IPKey

The Economic Contribution of the IPR Intensive Industries in Argentina

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Content

Project Team

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1. About this study

The objective of this study is to identify industries that use intellectual property rights (IPRs) intensively and to measure their economic contribution in Argentina. It is designed to maximize comparability with recent efforts by the European Union Intellectual Property Office (EUIPO) and the European Patent Organisation (EPO) to quantify the importance of IPR-intensive industries in the European Union and other Latin American economies.

The study contributes to previous efforts by producing consistent and comparable estimates of IPR-intensive industries in Argentina and their contribution to overall economic activity and employment. In particular, it is built upon the methodologies and structure of previous studies carried out by EPO and EUIPO (2019) for the EU and EU member states, EUIPO and IMPI (2021) for Mexico, EUIPO and INDECOPI (2021) for Peru, and ongoing studies for Uruguay and Chile.

Whereas existing evidence about the contributions of innovation outputs to productivity or employment tend to be based on exploiting self-reported data from innovation surveys using econometric models, this study makes extensive use of administrative records about IPR applications. While the study aims to analyse industries that show and intensive use of various types of IPRs and how they contribute to the Argentine economy, it does not attempt to establish causal relationships between IPRs and economic outcomes.

As in EPO and EUIPO (2019), the unit of analysis in this study is the industry or sector. The IPRs rights the study focuses on are patents, trade marks, and designs published by the National Institute of Industrial Property of Argentina (INPI), geographical indications, and plant variety rights registered in the National Registry of Cultivars of Argentina during the 2014-2019 period. The economic variables considered are value added, employment, wages, exports, and imports for 2014-2019 period.

Rather than making policy recommendations, which are outside the scope of this study, the analysis provides information about the extent and economic importance of IPR use among economic sectors in Argentina, which could be helpful for policymakers or analysists involved in intellectual property protection.

The remainder of this report is organized as follows. Chapter 2 provides an executive summary and main findings and results. Chapter 3 presents an overview of intellectual property rights, including their importance for economic growth and development and features of the different types of IPRs considered in this study. Chapter 4 presents the methodology used to identify IPR-intensive industries as well as the sources of data. Chapter 5 presents the main results regarding industries that are intensive in the use of IPRs, including by type of right. Chapter 6 measures the economic contribution of IPR-intensive industries in terms of employment, value added, international trade, and wages. Appendixes contain further details about the methodology and complete lists of IPR-intensive industries.

2. Executive summary

2.1. Main findings

- There are 180 IPR-intensive industries in the Argentine economy. 57% of industries is intensive in more than one IPR.

- IPR-intensive industries accounted for 45.2% of formal employment in Argentina during the 2014-2019 period. On average, IPR-intensive industries employed 2,942,5129 people directly per year.

- During the same period, IPR-intensive industries contributed with 41.9% of GDP, worth AR$ 4,527,974 million. In terms of international trade flows in goods, these industries represented 56.4% of exports and 81.0% of imports, generating a trade deficit of about US$ 16,106 million.

- Wages in most IPR-intensive industries were higher than in other industries. The average wage premium of IPR-intensive industries was 9%, which is lower than what has been found for other Latin American countries. Plant variety rights-intensive industries showed the highest premium, at 41%. Overall, this is consistent with the fact that value added per worker is higher in IPR-intensive industries than in other industries. However, in Argentina copyright-intensive and GI-intensive industries exhibited salaries below those of non-intensive industries.

- A salient feature of IPR filing in Argentina is that the share of resident applicants is significantly low. Only around 12% of patent applications were made by residents in 2014-2019.

2.2. IPR-intensive industries in Argentina

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.1 This means that an industry is identified as IPR-intensive in Argentina 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 are concentrated in manufacturing, retail and wholesale activities, and services sectors, as shown in Chapter 5. About half (56% of industries) combine two or more IP rights intensively.

The contribution of IPR-intensive industries to two main economic indicators – employment and output – is summarised in Table 1 and Table 2. To minimise the impact of data gaps in

[1] Due to data limitations, we cannot distinguish between IPRs that were applied for and IPRs that were subsequently granted.

economic statistics and avoid attaching undue importance to a particular year, the economic indicators were calculated as an average for the years 2014-2019.

As shown in Chapter 6, on average, 45.2% of all formal employees in Argentina were employed in IPR-intensive industries in the 2014-2019 period. This percentage is higher than the 29.2% contribution of IPR-intensive industries to employment in the EU for the 2014-2016 period (EPO and EUIPO, 2019). Almost 3 million formal employees worked in IPR-intensive industries in Argentina per year, on average, in 2014-2019. Trade mark-intensive industries contributed the most to employment, with 25.3% of employees, followed by copyright-intensive (18.4%), design-intensive (16.7%) and patent-intensive industries (14.6%). PVR-intensive industries and GI-intensive industries contributed with less than 1%.

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

IPR-intensive industries	Employment (direct)	Share of total salaried employment (direct)
Copyright-intensive	1,198,287	18.4%
Design-intensive	1,089,170	16.7%
Geographical indications-intensive	35,446	0.5%
Patent-intensive	948,410	14.6%
Plan varieties-intensive	52,709	0.8%
Trade mark-intensive	1,646,374	25.3%
All IPR-intensive	**2,942,519**	**45.2%**
Total formal employment in Argentina	**6,505,046**	

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. Total employment includes salaried employment only and it does not include independent employment.

In terms of output, measured by gross domestic product (GDP), IPR-intensive industries generated 42% of GDP in Argentina 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 26.8%, copyright-intensive and design-intensive industries for 15.3% and 15.1%, respectively. Patent-intensive industries contributed with 13.5%. The contribution of PVR-intensive and GI-intensive industries was around or below 1%.

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

IPR-intensive industries	Value-added / GDP (Argentine 1,000,000 pesos)	Share of total GDP
Copyright-intensive	1,657,861	15.3%
Design-intensive	1,629,159	15.1%
Geographical indication-intensive	39,467	0.4%
Patent-intensive	1,456,996	13.5%
Plant varieties-intensive	11,.944	1.1%
Trade mark-intensive	2,896,297	26.8%
All IPR-intensive	**4,527,974**	**41.9%**
Total GDP	**10,814,334**	

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 slightly 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. In fact, as Table 3 shows, IPR-intensive industries paid their employees 10% higher wages than other industries, almost a fifth of what EPO and EUIPO (2019) found for the EU.

The average wage in IPR-intensive industries was AR$ 26,912, compared to AR$ 24,563 for non-IPR-intensive industries, which implies a 10% wage premium for IPR-intensive industries in 2014-2019. PVR-intensive industries showed the highest wage premium (45%), followed by trade mark-intensive industries (25%), design-intensive industries (13%) and patent-intensive industries (10%). However, not all IPR-intensive industries had a positive premium. Wages in copyright and GI-intensive industries were lower than in non-IPR-intensive sectors and were below the national average for the period considered in the study.

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

IPR-intensive industries	Average wage (Argentine pesos per month)	Premium (compared to non-IPR-intensive industries)
Copyright-intensive	23,271	-5%
Design-intensive	27,459	12%
Geographical indications-intensive	24,372	-1%
Patent-intensive	26,676	8%
Plan varieties-intensive	34,636	41%
Trade mark-intensive	30,667	25%
All IPR-intensive	**26,851**	**9%**
Non-IPR-intensive	**24,598**	
All industries	**25,617**	

Note: based on wages of salaried employees.

Chapter 6 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 Argentina accounted for 56.4% and 81% of exports and imports of goods, respectively, generating a trade deficit of roughly US$ 16,106 million. In the case of exports, trade mark-intensive industries are responsible for a sizable share, followed by patent-intensive industries. In the case of imports, the most relevant share corresponds to design-intensive industries, with almost similar shares than trade mark- and patent-intensive industries.

Table 4: External trade in IPR-intensive industries, 2014-2019

IPR-intensive industries	Exports (US$ million)	Share of total exports	Imports (US$ million)	Share of total imports
Copyright-intensive	588.1	1.0%	1,964.9	3.2%
Design-intensive	13,942.5	23.9%	28,153.3	46.5%
Geographical indication-intensive	1,162.4	2.0%	67.6	0.1%
Patent-intensive	17,600.8	30.1%	26,429.6	43.6%
Plant varieties-intensive	11,254.3	19.3%	1,690.1	2.8%
Trade mark-intensive	21,837.7	37.4%	27,758.6	45.8%
All IPR-intensive	**32,952.8**	**56.4%**	**49,058.6**	**81.0%**
Total for Argentina	**58,381.0**		**60,590.3**	

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.

2.3. Methodology and data

The methodology to identify IPR-intensive industries and estimate their contribution to the Argentine 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 4 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); WIPO, as a source of trade marks and designs records; and the National Register of Cultivars (RNC) of Argentina's National Institute of Seeds (INASE) were matched with a business record from Argentina's Internal Revenue Federal Administration (AFIP), as of 2019. These registers provide the database to identify applicants' industry classification. 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 72% and 98% of IPRs filed by Argentine residents were matched with information of their owners and assigned an economic activity.

A relevant feature about IPR applications in Argentina is that they are predominantly made by foreign residents: only around 12% of patent applications were made by residents in 2014-2019. This low fraction is not specific to the period under study but a general characteristic of patenting activity in Argentina. The average fraction of patents filed by residents in the last 10 years in Argentina is 15.8%, as reported by RICYT[2]. Appendix 7 includes a discussion about the methodological challenges implied by this feature and compares patenting behaviour between residents and non-residents in Argentina.

[2] 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.

3. Introduction

Sustained economic growth relies on continuous technological progress. Over the last three centuries, the world has experienced a series of innovative breakthroughs in different fields of technology that have profoundly transformed productive activity and spurred the growth of new industries. Available evidence confirms that inventors and firms' investments in new technologies, new pieces of knowledge and innovation relies on the expected profits that they could appropriate from these investments. At the same time, for technological breakthroughs to spur economic growth, they need to diffuse widely throughout the economy. Firms need to learn how to use new technology, undertake capital investments, reorganize business operations and train workers. Indeed, the arrival of new technologies typically spurs complementary organizational and business model innovations that, in themselves, are responsible for significant productivity gains.

WIPO (2015a) illustrates the importance that IP systems have in both the innovation incentives -by contributing at least partially to R&D appropriation –and in facilitating sharing of knowledge, by encouraging disclosure and providing a flexible tool for innovators to decide which technologies to share, with whom and on what terms.

Despite the potential contribution to economic growth and development, there is a dearth of evidence on the overall contribution of IPR-intensive industries. The evidence based on register data is mainly limited to developed economies, particularly the US and the EU. A 2016 report by the United States Patent and Trademark Office (USPTO, 2016), updating results published in USPTO (2012), combined USPTO administrative data to identify the industries that most intensively use the protection offered by patents and trade marks and identify the set of industries primarily responsible for both the creation and production of copyrighted materials.[3] The report identified 81 industries from among 313 as IPR-intensive. These IPR-intensive industries directly accounted for 27.9 million jobs in 2014, or 18.2% of total employment, while indirect activities associated with these industries provided an additional 17.6 million jobs, for a total of 45.5 million jobs in 2014 (30% of all jobs). IPR-intensive industries accounted for about US$ 6.6 trillion in value added, or 38.2% of U.S. gross domestic product (GDP), in 2014. The report also provided evidence that IPR-intensive industries pay a wage premium compared to other industries. Average weekly wages for IPR-intensive industries were 46% higher than average weekly wages in other non-IPR-intensive industries. This wage premium more than doubled from 22% in 1990. Finally, merchandise exports of IPR-intensive industries totalled US$ 842 billion in 2014, accounting for 52% per cent of total U.S. merchandise exports. Additionally, IPR-intensive service-providing industries accounted for approximately 12.3 per cent of total U.S. private services exports in 2012.

Concerning the European Union, EPO and EUIPO have conducted jointly three studies on the topic. The first joint study carried out in 2013 (EPO and EUIPO, 2013) covered the period 2008-2010 while the update conducted in 2016 (EPO and EUIPO, 2016) considered for its analysis the period 2011-2013. The latest study (EPO and EUIPO, 2019) looks at the period 2014-2016. The latest results show that there are now 353 IPR-intensive industries in the EU economy,

[3] GI and PVR were not included in the scope of USPTO (2016).

compared with the 342 identified in the previous study. Approximately two-thirds of these industries are intensive in respect of more than one IP right. In terms of their contribution, the latest evidence highlights that IPR-intensive industries generated 29.2% of all jobs in the EU during 2014-2016. On average over this period, they employed almost 63 million people in the EU. In addition, another 21 million jobs were generated in industries that supply goods and services to IPR-intensive industries. Considering indirect jobs, the total number of IPR-dependent jobs rises to 83.8 million (38.9%). Over the same period, IPR-intensive industries generated almost 45% of total economic activity (GDP) in the EU, worth €6.6 trillion. They also accounted for most of the EU's trade with the rest of the world and generated a trade surplus, thus helping to keep the EU's external trade broadly balanced. With respect to wages, IPR-intensive industries pay significantly higher salaries than other industries, with a wage premium of 47% over other industries. This is consistent with the fact that the value added per worker is higher in IPR-intensive industries than elsewhere in the economy. A comparison of the results over time, reveals that the relative contribution of IPR-intensive industries to the EU economy has increased between the two periods, even after considering the change in the number of IPR-intensive industries. It is worth noting that the IPR-intensive sectors exhibited a better ability to cope with difficult context conditions in the past.

So far, most of the empirical evidence about the contribution of innovation outputs to employment and productivity in Latin America has been produced through exploiting self-reported innovation outputs in innovation surveys and in the framework of structural econometric models. A striking exception are IMPI (2021) and INDECOPI (2021), which present, based on the EUIPO methodology, accounts of the contribution of IP to the Mexican economy in the 2010-2019 period and for the Peruvian economy for the 2015-2018 period, respectively[4]. Besides the recent contributions for Mexico and Peru, the evidence is generally based on the model put forward by Crépon, Duguet and Mairesse (1998, hereinafter CDM model) and extensions around it.

The CDM model, which can be traced back to Griliches (1990) path diagram of the knowledge production function, introduces a structural model that explains productivity by innovation output and the latter by research investment, and it suggests a method of correcting for the selectivity and the endogeneity inherent in the model. Due to its simplicity and easiness of application, CDM has become the workhorse in the empirical literature on innovation and productivity and has been applied to micro data of over 40 countries (Lööf, Mairesse and Mohnen, 2017).

Concerning the effects of innovation and employment, the available evidence is mainly based on Harrison, Jamandreu, Mairesse and Peters (2014). They aim at disentangling the employment-creating effect versus displacing effect of innovation, by differentiating between product and process innovation at the firm level. As such, the change in employment is then decomposed into the part due to the increased efficiency in production of the old products (which could be related to process and organizational innovations) and a part due to the introduction of new products (product innovations).

[4] IP Key is expected to release studies for Uruguay and Chile covering the 2014-2019 period.

Available evidence on productivity effects of innovation for Chile is well summarized in Crespi and Zuñiga (2012). They performed the first comparative study to examine the determinants of technological innovation and its impact on firm labour productivity in manufacturing firms across Latin American countries (Argentina, Chile, Colombia, Costa Rica, Panama, and Uruguay). The authors used micro-data from innovation surveys but the same specification and identification strategy. In line with this comparative evidence, Crespi, Vargas and Tacsir (2016) performed a similar exercise for the region by exploiting information from the Enterprise Surveys project. These contributions focused on manufacturing exclusively. Crespi, Vargas and Tacsir (2014) analysed the effects on labour productivity in services sectors at the firm level providing comparative evidence for Chile, Colombia, and Uruguay. At the same time, the available evidence on employment effects in Latin America was pushed forward by a project led by the Inter-American Development Bank (IDB) in 2010, jointly coordinated by Gustavo Crespi and Ezequiel Tacsir. This project produced evidence about the effects of process and product innovations in manufacturing for Argentina (De Elegalde, Giuliodori and Stucchi, 2015), Uruguay (Aboal et al., 2011a), Chile (Alvarez et al., 2011, updating Benavente and Lauterbach, 2008) and Costa Rica (Monge-Gonzalez et al, 2011). Crespi, Tacsir and Pereira (2019) and Pereira and Tacsir (2019) updated the comparative exercise of Crespi and Tacsir (2012). Crespi and Zuñiga (2013) combined the HJMP model to assess whether different firm strategies produced different impacts in terms of employment change.

