

El Equilibrio de Géneros en la Investigación Científica

Dante Cid | Vice-Presidente de Relaciones Académicas

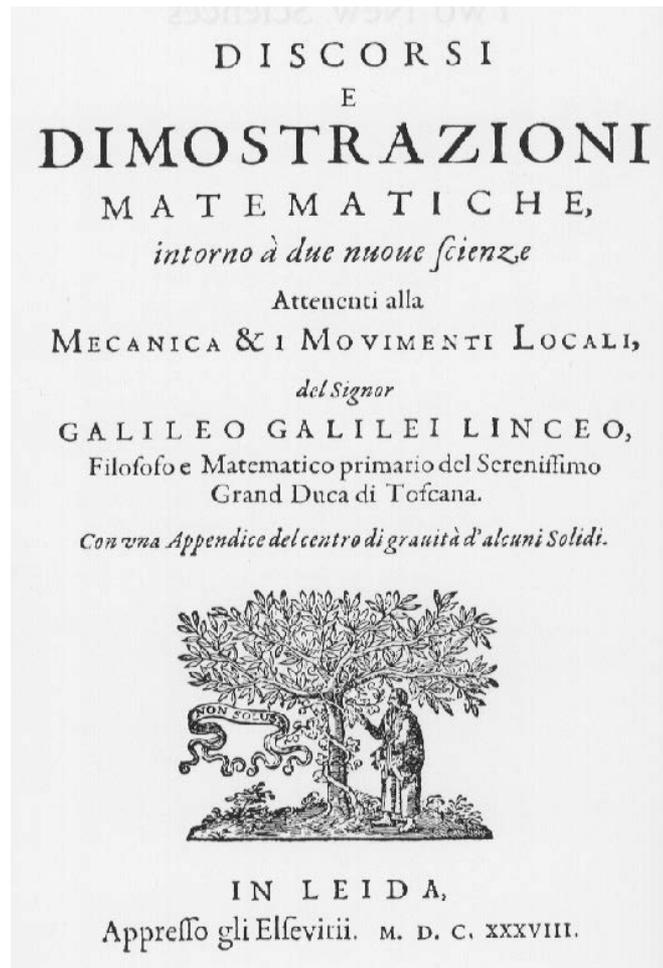
Agosto, 2018

Contexto

www.elsevier.com/research-intelligence

Una larga trayectoria en la información científica

Asumiendo la responsabilidad de preservar las tradiciones editoriales de la casa de Elzevir (criada el 1580), Elsevier fue establecida en 1880 por Jacobus G. Robbers.



Hoy, todo este acervo histórico apoya las decisiones de los gestores de las áreas de investigación científica y medicina

Global University Rankings

- Times Higher World University Rankings
- QS rankings
- US News rankings (Arab Region)
- China University Rankings



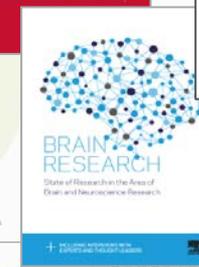
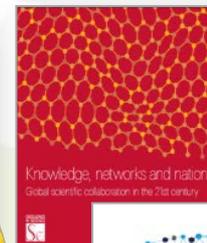
National research assessment & benchmarking reports

- UK REF, UK BIS reports
- ERA (Australia)
- FCT (Portugal)
- VQR (Italy)



Initiatives and reports (selection)

- UK Royal Society
- Science Europe
- European Commission, FENS, HBP, Kavli Foundation, RIKEN BSI
- World Bank
- EuroStemCell, Kyoto University
- Snowball Metrics

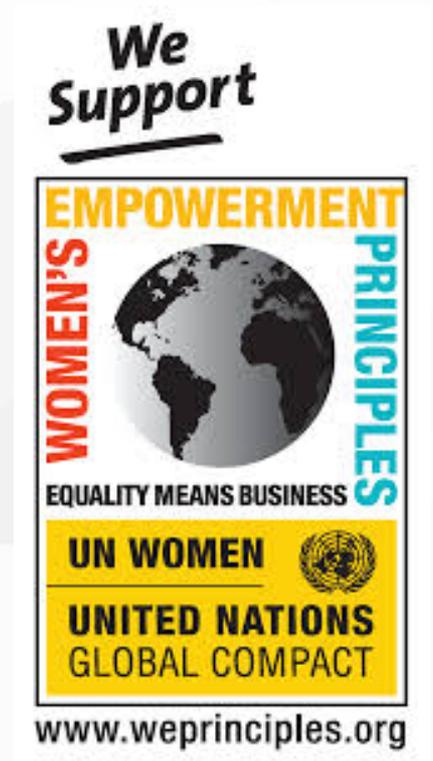


Iniciativas Globales



1. <https://www.elsevier.com/research-intelligence/research-initiatives/sustainability-2015>
2. <https://www.elsevier.com/research-intelligence/research-initiatives/gender-2015>

Certificación Economic Dividends for Gender Equality (EDGE)



Elsevier > About > Press releases > Corporate social resp... > Elsevier Attains EDGE...

Elsevier Attains EDGE Assess Certification for Gender Equality

Reinforces commitment to maximizing talent, innovation and becoming a lead technology employer in gender equity

<https://www.elsevier.com/about/press-releases/corporate-social-responsibility/elsevier-attains-edge-assess-certification-for-gender-equality>

Fuentes



Scopus®

genderize.io



Comparator Selection

- Global coverage
- Countries/regions with high research output
- Applicability of our gender disambiguation methodology
- At least two countries from each major region
- A practical limit in a single report given our analyses



Chapter 1: the global research landscape through a gender lens

Quadro General

(Pág. 18)

■ Women ■ Men



Chile	1996-2000	3,021	6,024	33%	67%
	2011-2015	13,377	22,099	38%	62%
Brazil	1996-2000	18,171	29,620	38%	62%
	2011-2015	153,967	158,873	49%	51%
Japan	1996-2000	49,173	273,604	15%	85%
	2011-2015	105,384	411,394	20%	80%
Denmark	1996-2000	7,089	16,984	29%	71%
	2011-2015	21,240	30,813	41%	59%
Portugal	1996-2000	5,134	7,409	41%	59%
	2011-2015	27,561	28,935	49%	51%
Mexico	1996-2000	8,072	15,792	34%	66%
	2011-2015	34,410	55,042	38%	62%

Quadro General

(Pág. 18)

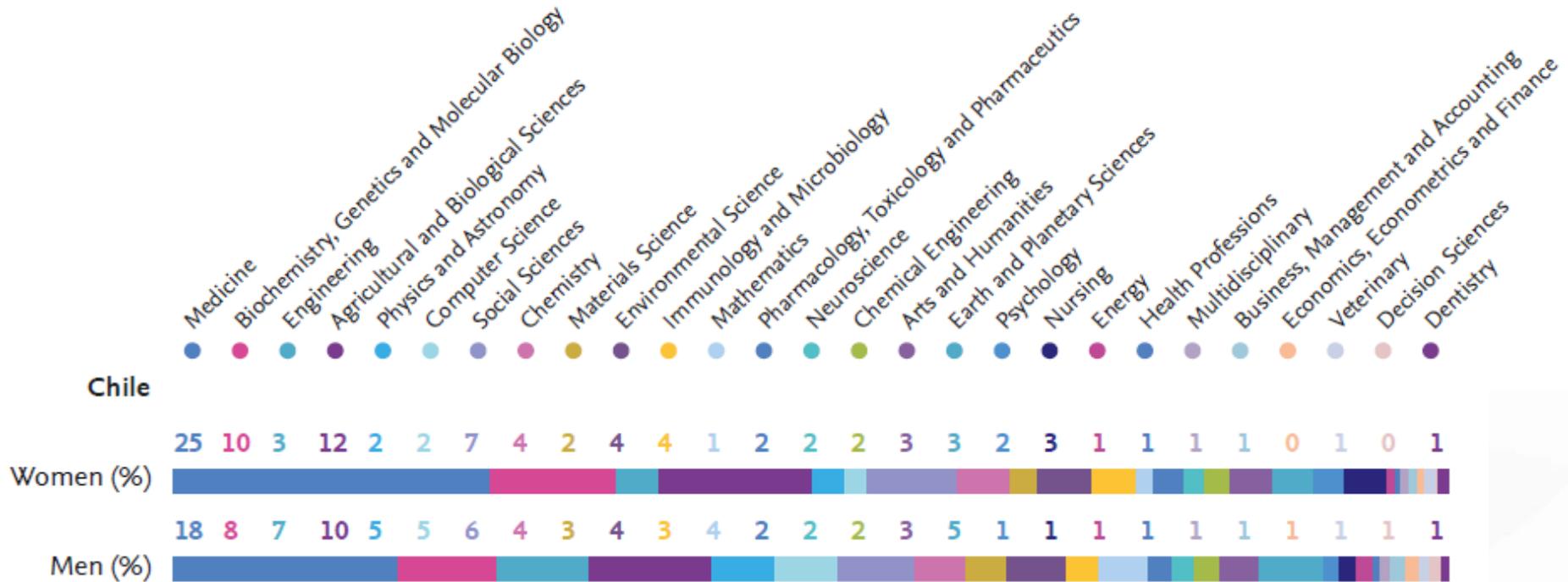
■ Women ■ Men



Country	Period	Women	Men	Women %	Men %
Chile	1996-2000	3,021	6,024	33%	67%
	2011-2015	13,377	22,099	38%	62%
EU28	1996-2000	343,946	732,359	32%	68%
	2011-2015	965,025	1,389,772	41%	59%
United States	1996-2000	310,666	696,947	31%	69%
	2011-2015	705,579	1,071,606	40%	60%
United Kingdom	1996-2000	68,912	154,175	31%	69%
	2011-2015	166,481	253,257	40%	60%
Canada	1996-2000	36,539	77,569	32%	68%
	2011-2015	99,055	137,259	42%	58%
Australia	1996-2000	22,632	45,665	33%	67%
	2011-2015	75,600	97,908	44%	56%
France	1996-2000	58,396	114,205	34%	66%
	2011-2015	121,948	185,350	40%	60%

