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# The economic contribution of IPR intensive industries in Uruguay (Executive Summary)



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# The economic contribution of IPR-intensive industries in Uruguay

*Industry-level Analysis Report*

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## Project Team

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*The information and views set out in this Study are those of the author(s) and do not necessarily reflect the official opinion of the European Commission.*

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## 1. Executive summary

### 1.1. Main findings

- There are 173 IPR-intensive industries in the Uruguayan economy. Approximately one-third of IPR-intensive industries are intensive in more than one IPR.
- IPR-intensive industries accounted for 35.9% of formal employment in Uruguay during the 2014-2019 period. On average, IPR-intensive industries employed 352,999 people directly per year.
- During the same period, IPR-intensive industries contributed with 48.9% of GDP, worth UY\$ 788,726 million. In terms of international trade flows in goods, these industries represented 44% of exports and 53.8% of imports, generating a trade deficit of about US\$ 1,315 million. Trade in services, audio-visual services, personal and cultural services, technical retail, and other business services were the categories with more IPR-intensive industries.
- Wages in all IPR-intensive industries were higher than in other industries, with a wage premium of 34%. Plant-variety rights-intensive industries showed the highest premium, at 200%. This is consistent with the fact that value added per worker is higher in IPR-intensive industries than in other industries.
- A salient feature of IPR filing in Uruguay is that the share of resident applicants is significantly low. Only around 3% of patent applications and 10% of design applications were made by residents in 2014-2019.

## 1.2. IPR-intensive industries in Uruguay

The IPRs covered in this study are patents, trade marks, designs, copyrights, geographical indications (GI), and plant variety rights (PVR). IPR-intensive industries are defined as those showing an above-average number of filings of IPRs per employee compared with other IPR-using industries.<sup>1</sup> This means that an industry is identified as IPR-intensive in Uruguay if -for at least one of the IP rights under consideration- the number of IPRs per employee exceeds the employment-weighted average of IPRs per employee of all industries making use of that same IP right. IPR-intensive industries in Uruguay are concentrated in manufacturing, retail and wholesale activities, and services sectors, as shown in Chapter 6. Although most IPR-intensive industries in Uruguay use only one IP right intensively, about one third combine two or more IP rights.

The contribution of IPR-intensive industries to two main economic indicators - employment and output - is summarised in Table 5 and Table 2. To minimise the impact of data gaps in the statistics and to avoid attaching undue importance to a particular year, the economic indicators were calculated as an average for the years 2014-2019.

As shown in Table 1, on average, 35.9% of all formal employees in Uruguay were employed in IPR-intensive industries in the 2014-2019 period.

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<sup>1</sup> Due to data limitations, we cannot distinguish between IPRs that were applied for and IPRs that were subsequently granted.

**Table 1: Direct contribution of IPR-intensive industries to formal employment, 2014-2019**

<b>IPR-intensive industries</b>	<b>Employment (direct)</b>	<b>Share of total employment (direct)</b>
Copyright-intensive	65,757	6.7%
Design-intensive	8,022	0.8%
Geographical indication-intensive	1,279	0.1%
Patent-intensive	116,253	11.8%
Plant variety rights-intensive	22,815	2.3%
Trade mark-intensive	268,983	27.4%
<b>All IPR-intensive</b>	<b>352,999</b>	<b>35.9%</b>
<b>Total formal employment in Uruguay</b>	<b>982,948</b>	

Notes: Due to overlapping use of IP rights, the sum of the shares of the individual IPRs exceeds the total share of IPR-intensive industries.

This percentage is comparable to the 29.2% contribution of IPR-intensive industries to employment in the EU for the 2014-2016 period (EPO and EUIPO, 2019). More than 350,000 formal employees worked in IPR-intensive industries in Uruguay per year, on average, in 2014-2019. Trade mark-intensive industries contributed the most to employment, with 27.4% of employees, followed by patent-intensive industries (11.8%) and PVR-intensive industries (2.3%). Design-intensive and GI-intensive industries contributed with less than 1%.

In terms of output, measured by gross domestic product (GDP), IPR-intensive industries generated almost 50% of GDP in Uruguay in the 2014-2019 period (Table 2). This is similar to the contribution of IPR-intensive industries to GDP in the EU for 2014-2106 (44.8%). Trade mark-intensive industries accounted for 43.4%, patent-intensive industries 22.8%, copyright-intensive industries 4.3%, PVR-intensive 2.3%, design-intensive industries 0.6% and GI-intensive industries 0.1%.

**Table 2: Contribution of IPR-intensive industries to GDP, 2014-2019 average**

IPR-intensive industries	Value-added (UY\$ million)	Share of total GDP
Copyright-intensive	69,668.7	4.3%
Design-intensive	9,604.9	0.6%
Geographical indication-intensive	1,840.3	0.1%
Patent-intensive	368,110.3	22.8%
Plant variety rights-intensive	37,543.0	2.3%
Trade mark-intensive	698,128.1	43.3%
<b>All IPR-intensive</b>	<b>788,726.3</b>	<b>48.9%</b>
<b>Total GDP</b>	<b>1,611,666.9</b>	

Notes: Due to overlapping use of IP rights, the sum of the shares of the individual IPRs exceeds the total share of IPR-intensive industries.