The overall evidence in the first strand of literature is that innovation, particularly in manufacturing, positively affects labour productivity (at the firm level), although providing estimates with a broader range than those observed for developed countries. For employment, overall, the literature highlights the positive effects of product innovation, even in contexts of relative labour destruction, and little evidence of displacement effects due to process innovation. Although these contributions have highlighted the importance and impacts of innovation by firms, it presents several shortcomings in comparison to the efforts previously reported by USPTO and EU and EUIPO:

- These are based on self-reported measures of innovation, following the Oslo Manual guidelines for data collection on Innovation Surveys;
- It is impossible to disentangle what type of innovation output (whether patents, utility models, copyrights) are behind the effects on better productivity levels and employments changes;
- The evidence is limited to those firms covered by innovation surveys. In particular, studies mainly focus on manufacturing only, or selected services sectors at most;
- It provides evidence on (if any) a set of limited IPRs. Innovation surveys in LAC don't collect information on whether the firm has applied/was granted trade marks, designs, GI nor PVR.

In the case of Mexico, EUIPO and IMPI (2021) closely follow the methodological approach put forward in previous studies for the EU. The study identified 445 industries that are intensive in IPRs (out of 822 activities), with 44.5% being intensive in more than one intellectual property right. IPR-intensive industries contributed with 17.6 million jobs, representing 33.6% of total employment nationwide and 47.8% of GDP and generated 74.7% of exports.

As in Mexico, for Peru, EUIPO and INDECOPI (2021) applied the same methodology for the 2015-2018 period and identified 74 IPR-intensive industries out of 101 industries. When considering IPRs held by residents only, as in this study, IPR-intensive industries in Peru in this period accounted for 22% of total employment and contributed with 32% of total GDP and 32% of total exports.

3.1. IP rights and their function in the economy[5]

Technological progress requires the development and application of new inventions. At the same time, innovative firms tend to create, combine, and adapt knowledge.

Intellectual property rights are fundamental in providing incentives to innovate. Inventors, artists, scientists and businesses put a lot of time, money, energy and thought into developing their innovations and creations. To encourage them to do that, they need the chance to make a fair return on their investment. That means giving them rights to protect their intellectual property. But at the same time, the intellectual property system needs to balance the rights and interests of different groups: of creators and consumers; of businesses and their competitors; of high- and low-income countries. By striking the right balance between the interests of innovators and the wider public interest, the IP system aims to foster an environment in which creativity and innovation can flourish. In a broader sense, Intellectual property (IP) refers to creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce. Essentially, IP allows innovators, creators or owners to benefit from their work and investment in a creation by giving them control over how their "property" is used.

IP rights have long been recognized within various legal systems both nationally and internationally. IP is an exclusive patrimonial right granted for a certain time, normally used or exploit inventions or innovations in an industrial or commercial way. Examples are a technically new product, an upgrade to a machine or apparatus, an original design to make a novel product or manufacturing process more useful or attractive, as well as commercial indications to distinguish products and services from others of similar kind in the market. Overall, the procedures and requirements for registering and obtaining IP rights are territorial, i.e., established by national laws and providing protection within a particular territory.[6]

IP is also sometimes divided into two main categories: industrial property and copyrights. Industrial property includes patents for inventions, industrial designs and trade marks. Copyrights and related rights cover literary, artistic, and scientific works and derived rights performances and broadcasts. Also, some categories do not derive from these more traditional forms of IP. These are the so-called *Sui Generis* rights or unique IPRs. In the arena of intellectual property (IP) law, they may include forms of protection such as geographical indications or plant variety rights.

[5] This section is based on EPO and EUIPO (2019).

[6] Later we will focus on describing the basic requirements and duration of the protection in the case of Argentina.

The International IP Framework is based on numerous international agreements, the majority of which have been administered by the World Intellectual Property Organisation (WIPO) since its creation. Among these are two of the fundamental conventions which are the genesis of the international IP System: the Paris Convention and the Berne Convention.

The Paris Convention for the Protection of Industrial Property, adopted in 1883, applies to "industrial property" i.e., patents, trade marks, industrial designs, utility models, service marks, and trade names. It also covers geographical indications and the repression of unfair competition, which are today not considered to be industrial property *strictu sensu*. This international agreement was the first major step taken to help creators ensure that their intellectual works were protected in other countries.

The Berne Convention for the Protection of Literary and Artistic Works was adopted in 1886. It deals with the protection of works and the rights of their authors, providing creators such as authors, musicians, poets, painters etc. with the means to control how their works are used, by whom, and on what terms. It is based on three basic principles and contains a series of provisions determining the minimum protection to be granted, as well as special provisions available to developing countries that want to make use of them.

In 1994, the members of the WTO concluded the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) as an annex to the WTO Agreement. The administration of TRIPS, in particular the monitoring of the operation of the agreement, is made by the WTO Council for TRIPS (or TRIPS Council). Today, the TRIPS Agreement can be considered a low common denominator as far as the standard of IPR protection is concerned.

EU Member States and most LAC countries, including MERCOSUR countries, are part of WTO and, thus, members of the TRIPS Agreement, the Paris Convention, and the Berne Convention. Membership to the other important conventions which make up the weave defining the international IP system may diverge from country to country, but not substantially. This is sufficient to establish that the EU and MERCOSUR, to which Argentina belongs, regardless of engaging in special bilateral relations through conventions, do find support on IP regulations which comply to *de minimis* standards.

3.1.1. Overview of patents

Patents have a long history and have evolved jointly with the advances in technological progress and the professionalization of invention and research. Nowadays, inventions protected by patents are inserted in everyday aspects of our life.

By patenting an invention, the patent owner gets exclusive rights over it, meaning that they can stop anyone from using, making, or selling the invention without permission, to ensure that firms and inventors can maximize profits during the protection period. This protection lasts for a limited time stipulated by national laws, generally at 20 years. In return the patent owner has the obligation to disclose full details of the invention in published patent documents for this protection. Disclosure of the invention adds to the body of public knowledge, enabling

further research and invention. Once the period of protection has expired, the invention becomes *off-patent*, meaning anyone is free to make, sell or use it.

An invention can be defined as a product or process that offers a new way of doing something, or a new technical solution to a problem. To qualify for patent protection, three requirements must be met, known as "patentability requirements". Overall, an invention must be of some practical use and must offer something new which is not part of the existing body of knowledge in the relevant technical field (what lawyers call the "prior art"). The invention must also involve an inventive step, something non-obvious that could not just have been deduced by someone with average knowledge of the technical field. Furthermore, the invention must not fall under non-patentable subject matter. Patents are territorial: protection is granted within a country under a national law.

In Argentina, the office responsible for patent applications and registration is the National Institute of Industrial Property (INPI) of the Ministry of Productive Development (European Commission, 2020a). The protection period in Argentina is for a term of 20 years from the filing date of the application, on the condition that the inventor reveals to the public the technical information about the invention in a patent application.

Although Argentina is not a party to the Patent Cooperation Treaty (PCT), and thus requires that foreign residents file an application directly to INPI, it is possible to use the PROSUR Patent Prosecution Highway, which allows users to benefit from an effective reduction in patent pendency, by shortening the examination process. At the DNPI, applicants can benefit from the patentability examination of a previous patent application in any of the other member countries of the PPH-PROSUR Agreement (Argentina, Brazil, Chile, Colombia, Ecuador, Paraguay and Peru).

3.1.2. Overview of trade marks

A trade mark is a sign capable of distinguishing the goods or services of one enterprise from those of other enterprises. They take many forms and identify a wide array of goods and services. Enterprises spend enormous amounts of time and money developing their brands and trade marks. Legal protection allows the owner of a mark to control who uses it, which means that enterprises can develop and promote their goods and services and protect their reputation from being undermined by counterfeiters. Moreover, consumers can rely on trade marks being genuine.

All sorts of signs may be used as trade marks – words, letters, numbers, symbols, colours, pictures, three-dimensional signs such as shapes and packaging, holograms, sounds, and even tastes and smells. To be eligible for registration, the basic principle is that a trade mark must be distinctive, and not just a generic description of the product or service. Nor can it be identical (or very similar) to a trade mark already registered or used for that type of product or service. These are basic requirements that a sign needs to comply with to be susceptible to being protected.

Trade marks are used not only to identify the goods and services of a particular enterprise. There are also collective marks, which are owned by an association and can be operated by its

members, and certification marks which, for example, show that a product or service complies with certain production standards or quality features.

In Argentina, the protection lasts for 10 years calculated from the date on which the trade mark is granted, and it can be indefinitely extended for periods of the same duration. However, other deadlines should also be considered, such as the priority period established in the Paris Convention. This implies that foreign applicants must submit their applications for trade mark registrations in Argentina within a period of 6 months from the application date of the first trade mark filing. In addition, the use of the trade mark is required for maintaining the trade mark registration active (European Commission, 2020a). The owner of a registered mark must submit a sworn declaration of use to the INPI within the sixth year counting from the registration date, and at the moment of renewing the trade mark registration (during the tenth year). If the trade mark is not used for 5 consecutive years, it could be subject to cancellation by request of the INPI (ex officio) or a third party interested in the mark.

3.1.3. Overview of designs

European Commission (2020a) defines an industrial design as an original creation of an ornamental nature, which, when incorporated in or applied to a product, offers a special appearance to it. These characteristics may result from its shape, lines, outline, configuration, colour, texture, or material. Industrial designs are applied to a wide variety of industrial products and handmade goods, such as cars, telephones, computers, packaging and containers, technical and medical instruments, watches, jewellery, electrical appliances, textile designs, as well as many other types of goods (WIPO, 2020). Industrial design rights entitle the right holder to control the commercial production, importation, and sale of products with the protected design. As with most other forms of IP, owners can exploit design rights themselves, or otherwise license or sell them to others, and can sue in the relevant national court to prevent infringement of their rights. This means that owners have a mechanism to capture the rents originated in their designs, providing incentives to invest in developing them.

To qualify for the protection of an industrial design under most national laws, the design must be new and show a degree of originality or individuality, or singular character, meaning that it is not identical or very similar to any previous design. Moreover, it must be capable of being produced industrially, so unique artworks are not considered designs.

In Argentina the protection for industrial design lasts for 5 years and may be renewed for another two consecutive periods of the same duration. Thus, the protection can be extended for a maximum of 15 years.

3.1.4. Overview of copyrights

Copyright, or authors' right, is a legal term used to describe the rights that creators have in their literary, artistic, and scientific works (WIPO, 2020). Copyright covers not only books, music, paintings, sculpture and films, but also computer programs, databases, advertisements, maps and technical drawings, among other works. There are also rights related to the copyright

of the creators, which protect the interests of those closely associated with copyrighted works, including performers, broadcasters, and producers of sound recordings.

Copyright applies to the creative expression of ideas in many different forms – text, still or moving pictures, sound works, three-dimensional shapes such as sculptures and architecture, reference works and collections of data. However, copyright does not generally cover ideas themselves, procedures, methods of operation, or mathematical concepts.

Copyright includes both economic and moral rights. Essentially, economic rights involve the right to control the distribution of a work. In other words, a copyright owner can stop anyone from copying or using a work without permission, including, for example, by translating it, reproducing it, performing it or broadcasting it. Moral rights rely on the connection between an author and his or her creation and protect the personal and reputational, rather than purely monetary, value of a work to its creator.

A work is protected against infringements from the day it is created, even without formal registration. Nevertheless, registration may be very useful in enforcement actions as a proof of ownership and it also provides evidence of the date of creation and the content of the work itself (e.g., the protected source code).

The authority responsible for registration of creations in Argentina is the National Directorate for Copyright (DNDA) of the Ministry of Justice. Registration is optional but advisable for authors. On the other hand, publishers must register their work in order to protect their economic rights. As in Europe, works are protected from the date of creation and the author's rights are automatically protected. Note, however, that the lack of registration by publishers within 3 months after publication will lead to a fine and a suspension of their economic rights. Moreover, registration of copyright licenses leads to a reduction of taxes on royalties. Works can be registered with the DNDA, creating evidence of authorship/ownership.

Generally, economic rights on works last the lifetime of the author and belong to their beneficiaries for seventy years, calculated from January 1st of the year after the author´s death, except for anonymous, cinematographic and photographic works. The copyright term is reduced for anonymous works (50 years from the date of publication) and cinematographic works (life of the author, producer, director or composer, whoever dies last, plus 50 years). In the case of photographic works, copyright lasts for 20 years as of the first publication of the work.

3.1.5. Overview of geographical indications

A geographical indication (GI) is a name or sign used on certain products to link them to a specific geographical location or origin (e.g., a town, region, or country) (EU and EUIPO, 2013). The use of a GI may act as certification that the product has certain qualities, is made according to traditional methods, or enjoys a certain reputation due to its geographical origin. The connection with the "land" and the strict controls on manufacturing the product often lead to vertical integration in the different sectors involved in producing GI goods: starting with the farmer, continuing with the manufacturer, and even wholesale and retail distributors.

GIs have been traditionally used in the agriculture, food, and beverages sector, but may also be established for craftworks which are typical from a region.

GIs are mainly used in the agriculture, food, and beverages sector. There are two main types of GIs:

- Protected Designation of Origin (PDO): a product that is produced, processed, and prepared in a defined geographical area using recognised know-how. Products owe their characteristics exclusively or essentially to their place of production and the skills of local producers.
- Protected Geographical Indication (PGI): a product whose reputation or characteristics are closely linked to production in the geographical area. For PGI agricultural products and foodstuffs, at least one of the stages of production, processing or preparation takes place in the area. For PGI wines, at least 85% of the grapes come from the area.

A difference between GIs and other IP rights is that, while trade marks, designs, patents, and copyright are usually applied for and owned by private entities, most often individual companies, GIs are typically applied for and managed by producer associations in the relevant geographical area. The GI can then be used by all individual producers located in the area and complying with the defined production methods.

In terms of their economic function, GIs share with trade marks the basic function of addressing the information asymmetries between sellers and buyers and assisting consumers in reducing their search costs, by certifying the origin and method of manufacture of the product. Consumers are often willing to pay a price premium for GI products, since they convey a certain quality associated with the products, know-how and systems of production of a region.

In the case of Argentina, GIs and PDOs only protect agricultural products, wines, and liqueurs based on wine. However, in practice, the protection of non-national GIs in Argentina is extremely difficult. So far, no wine-related EU GI has been granted in Argentina under existing registration procedures in the National Institute of Winemaking of Argentina (INV – Instituto Nacional de Vitivinicultura). Currently, there is no other system or agreement in Argentina that protects GIs that were registered in the EU, although this is a matter that is included in the EU-MERCOSUR Trade Agreement (still pending approval of all EU member states) by means of a list of GIs which will be granted similar protection in MERCOSUR.

Argentina has a total of 104 registered geographical indications. The vast majority (96) refers to wines, while the remaining 8 are related to agricultural products and foodstuffs. Appendix 9 lists the GIs currently in place in Argentina.

3.1.6. Overview of plant variety rights

Plant variety rights (PVR), or plant breeder's rights, are an independent sui generis form of intellectual property right, tailored to protect new plant varieties (Article 27(3)(b) of the TRIPS).[7]

The term "species" is a familiar unit of botanical classification within the plant kingdom. However, within a species there can be a wide range of different types of plant. Farmers and growers need plants with particular characteristics that are adapted to their environment and their cultivation practices. A plant variety represents a more precisely defined group of plants, selected from within a species, with a common set of characteristics. Technically, a plant variety is a plant grouping within a single botanical taxon of the lowest known rank, which can be defined by the expression of the characteristics resulting from a given genotype or combination of genotypes; distinguished from any other plant grouping by the expression of at least one of the said characteristics and considered as a unit concerning its suitability for being propagated unchanged.