Por Disciplina

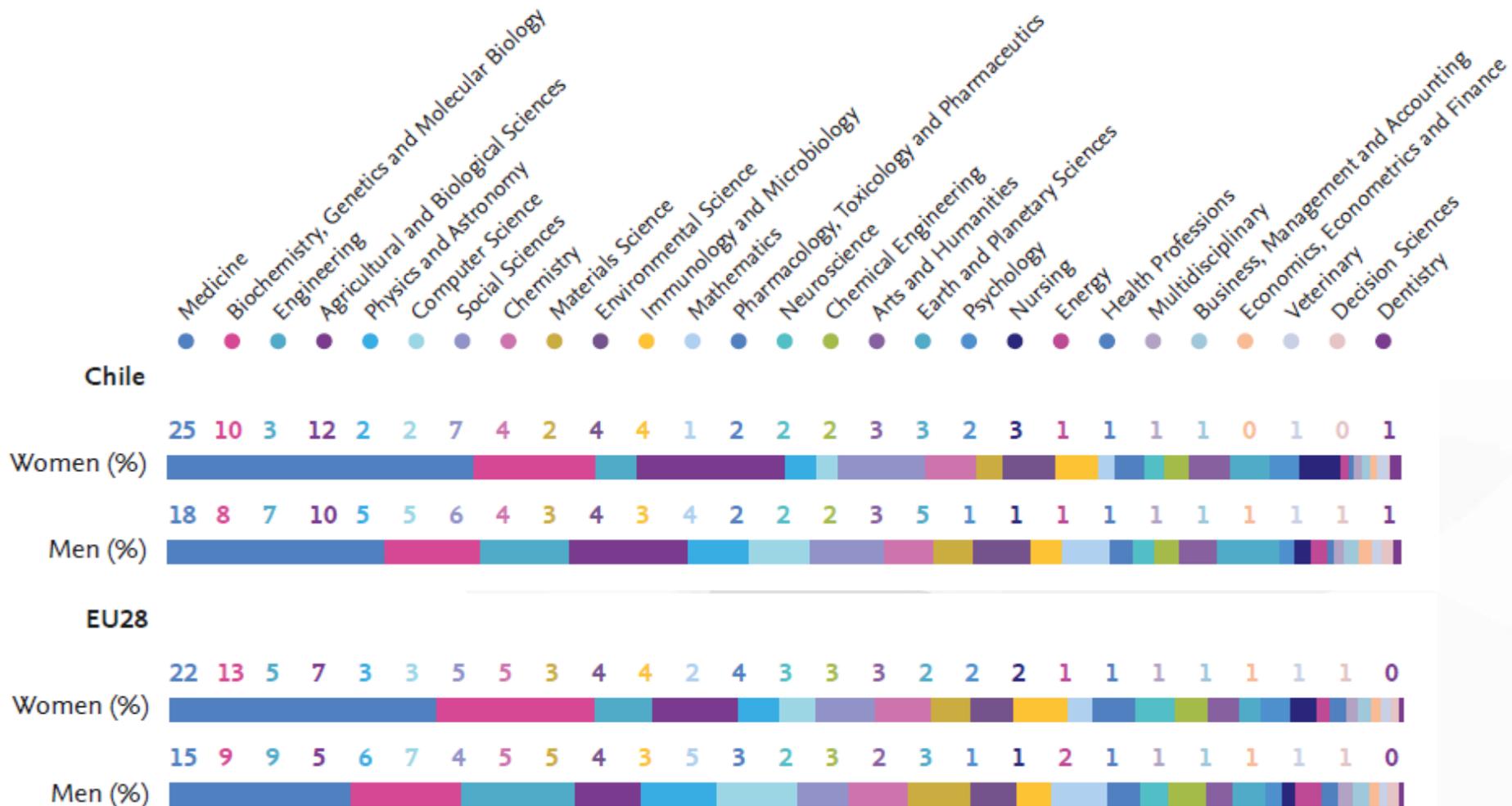
(Pág. 21)



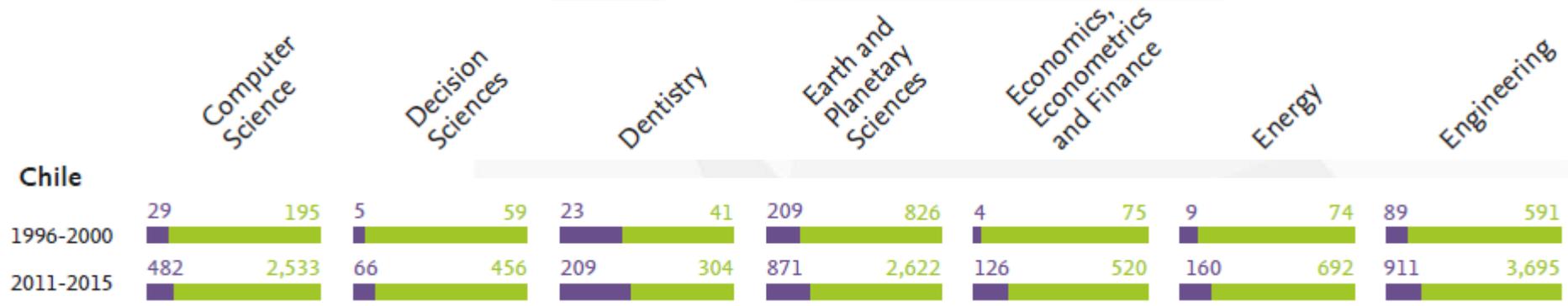
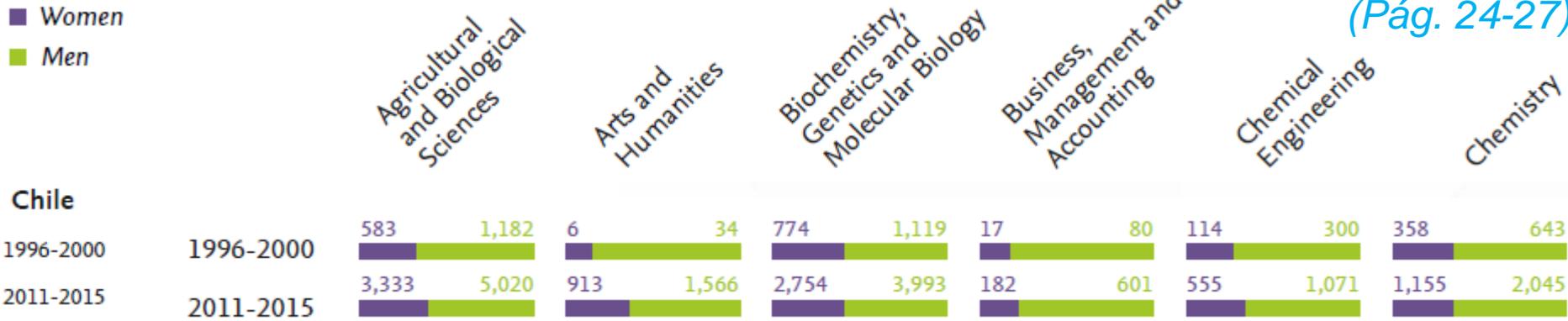
There tend to be larger proportions of women researchers than men researchers in the Health and Life Sciences. In 2011-2015 in Chile, 25% of women authors published in journals in the Medicine category, compared to 18% of men authors. By contrast, there tend to be larger proportions of men researchers in the Physical Sciences fields. For example 7% of men authors in Chile published in journals belonging to the Engineering subject category compared to 3% of women authors.

Por Disciplina

(Pág. 21)



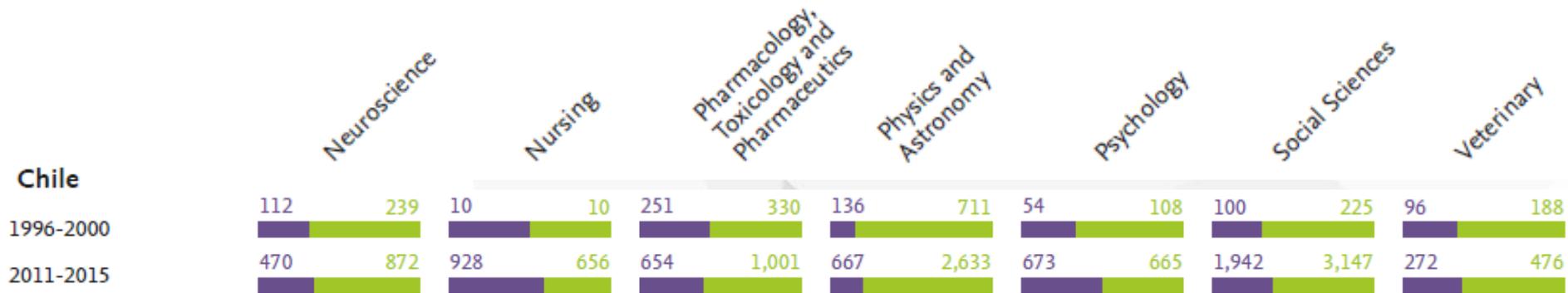
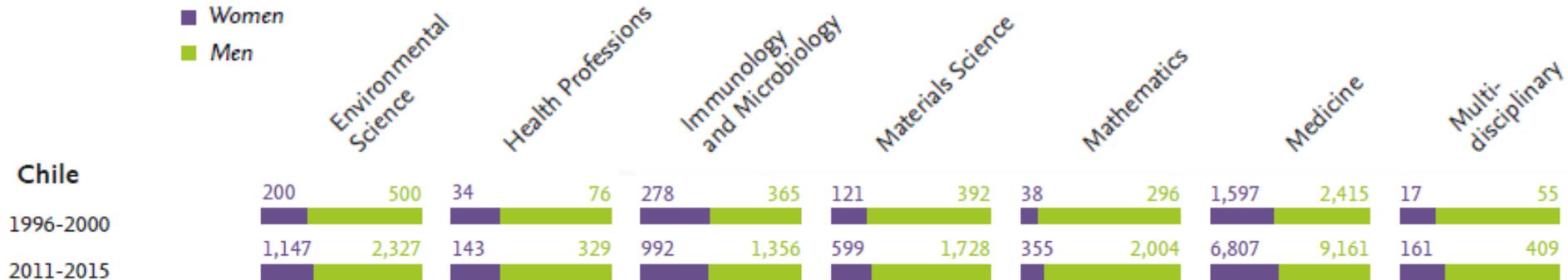
(Pág. 24-27)



In Chile, the proportion of women among researchers are lower in: Computer Science, Decision Science, Economics, Energy, and Engineering,.

