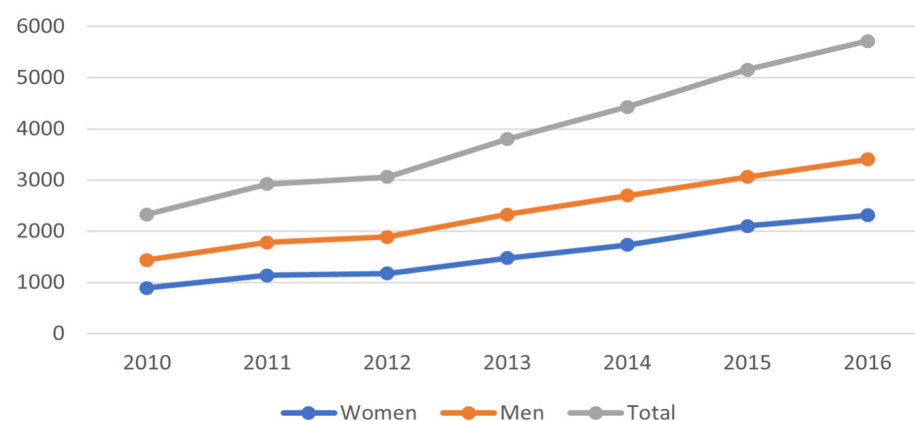
## Annex 2: Graphics

**Graphic 1 Enrollments in Colombian Higher Education 2004–2018**



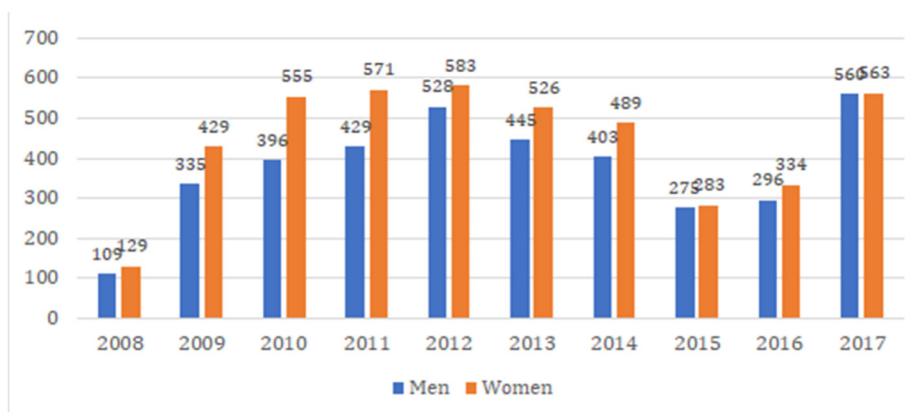
Source: Own elaboration. Information obtained from the consolidated enrollment bases (2000–2013, 2014, 2015, 2016, 2017, 2018) published by the National Higher Education Information System (SNIES)

**Graphic 2 Doctoral Student Enrollment by Sex 2010–2016**



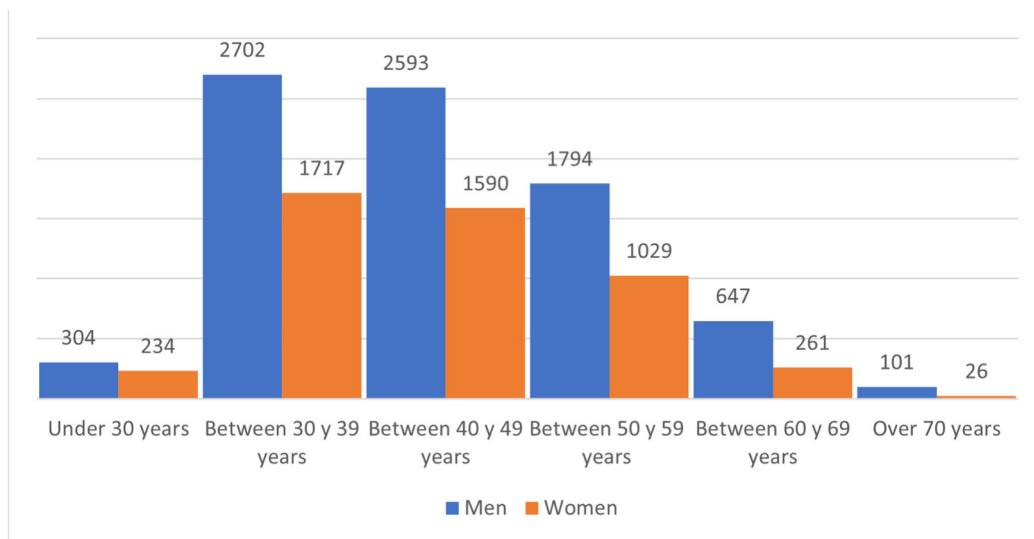
Source: Statistical Yearbook of Colombian Higher Education, 2017.