The International Convention provides the international legal framework for the protection of plant variety rights for the Protection of New Varieties of Plants is the "UPOV Convention". It provides the basis for members to encourage plant breeding by granting breeders of new plant varieties an intellectual property right: the breeder's right. In the case of a variety protected by a breeder's right, the breeder's consent is required to propagate the variety for commercial purposes. The breeder's right is granted by the individual UPOV members.

For a PVR to be granted, it is necessary first to file an application for examination before a national or regional designated authority. The candidate variety must then fulfil the technical criteria of distinctness, uniformity, and stability (known as the "DUS" criteria). It must also be new and bear a suitable denomination.

It should be mentioned that the TRIPS agreement authorizes WTO Members to eschew patent protection for plants and plant varieties and adopt an "effective sui generis system" of protection instead. Argentina has a *sui generis* system for plant variety protection called "Plant Breeder's Right", established for new, distinct, stable, uniform and, additionally, "new" (i.e. it must not have been sold or commercialized by the breeder or with their consent) varieties.

To be protected, plant varieties have to be subject to two types of registration at the National Institute of Seeds of Argentina (INASE), which operates under the Ministry of Agriculture and Livestock and Fisheries. Each registration serves a different purpose, as follows: (i) registration at the National Register of Cultivar Ownership and (ii) registration at the National Register of Cultivars. The first registration is necessary to protect the plant variety and the second registration is necessary to commercialize it (European Commission, 2019b).

[7] The TRIPS agreement authorizes WTO Members to eschew patent protection for plants and plant varieties and adopt instead an "effective *sui generis* system" of protection.

According to the rules set by the UPOV convention adopted in 1978, holders of PVRs are granted exclusive rights to commercialize a new plant variety for a minimum of 10 years and a maximum of 20 years (depending on the plant variety).

3.2. Summary of all IP rights

The previous sections presented the main characteristics and relevance of the different IP rights. Table 5 summarizes these features and provides further information concerning the duration of the right under Argentine law.

Table 5: Main characteristics of IP rights

IP right	Patents	Designs	Trade marks	Copyrights	Geographical indications	Plant variety rights
Subject matter	Inventions (solutions to technical problems)	Original ornamental and non-functional features of an article or product or parts of it	Distinctive signs that identify certain goods or services and distinguish them from those of other businesses	Artistic, literary, dramatic, musical, photographic and cinematographic works; maps and technical drawings; computer programs and databases	Product originating in a particular geographical location whose quality or reputation is linked to its geographical origin	Plant varieties
Requirements for protection	Novelty; inventive step (non-obvious-ness); industrial applicability	Novelty; individual character	Distinctiveness	Originality of the work, irrespective of its literary or artistic merit	Technical specifications justifying the special characteristics of the product and their link to the geographical location	Distinctness, uniformity, stability and novelty.
Acquisition of right	Examination by the patent office, followed by grant and validation	For registered designs, examination by the IP office. For unregistered designs, automatically acquired by the act of disclosure	For registered trade marks, examination by the IP office. For unregistered trade marks, use in commerce	Automatic upon creation in a tangible form of expression	Examination by the national authority	Examination by examination authority
Conferred rights	Exclusive right to make, use and sell the patented invention	Exclusive right to use the design and to prevent any third party from using it without the right holder's consent	Exclusive right to use the trade mark in trade	Reproduction, communication, including making the work available to the public, distribution, rental, resale, translation,	Collective right. Exclusive rights to commercialize comparable products and prevent imitation or evocation	Exclusive right to commercialize the protected plant variety

				adaptation, public performance		
Duration (according to Argentine law)	Legal protection lasts for a term of 20 years, from the filing date of the application for patents and 10 years for utility models.	The protection for industrial design lasts for 5 years and may be renewed for another two consecutive periods of the same duration. Thus, the protection can be extended for a maximum of 15 years.	The protection lasts for 10 years calculated from the date on which the trade mark is granted, and it can be indefinitely extended for periods of the same duration. However, foreign applicants must submit their applications for trade mark registrations in Argentina within a period of 6 months from the application date of the first trade mark filing. The use of the mark is required for maintaining alive the trade mark	The exclusive right granted by copyright exists from the moment of the creation and lasts for the lifetime of the author and belong to his/her beneficiaries for seventy years, calculated from January 1st of the year after the author´s death., except for anonymous (50 years from the date of publication), cinematographic (life of the author, producer, director or composer, whoever dies last, plus 50 years). and photographic works (20 years as of the first publication of the work).	Indefinite, no need for renewal	Provides protection for a minimum period of 10 years and a maximum of 20 years, depending on the plant variety, according to the rules set by the UPOV convention, adopted in 1978

Overall, the type of IP rights covered and the scope of protection in Argentina are very similar to those in the EU. Argentina is an active member of the WIPO and party to many of the international treaties such as the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement, the Paris Convention for the Protection of Industrial Property or the Berne Convention for the Protection of Literary and Artistic Works. This means that, on the substance, the legislation on intellectual property is to a great extent aligned with that of the EU and its member states. However, Argentina is not yet a party to several international registration systems including the Madrid System for the international registration of trade marks, the Patent Cooperation Treaty (PCT) for the international registration of patents, the Hague System for the international registration of industrial designs nor the Lisbon System for the international registration of appellations of origin (European Commission, 2018 and 2019a).

Nevertheless, IP enforcement still is a challenge in Argentina and the country still faces substantial backlog, requiring modernization of IP processes. At the same time, the US has

repeatedly complained that the legal framework for patents in Argentina poses unduly broad limitations on patent-eligible subject matter. Particularly, pursuant to a highly problematic 2012 Joint Resolution establishing guidelines for the examination of patents, Argentina rejects patent applications for categories of pharmaceutical inventions that are eligible for patentability in other jurisdictions, including in the United States. Additionally, to be patentable, Argentina requires that processes for the manufacturing of active compounds disclosed in a specification be reproducible and applicable on an industrial scale. US stakeholders assert that Resolution 283/2015, introduced in September 2015, also limits the ability to patent biotechnological innovations based on living matter and natural substances (Office of the US Trade Representative, 2019 and 2020). Moreover, the US has warned that agricultural, chemical, and pharmaceutical sectors receive inadequate protection against unfair commercial use, as well as unauthorized disclosure of undisclosed tests data generated to obtain marketing approval for products in those sectors.

From a trade perspective, Argentina continues to present long-standing and well-known challenges regarding IPR-intensive industries, particularly in the area of IP enforcement. This vision is shared by the EU and the US. In particular, in the case of the US, the Special 301 Subcommittee of USTR has identified 36 trading partners to be included in the watch list, Argentina being one of them. Most of the concerns are related to copyright (software, online piracy), and counterfeit and pirated goods and services. In the case of the EU, the updated priority includes Argentina in the second category (European Commission, 2020b).

Despite the procedural challenges, the US has recognized that, in recent years, Argentina has improved registration procedures for trade marks and industrial designs. On trade marks, the law now provides for a fast-track option that reduces the time to register a trade mark to four months. For industrial designs, INPI now accepts multiple applications in a single filing, and applicants may substitute digital photographs for formal drawings.

4. Methodology of the study

The aim of this study is to identify IPR-intensive industries in Argentina and analyse their contribution to the Argentine economy. The methodology follows EPO and EUIPO (2019) as close as possible in order to achieve maximum comparability, and 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.

As in EPO and EUIPO (2019), the unit of analysis in this study is the industry. Industries in Argentina are derived from the United Nations' International Standard Industrial Classification (ISIC). Different classifications are used for different economic variables, however. Businesses' economic activities are classified according to the National Classification of Economic Activities (CLANAE) 2010 version, which is based on ISIC Rev. 4. Employment and wages, however, are reported under an older version of CLANAE (2004), based on the ISIC Rev. 3. National accounts are also reported under the CLANAE 2004 version, which aligns with the ISIC Rev. 3. A correspondence between CLANAE 2010 and CLANAE 2004 is available from the National Institute of Statistics and Census (INDEC).

Given these features, the study reports most results following the CLANAE 2004 version at the four-digit (class) level whenever possible. In some cases, insufficient data may impede this level of disaggregation. For example, some aggregation bias could be present when reporting relative IPR-intensities, since employment data are only available at higher levels of aggregation given their older classification and some adjustments made by reporting authorities, as described below, even if the number of IPRs per industry can be identified at a lower level of aggregation. Issues specific to Argentina that could introduce deviations from the original methodology proposed in EPO and EUIPO (2019) are mentioned below when appropriate.

The list of industries that are intensive in the use of copyrights will be taken as predetermined as in EPO and EUIPO (2019). This is explained in section 4.7. For patents, trade marks, designs, and PVRs, IPR intensity is determined by examining the number of IP rights obtained by all industries at the National Institute of Industrial Property of Argentina (INPI) and the National Register of Cultivars (RNC) of Argentina's National Institute of Seeds (INASE) relative to their level of employment.

Employment data is available for salaried employment in the formal private sector at the four-digit level, so in this respect the study can provide estimates comparable to those in EPO and EUIPO (2019).[8] This stage is the most computationally intensive and demanding exercise of the study, involving matching of names of right owners in IPR registers with those of firms and individuals in business registers. This process is explained in sections 4.3 to 4.6. Due to data

[8] Note that employment data do not include independent employment. Throughout the study, references to "total employment" implicitly refer to total salaried employment only.

limitations, some sectors with IPRs have missing employment data and cannot be considered for the estimation of relative IPR-intensity, as we explain below.

Regarding industries associated with geographical indications (GI), to our knowledge there are no existing studies estimating their contribution to employment, value added, or international trade for Argentina.

4.1. Data sources and selection criteria

The study uses a variety of sources of IPR and economic data to determine industries' IPR intensity and their contribution to employment, GDP, trade, and other economic variables. They include:

- LATIPAT, a database using *Espacenet* technology developed by the EPO to facilitate access to patent data. LATIPAT allows us to access information on patents published by the National Institute of Industrial Property of Argentina (INPI) through a unique interface.
- WIPO, as a source of trade marks and designs records for Argentina.
- National Register of Cultivars (RNC) of Argentina's National Institute of Seeds (INASE), the main source for granted PVRs.
- Business registers from Argentina's Internal Revenue Federal Administration (AFIP), as of 2019. These registers provide the database to identify applicants' industry classification.
- Employment and wage data at the four-digit CLANAE 2004 level available from the Ministry of Employment, Labour, and Social Security of Argentina (MTEySS).
- National accounts statistics from Argentina's National Institute of Statistics and Census (INDEC), which is the main source of official data on GDP and sectoral value added in Argentina.
- UN-COMTRADE, which provides a source for comparable international trade in goods data.

The IP rights chosen for this study were patents, trade marks, and designs published by INPI and PVRs published by the RNC for the 2014-2019 period, as well as geographical indications. For patents, trade marks, and designs, data limitations prevent the identification of patents that were subsequently granted.

The contribution to the economy made by IPR-intensive industries was estimated using economic data for the 2014-2019 period for all variables.

Only patents, trade marks, and PVRs with at least one Argentine resident were considered for this study. For designs, data limitations prevent distinguishing records associated to residents and non-residents, so all records are considered (but only those that can be matched to the business register are ultimately used).

However, a significant portion of IPRs in Argentina are published by non-residents, however. To the extent that an industry's IPR intensity is an inherent characteristic of that industry,

irrespective of its geographical location, as assumed by EPO AND EUIPO (2019), this feature should not affect the goal of the data-matching exercise. When calculating the contribution of IPR-intensive industries to the Argentine economy, all relevant industries are included, regardless of the ultimate ownership of the companies within each industry.

For patents, given the importance of non-resident applications, we dedicate a special section to analysing patenting behaviour of non-residents in Appendix 7.

4.1.1. Economic data

The main source of employment and wage data is the Ministry of Employment, Labour and Social Security of Argentina (MTEySS), which reports information on formal private employment and wages derived from employers' sworn social security statements to AFIP. Total employment and average wages are available for the 2014-2019 period for almost all industries with IPRs. However, some industries, including but not limited to those that correspond to public sector activities, have missing data, which prevents estimating their relative IPR-intensity. Importantly, employment for all activities under 75 "Public administration" are not available, which includes IPR applications by the National Scientific and Technical Research Council (CONICET).

As mentioned above, employment data is available under an older classification (CLANAE 2004) than the one used to report businesses economic activities in AFIP's business register (CLANAE 2010). Moreover, the MTEySS performs some adjustments to the data, reporting data at a higher level of aggregation for some industries. For instance, employment data are reported for CLANAE industry 7300 "Scientific research and development" only, even if matched IPRs can be assigned to industry 7310 "Research and experimental development on natural sciences and engineering" (i.e., as opposed to "Research and experimental development on social sciences and humanities". Data is not available in order to disaggregate employment data in these cases.

International trade in goods data for Argentina are available from two sources. First, trade in goods data under MERCOSUR's Common Classification (NCM) at the eight-digit level is available from INDEC. Second, data are also available from the UN COMTRADE database. In order to ensure comparability and quality of the data, the latter was considered for this study. Unfortunately, trade in services data is not available at a sufficient level of disaggregation or consistency required for this study (see López (2018) for a description of available trade in services data for Argentina).

4.2. Data matching for patents, trade marks, and designs

In order to identify IPR-intensive industries, records from LATIPAT and WIPO were matched with official formal business registers from AFIP. Registers include information about industry classification, name and other information for the universe of formal firms in Argentina. An advantage of using official local business registers rather than proprietary databases, such as Orbis or Economatica, is that they may contain information on individuals registered as

independent workers or microenterprises (including sole proprietor enterprises). This is relevant since a significant fraction of IPR holders in Argentina are individuals.

A matching algorithm based on businesses' names using approximate string matching was implemented according to the following steps:

1. Name harmonisation. Given the absence of common unique business identifiers, the first step involved harmonisation of holders' and businesses' names. The main aspect of this harmonisation had to do with corporate and legal forms (e.g., "SA", "S A", "S.A.").
2. Grouping. IPR records and registers were divided into subgroups by their initial character.
3. Similarity computation. For each subgroup, their similarity was computed using *Pair-letters similarity*, an algorithm that dissects the two strings in pairs and calculates the similarity of the two strings by dividing the number of common pairs by the sum of the pairs from both strings. Appendix 8 describes other approaches that were tested and their performance.
4. Revision and selection. Candidates were selected based on the similarity index. Matches with similarity values between 1 (identical) and 0.9 were accepted without revision. Matches with similarity values between 0.89 and 0.65 were manually revised. Finally, matches with similarity values below 0.65 were discarded. The similarity thresholds were empirically defined after an extensive revision of samples.

For patents and designs, unmatched records were further manually revised to assign an industry classification. Several additional registers were exploited. First, we searched applicants' names in the CVAR database, a database administered by the Ministry of Science, Technology and Innovation (MINCyT) which concentrates the pool of CVs for every active researcher in the country (both in the public and private sectors). Then, we searched applicants in LinkedIn and assigned these applicants the industry of their latest employer.

Depending on the type of IPR, between 53% (designs) and 98% (PVRs) of IPRs filed by residents (or total records in the case of designs) were matched with information of their owners. Although business registers in Argentina may contain individuals, one reason why not all IPR owners could be found is that not all individuals registering IPRs could be on the business register. Even if individuals have sole proprietor businesses, they may file IPR applications using their personal name, which need not coincide with the business name in the register. Other reasons can be spelling differences not captured by the matching algorithm and changes in businesses names not reflected in business registers. Finally, since the business register is as of 2019, some fraction of businesses may have stopped operating in Argentina between 2014 and 2019[9].

By using information about each owner's industry classification, data was aggregated to compute the total number of IPRs in each industry, which is a key step in determining which industries are intensive in their use of patents, trade marks, designs, and PVRs.