In contrast, there are over 50% women in Chile in Nursing and Psychology.

(Pág. 24-27)



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Cantidad Mediana de Publicaciones

(Pág. 29)

■ Women ■ Men

SCHOLARLY OUTPUT PER RESEARCHER
(AMONG NAMED GENDERED AUTHOR PROFILES)



In general, men publish slightly more papers on average than women in the five-year windows of publication examined in this report.

However, for most comparators as well as Chile, the differences are so small that it's difficult to draw conclusions from them.

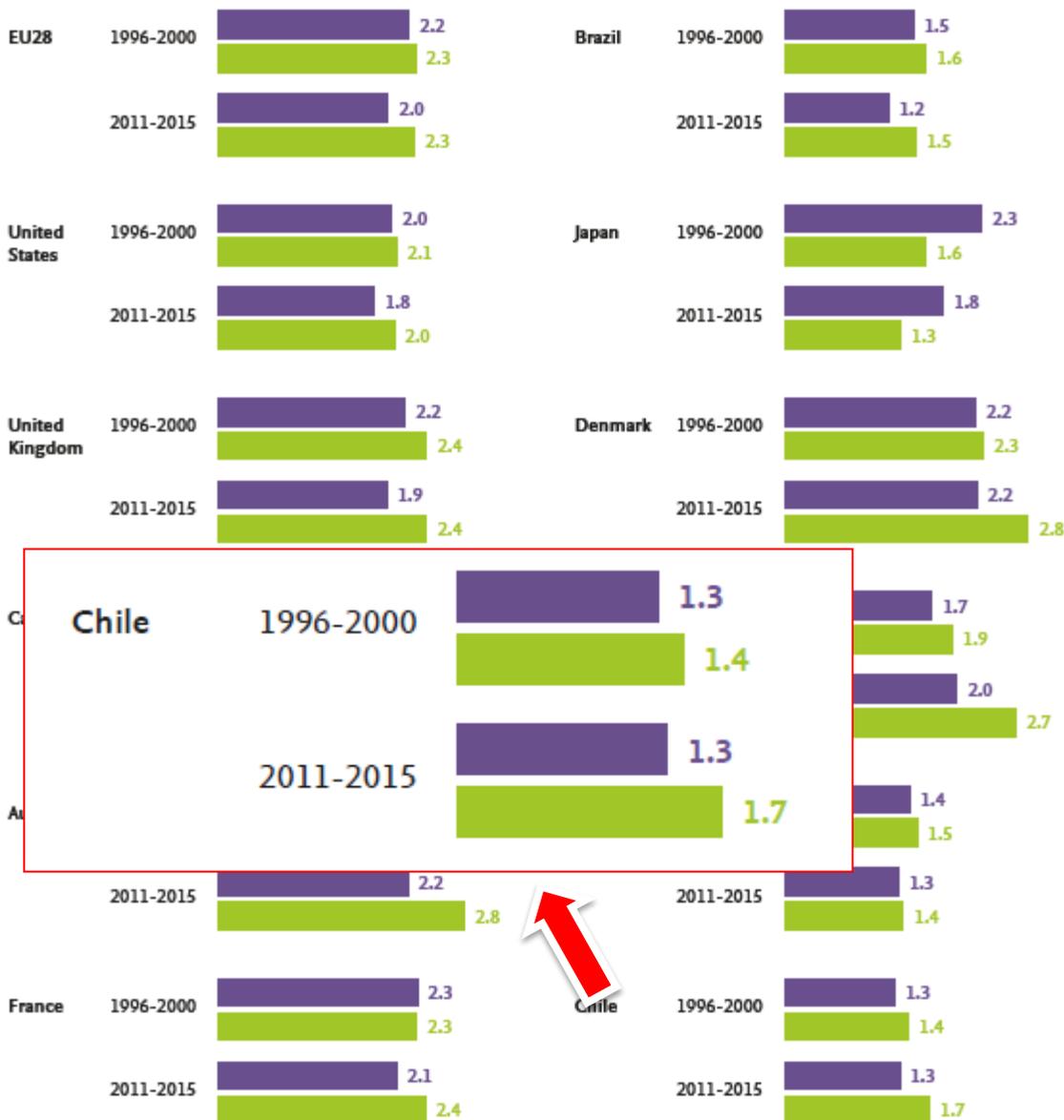
Among publishing researchers in Chile, both men see a minute increase in average number of papers per researcher between the earliest and latest analytical periods.

Cantidad Mediana de Publicaciones

(Pág. 29)

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FWCI (Impacto Ponderado por Área)

(Pág. 31)

■ Women ■ Men

FIELD-WEIGHTED CITATION IMPACT



For many comparators the differences in FWCI for women and men among researchers are very small, while in Chile we notice a slightly higher difference.

FWCI (Impacto Ponderado por Área)

(Pág. 31)

Women Men

FIELD-WEIGHTED CITATION IMPACT



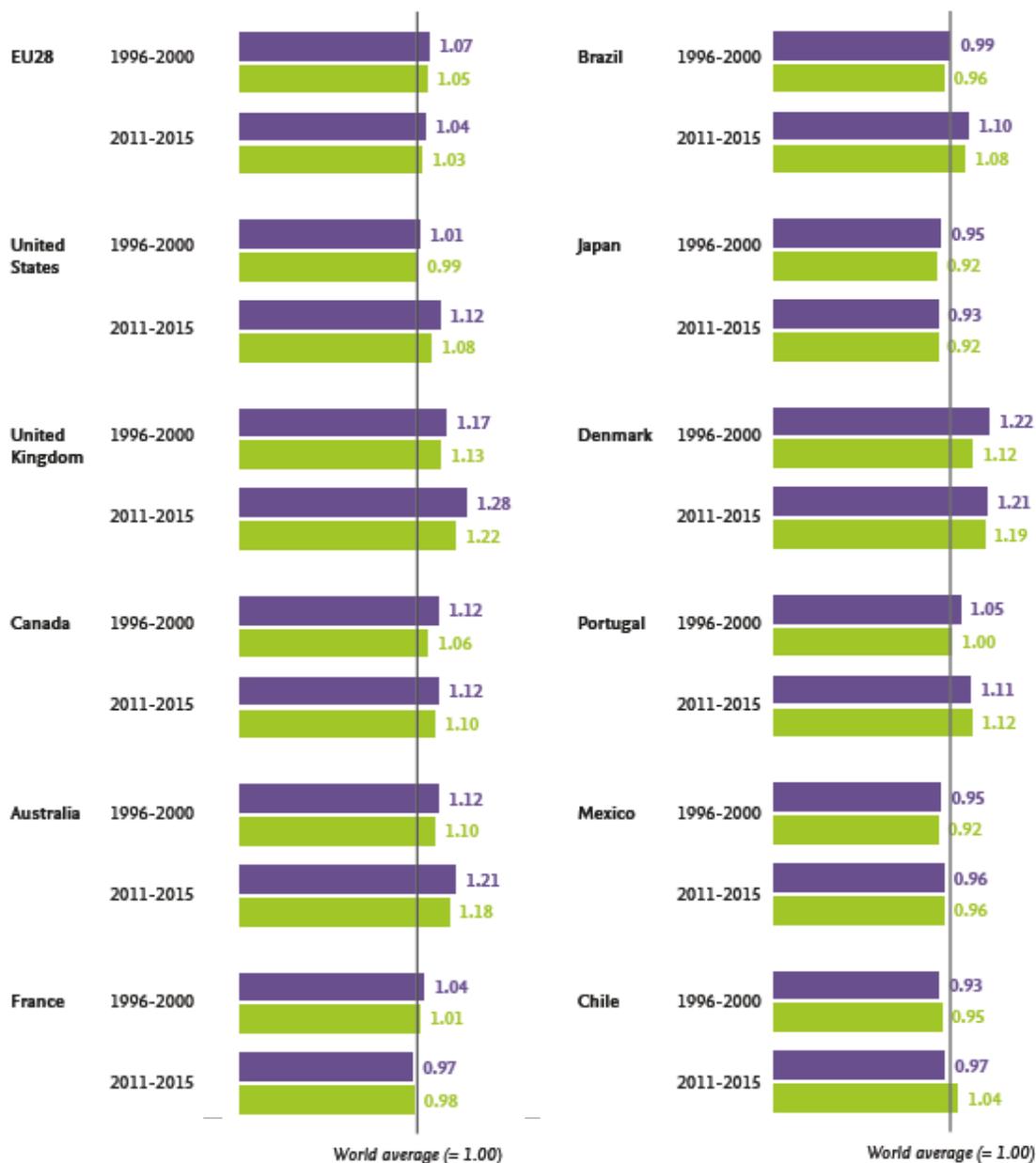
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FWDI (Downloads)

(Pág. 33)

■ Women ■ Men

FIELD-WEIGHTED DOWNLOAD IMPACT



For most comparators, there is little difference between the FWDI for women and men researchers, but in contrast to FWCI, FWDI values tend to be slightly higher for women than for men in many comparators.