The contributions of IPR-intensive industries to employment and GDP imply that value-added per worker was higher in IPR-intensive industries than in other industries over the period under study. In theory, then, IPR-intensive industries should show a wage premium compared to other non-IPR-intensive industries. Table 3 confirms, IPR-intensive industries paid their employees 34% higher wages than other industries, but 13 percentage points lower than what EPO and EUIPO found for the EU (2019). While the average wage in IPR-intensive industries was UY\$ 39,532, the average salary in non-IPR-intensive industries was UY\$ 29,498. All IPR-intensive industries showed a wage premium. The wage premium was higher in PVR-intensive industries (200%), followed by patent-intensive industries (41%), trade mark-intensive industries (35%), design-intensive industries (31%), GI-intensive industries (25%), and copyright-intensive industries (22%).

**Table 3: Average wages in IPR-intensive industries, 2014-2019**

IPR-intensive industries	Average wage (UY\$ per month)	Premium (compared to non- IPR-intensive industries)
Copyright-intensive	35,848	22%
Design-intensive	38,565	31%
Geographical indication-intensive	36,936	25%
Patent-intensive	41,492	41%
Plant variety rights-intensive	88,433	200%
Trade mark-intensive	39,881	35%
<b>All IPR-intensive</b>	<b>39,532</b>	<b>34%</b>
<b>Non-IPR-intensive</b>	<b>29,498</b>	
All industries	33,102	

Chapter 7 includes an analysis of the contribution of IPR-intensive industries to international trade in goods and services. As shown in Table 4, during 2014-2019, IPR-intensive industries in Uruguay accounted for 44% and 53.8% of exports and imports of goods, respectively, generating a trade deficit of roughly US\$ 1,315 million. Regarding international trade in services, IPR-intensive industries accounted for 74.6% and 50.7% of exports and imports of services, respectively.

**Table 4: International trade in goods in IPR-intensive industries, 2014-2019**

IPR-intensive industries	Exports (US\$)	Share of total exports	Imports (US\$)	Share of total imports
Copyright-intensive	23,011,258	0.3%	263,158,917	3.0%
Design-intensive	300,811,165	3.8%	497,469,121	5.6%
Geographical indication-intensive	11,730,206	0.1%	90,927,658	1.0%
Patent-intensive	318,494,755	4.0%	1,245,847,355	14.0%
Plant variety rights-intensive	553,816,871	7.0%	358,451,699	4.0%
Trade mark-intensive	3,189,225,498	40.4%	4,024,562,680	45.2%



All IPR-intensive	3,473,685,710	44.0%	4,788,365,346	53.8%
Total for Uruguay	7,901,689,614		8,895,034,419	

Notes: Due to overlapping use of IP rights, the sum of the shares of the individual IPRs exceeds the total share of IPR-intensive industries.

### 3.3. Methodology and data

The methodology to identify IPR-intensive industries and estimate their contribution to the Uruguayan economy used in this study follows EPO and EUIPO (2019) as closely as possible to achieve maximum comparability. Its principles are essentially the same: first, determine IPR use across industries and identify those industries that use IPR more intensively; second, use industry-level economic data to characterize IPR-intensive industries in terms of employment, wages, value added (GDP), and international trade; third, compare industry-level aggregates to the overall economy to estimate the weight of IPR-intensive industries in the economy. Chapter **¡Error! No se encuentra el origen de la referencia.** includes a detailed description of the methodology and sources of data used in this study.

A wide variety of databases and other data sources were used to determine which industries are IPR-intensive and to assess the contribution of these industries to employment, GDP and other economic indicators. To decide which industries are IPR-intensive, IPR register databases of LATIPAT (by the EPO), the National Directorate of Industrial Property of Uruguay (DNPI), and the National Register of Cultivars (RNC) of Uruguay’s National Institute of Seeds (INASE) were matched with a business register constructed combining registers from Uruguay’s Social Security Bank (BPS), provided by the Ministry of Labour and Social Security (MTSS), and registers publicly available from Uruguay’s National Institute of Statistics (INE). The business register provides information on businesses registered economic activity, which was used to calculate the number of trade marks, designs, patents and PVRs per employee for each industry. Industries with IPRs per employee above an employment-weighted average among industries with IPR were considered to be IPR-intensive.

We used a string-matching algorithm to perform the match between IPR registers and the business register as well as manual revision to improve the fraction of registers that could be matched. Depending on the type of IPR, between 62% and 99% of IPRs filed by Uruguayan residents were matched with information of their owners and assigned to an economic activity.

A relevant feature about IPR applications in Uruguay is that they are predominantly made by foreign residents: only around 3% of patent applications were made by residents in 2014-2019, and only 10% of design applications were made by residents.

This low fraction is not specific to the period under study but a general characteristic of patenting activity in Uruguay. The average fraction of patents filed by residents in the last 20 years in Uruguay is 4.8%, as reported by RICYT<sup>2</sup>. Appendix **¡Error! No se encuentra el origen de la referencia.** includes a discussion about the methodological challenges implied by this feature and compares patenting behaviour between residents and non-residents in Uruguay.

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<sup>2</sup> RICYT collects comparable science, technology and innovation indicators, including patent applications and patents granted by the country of residence of the applicant for Latin America and the Caribbean. See [www.ricyt.org](http://www.ricyt.org).