[9] This is probably unlikely in the case of patents, designs, and PVRs, since we should expect firms that register these types of IPR to be more productive than the average business in Argentina. The average annual exit rate in Argentina during 2014 and 2019 was around 11%.

4.3. Definition of absolute and relative intensities

For each industry, **absolute intensity** of patents, trade marks, and designs is defined as the total number of each of these IPRs. In turn, **relative intensity** is defined as the absolute intensity divided by the total number of employees in each industry. Finally, for each IPR, an industry is considered **IPR-intensive** if its relative intensity is above the employment-weighted average of relative intensities among those industries with a positive absolute intensity.

Formally, absolute intensity for industry *i* is defined as

$$A_i = \sum_j IPR_{ij} \ ,$$

where IPR_{ij} indices intellectual property right application j in industry i matched with an owner in the business register. Given total employment L_i, relative intensity is given by

$$R_i = A_i / L_i .$$

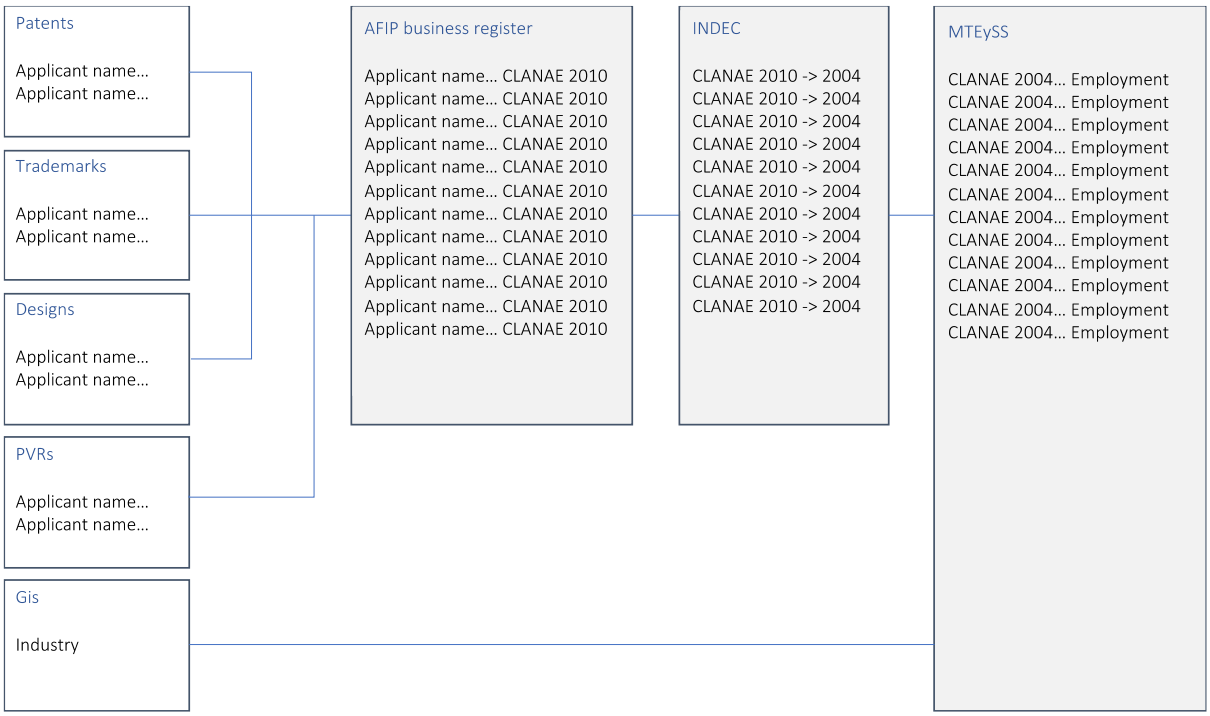
Finally, define the employment-weighted average of relative intensities as

$$\bar{R} = \sum_{k \in K} (L_k / L) R_k ,$$

where $L \equiv \sum_{k \in K} L_k$ and K is the set of all industries with $R_i > 0$. An industry is IPR-intensive if $R_k > \bar{R}$.

To compute relative intensities below, we use the total number of (formal) employees for each industry derived from Argentina's MTEySS.

Figure 1: Simplified illustration of the data matching process



4.4. Identification of patent-intensive industries

This section describes the methodology for identifying patent-intensive industries. First, the process for computing the absolute intensity of each industry is described. Then, the process for identifying the relative intensity of each industry is described. The description of patent-intensive industries is contained in section 5.1.

4.4.1. Absolute intensity

The process to compute absolute patent intensity involved the following steps:

1. **Retrieval of patent applications**. The total number of published patents was obtained from the LATIPAT database. The sample of patents was restricted to those patents published between January 1, 2014 and December 31, 2019. Moreover, applications with at least one Argentine applicant were considered. Out of a total of 25,230 patents published between 2014 and 2019, only 3,135 (12%) patents included at least one resident. Overall, these patents had 2,970 different resident holders.
2. **Matching with business records**. After identifying published patents with at least one resident, resident applicants' names were matched with the AFIP business records as described in section 4.2. The matching procedure was able to identify 67% (1,983) of resident holders to a registered firm or individual in the AFIP business register, which in turn allowed us to assign an economic activity to 76% (2,369) of the patents held by at least one resident.

3. Manual matching. Through manual search, 35 applicants were matched (holding 1% of published patents with at least one resident) and assigned an industry classification. Overall, we were able to match 77% of patents with at least one resident.
4. Multiple owners. In those cases where a patent had multiple resident owners, each owner was assigned a proportional fraction of the patent.
5. Missing or corrupted CLANAE industries. Some applicants had a missing or corrupted main CLANAE industry in the business register. For these applicants, we replaced the main economic activity by their secondary registered economic activity, if available.

4.4.2. Relative intensity

In order to compute relative patent intensity, employment data aggregated at the four-digit CLANAE 2004 level provided by the MTEySS was matched with the data on industries' absolute intensities. Relative patent intensity was then calculated following the definition in section 4.3 as patents per 1,000 employees. When going from the CLANAE 2010 to the CLANE 2004 classifications and using employment data, some patents are aggregated to industries with differing levels of aggregation. Since there are no available data that can provide a criterion to disaggregate these industries into lower levels, we report them at the level that employment data are available at.

Employment data is not reported by the MTEySS for a number of industries with positive absolute patent intensity, reported in Table 6.

Table 6: Industries with patent applications but non-available employment data

CLANAE 2004 code	CLANAE 2004 description	Patents
4030	Steam and hot water supply	1
6721	Activities auxiliary to insurance and pension funding	9.25
7112	Renting of water transport equipment	0.5
7511	General public service activities	109.33
7513	Regulation of and contribution to more efficient operation of business	1
7522	Defence activities	2
7523	Judiciary activities	0.5
7525	Civil protection activities	1.5

Notes: based on patents filed by residents in 2014-2019. Patents in activity 7511 correspond mostly to patents filed by the National Scientific and Technical Research Council (CONICET).

The employment-weighted average of relative patent intensities is 0.39 per 1,000 employees. Industries with relative patent intensities above this threshold were identified as patent-intensive industries.

4.5. Identification of trade mark-intensive industries

This section describes the methodology for identifying trade mark-intensive industries. First, the process for computing the absolute intensity of each industry is described. Then, the process for identifying the relative intensity of each industry is described. The description of trade mark-intensive industries is contained in section 5.2.

4.5.1. Absolute intensity

The process to compute absolute trade mark intensity involved the following steps:

1. Retrieval of trade mark registers. The total number of registered trade marks was obtained from the WIPO. The sample of registered trade marks was restricted to rights published between January 1, 2014 and December 31, 2019. Moreover, applications with at least one Argentine resident were considered. Out of a total of 557,691 trade marks records between 2014 and 2019, 430,857 (77%) trade marks included at least one resident.
2. Matching with business registers. After identifying published trade marks with at least one resident, resident applicants' names were matched with the AFIP business register as described in section 4.2. A match was found for 338,620 registers (79% of published trade marks with at least one resident) and assigned an economic activity.
3. Multiple owners. In those cases where a register had multiple resident owners, each owner was assigned a proportional fraction of the trade mark.
4. Missing or corrupted CLANAE industries. Some applicants had a missing or corrupted main CLANAE industry in the business register. For these applicants, we replaced the main economic activity by their secondary registered economic activity, if available.

4.5.2. Relative intensity

To compute relative trade mark intensity, employment data aggregated at the four-digit CLANAE 2004 level provided by the MTEySS were matched with the data on industries' absolute intensities. Relative intensity was then calculated following the definition in section 4.3 as trade marks per 1,000 employees. When going from the CLANAE 2010 to the CLANE 2004 classifications and using employment data, some trade marks are aggregated to industries with differing levels of aggregation. Since there are no available data that can provide a criterion to disaggregate these industries into lower levels, we repot them at the level that employment data are available at.

Employment data is not reported by the MTEySS for a number of industries with positive absolute trade mark intensity, reported in Table 7.

Table 7: Industries with trade mark applications but non-available employment data

CLANAE 2004 code	CLANAE 2004 description	Trade marks
1010	Mining and agglomeration of hard coal	2.00
1030	Extraction and agglomeration of peat	4.00

1320	Mining of non-ferrous metal ores, except uranium and thorium ores	118.00
2310	Manufacture of coke oven products	4.50
4020	Manufacture of gas; distribution of gaseous fuels through mains	301.00
5040	Sale, maintenance and repair of motorcycles and related parts and accessories	397.83
6511	Activities of financial and banking entities (including public banks)	207.00
6721	Activities auxiliary to insurance and pension funding	1,065.50
7112	Renting of water transport equipment	23.00
7113	Renting of air transport equipment	3.00
7511	General public service activities	3,993.27
7512	Regulation of the activities of agencies that provide health care, education, cultural services and other social services excluding social security	757.73
7513	Regulation of and contribution to more efficient operation of business	666.33
7519	Auxiliary public service activities	443.83
7521	Foreign affairs	10.00
7522	Defence activities	5.00
7523	Judiciary activities	82.00
7524	Public order and safety activities	33.50
7525	Civil protection activities	15.83
7700	Compulsory social security services	447.50
8532	Social work without accommodation	157.33
9500	Private households with employed persons	24.00
9900	Extra-territorial organizations and bodies	66.33

Notes: based on trade marks filed by residents in 2014-2019. Trade marks in activity 7511 correspond mostly to trade marks filed by the National Scientific and Technical Research Council (CONICET).

The employment-weighted average of relative trade mark intensities is 56 per 1,000 employees. Industries with relative trade mark intensities above this threshold were identified as trade mark-intensive industries.

4.6. Identification of design-intensive industries

This section describes the methodology for identifying design-intensive industries. First, the process for computing the absolute intensity of each industry is described. Then, the process for identifying the relative intensity of each industry is described. The description of design-intensive industries is contained in section 5.3.

4.6.1. Absolute intensity

The process to compute absolute design intensity involved the following steps:

1. Retrieval of design registers. The total number of published designs was obtained from WIPO. The sample of registered designs was restricted to rights published between

January 1, 2014, and December 31, 2019. Unfortunately, the data do not allow for the identification of the residency of design holders. Therefore, we cannot distinguish resident from non-resident holders and consider all published trade marks for the analysis. A total of 7,000 designs were retrieved.

2. Matching with business records. After identifying published designs, names were matched with business registers as described in section 4.2. Out of a total of 7,000 designs published between 2014 and 2019, 2,740 (39%) designs were matched with the owner's economic activity.
3. Manual matching. For those applicants that couldn't be matched to an industry using business records, we performed a manual search exploiting several additional registers. First, we searched applicants' names in MINCYT CVAR database, which concentrates the pool of CVs for every active researcher in the country (both in public and private sectors). Then, we searched for applicants on LinkedIn and assigned these applicants the industry of their latest employer. Through manual search, 319 applicants were matched (holding 976 designs) and assigned an industry classification. Overall, we were able to match 53% of all retrieved designs.
4. Multiple owners. In those cases where a register had multiple resident owners, each owner was assigned a proportional fraction of the design.
5. Missing or corrupted CLANAE industries. Some applicants had a missing or corrupted main CLANAE industry in the business register. For these applicants, we replaced the main economic activity by their secondary registered economic activity, if available.

4.6.2. Relative intensity

In order to compute relative design intensity, employment data aggregated at the four-digit CLANAE 2004 level provided by the MTEySS was matched with the data on industries' absolute intensities. Relative intensity was then calculated following the definition in section 4.3 as designs per 1,000 employees. When going from the CLANAE 2010 to the CLANE 2004 classifications and using employment data, some designs are aggregated to industries with differing levels of aggregation. Since there are no available data that can provide a criterion to disaggregate these industries into lower levels, we repot them at the level that employment data are available at.

Employment data is not reported by the MTEySS for a number of industries with positive absolute trade mark intensity, reported in Table 8.

Table 8: Industries with design applications but non-available employment data

CLANAE 2004 code	CLANAE 2004 description	Designs
1030	Extraction and agglomeration of peat	1.00
1320	Mining of non-ferrous metal ores, except uranium and thorium ores	1.00
4020	Manufacture of gas; distribution of gaseous fuels through mains	1.00
5040	Sale, maintenance and repair of motorcycles and related parts and accessories	12.00
6721	Activities auxiliary to insurance and pension funding	5.00

7511	General public service activities	1.00
7519	Auxiliary public service activities	2.40
7521	Foreign affairs	0.50
7523	Judiciary activities	0.50
7524	Public order and safety activities	1.00
7525	Civil protection activities	15.83

Notes: based on designs filed by residents in 2014-2019.

The employment-weighted average of relative designs intensities is 0.58 per 1,000 employees. Industries with relative design intensities above this threshold were identified as design-intensive industries.

4.7. Identification of copyright-intensive industries

Although copyright is registered in Argentina, this report does not exploit this information. Instead, the identification of copyright-intensive industries follows EPO and EUIPO (2019) to keep consistency and is based on the methodology developed by WIPO (2003, revised as 2015b).

The guidelines in WIPO (2015b) group industries into four categories according to the degree to which their activity depends on copyright: core copyright industries, inter-dependent copyright industries, partial copyright industries, and non-dedicated support industries.

Among *core copyright industries*, the WIPO guide distinguishes between the types of works that can be copyrighted, the industries in which those works are created, and the distribution industries delivering the produced copyrighted works to the public. Specifically, core copyright industries are defined as "wholly engaged in the creation, production and manufacturing, performance, broadcast, communication and exhibition, or distribution and sales of works and other protected subject matter" (WIPO, 2015b). The underlying idea behind this definition is that core copyright industries as a category would not exist or would be significantly different without copyright in works. Core copyright industries as defined by WIPO, include:

- Press and literature
- Music, theatrical productions, operas
- Motion picture and video
- Radio and television
- Photography
- Software and databases
- Visual and graphic arts
- Advertising services
- Copyright collecting societies

Inter-dependent copyright industries are industries that are engaged in the production, manufacture, and sale of equipment whose function is wholly or primarily to facilitate the creation, production or use of works and other protected subject-matter. They include

manufacture of pulp, paper and paperboard, and wholesale of electronic and telecommunication equipment, among others.

Partial copyright industries are industries in which some activities are related to works and other protected subject-matter and may involve the creation of works, production and manufacturing, performance, broadcast, communication and exhibition or distribution and sale. They include the manufacture of games and toys, museum activities, and manufacture of jewellery, among others.

Non-dedicated support industries are industries in which some activities are related to facilitating the broadcast, communication, distribution, or sale of works and other protected subject-matter, but whose activities have not been included in the core copyright industries. They include general wholesale and transportation, among others.

Following EPO and EUIPO (2019), in this report the following industries are considered copyright-intensive:

- Core copyright industries.
- Inter-dependent copyright industries.
- Partial copyright industries with factors above 20%.

Non-dedicated support industries are excluded from the study, as their factors are below 20%.