We see no evidence that inequalities in how women researchers are represented across countries and fields and in their scholarly output affect how their research is read or built on by others.

FWDI (Downloads)

(Pág. 33)

■ Women ■ Men

FIELD-WEIGHTED DOWNLOAD IMPACT



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Patentes

■ Women ■ Men

PROPORTION OF WOMEN AND MEN
(AMONG NAMED GENDERED INVENTORS)



Amongst inventors, women are generally under-represented.

In Chile, there are 19% of women among inventors in 2011-2015, higher than the global average, and up from 12% in 1996-2000. For all of these countries the absolute values are very low for 1996-2000.

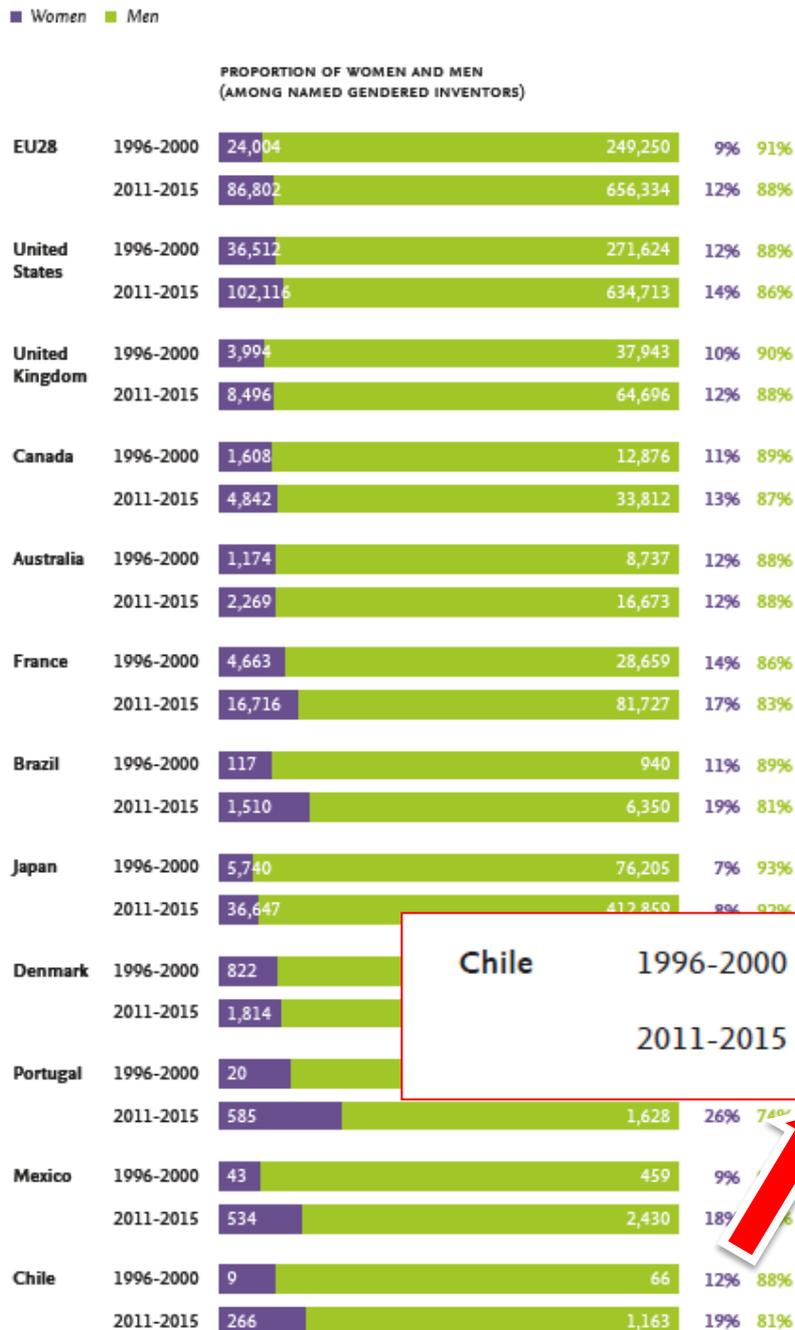
For all comparators, there is an improvement in gender balance between the analyzed periods.

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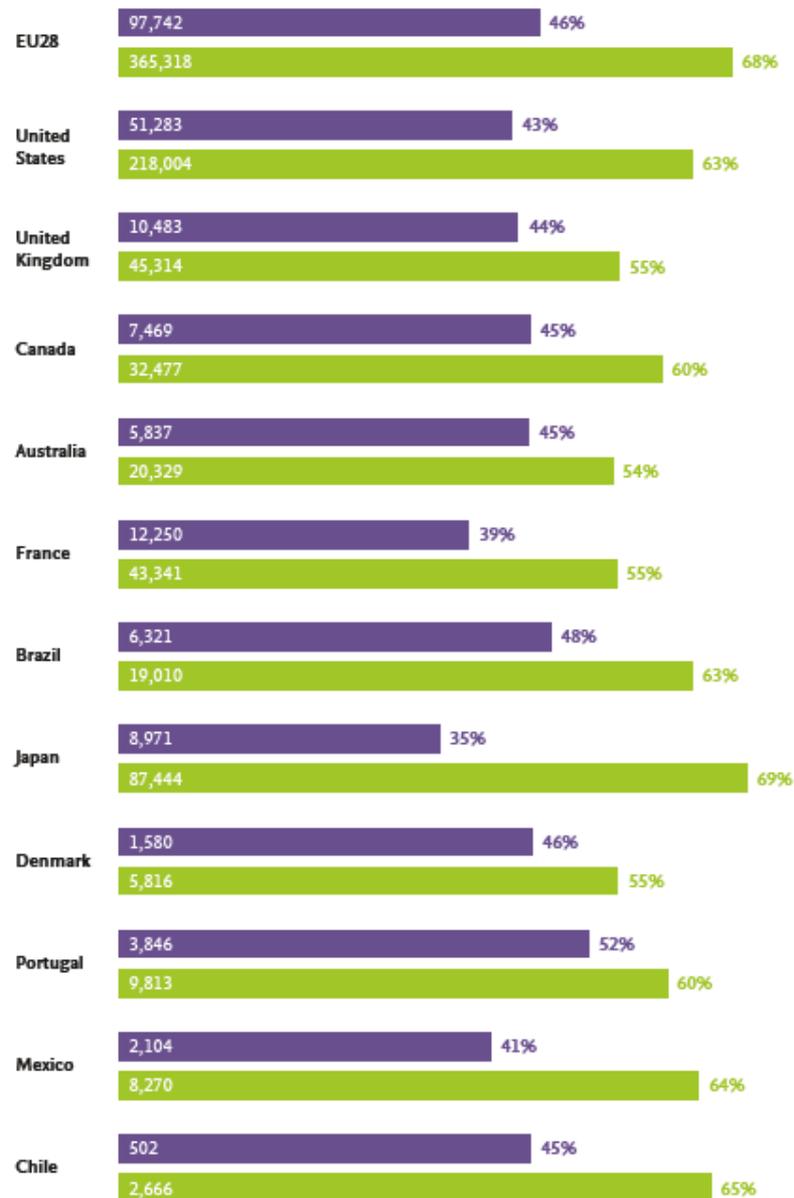
Chapter 2: gender and research leadership, collaboration, and mobility

1ª autora - Engenharia

(Pág. 48)

■ Women ■ Men

LEAD SCHOLARLY OUTPUT AS A SHARE OF TOTAL SCHOLARLY OUTPUT IN ENGINEERING (2011–2015)



Engineering is a field of science in which women researchers are generally significantly outnumbered by men researchers.

When men appear as authors in Engineering papers, they are more likely to take the first or corresponding author position than when women publish in the same field.

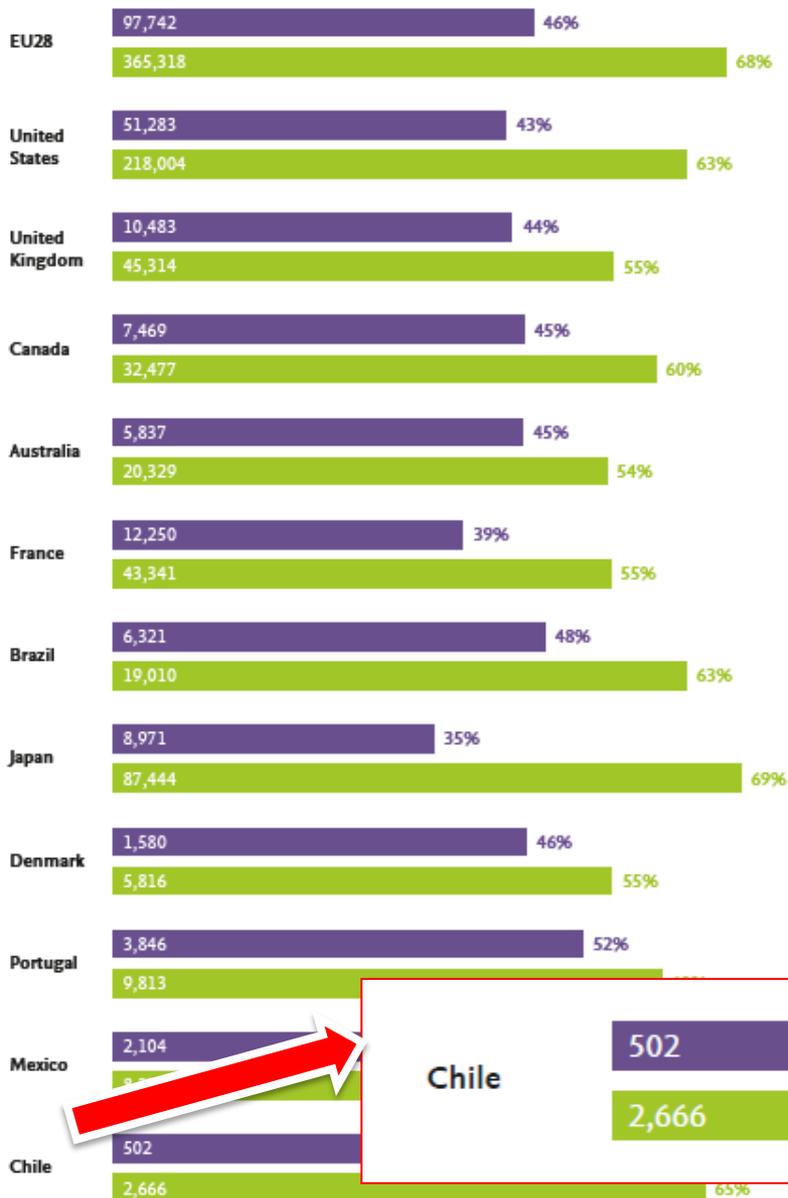
In Chile, women are first or corresponding author on 45% of their Engineering papers, 20 percentage points less than men, who are first or corresponding author on 65% of their Engineering papers.

