

# Gender productivity gap: a case study in Italian legal periodicals

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## Introduction

The analysis of productivity differences between men and women employed in research has always attracted interest among scientists, in particular sociologists, whose studies agree in recognizing a higher performance among men than women.

The present national survey, analyzing the specific sector of legal sciences, confirms the existing literature, but also brings to light differences in the distribution of performance between the sexes.

## Objective

The present investigation is placed in the context of a specific non bibliometric area such as law. In legal science, peer review represents the gold standard for assessing the quality of legal scholarship: this is partly due to the low acceptance in this area of a purely metrics-based system. Bibliometric methods are not considered sufficiently capable of measuring research performance in legal scholarship and they are not trusted by the legal community.

This study intends to offer an overview of the productivity of Italian women authors in Italian legal periodicals indexed in the most important Italian bibliographic database (Dogi-Dottrina Giuridica) and in a specific range of time (2010-2019). In particular, we specifically identify:

- the share of women and men as authors of contributions;
- whether there are differences in research productivity between men and women;
- if these differences in productivity present sectorial specificities in the areas of law;
- if these differences are most pronounced for publications in highly rated legal Italian journals.

## Context

In Italy, the production of scientific research activity in the field of law is difficult to be quantitatively examined since scientists in this field do not publish in sources indexed by the most popular citation databases such as WoS or Scopus; the majority of legal scientific production is limited and distributed by national channels.

The choice to use legal periodicals for conducting the survey is due to the fact that nowadays the outputs most commonly used to evaluate results of legal research are the scientists' publications in specialized journals. Legal journal articles usually reach a larger professional audience (not only academia, but also lawyers, judges...), they are more widely cited, and as a result are well received in evaluation exercises. It could be claimed that in Italy, legal journals are actually highly representative of real outputs from research activity as they are the main means to spread scientific knowledge and the main measure of research productivity. It should be noted that, in the last national research evaluation exercise (VQR 2011-2014), Italian law faculties have submitted more journal articles (38%) than monographs (26%). Furthermore, in specific areas of law (tax law and labour law), journal publications amounted to more than 40% of the total products submitted (monographs, proceedings, edited book, encyclopaedia entries...).

From the side of distribution of scientists in the Italian legal academia, faculty members (tenured, associated professors, researchers) teaching law in any faculty are distributed as following: 62% are men and 38% are women.

### **Data sources**

The following data sources were used to carry out this survey:

- The DoGi - Dottrina Giuridica database created and managed by the Istituto di Informatica Giuridica e Sistemi Giudiziari (IGSG-CNR). It is a reference database of articles published in Italian legal journals (more than 250 Italian periodicals). For each article, the DoGi record provides bibliographic information enhanced with: abstracts of articles; classification codes based on the DoGi indexing system; a selection of legislative and jurisprudential references quoted in the article; link to the full text when available online. Born in 1969, the database is, in the Italian national context, the most relevant source for online research of legal literature (<http://www.ittig.cnr.it/dogi/>).
- The research personnel database managed by the Ministry of Universities and Research (<http://cercauniversita.cineca.it/php5/docenti/cerca.php>).
- List of Class A scientific journals for the purpose of Abilitazione Scientifica Nazionale (ASN) for applying as associated or full professor positions at state-recognised universities.

### **Methodology and some encountered difficulties**

Based on the DoGi dataset, the set of authors was extracted and cleaned. Enhancement of the authors' dataset was accomplished in terms of: disambiguation of authors, gender attribution, enrichment with additional features, e.g. affiliations and careers by crossing with information taken from the research personnel database.

Normalization and disambiguation of author's names was performed through a semi-automatic procedure by automatic clustering of similar names and manual disambiguation of ambiguous clusters. When possible contextual information provided by external datasets (in particular VIAF – the Virtual International Authority File, and the ORCID dataset) was exploited to feed the clustering algorithm and to associate a unique identifier to each author. Similarly to Soler J.M (2007) and Gurney T. et al (2012) the deployed method takes into account surnames and first-name initials, the words that occur in article headings, and the journals, addresses, references and journal categories eventually indexed in VIAF and ORCID records.

Gender attribution was performed by applying a combination of methods. Attribution of gender based on the last letter of first name covers the majority of authors with common Italian names. The gender attribution activity, in the majority of cases has been accomplished through automated gender inference method, in particular the open-source Python package *gender-guesser*<sup>1</sup>. Results have been manually revised and made suited for Italian first names. As regards the value of co-authorship (which is anyway a minority in Italian legal journals papers), social scientists, including legal scientists, tend to order names' authors in alphabetical order (Endersby, 1996). This is also confirmed by the last Italian VQR evaluation exercise that ignored the specific contributions of SSH scholars to the publications that have been the result of a common work: it means that each author was assigned a score based on the product presented for evaluation, regardless of the number of the authors. For these reasons, in this survey, when dealing with co-authored publications, each author gets full recognition.

### **Some results**

In the period under observation (2010-2019) males do demonstrate a higher average productivity in terms of quantitative dimension of outputs compared to women. On average, men produce 4.78 publications while women produce 3.27 (+46%). If we restrict to highly rated journals the results are slightly different: on average, men produce 4.156 publications while women produce 3.14 (+32%). This highlights that the gender productivity gap in highly rated journals is less pronounced compared to the one investigated in the whole corpus of legal journals (highly rated and no rated). Therefore, one conclusion could be that women publish less on average, but focus on higher prestige journals.

Furthermore, while still focusing on highly rated journals, the study highlights that there are sectorial specificities in the differences between the sexes. In tax law for example on average, men produce 2.88 publications while women produce 2.09 (+37,8%). On the other hand, if we consider the area of comparative law, the survey shows that men still publish more articles than women, however the gender productivity gap in this specific filed of law is considerably less pronounced. On average, men produce 1.48 publications while women produce 1.316 (+12,4%). This shows a first picture of gender representation differences among legal subfields, which leads to the larger question of why these differences exist. Actually, this research survey is the first to our knowledge that documents the differences in gender productivity across legal areas.

### **Considerations**

The gender publication gap in research productivity is thus a challenge that policymakers should consider if they intend to address gender inequality in academia.

The results obtained from the survey are naturally based on a quantitative analysis namely on the number of articles published in Italian legal journals indexed in a specific legal database. This does not mean that this reflects the quality of scientific productivity of legal scientists. As a matter of fact even in law, a discipline with a large share of women, female authors publish less journal articles than male authors; as a consequence, they are less visible to the scientific community.

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<sup>1</sup> <https://github.com/lead-ratings/gender-guesser>

Finally, future investigations might be aimed at comparing the quantitative analysis with the qualitative one that can be obtained by examining different indicators. The combination of obtained data on the output (paper production) and on gender, with new data on citations, on field of research, on position of the researcher is surely the subject of future works of the authors of this abstract to observe and analyse the trend of legal research activity.

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