After selecting copyright-intensive industries, their corresponding NACE four-digit codes were merged with the NACE Rev. 2 to ISIC Rev. 4 correspondence, and then to the CLANAE 2004 classification. Section 5.4 below includes the detail of all copyright-intensive industries at the four-digit CLANAE 2004 level included in the study, while appendix 9.5 includes the complete list of copyright industries and their associated factors.

4.8. Identification of geographical indications-intensive industries

As EPO and EUIPO (2019) mention, geographical indications (GIs) have one important characteristic which had to be considered when designing a methodology to identify GI-intensive industries: GIs are not owned by private parties. Instead, they are usually applied for by regional producer associations. This means that there are no comparable databases that could be used for matching right-holder information with economic information. In this respect, there is a certain similarity between GIs and copyrights, for which the approach entails applying a pre-defined set of industries.

Argentina has a total of 104 geographical indications. The vast majority (96) refers to wines, while remaining GIs are related to agricultural products and foodstuffs. GI protected products in Argentina include[10]:

- Wines
- Goat meat products (Chivito Criollo del Norte Neuquino, Chivito mamón, Chivito de veranada)

[10] Annex **Error! Reference source not found.** lists the GIs currently in place in Argentina.

- Lamb meat products from specific races (Cordero Patagónico).
- Salami products from Tandil (Salame de Tandil).
- Salami products from Caroya
- Yerba mate tea
- Melon-varieties from San Juan
- Quince jam varieties from San Juan.

Even when these products could be matched to specific sectors, those GIs that are not related to wine and yerba mate tea refer to very specific varieties with relatively small production for which there is no data (e.g., firm-level or product-level data) to accurately estimate employment and assign a factor to compute relative intensities and their consequently contribution to employment, value added or trade. Therefore, we identify industries "Manufacture of wines" (CLANAE 2004 class 1552) and "Manufacture of yerba mate" (CLANAE 2004 class 15493) as GI-intensive (note that "Manufacture of yerba mate" is within class 1549). The remainder of the section describes the methodology to estimate the contribution factors of GI-wines and GI-yerba mate.

Although there is an important number of GI related to wines, this does not imply that the whole industry should be considered for the estimation of its contribution in terms of employment, value added or exports. For example, wine exports statistics from Chile indicate that 72% of that country's wine exports are attributable to GIs (EPO and EUIPO, 2019).

To estimate the effective IPR factor of the wine industry, the first step consisted in identifying the eligible grapes and regions that are protected by GIs. In Argentina, in order to be recognized with a GI or a registered designation of origin (DO), production must occur within certain specific geographical areas and the wines must correspond to a limited group of grape varieties. With respect to geographical areas, practically the entire territory where Argentine wine production takes place is covered by some type of GI or DO. Except for the production from the provinces of Entre Ríos, Misiones and partially Buenos Aires, the rest of the country is covered by GI-protection. This is equivalent to 98% of grape production in the 2014-2019 period.

Regarding grape varieties, regulations of the INV starting in 2002-2008 define eligible varieties.[11] Based on production statistics for 2014-2019, 92% of the production of red grapes corresponds to eligible varieties, while in the case of white grapes this percentage is 84.3%. In aggregate terms, 90.4% of grapes produced in this period corresponds to eligible varieties for GI protection.

[11] See resolutions c32/2002, c3/2003, c18/2004, c17/2005, c22/2006 and c5/2008). The list of eligible red Varieties includes Malbec, Merlot, Cabernet Franc, Cabernet Sauvignon, Corbeau Douce Noire, Bonarda Argentina, Pinot Negro, Canari, Carmenere, Garnacha or Grenache, Monastrell or Mourvedre, Pinot Meunier, Syrah, Tannat, Lambrusco Maestri, Barbera, Sangiovese, Bonarda, Tempranillo, Cinsaut, Carignan, Petit Verdot. Pink Varieties: Gewrztraminer, Zinfandel. In the case of whiite varieties the list includes Chardonnay, Chenin, Sauvignon, Semillon, Sauvignonasse, Riesling, Torrontés Riojano, Ugni Blanc, Moscato Bianco, Petit Manseng, Pinot Blanco, Prosecco, Viognier, Pedro Gimenez.

Combining these data, in the case of wine production, it seems reasonable to assign the wine industry a factor of 88% (98% of GI-production by area times 90.4% by GI-grape type) for value added, employment and exports. The underlying assumption is that the value added and employment ratios among firms producing GI-protected varieties are the same as the one for exports. Although exports are a fraction of total sales, this assumption may not be entirely accurate for several reasons. First, exporting firms are selected from the population of firms, and should be expected to be more productive than non-exporters. Second, exports can command a price premium over domestic sales. On the other hand, GI products may also cost more to produce, which would, at least partially, offset this error (EPO and EUIPO, 2019).

With respect to the manufacturing of yerba mate, available data on employment and value added are presented at a higher level of aggregation, including the manufacturing of tea, coffee, and spices (CLANAE 2004 class 1549). Then, we estimate the employment and value-added contributing factor from yerba mate by identifying the share of yerba mate exports (HS09300) as a proportion of total exports of the HS09 (Coffee, tea, and yerba mate). The share for the 2014-2019 period is 46%. This factor was applied to data on employment and value added of the CLANAE 2004 class 1549 "Manufacture of other food products n.e.c."

Neither customs data nor the COMTRADE database allow us to distinguish imports of GI-protected products from those that are not. Hence, regarding imports, we adapted the methodology followed in EPO and EUIPO (2019) and considered as GI-imports those imports to Argentina that are related to all goods recognized by trade agreements currently in place for Argentina. We consider the merchandise imports of GI-protected products from MERCOSUR countries that could be associated univocally to an HS code that doesn't' include other goods that are not protected by GI. Table 9**Error! Reference source not found.** lists the GI-protected goods that are used to estimate GI-imports.

Table 9: List of geographical indications from MERCOSUR countries and countries in which they are recognized

GI-protected product	Protected in	HS Code
Cachaca and sugar cane spirits	Brazil, Paraguay	220890
Cassava flour	Brazil	110814
Chipá	Paraguay	1905
Coffee	Brazil	901
Cocoa Beans	Brazil	1801
Coconut oil	Paraguay	1513
Melon	Brazil, Paraguay	807
Honey	Brazil	0409
Shrimps	Brazil	306
Stevia	Paraguay	293890
Turmeric	Brazil	91030
Wines and sparkling wines	Brazil, Paraguay, Uruguay	2204

Yerba mate and yerba mate tea	Brazil, Paraguay	90300

Source: Own elaboration based on https://www.cancilleria.gob.ar/es/acuerdo-mercosur-ue/propiedad-intelectual.

4.9. Identification of PVR-intensive industries

This section describes the methodology for identifying PVR-intensive industries. First, the process for identifying the absolute intensity of each industry is described. Then, the process for identifying the relative intensity of each industry is described. The description of PVR-intensive industries is contained in section 5.5.

4.9.1. Absolute intensity

The process to compute absolute design intensity involved the following steps:

1. Retrieval of PVR registers. The primary source for the identification of PVR-intensive industries in this study is registered data from Argentina's National Registry of Cultivars (RNC). There were 519 applications granted between January 1, 2014, and December 31, 2019, at the RNC, 363 of which corresponded to 41 Argentine resident holders.
2. Matching with business records. Data from PVR applications were matched with the applicants' information in the business register as described in section 4.2. 355 registers were matched (98% of granted applications) and assigned an industry classification.
3. Differing levels of industry aggregation. There were no differing levels of aggregation, and all resident applicants were assigned a 4-digit CLANAE 2010 code.

4.9.2. Relative intensity

To compute relative PVR intensity, employment data aggregated at the 4-digit level of the CLANAE 2004 provided by the MTEySS was matched with the data on industries' absolute PVR intensities. Relative intensity was then calculated following the definition in section 4.3 as PVRs per 1,000 employees. When going from the CLANAE 2010 to the CLANE 2004 classifications and using employment data, some PVRs are aggregated to industries with differing levels of aggregation. Since there are no available data that can provide a criterion to disaggregate these industries into lower levels, we repot them at the level that employment data are available at. Employment data is available for all industries with positive PVR absolute intensity.

The employment-weighted average of relative PVR intensities is 0.42 per 1,000 employees. Industries with relative PVR intensities above this threshold were identified as PVR-intensive industries.

4.10. Limitations of data and methodology

Due to data limitations and the scope of analysis, the methodology suffers from some limitations.

First, patent applications in Argentina are predominantly made by non-residents. As the report only considers applications by residents, the selection of IPR-intensive industries may be biased if applications by non-residents are more common in some industries than in others. As mentioned above, data limitations prevent us from distinguishing resident design applications from non-resident design applications. To the extent that only residents are included in business registers, we should expect that those records which we can match with an economic activity correspond to resident applications. Moreover, data limitations prevent the identification of granted patents within the set of published patents.

Second, as in EPO and EUIPO (2019), to qualify as an IPR-intensive industry, an industry has to intensively use at least one of the IPRs covered in the present study. However, the protected subject-matter, legal strength and other aspects may differ across different IPRs, and therefore IPR intensity has a different meaning for different IPRs.

Third, in determining IPR intensity, all the IPRs are aggregated industry by industry with equal weights, so that their individual values are not evaluated. However, the distribution of the economic value of individual IPRs is highly skewed. As a result, some industries with few IPRs, which may nevertheless be very valuable for the operation of those industries, may not be considered as IPR-intensive. Moreover, the study does not consider other forms of IP protection which may be preferred by some firms in some industries, such as trade secrets.

Fourth, the lack of availability of sufficiently disaggregated economic data in Argentina, especially for value-added data, forces the study to apply simplifying assumptions when reporting the contribution of IPRs to economic activity. This implies that, at the four-digit CLANAE 2004 level of disaggregation, estimates may not accurately reflect the economic contribution of IPRs in Argentina.

A related issue applies to the publication of economic data using different industry classifications used in Argentina. While the AFIP business register reports economic activities following the CLANAE 2010, which can be easily matched to the ISIC Rev. 4, data on industry employment and wages are available under the CLANAE 2004, which aligns with ISIC Rev. 3., for a subset of industries. This can introduce some biases since CLANAE 2010 includes more classes (four-digit industries) than the CLANAE 2004, and the correspondence is not one to one. The same applies to value added data.

Finally, unavailability of employment data for public-sector activities is a drawback, since it prevents us from using IPR applications by public research bodies, such as the National Scientific and Technical Research Council (CONICET), which file a significant number of IPRs (e.g., 5% of all patent applications made by residents in the 2014-2019 period were filed by CONICET).

5. IPR-intensive industries in Argentina

This chapter presents the main results of the analysis of IPR-intensity by industry in Argentina described in Chapter 4. The results are presented separately for each IP right and in terms of overall IPR-intensity, that is, considering the fact that some industries are intensive in more than one IPR.

5.1. Patent-intensive industries

Out of 291 industries (CLANAE 2004 classes) with positive employment in Argentina for 2014-2019, 196 filed patent applications during the period 2014-2019. Of those industries, 84 are patent-intensive. Table 10 shows the 20 most patent-intensive industries in Argentina. The full list of patent-intensive industries is shown in Appendix 9.2.

The list of top 20 patent-intensive industries is balanced between manufacturing and services and commerce activities, with 10 of the top-20 industries corresponding to manufacturing and the rest to services and commerce (8 and 3, respectively).

Table 10: The 20 most patent-intensive industries

CLANAE 2004 code	CLANAE 2004 description	Patents per 1,000 employees
7300	Research and Development	11.38
3210	Manufacture of electronic valves and tubes and other electronic components	5.15
2921	Manufacture of agricultural and forestry machinery	4.57
3692	Manufacture of musical instruments	4.53
8520	Veterinary activities	3.48
9309	Other service activities n.e.c.	3.46
7410	Accounting, bookkeeping, and auditing activities; tax consultancy, Market research and public opinion polling; Management consultancy activities	3.38
3530	Manufacture of aircraft and spacecraft	3.22
3310	Manufacture of medical and dental instruments and supplies; Manufacture of measuring, testing, navigating and control equipment	3.20
7421	Manufacture of medical and dental instruments and supplies; Manufacture of measuring, testing, navigating and control equipment	3.10
3694	Manufacture of games and toys	3.09
5252	Retail sale via stalls and markets	2.99
5241	Retail sale of used furniture in specialized stores	2.74
4541	Other construction installation	2.31
3150	Manufacture of electric lamps and lighting equipment	2.14
2919	Manufacture of other general-purpose machinery	1.97
3691	Manufacture of jewellery and related articles	1.78
6711	Administration of financial markets	1.65

9214	Dramatic arts, music, and other arts activities	1.61
5259	Other non-store retail sale	1.55

Notes: Based on patents filed in 2014-2019.

5.2. Trade mark-intensive industries

Businesses in 289 industries in the matched database filed trade mark applications during the period 2014-2019. 123 of these are trade mark-intensive industries.

Table 11 shows the 20 most trade mark-intensive industries in Argentina. The full list of trade mark-intensive industries can be found in Appendix 9.3. Different from patents, service activities are dominant among the 20 most trade mark-intensive industries, and account for 9 industries, followed by 7 manufacturing and 4 commerce activities.

Table 11: The 20 most trade mark-intensive industries

CLANAE 2004 code	CLANAE 2004 description	Trade marks per 1,000 employees
2213	Publishing of recorded media	1,245.59
5252	Retail sale via stalls and markets	825.09
5242	Retail sale of books, newspapers and stationery in specialized stores	723.70
9220	News agency activities	663.37
9214	Dramatic arts, music and other arts activities	630.20
7494	Photographic activities	573.45
7410	Accounting, bookkeeping and auditing activities; tax consultancy, Market research and public opinion polling; Management consultancy activities	494.99
5259	Other non-store retail sale	435.99
2230	Reproduction of recorded media	423.90
2211	Publishing of books, brochures, musical books and other publications	392.12
2219	Other publishing	384.13
9309	Other service activities n.e.c.	381.97
5251	Retail sale via mail order houses	375.60
3694	Manufacture of games and toys	363.31
3692	Manufacture of musical instruments	354.58
7210	Hardware consultancy	344.03
2423	Manufacture of pharmaceuticals, medicinal chemicals and botanical products	325.46
6711	Administration of financial markets	321.00
6620	Management of pension funds (AFJP)	311.93
3330	Manufacture of watches and clocks	276.25

Notes: Based on trade marks filed in 2014-2019.

5.3. Design-intensive industries

As in patent and trade marks, a majority of businesses activities filed design applications in the 2014-2019 period (194 activities). Of these, 80 are design-intensive.

Table 12 shows the 20 most of design-intensive industries. In this list, manufacturing activities are dominant, with 14 of the top-20 industries. Commerce activities account for 4 industries and service activities account for 2. The full list of design-intensive industries can be found in Appendix 9.4.

Table 12: The 20 most design-intensive industries

CLANAE 2004 code	CLANAE 2004 description	Designs per 1,000 employees
2720	Manufacture of basic precious and non-ferrous metals	15.56
3692	Manufacture of musical instruments	13.58
2691	Manufacture of non-structural non-refractory ceramic ware	10.07
3694	Manufacture of games and toys	8.76
3150	Manufacture of electric lamps and lighting equipment	8.55
3691	Manufacture of jewellery and related articles	7.13
3190	Manufacture of other electrical equipment n.e.c.	6.60
3410	Manufacture of motor vehicles	6.17
5259	Other non-store retail sale	6.15
7210	Hardware consultancy	5.42
2029	Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials	5.40
2899	Manufacture of other fabricated metal products n.e.c.	5.20
5134	Wholesale of optical instruments and photographic equipment, watches and jewellery and related articles	4.50
2915	Manufacture of lifting and handling equipment	4.45
7421	Architectural and engineering activities and related technical consultancy	4.31
1920	Manufacture of footwear	4.24
5241	Retail sale of used furniture in specialized stores	4.12
5251	Retail sale via mail order houses	4.01
2520	Manufacture of plastics products	3.63
2930	Manufacture of domestic appliances n.e.c.	3.46

Notes: Based on designs filed in 2014-2019.