1st author- Engineering

(Pág. 48)

■ Women ■ Men

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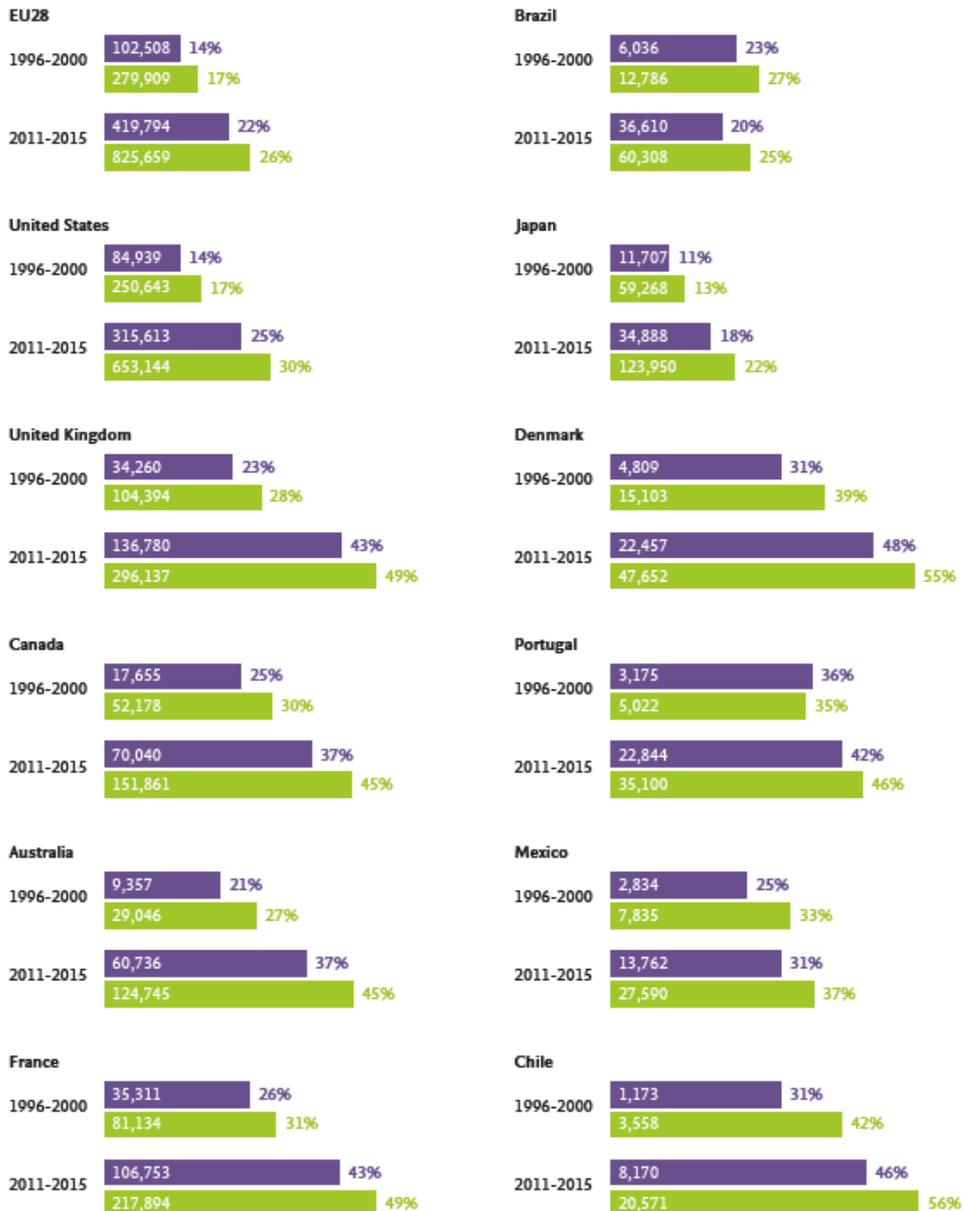
In Chile, women are first or corresponding author on 45% of their Engineering papers, 20 percentage points less than men, who are first or corresponding author on 65% of their Engineering papers.

■ Women ■ Men

Colaboración Internacional

(Pág. 52)

SCHOLARLY OUTPUT RESULTING FROM INTERNATIONAL COLLABORATION AS A SHARE OF TOTAL SCHOLARLY OUTPUT



Chile has relatively high shares of papers reflecting international collaboration for both men (56%) and women (46%).

In line with global patterns, scholarly output reflecting international collaboration increased between 1996-2000 and 2011-2015 as a proportion of total scholarly output

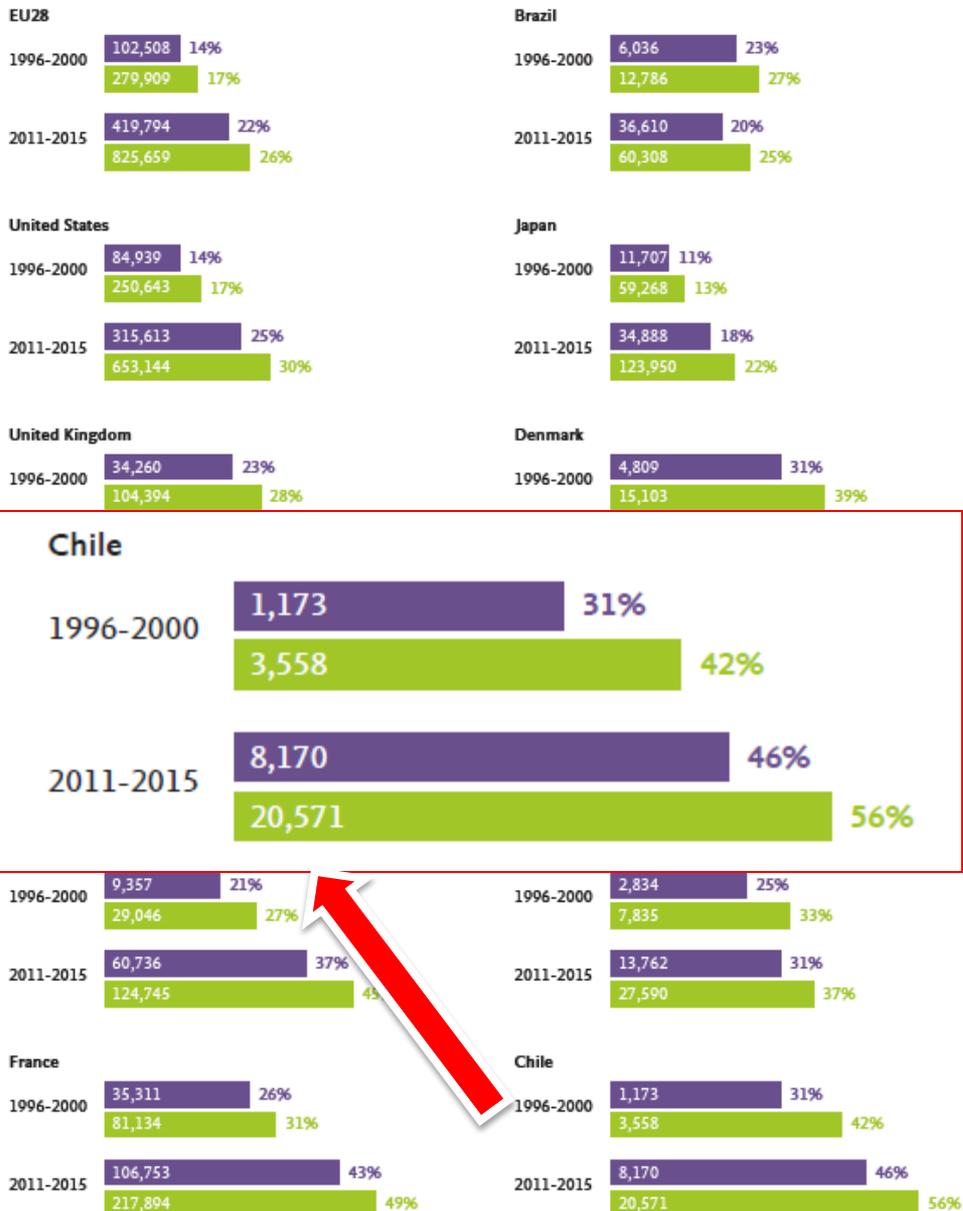
For all comparators, women's scholarly output is less likely to result from international collaboration than men's.