**Graphic 3 Young Researchers Supported by ColCienias by sex (2008–2017)**



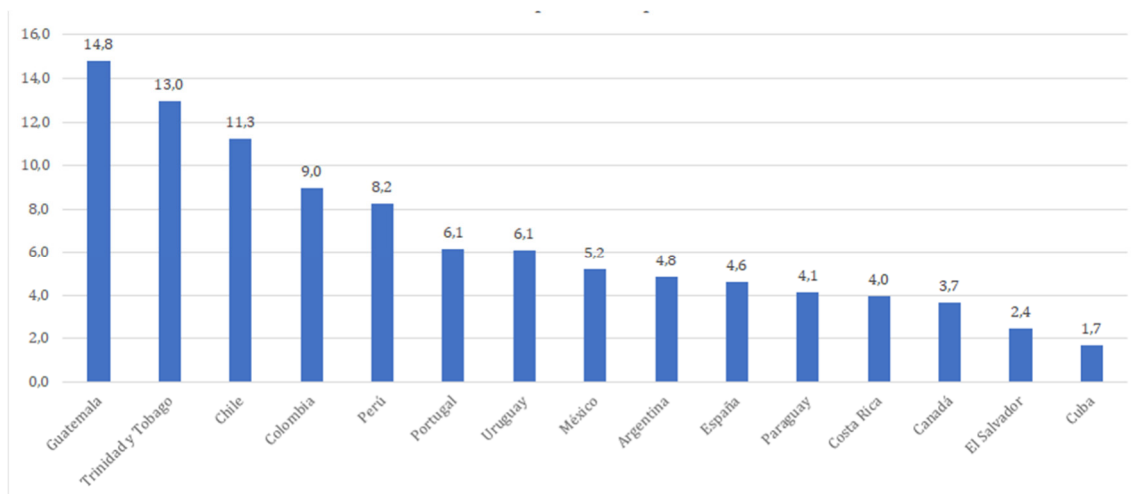
Source: Science and Technology Observatory (OCYT), 2018.

**Graphic 4 Number of Researchers Recognized by ColCienias by Sex and Age in 2017**



Source: Statistical Bulletin, Administrative Department of Science, Technology and Innovation (ColCienias), 2017.

**Graphic 5 Number of articles indexed in the Science Citation Index (SCI) per [US\$ 1 million of?] I&D expenditure - 2018**



Source: Network for Science and Technology Indicators - Ibero-American and Inter-American - (RICYT), 2020.

\* There were no data for Brazil in 2018.

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## Humboldt's template

	<i>Index</i>	<i>Chile</i>	<i>Colombia</i>	<i>Mexico</i>
1	Gross domestic expenditure on R&D (GERD) as a percentage of GDP	✓	✓	✓
2	GERD by sector of performance	✓	✓	✓
3	Government expenditure on education as a percentage of GDP	✓	✓	✓
4	Expenditure for tertiary education as a percentage of total government expenditure on education	✓	✓	✓
5	Population (25+ years) by at least bachelor or equivalent (ISCED 6 or higher)	✓	✓	✓
6	Doctoral degrees (ISCED 8) as percentage of all graduates from tertiary education	✓	✓	✓
7	Total R&D personnel per millions inhabitants, per thousand labor force and/or per thousand total employment	✓	<i>No data</i>	✓
8	Researchers as percentage of R&D personnel	✓	<i>No data</i>	✓
9	Total R&D personnel by sector of employment	✓	<i>No data</i>	✓
10	Tertiary graduates (ISCED 6+7) by sex and level of education	✓	✓	✓
11	Tertiary graduates by field of study and sex	✓	✓	✓
12	Gender Parity Index (GPI) at least bachelor's or equivalent (ISCED 6 or higher), population 25+ years, gender parity index (GPI)	✓	✓	✓
13	Doctoral degrees (ISCED 8) by sex	✓	✓	✓
14	Percentage of female teachers in higher education	✓	✓	<i>No data</i>
15	Percentage of female researchers by sector of employment	✓	✓	<i>No data</i>
16	Academic staff grade or postdoctoral researcher in academia (R2 or Grade C) by sex	✓	✓	<i>No data</i>
17	Senior academic staff (grade A/R4), by field of science and sex	<i>No data</i>	<i>No data</i>	<i>No data</i>