5.4. Copyright-intensive industries

Table 13 lists the copyright-intensive industries considered for this study, as described in section 4.7, sorted by intensity factor. The "type" column indicated whether an industry is core, interdependent, or partially copyright-intensive according to the WIPO classification. The "factor" column shows the percentage of each industry's activity considered to be copyright-intensive, including for core sectors, whose factor is 100%.

Table 13: List of copyright-intensive industries considered in the study.

CLANAE 2004 code	CLANAE 2004 description	Type	Factor
2211	Publishing of books, brochures, musical books and other publications	Core	100%
2212	Publishing of newspapers, journals and periodicals	Core	100%
2213	Publishing of recorded media	Core	100%
2219	Other publishing	Core	100%
2221	Printing	Core	100%
2222	Service activities related to printing	Core	100%
2230	Reproduction of recorded media	Core	100%
6340	Travel agency activities and other reservation service and related activities	Core	100%
6420	Telecommunications	Core	100%
7210	Hardware consultancy	Core	100%
7220	Software consultancy and supply	Core	100%
7230	Data processing	Core	100%
7240	Data base activities	Core	100%
7290	Other computer related activities	Core	100%
7421	Architectural and engineering activities and related technical consultancy	Core	100%
7430	Advertising	Core	100%
7494	Photographic activities	Core	100%
7499	Other business activities n.e.c.	Core	100%
8000	Education	Core	100%
2211	Publishing of books, brochures, musical books, and other publications	Core	100%
9211	Motion picture and video production and distribution	Core	100%
9212	Motion picture projection	Core	100%
9213	Radio and television activities	Core	100%
9214	Dramatic arts, music and other arts activities	Core	100%
9219	Other entertainment activities n.e.c.	Core	100%
9220	News agency activities	Core	100%
9230	Library and archives activities, museums activities and operation of historical sites and buildings and cultural services n.e.c	Partial	75%
9100	Activities of other membership organizations n.e.c.	Partial	71%

5233	Retail sale of household appliances, articles and equipment	Interdependent	67%
5239	Other retail sale in specialized stores	Interdependent	56%
3694	Manufacture of games and toys	Partial	46%
3692	Manufacture of musical instruments	Interdependent	35%
3691	Manufacture of jewellery and related articles	Partial	34%
3000	Manufacture of office, accounting, and computing machinery	Interdependent	30%
3130	Manufacture of insulated wire and cable	Interdependent	30%
3220	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy	Interdependent	30%
3230	Manufacture of television and radio receivers, sound or video recording or reproducing apparatus, and associated goods	Interdependent	30%
3320	Manufacture of optical instruments and photographic equipment	Interdependent	30%
5151	Wholesale machinery, equipment and of other special-purpose machinery	Interdependent	28%
7120	Renting and leasing of other machinery, equipment, and tangible goods	Interdependent	28%
2101	Manufacture of pulp, paper and paperboard	Interdependent	25%
2429	Manufacture of other chemical products n.e.c.	Interdependent	25%
5149	Wholesale of other intermediate products, waste and scrap	Interdependent	25%
7130	Renting of personal and household goods n.e.c.	Interdependent	20%

5.5. PVR-intensive industries

Overall, firms in 15 industries were granted PVRs during 2014-2019, out of which 5 were PVR-intensive.

Table 14 shows the PVR-intensive industries in Argentina. The full list of industries with PVRs can be found in Appendix 9.6.

Production of seeds and research activities are the most PVR-intensive industries, followed by wholesale of specialized inputs for agricultural production and manufacture of pesticides and other agro-chemicals.

Table 14: PVR-intensive industries

CLANAE 2004 code	CLANAE 2004 description	PVRs per 1,000 employees
115	Production of seeds and other forms of propagation of agricultural crops	17.12
7300	Research and Development	11.84
5149	Wholesale of other intermediate products, waste and scrap	3.58
5121	Wholesale of agricultural raw materials and live animals	1.41
2421	Manufacture of pesticides and other agro-chemical products	1.06

Notes: Based on plant variety rights granted in 2014-2019.

5.6. All IPR-intensive industries

The study identified 180 IPR-intensive industries in Argentina in 2014-2019. Results indicate that more than half of the industries are intensive in more than one IP right, as Table 15 shows. For example, industry 2423 "Manufacture of pharmaceuticals, medicinal chemicals and botanical products" is intensive in both patents and trade marks. Industry 2222 "Service activities related to printing" is an intensive user of all IPRs except GIs and PVRs. Most copyright-intensive sectors are also trade mark-intensive (86%, a higher fraction than in the EU or Uruguay). Table 25 Table 15in Appendix 9 summarises the results presented so far by listing all 180 IPR-intensive industries, together with an indication of the IPR they are intensive in.

Table 15: Overlapping use of IP rights

IP right	Number of industries intensive in the IPRs
CR	4
DES	18
PAT	19
PVR	1
TM	36
DES, CR	1
PAT, DES	12
TM, CR	17
TM, DES	14
TM, GI	1
TM, PAT	16
TM, PVR	1
PAT, DES, CR	2
TM, DES, CR	2
TM, DES, GI	1
TM, PAT, CR	4
TM, PAT, DES	16
TM, PAT, PVR	1
TM, PAT, DES, CR	12
TM, PAT, DES, PVR	1
TM, PAT, DES, CR, PVR	1
Intensive in one IPR	**78**
Intensive in more than one IPR	**102**

Trade marks are used intensively by most of the industries (123 out of 291). Patents tend to be used more intensively in the manufacturing sector (52% of patent-intensive industries are in manufacturing). A total of 21 industries are intensive in patents, trade marks and designs.

Other significant overlaps are between trade marks and designs (46 industries or 58% of all industries are intensive in designs), and trade marks and patents (51 industries, or 61% of patent-intensive industries).

Conversely, some industries use only one of the analysed IP rights intensively. 36 industries are trade mark-intensive only, 19 patent-intensive only, 18 design-intensive only and 4 copyright-intensive only. One industry is exclusively PVR-intensive.

It is worthwhile examining more closely the industries that are intensive in just one of the IP rights considered, since such industries can be considered to reflect the contribution of that particular IP right as opposed to IPRs in general. The 19 industries that are exclusively patent-intensive are concentrated in manufacturing (11) and construction (3). What these industries have in common is that they sell their products and services to other industries, not to end consumers.

The 36 industries that are exclusively trade mark-intensive include 16 manufacturing industries, 10 wholesale and retail industries, and 6 service industries. The 18 exclusively design-intensive industries are concentrated in manufacturing and services, including, for example, 3102 “Manufacture of kitchen furniture” and 4759 “Retail sale of furniture”. As a group, these industries market their products and services to both businesses and consumers.

6. Contribution of IPR-intensive industries to the Argentine economy

The previous chapter focused on the identification of IPR-intensive industries. Drawing on economic data of the Argentine economy, this section characterizes IPR-intensive industries in terms of their contribution to employment, GDP, international trade, and wages.

6.1. Contribution to employment, GDP, trade, and wages

6.1.1. Employment

A total of approximately 6,500,000 people were formally employed in Argentina in 2014-2019. Table 16 shows the contribution of IPR-intensive industries to total formal salaried employment. Around 45% of the formally employed worked in IPR-intensive industries, accounting for a little bit over 2,900,000 workers. Trade-mark-intensive industries account for the largest share of employment, with 25.3%, followed by copyright-intensive industries (18.4%), design-intensive industries (16.7%) and patent-intensive (14.6%). PVR-intensive and GI-intensive sectors employ smaller shares (0.8% and 0.5%, respectively)

Since some industries are intensive in more than one IPR, the sum of employment shares for each IP right is more than the employment share of all IPR-intensive industries. The latter is calculated by counting industries only once, to avoid double-counting. Moreover, the contribution of copyright-intensive industries is weighted according to their corresponding factors. For example, if a copyright-intensive industry has a factor equal to 20%, only 20% of employment in that four-digit industry is considered. Whenever an industry is intensive in the use of copyrights as well as in another IPR, then the factor considered for its contribution is 100%.

Table 16: Direct contribution of IPR-intensive industries to formal employment, 2014-2019

IPR-intensive industries	Employment (direct)	Share of total employment (direct)
Copyright-intensive	1,198,287	18.4%
Design-intensive	1,089,170	16.7%
Geographical indications-intensive	35,446	0.5%
Patent-intensive	948,410	14.6%
Plan varieties-intensive	52,709	0.8%
Trade mark-intensive	1,646,374	25.3%
All IPR-intensive	**2,942,519**	**45.2%**
Total formal employment in Argentina	**6,505,046**	

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.

6.1.2. GDP

Gross domestic product (GDP) is the most common measure of economic activity. It accounts for the total value of the goods and services produced in a given country during a given time period, generally a year. In the case of Argentina, the INDEC is responsible for the national accounts estimates, including GDP. Value added produced in each industry is reported, including product-specific taxes and excluding product-specific subsidies. Value added equals the industry's sales minus its purchases of goods and services from other industries. GDP for Argentina averaged US$547 billion in the period 2014-2019.

As in EUIPO and EPO (2019), the starting point for estimating the share of IPR-intensive industries in GDP involved obtaining value added figures for each industry at the lowest level of disaggregation. Industry-level value added in Argentina is available only at the 2-digit level under the CLANAE 2004 classification, as explained in Chapter 4. In order to disaggregate value-added at the 4-digit level, the share of the wage bill of each IPR-intensive class in the wage bill of its corresponding 2-digit division was applied as a factor to disaggregate value added.

However, before the sectoral figures could be compared with the overall economy-wide figure, they had to be adjusted in order to ensure that the numerators in the calculations of the weight of IPR-intensive industries in the economy were consistent with the denominator, i.e., overall GDP.

The industry-level value added is defined at factor cost, which excludes taxes linked to production. On the other hand, GDP is the sum of gross value added (GVA) at basic prices in all industries of the economy plus taxes less subsidies on products. The difference between factor cost and basic prices is that the latter (for each industry) include other taxes less subsidies on production. Therefore, in order to obtain a homogenous ratio based on GDP, the figures from INDEC had to be converted so as to be consistent with the GDP definition. Otherwise, the ratios of sectoral GDP to total GDP would be understated because the nominator and denominator would not be defined in the same way. In order to achieve consistency, the data was adjusted as follows:

First, a factor was applied to the value-added obtained from INDEC for each IPR-intensive industry. This factor was calculated as the ratio between value added at factor cost in and GVA at basic prices in national accounts for each industry. All classes within each division were divided by the same factor. Secondly, the ratio between GDP and GVA for the whole economy was applied to each adjusted value-added figure from the first step. The resulting adjusted industry-level value added figures are compatible with GDP.

The contribution of IPR-intensive industries to the Argentine economy is shown in Table 17. Around 42% of total economic output in the country is generated in IPR-intensive industries. Trade mark-intensive industries contribute with 26.8% of GDP, while copyright-intensive and design-intensive industries contribute 15.3% and 15.1%, respectively. Patent-intensive industries contribute with 13.5%. PVR-intensive and GI-intensive contribution are around or below the 1%. As was the case for the employment calculation described in the preceding section, for the purpose of calculating the total contribution of IPR-intensive industries to GDP, each industry was counted only once, even if it used more than one IP right intensively.

Table 17: Contribution of IPR-intensive industries to GDP, 2014-2019 average

IPR-intensive industries	Value-added / GDP (Argentine 1,000,000 pesos)	Share of total GDP
Copyright-intensive	1,657,861	15.3%
Design-intensive	1,629,159	15.1%
Geographical indication-intensive	39,467	0.4%
Patent-intensive	1,456,996	13.5%
Plant varieties-intensive	11,944	1.1%
Trade mark-intensive	2,896,297	26.8%
All IPR-intensive	**4,527,974**	**41.9%**
Total GDP	**10,814,334**	

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.

6.1.3. Trade

The third major economic variable to which IPR-intensive industries contribute to the economy of Argentina is external trade, both of goods and services. Indeed, a sizable proportion of both imports and exports correspond to IPR-intensive industries.

In the case of exports, 56.4% of total exports are related to IPR-intensive sectors, while in the case of imports, 81% are due to IPR-intensive sectors. In the case of exports, trade mark-intensive industries are responsible for a sizable share, followed by patent-intensive industries. In the case of imports, the most relevant share corresponds to design-intensive industries, with almost similar shares than trade mark and patent-intensive industries. Table 18 summarizes trade in IPR-intensive industries, based on data for 2014-2019.

As in the case of employment and GDP figures, trade figures for the four IP rights add up to more than the overall figure for IPR-intensive industries because many industries are intensive in more than one IP right.

Table 18: External trade in IPR-intensive industries, 2014-2019

IPR-intensive industries	Exports (US$ million)	Share of total exports	Imports (US$ million)	Share of total imports
Copyright-intensive	588.1	1.0%	1,964.9	3.2%
Design-intensive	13,942.5	23.9%	28,153.3	46.5%
Geographical indication-intensive	1,162.4	2.0%	67.6	0.1%
Patent-intensive	17,600.8	30.1%	26,429.6	43.6%

Plant varieties-intensive	11,254.3	19.3%	1,690.1	2.8%
Trade mark-intensive	21,837.7	37.4%	27,758.6	45.8%
All IPR-intensive	**32,952.8**	**56.4%**	**49,058.6**	**81.0%**
Total for Argentina	**58,381.0**		**60,590.3**	

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.

6.1.4. Wages

The data from the Ministry of Labour, Employment and Social Security used in this study allows for the calculation of the average wage paid by each industry to its workforce. In order to properly compute average wages for IPR-intensive industries, the following procedure was followed. First, using the information on total salaried employment and the average wage for each four-digit industry, the wage bill was calculated for each industry. Then, the total wage bill of IPR-intensive industries as a whole was calculated by summing across all IPR-intensive industries. Finally, the average wage of IPR-intensive industries was computed by dividing the total wage bill of IPR-intensive industries by total employment in IPR-intensive industries (as reported in Table 16).[12] Table 19 presents the results.

The average wage in IPR-intensive industries was AR$ 26,912 (US$ 1,427) compared to AR$ 24,563 (US$ 1,305) for non-IPR-intensive industries, while it was AR$ 25,626 (US$ 1,358) for all four-digit industries. This implies a 9% wage premium for IPR-intensive industries in 2014-2019. The premium was higher for PVR-intensive industries (41%), followed by trade mark-intensive industries (25%), design-intensive industries (12%) and patent-intensive industries (8%).

Some industries IPR-intensive industries had average wages below the national average for the period considered in the study. Wages in copyright-intensive industries were 5% lower than the national average, mainly due to significantly low wages in education, which concentrates about a third of total workers in copyright-intensive industries and hence lowers the average for these industries. If we omit education, wages in copyright-intensive industries were about 20% higher than the national average. For GI-intensive industries, wages were 1% lower than the national average. This is consistent with GI-intensive industries in Argentina being agricultural activities that concentrate jobs in agriculture that pay relatively lower wages (wine-making and yerba mate).

In Argentina, IPR-intensive industries earn a lower wage premium, on average, than what has been estimated for Uruguay, Chile, Peru, or Mexico. Part of this result is explained by the education sector, without which IPR-intensive industries would show a 18% premium. Another factor is the relatively low premium of patent-intensive industries. Behind this low premium is

[12] This procedure avoids taking the average of within-sector average wages (an average of an average), which does not assign all workers the same weight, and directly computes the average wage for all workers within IPR-intensive industries, giving all workers the same weight when computing the average.

the fact that 25% of workers in patent-intensive industries in Argentina earned wages that were 20% or more below the national average, mostly in services and retail. A potential explanation is that, in these industries in Argentina, productivity dispersion is higher than in other countries and, hence, productive businesses that patent and pay high wages coexist with unproductive businesses that pay lower wages, driving the average wage down. A complete analysis of the determinants of wage differentials among IPR-intensive industries in Argentina, however, is beyond the scope of this study, and is a promising avenue for future research.