■ Women ■ Men

Colaboración Internacional

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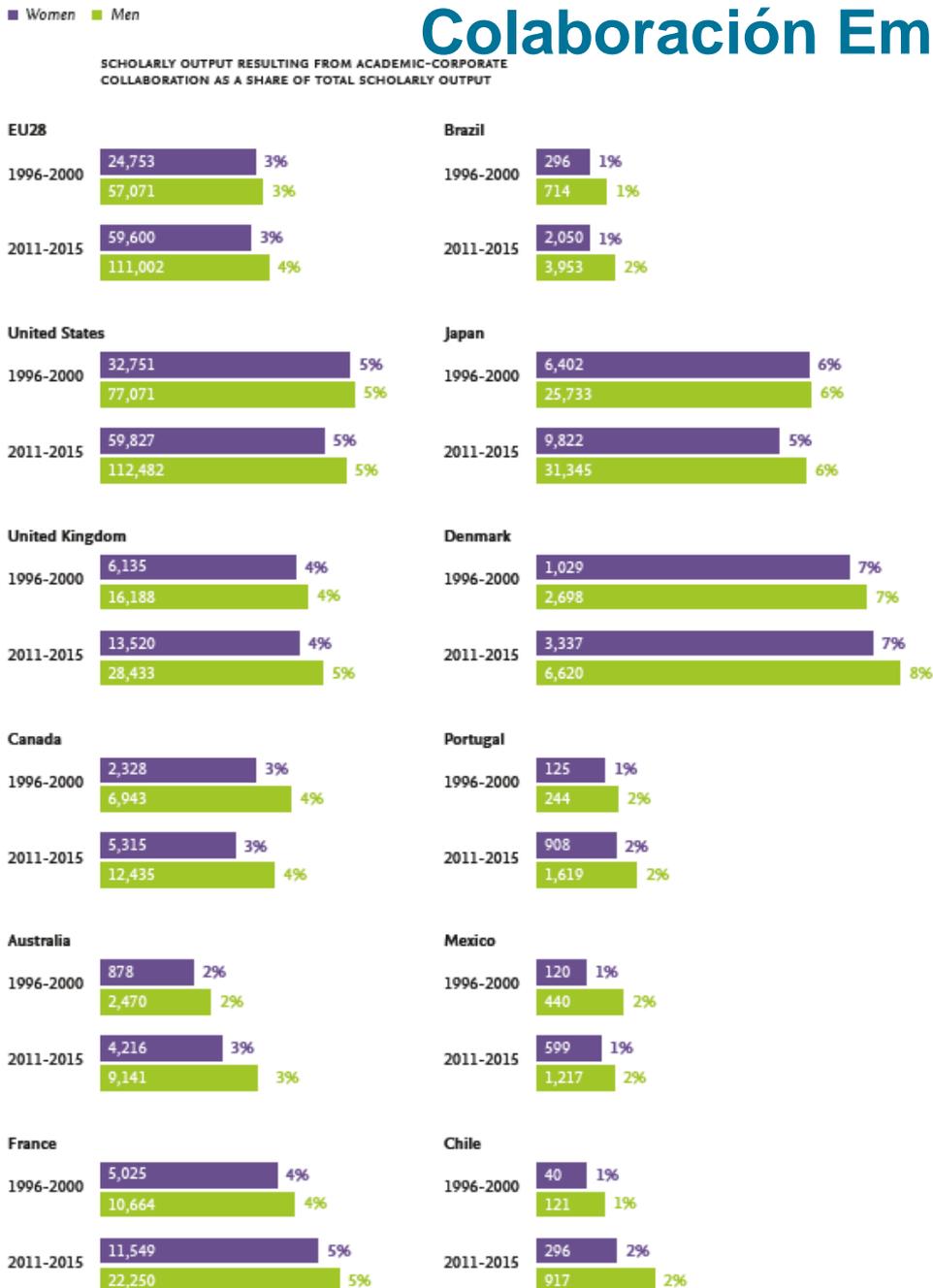
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Colaboración Empresa-Academia

(Pág. 55)

SCHOLARLY OUTPUT RESULTING FROM ACADEMIC-CORPORATE COLLABORATION AS A SHARE OF TOTAL SCHOLARLY OUTPUT



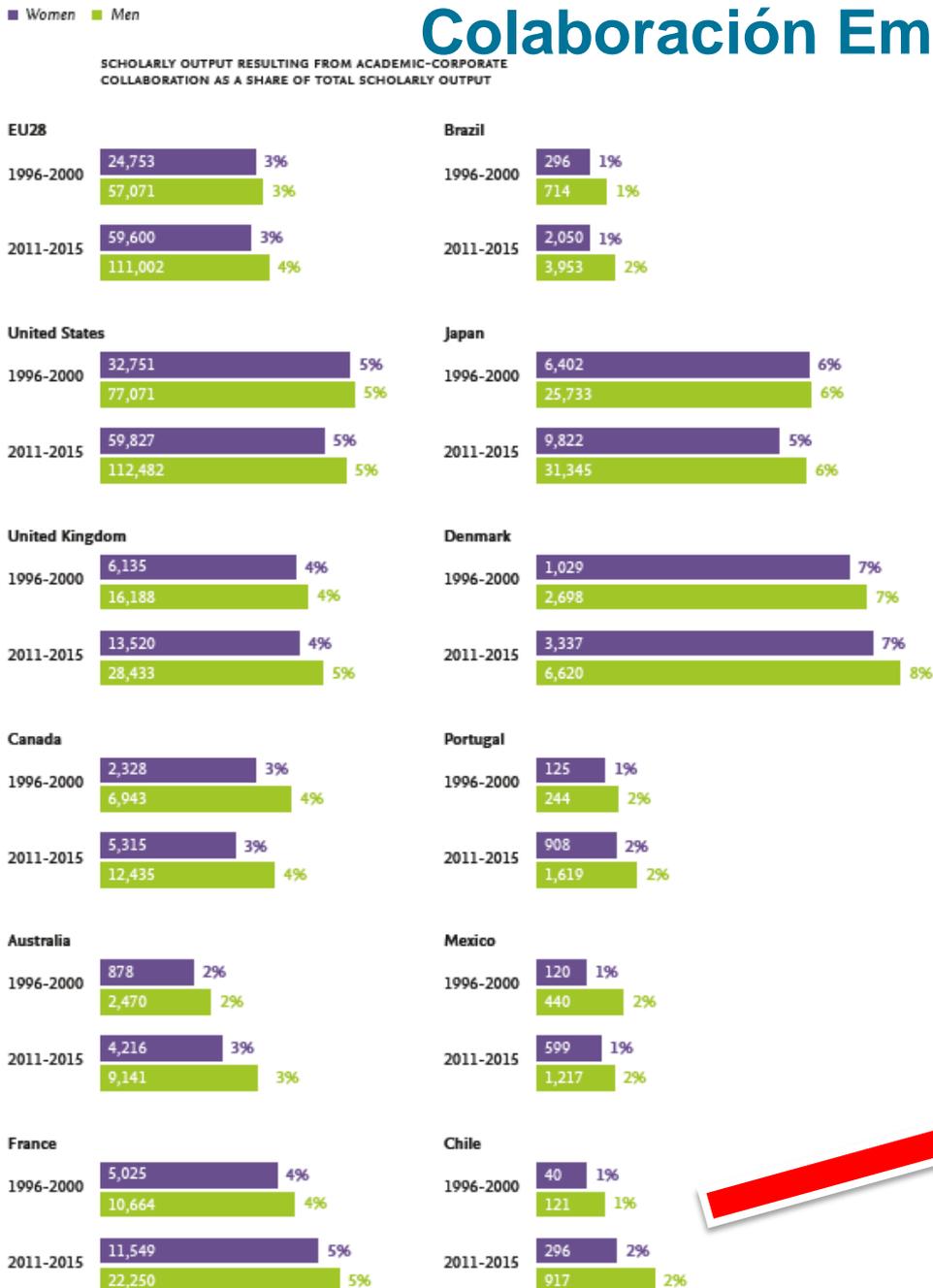
Chile has relatively low shares of papers reflecting academic-corporate collaboration for both men and women (2%), and there is little difference in these ratios between genders as well as for the other comparators.

For most comparators, the proportion of cross-sector collaboration increases between periods for both men and women.

Colaboración Empresa-Academia

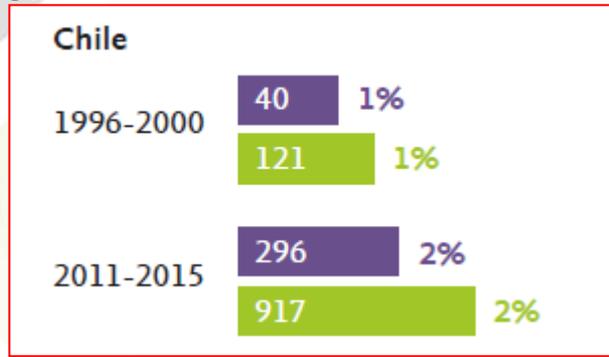
(Pág. 55)

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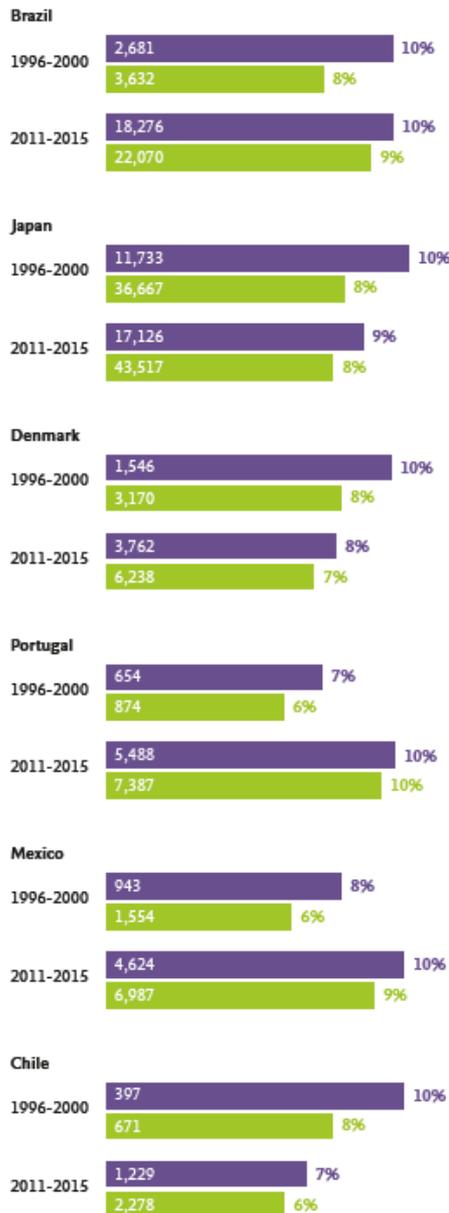
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Interdisciplinarietà

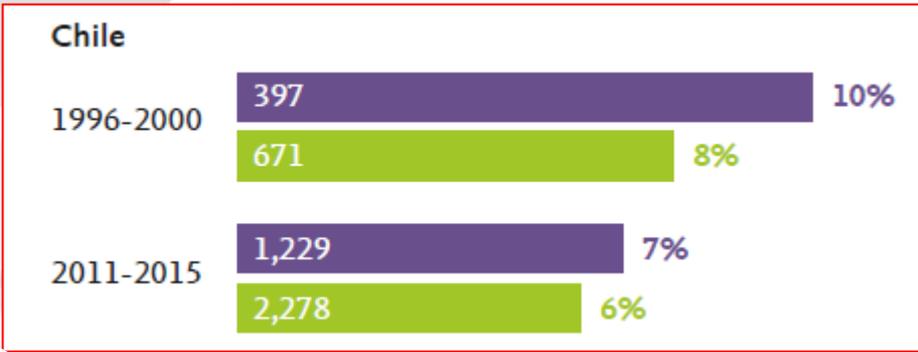
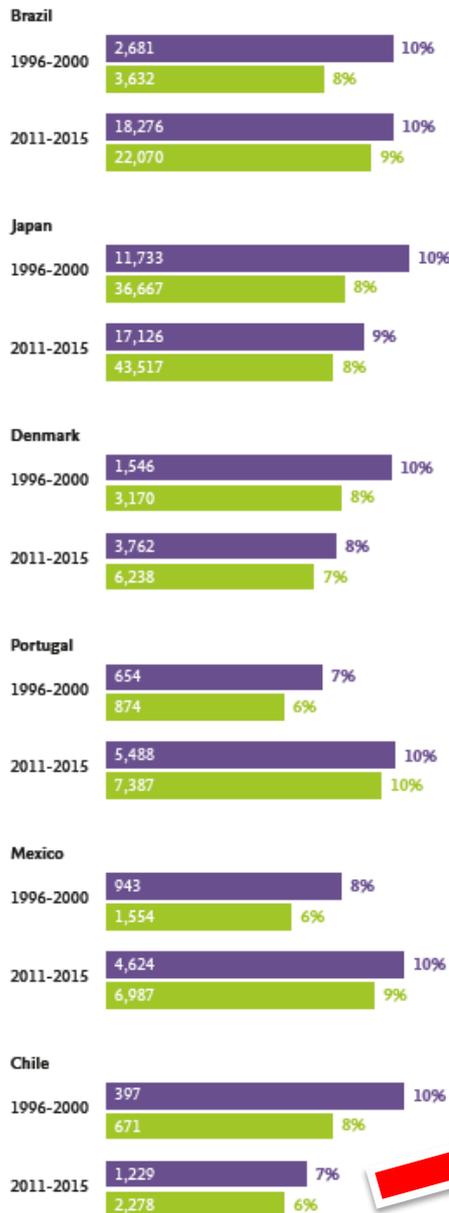
The differences across gender are limited; however, for many comparators, women tend to have a slightly higher share than men of the top 10% of interdisciplinary scholarly output relative to their total scholarly output. In most comparators, the proportion decreases for women and increases for men between 1996-2000 and 2011-2015. In Chile, it decreases for both men and women.

■ Women ■ Men
TOP 10% INTERDISCIPLINARY SCHOLARLY OUTPUT AS A SHARE OF TOTAL SCHOLARLY OUTPUT

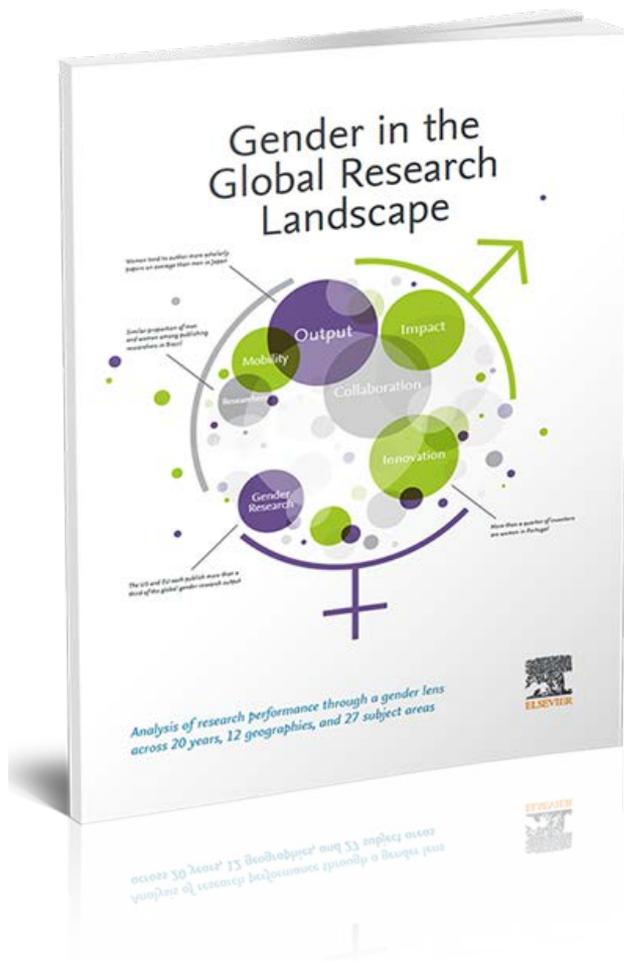


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Sitios con información adicional



- Download the **Report & Infographic**
 - **Full Report:** https://www.elsevier.com/research-intelligence/resource-library/gender-report/_nocache
 - **Infographics:** <https://www.elsevier.com/research-intelligence/campaigns/gender-17>
- Access the **References**
 - Public **Mendeley** group, a powerful community resource for anyone to join and contribute
 - <https://www.mendeley.com/community/gender-in-the-global-research-landscape/>
- **Gender & Research Resource Center**
 - **Dynamic resource** with information about gender and women in STEM activities, initiatives, and programs
 - <https://www.elsevier.com/connect/gender-and-science-resource-center>

Base de Datos públicamente disponible

ELSEVIER

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Research Intelligence

Gender in the Global Research Landscape

Elsevier's Global Gender Report Raw Data Available on Mendeley Data

Following the March launch of the *Gender in the Global Research Landscape Report*, we're pleased to share the report's raw data on the [Mendeley Data repository](#). This data, which is publicly available and free to use, is that behind the report's analysis of research performance through a gender lens across 20 years, 12 geographies and 27 subject areas, with indicators including authors, scholarly output, impact, inventors, patents, leadership, collaboration and interdisciplinarity.

[View the report's raw data](#)

Base de Datos públicamente disponible

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Gender in the Global Research Landscape raw data

Published: 9 Jun 2017 | **Version 2** | DOI: 10.17632/bb3cjfgm2w.2

Contributor(s): [Sarah Huggett](#)

Description of this data

This is the raw data behind our report "Gender in the Global Research Landscape" (<https://www.elsevier.com/research-intelligence/resource-library/gender-report>), which provides an analysis of research performance through a gender lens across 20 years, 12 geographies, and 27 subject areas. Indicators include authors, scholarly output, impact, inventors, patents, leadership, collaboration, and interdisciplinarity.

Experiment data files



Gender in the Global Research Landscape raw data.xlsx

72 KB

This is the raw data behind our report "Gender in the Global Research Landscape" (<https://www.elsevier.com/research-intelligence/resource-library/gender-report>).

[Download all files \(1\)](#)

Latest version

Version 2

2017-06-09

Published: 2017-06-09

DOI: 10.17632/bb3cjfgm2w.2

[Cite this dataset](#)

Huggett, Sarah (2017), "Gender in the Global Research Landscape raw data", Mendeley Data, v2

Gracias!

www.elsevier.com/research-intelligence

Empowering Knowledge

Anexos

The background features several overlapping circles in shades of purple, grey, and green. A thin orange horizontal line is positioned below the title. In the bottom right corner, there is a cluster of overlapping circles in green, purple, and grey, with a small black dot on one of the green circles.

www.elsevier.com/research-intelligence

Methodology

Rationale

- Our methodology is based on the theoretical principles and best practices developed in the field of quantitative science and technology studies, particularly in science and technology indicators research. The *Handbook of Quantitative Science and Technology Research: The Use of Publication and Patent Statistics in Studies of S&T Systems* (Moed, Glänzel and Schmoch, 2004) gives a good overview of this field and is based on the pioneering work of Derek de Solla Price (1978), Eugene Garfield (1979) and Francis Narin (1976) in the US, and Christopher Freeman, Ben Martin and John Irvine in the UK (1981, 1987), and in several European institutions including the Centre for Science and Technology Studies at Leiden University, the Netherlands, and the Library of the Academy of Sciences in Budapest, Hungary.
- The analyses of bibliometric data in this study are based upon recognised advanced indicators (e.g., the concept of relative citation impact rates). Our base assumption is that such indicators are useful and valid, though imperfect and partial measures, in the sense that their numerical values are determined by research performance and related concepts, but also by other, influencing factors that may cause systematic biases. In the past decade, the field of indicators research has developed best practices which state how indicator results should be interpreted and which influencing factors should be taken into account. Our methodology builds on these practices.