Table 19: Average wages in IPR-intensive industries, 2014-2019

IPR-intensive industries	Average wage (Argentine pesos per month)	Premium (compared to non-IPR-intensive industries)
Copyright-intensive	23,271	-5%
Design-intensive	27,459	12%
Geographical indications-intensive	24,372	-1%
Patent-intensive	26,676	8%
Plan varieties-intensive	34,636	41%
Trade mark-intensive	30,667	25%
All IPR-intensive	**26,851**	**9%**
Non-IPR-intensive	**24,598**	
All industries	**25,617**	

Note: based on wages of salaried employees.

6.2. The main IPR-intensive industries in Argentina

So far, the analysis in this chapter has focused on the IPR-intensive industries aggregated by IP right or in total. In this section, the contributions to employment and GDP are broken down by industry. Table 20 shows the 20 IPR-intensive industries making the largest contribution to employment.

Table 20: IPR-intensive industries (employment, 2014-2019)

CLANAE code	CLANAE description	Employment	Intensive IPR
8000	Education	489,281	CR
9100	Activities of other membership organizations n.e.c.	201,647	CR
7499	Other business activities n.e.c.	131,546	TM, CR
7410	Accounting, bookkeeping, and auditing activities; tax consultancy, Market research and public opinion polling; Management consultancy activities	114,831	TM, PAT, DES
6420	Telecommunications	77,654	TM, CR

6521	Monetary intermediation of banking financial entities (including public and private banks)	66,668	TM
5239	Other retail sale in specialized stores	63,372	TM, PAT, DES, CR
5233	Retail sale of household appliances, articles and equipment	58,775	TM, CR
5235	Retail sale of furniture, articles of cork, straw and plaiting materials, mattresses, lighting equipment and other household articles in specialized stores	57,781	DES
2520	Manufacture of plastics products	53,315	PAT, DES
7220	Software consultancy and supply	51,910	TM, CR
2899	Manufacture of other fabricated metal products n.e.c.	48,827	PAT, DES
1810	Manufacture of wearing apparel, except fur apparel	44,391	TM
7421	Architectural and engineering activities and related technical consultancy	43,915	TM, PAT, DES, CR
7010	Real estate activities with own or leased property	41,623	TM, PAT, DES
9309	Other service activities n.e.c.	40,579	TM, PAT, DES
2423	Manufacture of pharmaceuticals, medicinal chemicals, and botanical products	39,327	TM, PAT
9241	Sporting activities	39,094	TM
7290	Other computer related activities	37,673	TM, PAT, CR
1549	Manufacture of other food products n.e.c.	36,361	TM, DES, GI

Employment in these 20 industries adds to 1,738,570 people, accounting for 59.1% of total employment in the 180 IPR-intensive industries identified in this report. The list is dominated by trade mark-intensive (15 out of 20, either individually or combined). The vast majority of activities topping the list of employment are service sectors (12 out of 20), followed by manufacturing (5 activities).

Table 21 shows the top 20 IPR-intensive industries, ranked according to their contribution to GDP. In total, these 20 industries account for 25.9% of total GDP, or equivalent to 57% of total GDP generated in IPR-intensive industries. Interestingly, the majority of industries appear in the two top 20 lists (15 industries out of 20).

Table 21: IPR-intensive industries (GDP, 2014-2019 average)

CLANAE code	CLANAE description	Value-added ($)	Value-added (%)	Intensive IPR
8000	Education	672,774	6.2%	CR
6521	Monetary intermediation of banking financial entities (including public and private banks)	262,040	2.4%	TM
6420	Telecommunications	240,373	2.2%	TM, CR
9100	Activities of other membership organizations n.e.c.	149,611	1.4%	CR
7499	Other business activities n.e.c.	145,175	1.3%	TM, CR
7010	Real estate activities with own or leased property	143,116	1.3%	TM, PAT, DES

7410	Accounting, bookkeeping, and auditing activities; tax consultancy, Market research and public opinion polling; Management consultancy activities	142,002	1.3%	TM, PAT, DES
1110	Extraction of crude petroleum and natural gas	138,647	1.3%	TM, DES
2423	Manufacture of pharmaceuticals, medicinal chemicals and botanical products	93,420	0.9%	TM, PAT
7220	Software consultancy and supply	90,658	0.8%	TM, CR
2710	Manufacture of basic iron and steel	87,596	0.8%	PAT
5235	Retail sale of furniture, articles of cork, straw and plaiting materials, mattresses, lighting equipment and other household articles in specialized stores	86,794	0.8%	DES
5133	Wholesale of pharmaceutical and medical goods, cosmetic and toilet articles in specialized stores	86,317	0.8%	TM, DES
5239	Other retail sale in specialized stores	78,576	0.7%	TM, PAT, DES, CR
7290	Other computer related activities	74,175	0.7%	TM, PAT, CR
1520	Manufacture of dairy products	66,848	0.6%	TM
2520	Manufacture of plastics products	65,603	0.6%	PAT, DES
5233	Retail sale of household appliances, articles and equipment	63,227	0.6%	TM, CR
1810	Manufacture of wearing apparel, except fur apparel	58,845	0.5%	TM
6590	Financial service activities, except central banking and monetary intermediation	55,707	0.5%	TM

7. Appendix: Patenting by resident status in Argentina

A relevant feature about patenting behaviour in Argentina is that a relatively small fraction of patent applications is made by residents (12% during the period covered in this study). This low fraction is not specific to the period under study, but a general characteristic of patenting behaviour in Argentina. This is not a limitation of the data either, but a characteristic of patenting in Argentina (and in most LAC countries more generally), which, in itself, is a result worth highlighting because it shows a fundamental difference with patenting behaviour in most EU countries.

An alternative is to consider both resident and non-resident holders. However, this would make results non-comparable with earlier (and ongoing) efforts to characterize IPR-intensive industries in other countries in the EU or LAC. On the one hand, firms may decide to register patents in Argentina even if they do not operate in the country, hence not contributing to employment nor value added. This could overstate the IPR-intensity of some industries and the contribution of certain IPRs to economic activity. On the other, some activities outside manufacturing (e.g., general education or applied research institutions) which generate significant innovation and R&D in Argentina, may not appear as IPR-intensive because the industry of use (IOU), rather than industry of origin (IOO), would be recorded.

Even if we still decided to consider non-residents for identifying IPR-intensive industries in Argentina, a related issue is the assignment of economic activities to applicants. We will illustrate this issue with patents, where the fraction of non-residents is the lowest. Since most non-residents are not included in Argentina's business register, we would not have a source to assign industries to non-resident applicants. An alternative is to use patents' IPC categories.[13] However, this strategy changes the focus of the study and renders results non-comparable with previous efforts. This is because, rather than classifying IPRs into the industry of the holder, the exercise would classify IPRs according to their area of technology.[14] These two are not necessarily the same, nor should they be in the same group of industries.

As an example, consider Table 22 and Table 23, which report absolute patent intensities in Argentina using data on patents with at least one resident applicant matched to the business register and for which an IPC category is available. Both tables report the top-20 industries by their absolute intensities. Table 22 reports results using applicants' registered economic activity (under the CLANAE 2010) and Table 23 reports results using patents' IPC industry (converted to the NACE 2 in order to make it comparable to the CLANAE 2010).[15] As can be seen from the tables, there are significant differences between applicants' industries of origin and patents' areas of technology. Whereas only 2 manufacturing industries are included in the top-20 list using applicants' industry of origin, all but one industry are manufacturing industries if we consider patents' areas of technology. These results suggest that using IPC categories to impute applicant's economic activities could introduce important biases that would affect the interpretation of results and limit their comparability with previous efforts to estimate IPR-intensive industries.

For reference, Table 24 reports the full list of industries' absolute intensities using applications filed by non-residents in Argentina during 2014-2019. All but five industries are manufacturing industries.

Table 22: Absolute patent intensity of selected industries with at least one resident holder in Argentina, using applicants' registered economic activity

CLANAE code	CLANAE description	Absolute intensity
7020	Management consultancy activities	326.67
9609	Other personal service activities n.e.c.	136.17
7110	Architectural and engineering activities and related technical consultancy	116.50
8411	General public administration activities	103.00

[13] For Argentina, one drawback is that industry correspondences between the IPC and the ISIC/CLANAE are not straightforward or may be outdated. For instance, a MERIT correspondence between the IPC and ISIC is available, but for the ISIC Rev. 2, which is far from ISIC Rev. 3 in which employment data in Argentina are available. We are not aware of any other *direct* correspondence between the IPC and the ISIC. Eurostat makes available correspondences between the IPC V8 and the NACE Rev. 2 and between the NACE Rev. 2 and the ISIC Rev. 4.

[14] Dorner and Harhoff (2017) discuss the applicability of different methodologies and correspondences to produce better matches to either the industry of use (IOU) or the industry of origin (IOO).

[15] The IPC to NACE correspondence is available from the EPO at https://forums.epo.org/concordance-table-between-ipc-and-nace2-9756.

8532	College education	92.83
7210	Research and experimental development on natural sciences and engineering	88.33
8690	Other human health activities	73.63
2220	Manufacture of plastics products	64.42
6810	Real estate activities with own or leased property	55.50
2821	Manufacture of agricultural and forestry machinery	54.00
4100	Construction of buildings	39.50
2599	Manufacture of other fabricated metal products n.e.c.	36.67
8531	Tertiary education	33.58
6910	Legal activities	32.25
4721	Retail sale of food in specialized stores	25.83
4774	Retail sale of second-hand goods	25.00
8299	Other business support service activities n.e.c.	21.67
4922	Other passenger land transport	21.25
8549	Other education n.e.c.	19.00
4529	Maintenance and repair of motor equipments	18.83

Notes: based on patents filed by residents in 2014-2019.

Table 23: Absolute patent intensity of selected industries with at least one resident holder in Argentina, using patents' areas of technology

NACE code	NACE description	Absolute intensity
28.30	Manufacture of Agricultural and Forestry Machinery	254.0
32.50	Manufacture of medical and dental instruments and supplies	229.0
32.00	Other Manufacturing	210.0
28.90	Manufacture of Other Special-Purpose Machinery	187.0
43.00	Specialized Construction Activities	180.0
27.50	Manufacture of Domestic Appliances	170.0
29.10	Manufacture of Motor Vehicles	137.0
28.10	Manufacture of General-Purpose Machinery	124.0
20.10	Manufacture of Basic Chemicals, Fertilisers and Nitrogen Compounds, Plastics and Synthetic Rubber in Primary Forms	112.0
30.00	Manufacture of Other Transport Equipment	76.0
10.00	Manufacture of Food Products	66.0
21.00	Manufacture of Basic Pharmaceutical Products and Pharmaceutical Preparations	63.0
28.40	Manufacture of Metal Forming Machinery and Machine Tools	54.0
31.00	Manufacture of Furniture	53.0
28.29	Manufacture of Other General-Purpose Machinery NEC	50.0
26.30	Manufacture of Communication Equipment	47.0
26.50	Manufacture of Instruments and Appliances for Measuring, Testing and Navigation; Watches and Clocks	40.0
26.20	Manufacture of computers and peripheral equipment	38.0

25.70	Manufacture of Cutlery, Tools and General Hardware	36.0
27.40	Manufacture of Electric Lighting Equipment	31.0

Notes: based on patents filed by residents in 2014-2019. A correspondence between patents' IPC category and the NACE classification was used to convert areas of technology.

Table 24: Absolute patent intensity of industries based on filings by non-residents in Argentina

NACE code	NACE description	Absolute intensity
21.00	Manufacture of Basic Pharmaceutical Products and Pharmaceutical Preparations	1884.0
28.90	Manufacture of Other Special-Purpose Machinery	1690.0
20.10	Manufacture of Basic Chemicals, Fertilisers and Nitrogen Compounds, Plastics and Synthetic Rubber in Primary Forms	1309.0
20.20	Manufacture of pesticides and other agrochemical products	1265.0
10.00	Manufacture of Food Products	731.0
32.50	Manufacture of medical and dental instruments and supplies	690.0
28.30	Manufacture of Agricultural and Forestry Machinery	566.0
26.30	Manufacture of Communication Equipment	488.0
28.10	Manufacture of General-Purpose Machinery	405.0
26.20	Manufacture of computers and peripheral equipment	382.0
12.00	Manufacture of Tobacco Products	311.0
20.40	Manufacture of Soap and Detergents, Cleaning and Polishing Preparations, Perfumes and Toilet Preparations	295.0
28.23	Manufacture of Office Machinery and Equipment Except Computers and Peripheral Equipment	288.0
24.00	Manufacture of Basic Metals	257.0
23.00	Manufacture of Other Non-Metallic Mineral Products	240.0
22.00	Manufacture of Rubber and Plastic Products	210.0
28.29	Manufacture of Other General-Purpose Machinery NEC	202.0
32.00	Other Manufacturing	201.0
27.50	Manufacture of Domestic Appliances	199.0
26.50	Manufacture of Instruments and Appliances for Measuring, Testing and Navigation; Watches and Clocks	193.0
20.50	Manufacture of Other Chemical Products	176.0
29.10	Manufacture of Motor Vehicles	175.0
23.50	Manufacture of Other Non-Metallic Mineral Products - Manufacture of Cement, Lime and Plaster	145.0
19.00	Manufacture of Coke and Refined Petroleum Products	144
43.00	Specialised Construction Activities	127
30.00	Manufacture of Other Transport Equipment	126
28.40	Manufacture of Metal Forming Machinery and Machine Tools	121
26.51	Manufacture of Instruments and Appliances for Measuring, Testing and Navigation	114
27.33	Manufacture of Wiring Devices	96
20.30	Manufacture of Paints, Varnishes and Similar Coatings, Printing Ink and Mastics	83

26.70	Manufacture of Optical Instruments and Photographic Equipment	77
28.99	Manufacture of Other Special-Purpose Machinery NEC	69
31.00	Manufacture of Furniture	66
15.00	Manufacture of Leather and Related Products	60
23.10	Manufacture of Other Non-Metallic Mineral Products - Manufacture of Glass and Glass Products	59
17.00	Manufacture of Paper and Paper Products	51
25.30	Manufacture of Steam Generators, Except Central Heating Hot Water Boilers	48
25.70	Manufacture of Cutlery, Tools and General Hardware	47
11.00	Manufacture of Beverages	46
26.10	Manufacture of Electronic Components and Boards	43
27.20	Manufacture of Batteries and Accumulators	42
27.12	Manufacture of Electricity Distribution and Control Apparatus	42
27.10	Manufacture of Electric Motors, Generators, Transformers and Electricity Distribution and Control Apparatus	38
28.22	Manufacture of Lifting and Handling Equipment	37
18.10	Printing and Service Activities Related to Printing	36
20.51	Manufacture of Other Chemical Products Manufacture of Explosives	33
28.94	Manufacture of Machinery for Textile, Apparel and Leather Production	33
13.00	Manufacture of Textiles	31
27.30	Manufacture of Wiring and Wiring Devices	30
23.30	Manufacture of Other Non-Metallic Mineral Products - Manufacture of Clay Building Materials	28
28.14	Manufacture of Other Taps and Valves	25
28.11	Manufacture of Engines and Turbines, Except Aircraft, Vehicle and Cycle Engines	24
62.00	Computer Programming, Consultancy and Related Activities	24
25.40	Manufacture of Weapons and Ammunition	22
28.25	Manufacture of Non-Domestic Cooling and Ventilation Equipment	22
27.90	Manufacture of other electrical equipment	22
22.20	Manufacture of Plastics Products	21
20.60	Manufacture of Man-Made Fibres	21
26.60	Manufacture of irradiation, electromedical and electrotherapeutic equipment	21
27.40	Manufacture of Electric Lighting Equipment	20
25.60	Treatment and Coating of Metals; Machining	20
32.99	Manufacturing NEC	19
25.90	Manufacture of Other Fabricated Metal Products	18
25.10	Manufacture of Structural Metal Products	15
42.91	Construction of Water Projects	13
14.00	Manufacture of Wearing Apparel	12
16.00	Manufacture of Wood and of Products of Wood and Cork, Except Furniture; Manufacture of Articles of Straw and Plaiting Materials	12
10.50	Manufacture of Dairy Products	10
28.21	Manufacture of Ovens, Furnaces and Furnace Burners	9
25.20	Manufacture of Tanks, Reservoirs and Containers of Metal	9
26.40	Manufacture of Consumer Electronics	8

25.50	Forging, Pressing, Stamping and Roll-Forming of Metal; Powder Metallurgy	6
23.42	Manufacture of Ceramic Sanitary Fixtures	6
26.52	Manufacture of Watches and Clocks	5
28.95	Manufacture of Machinery for Paper and Paperboard Production	5
42.20	Construction of Utility Projects	4
28.92	Manufacture of Other Special-Purpose Machinery - Manufacture of Machinery for Mining, Quarrying and Construction	2
24.46	Processing of Nuclear Fuel	2
25.94	Manufacture of Fasteners and Screw Machine Products	2
22.10	Manufacture of Rubber Products	2
26.11	Manufacture of Electronic Components	2
29.30	Manufacture of Parts and Accessories for Motor Vehicles	1
27.90	Manufacture of Other Electrical Equipment	1
20.20	Manufacture of Pesticides and Other Agrochemical Products	1

Notes: based on patents filed by non-residents in 2014-2019. A correspondence between patents' IPC category and the NACE classification was used to convert areas of technology.