Data source

- Scopus is the largest abstract and citation database of peer-reviewed literature, with over 62 million records. These span over 22,500 titles from more than 5,000 international publishers. Scopus coverage is global; titles from all geographical regions are covered, including non-English titles as long as English abstracts can be provided with the articles. In fact, approximately 21% of titles in Scopus are published in languages other than English (or published in both English and another language), adding up to 40 languages.
- In addition, Scopus offers broad coverage of peer-reviewed literature and quality web sources across science, technology, and medicine (STM), as well as social sciences and arts & humanities (A&H).

Gender disambiguation methodology

- Each author in Scopus® has a unique identifier through which we can identify all the publications, affiliations, and citations of an author to form a profile for each author.
- NamSor and Genderize provide for each country a list of first names, and the number of people with this first name being a man and being a woman.
- We use this information to calculate the probability that each first name is a masculine or feminine name. All Scopus® author profiles were matched to this dataset according to their country of origin (i.e., the country where the researcher published his/her first publication) and first name. If the first name appears at least 5 times in the data and with more than 85% probability that the first name is a masculine or feminine name, we assign the gender associated with this first name to the researcher. Otherwise the gender of the researcher is not identified.
- For Japan we also used a list of masculine and feminine first names from Wikipedia.

Glossary

- A **paper** or **publication** refers to an article, review, or conference proceeding indexed in the Scopus database. **Scholarly output** for an entity is the count of articles with at least one author from that entity. All analyses make use of whole counting rather than fractional counting. For example, if a paper has been co-authored by one man and one woman, then that paper counts towards each gender's scholarly output. Total counts for each entity are the unique count of publications.
- A **citation** is a formal reference to earlier work made in an article or patent, frequently to other journal articles. A citation is used to credit the originator of an idea or finding and is usually used to indicate that the earlier work supports the claims of the work citing it. The number of citations received by an article from subsequently-published articles is a proxy for the importance of the reported research.
- Other use cases of research papers (e.g., by students, companies, medical practitioners, engineers, etc.) may not result in citations. Online usage can, however, give some insight into these more applied uses of research and provide a proxy for impact. We count the number of **downloads** of a paper's PDF or the number of online views of the full-text of a paper on Elsevier's ScienceDirect platform.

Glossary

- **FWCI (Field-Weighted Citation Impact)** is an indicator of mean citation impact, and compares the actual number of citations received by an article with the expected number of citations for articles of the same document type (article, review, or conference proceeding paper), publication year, and subject area. When an article is classified in two or more subject areas, the harmonic mean of the actual and expected citation rates is used. The indicator is therefore always defined with reference to a global baseline of 1.0 and intrinsically accounts for differences in citation accrual over time, differences in citation rates for different document types (reviews typically attract more citations than research articles, for example) as well as subject-specific differences in citation frequencies overall and over time and document types. It is one of the most sophisticated indicators in the modern bibliometric toolkit.
- **FWDI (Field-Weighted Download Impact)** is an indicator of mean download impact, and compares the actual number of downloads received by an article with the expected number of downloads for articles of the same document type (article, review, or conference proceeding paper), publication year, and subject area. When an article is classified in two or more subject areas, the harmonic mean of the actual and expected download rates is used. The indicator is therefore always defined with reference to a global baseline of 1.0 and intrinsically accounts for differences in download accrual over time, differences in download rates for different document types, as well as subject-specific differences in download frequencies overall and over time and document types.

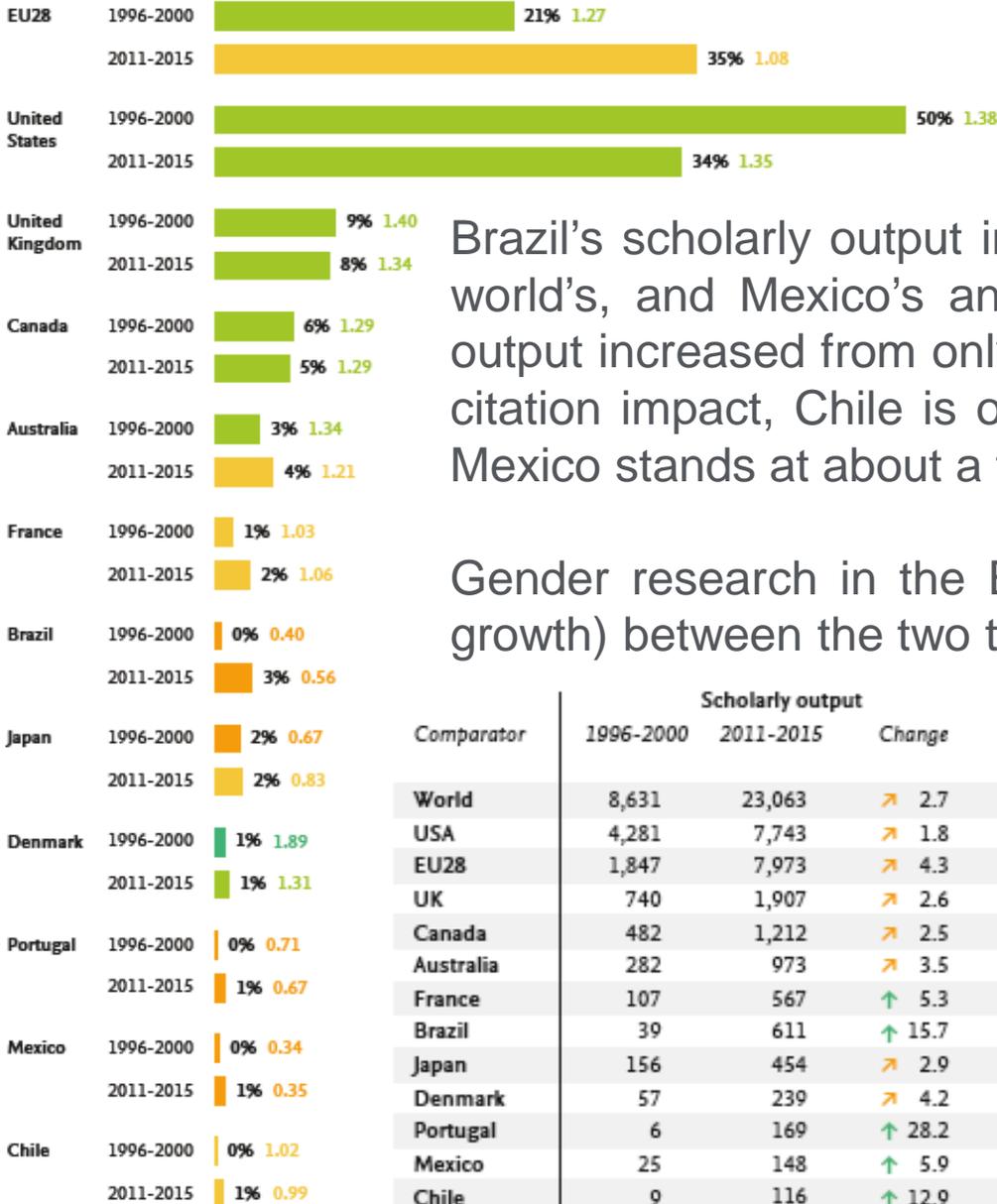
Glossary

- In this report, **leadership** is analysed through the proportion of papers on which researchers are first or corresponding authors, which means that it is likely that their role was central to the research project in terms of execution, guidance, or funding.
- **International Collaboration** in this report is indicated by papers with at least two different countries listed in the authorship byline.
- **Academic-Corporate Collaboration** in this report is indicated by papers with at least one author at an academic institution and one author at a corporate institution listed in the authorship byline.
- We use a citation-based approach to measure **interdisciplinarity**. The basic principle behind our approach is that, if a paper cites others that are “far away” from each other in terms of their topics and hence position in the overall citation network, it is likely to be interdisciplinary. We use this methodology to assign an interdisciplinary score to each paper, and then focus on the top 10% of papers with the highest interdisciplinary scores.

Chapter 3: the gender research landscape

FWCI: ■ < 0.50 ■ 0.50–0.75 ■ 0.75–1.25 ■ 1.25–1.75 ■ > 1.75

SHARE OF GLOBAL SCHOLARLY OUTPUT



There are more than 23,000 gender research papers published 2011-2015, more than 2.5 times (2.7 factor of growth) the number of papers published between 1996-2000.

Brazil's scholarly output in gender research represents 3% of the world's, and Mexico's and Chile's 1% each. All three countries' output increased from only a few papers in 1996-2000. In terms of citation impact, Chile is on a par with the global overall average, Mexico stands at about a third, and Brazil at about half.

Gender research in the EU more than quadruples (4.3 factor of growth) between the two time periods.

Comparator	Scholarly output			FWCI		
	1996-2000	2011-2015	Change	1996-2000	2011-2015	Change
World	8,631	23,063	↗ 2.7	1.21	1.02	↘ 0.8
USA	4,281	7,743	↗ 1.8	1.38	1.35	→ 1.0
EU28	1,847	7,973	↗ 4.3	1.27	1.08	↘ 0.9
UK	740	1,907	↗ 2.6	1.40	1.34	→ 1.0
Canada	482	1,212	↗ 2.5	1.29	1.29	→ 1.0
Australia	282	973	↗ 3.5	1.34	1.21	→ 0.9
France	107	567	↑ 5.3	1.03	1.06	→ 1.0
Brazil	39	611	↑ 15.7	0.40	0.56	↗ 1.4
Japan	156	454	↗ 2.9	0.67	0.83	↗ 1.2
Denmark	57	239	↗ 4.2	1.89	1.31	↘ 0.7
Portugal	6	169	↑ 28.2	0.71	0.67	→ 0.9
Mexico	25	148	↑ 5.9	0.34	0.35	→ 1.0
Chile	9	116	↑ 12.9	1.02	0.99	→ 1.0

Accordingly, the EU's output share of gender research grows from 21% (1996-2000) to 35% (2011-2015), thereby exceeding that of the US.