8. Appendix: Methodology

8.1. Description of approximate string-matching algorithms

The main difficulty of matching information of IPR holders present in patents, trade marks, and designs to candidate firms and individuals in business registers resided in the lack of a unique common identifier to link datasets. Instead, the matching process had to rely on holders' reported names. In turn, this was complicated by the frequent discrepancies between the names reported in IPR records and those present in business registers.

There are several computational approaches to this kind of problem, usually known as approximate string-matching tools. Different algorithms have been designed to match similar but not identical strings and tackle this problem. In this study, four different approaches were tested to determine the best candidate in the business register for each IPR holder:

1. SoundEx: a phonetic algorithm that tries to match strings based on how they would sound.
2. Levenshtein: an algorithm that calculates the distance between two strings by looking at how many edit steps are needed to get from one string to another. The score indicates the minimum number of changes needed.
3. Jaro Winkler: an algorithm that calculates a similarity index between two strings based on the number of characters that match, with a correction that gives a higher rank for the match at the beginning of the string. The result is a fraction between zero, indicating no similarity, and one, indicating an identical match.
4. Pair-letters similarity: an algorithm that dissects the two strings in pairs and calculates the similarity of the two strings by dividing the number of common pairs by the sum of the pairs from both strings.

The use of SoundEx gave poor results because the implementation was limited to a certain number of characters and because it was developed for English phonetics. As a result, many candidates had the same rating for each holder and with very low accuracy. Levenshtein, Jaro Winkler, and Pair-letters showed better results and were manually checked on a smaller random sample. The best-performing method turned out to be the application of Pair-letters on subsets of holders and candidates sharing the same initial character. This improved accuracy and had a much lower computational cost.

9. Appendix: Additional results

9.1. List of all IPR-intensive industries in Argentina

Table 25 lists all IPR-intensive industries in Argentina identified by the study in 2014-2019, with the corresponding IPRs in which they are intensive. Overall, the study identified 180 IPR-intensive industries.

Table 25: List of all IPR-intensive industries in Argentina

CLANAE code	CLANAE description	Intensive in IPR indicator					
		TM	PAT	DES	CR	GI	PVR
115	Production of seeds and other forms of propagation of agricultural crops	x	x				x
122	Other animal farming; production of animal products n.e.c.		x				
142	Support activities for animal production except the veterinary	x	x				
150	Hunting, trapping and game propagation including related service activities	x					
502	Fish farming and aquaculture	x					
1110	Extraction of crude petroleum and natural gas	x		x			
1422	Extraction of salt	x					
1520	Manufacture of dairy products	x					
1531	Manufacture of grain mill products	x					
1533	Manufacture of prepared animal feeds	x		x			
1543	Manufacture of cocoa, chocolate and sugar confectionery	x					
1544	Manufacture of macaroni, noodles, couscous and similar farinaceous products	x					
1549	Manufacture of other food products n.e.c.	x		x		x	
1551	Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials	x					
1552	Manufacture of wines	x				x	
1553	Manufacture of malt liquors and malt	x		x			
1721	Manufacture of made-up textile articles, except apparel	x		x			
1722	Manufacture of carpets and rugs	x					
1810	Manufacture of wearing apparel, except fur apparel	x					
1820	Dressing and dyeing of fur; manufacture of articles of fur	x					
1912	Manufacture of luggage, handbags and the like, saddlery and harness	x	x				
1920	Manufacture of footwear			x			
2022	Manufacture of builders' carpentry and joinery		x				

2023	Manufacture of wooden containers		x				
2029	Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials		x	x			
2101	Manufacture of pulp, paper and paperboard			x	x		
2102	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard		x	x			
2109	Manufacture of other articles of paper and paperboard	x		x			
2211	Publishing of books, brochures, musical books and other publications	x			x		
2212	Publishing of newspapers, journals and periodicals	x			x		
2213	Publishing of recorded media	x			x		
2219	Other publishing	x			x		
2221	Printing	x			x		
2222	Service activities related to printing	x	x	x	x		
2230	Reproduction of recorded media	x	x		x		
2412	Manufacture of fertilizers and nitrogen compounds		x				
2413	Manufacture of plastics in primary forms and of synthetic rubber	x	x	x			
2421	Manufacture of pesticides and other agro-chemical products	x					x
2422	Manufacture of paints, varnishes and similar coatings, printing ink and mastics	x					
2423	Manufacture of pharmaceuticals, medicinal chemicals and botanical products	x	x				
2424	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	x		x			
2429	Manufacture of other chemical products n.e.c.	x	x		x		
2430	Manufacture of man-made fibres	x					
2519	Manufacture of other rubber products	x					
2520	Manufacture of plastics products		x	x			
2691	Manufacture of non-structural non-refractory ceramic ware	x	x	x			
2692	Manufacture of refractory ceramic products			x			
2693	Manufacture of structural non-refractory clay and ceramic products		x	x			
2695	Manufacture of articles of concrete, cement and plaster			x			
2696	Cutting, shaping and finishing of stone		x				
2699	Manufacture of other non-metallic mineral products n.e.c.	x					
2710	Manufacture of basic iron and steel		x				
2720	Manufacture of basic precious and non-ferrous metals			x			
2732	Casting of non-ferrous metals			x			
2811	Manufacture of structural metal products		x	x			
2812	Manufacture of tanks, reservoirs and containers of metal			x			
2891	Forging, pressing, stamping and roll-forming of metal; powder metallurgy			x			

2892	Treatment and coating of metals; general mechanical engineering on a fee or contract basis		x			
2893	Manufacture of cutlery, hand tools and general hardware	x	x	x		
2899	Manufacture of other fabricated metal products n.e.c.		x	x		
2911	Manufacture of engines and turbines, except aircraft, vehicle and cycle engines	x	x			
2912	Manufacture of pumps, compressors, taps and valves			x		
2913	Manufacture of bearings, gears, gearing and driving elements		x	x		
2914	Manufacture of ovens, furnaces and furnace burners	x				
2915	Manufacture of lifting and handling equipment			x		
2919	Manufacture of other general-purpose machinery	x	x	x		
2921	Manufacture of agricultural and forestry machinery		x			
2922	Manufacture of machine-tools	x	x	x		
2923	Manufacture of machinery for metallurgy		x			
2924	Manufacture of machinery for mining, quarrying and construction		x	x		
2925	Manufacture of machinery for food, beverage and tobacco processing		x	x		
2929	Manufacture of other special purpose machinery		x			
2930	Manufacture of domestic appliances n.e.c.	x	x	x		
3000	Manufacture of office, accounting and computing machinery	x	x		x	
3120	Manufacture of electricity distribution and control apparatus			x		
3130	Manufacture of insulated wire and cable	x			x	
3140	Manufacture of accumulators, primary cells and primary batteries		x			
3150	Manufacture of electric lamps and lighting equipment		x	x		
3190	Manufacture of other electrical equipment n.e.c.	x	x	x		
3210	Manufacture of electronic valves and tubes and other electronic components	x	x			
3220	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy		x	x	x	
3230	Manufacture of television and radio receivers, sound or video recording or reproducing apparatus, and associated goods				x	
3310	Manufacture of medical and dental instruments and supplies; Manufacture of measuring, testing, navigating and control equipment	x	x	x		
3311	Manufacture of medical and surgical equipment and orthopaedic appliances	x	x	x		
3320	Manufacture of optical instruments and photographic equipment	x		x	x	
3330	Manufacture of watches and clocks	x				
3410	Manufacture of motor vehicles			x		
3420	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers		x	x		

3511	Building and repairing of ships			x			
3520	Manufacture of railway and tramway locomotives and rolling stock		x				
3530	Manufacture of aircraft and spacecraft	x	x				
3590	Manufacture of motorcylces, bicycles and invalid carriages	x		x			
3610	Manufacture of furniture			x			
3691	Manufacture of jewellery and related articles	x	x	x	x		
3692	Manufacture of musical instruments	x	x	x	x		
3693	Manufacture of sports goods	x					
3694	Manufacture of games and toys	x	x	x	x		
3699	Other manufacturing n.e.c.	x		x			
4531	Electric, electromechanical and electronical installation and maintainance			x			
4533	Plumbing, heat and air-conditioning installation		x				
4541	Other construction installation		x	x			
4542	Completion and finishing of walls and floors		x				
4543	Glass installation in building construction	x					
4544	Painting and interior decoration, completition and finishing		x				
5012	Sale of used motor vehicles, except motorcycles	x	x				
5020	Maintenance and repair of motor vehicles		x				
5031	Wholesale of motor vehicle parts and accessories	x					
5032	Retail sale of motor vehicle parts and accessories			x			
5121	Wholesale of agricultural raw materials and live animals						x
5124	Retail sale of cigarrettes and tobacco		x				
5131	Wholesale of textiles, clothing and footwear	x		x			
5132	Wholesale of books, newspapers and stationary in specialized stores	x					
5133	Wholesale of pharmaceutical and medical goods, cosmetic and toilet articles in specialized stores	x		x			
5134	Wholesale of optical instruments and photographic equipment, watches and jewellery and related articles	x		x			
5135	Wholesale of furniture, lighting equipment and other household articles	x		x			
5139	Wholesale of other household goods	x					
5149	Wholesale of other intermediate products, waste and scrap	x	x	x	x		x
5151	Wholesa of machinery, equipment and implements of special use	x	x		x		
5152	Wholesale of other machinery and equipment for general purpose	x		x			
5154	Wholesale of furniture and instalations for manufacturing, retail and services	x	x				
5190	Other wholesale	x	x	x			
5212	Other retail sale of new goods			x			

5221	Retail of grocery, deli and health food products	x	x			
5222	Retail sale of meat, produce and game		x			
5223	Retail sale of fruits, legumes and vegetables in specialized stores			x		
5225	Retail sale of beverages	x	x			
5232	Retail sale of textiles, clothing, footwear and leather goods	x				
5233	Retail sale of household appliances, articles and equipment	x			x	
5234	Retail sale of hardware, paint and glass	x				
5235	Retail sale of furniture, articles of cork, straw and plaiting materials, mattresses, lighting equipment and other household articles in specialized stores			x		
5237	Retail sale of optical instruments and photographic equipment, watches and jewellery and related articles	x				
5238	Retail sale of books, newspapers and stationary in specialized stores	x				
5239	Other retail sale in specialized stores	x	x	x	x	
5241	Retail sale of used furniture in specialized stores	x	x	x		
5242	Retail sale of books, newspapers and stationary in specialized stores	x				
5249	Retail sale of used products, n.e.c.	x				
5251	Retail sale via mail order houses	x		x		
5252	Retail sale via stalls and markets	x	x			
5259	Other non-store retail sale	x	x	x		
5261	Shoe and leather products repair services	x				
5262	Repair of electric household goods	x	x			
6030	Transport via pipelines	x				
6340	Travel agency activities and other reservation service and related activities	x			x	
6420	Telecommunications	x			x	
6521	Monetary intermediation of banking financial entities (including public and private banks)	x				
6590	Financial service activities, except central banking and monetary intermediation.	x				
6620	Management of Pension funding (AFJP)	x				
6711	Administration of financial markets	x	x			
6712	Security dealing activities	x				
6719	Activities auxiliary to financial intermediation n.e.c.	x				
7010	Real estate activities with own or leased property	x	x	x		
7120	Renting and leasing of other machinery, equipment, and tangible goods		x	x	x	
7130	Renting of personal and household goods n.e.c.	x	x	x	x	
7210	Hardware consultancy	x	x	x	x	
7220	Software consultancy and supply	x			x	
7230	Data processing	x			x	

7240	Database activities	x			x		
7250	Maintenance and repair of office, accounting and computing machinery		x				
7290	Other computer related activities	x	x		x		
7300	Research and Development	x	x	x			x
7410	Accounting, bookkeeping and auditing activities; tax consultancy, Market research and public opinion polling; Management consultancy activities	x	x	x			
7421	Architectural and engineering activities and related technical consultancy	x	x	x	x		
7430	Advertising	x	x	x	x		
7494	Photographic activities	x	x	x	x		
7496	Heliographic printing services, photocopying and other forms of reproductions	x	x				
7499	Other business activities n.e.c.	x			x		
8000	Education				x		
8520	Veterinary activities	x	x	x			
9100	Activities of other membership organizations n.e.c.				x		
9211	Motion picture and video production and distribution	x			x		
9212	Motion picture projection				x		
9213	Radio and television activities	x			x		
9214	Dramatic arts, music and other arts activities	x	x	x	x		
9219	Other entertainment activities n.e.c.	x		x	x		
9220	News agency activities	x			x		
9230	Servicios de bibliotecas, archivos y museos y servicios culturales n.c.p.			x			
9230	Library and archives activities, museums activities and operation of historical sites and buildings and cultural services n.e.c	x	x		x		
9241	Sporting activities	x					
9302	Hairdressing and other beauty treatment	x	x				
9309	Other service activities n.e.c.	x	x	x			

Notes: based on IPRs filed in 2014-2019.

9.2. Patent-intensive industries

Table 26 presents the complete list of patent-intensive industries and the information related to their intensity measured in terms of patents per 1,000 employees.

Table 26: Complete list of patent-intensive industries

CLANAE code	CLANAE description	Patents per 1,000 employees
7300	Research and Development	11.38
3210	Manufacture of electronic valves and tubes and other electronic components	5.15
2921	Manufacture of agricultural and forestry machinery	4.57
3692	Manufacture of musical instruments	4.53
8520	Veterinary activities	3.48
9309	Other service activities n.e.c.	3.46
7410	Accounting, bookkeeping, and auditing activities; tax consultancy, Market research and public opinion polling; Management consultancy activities	3.38
3530	Manufacture of aircraft and spacecraft	3.22
3310	Manufacture of medical and dental instruments and supplies; Manufacture of measuring, testing, navigating and control equipment	3.20
7421	Architectural and engineering activities and related technical consultancy	3.10
3694	Manufacture of games and toys	3.09
5252	Retail sale via stalls and markets	2.99
5241	Retail sale of used furniture in specialized stores	2.74
4541	Other construction installation	2.31
3150	Manufacture of electric lamps and lighting equipment	2.14
2919	Manufacture of other general-purpose machinery	1.97
3691	Manufacture of jewellery and related articles	1.78
6711	Administration of financial markets	1.65
9214	Dramatic arts, music, and other arts activities	1.61
5259	Other non-store retail sale	1.55
2922	Manufacture of machine-tools	1.54
5225	Retail sale of beverages	1.50
2929	Manufacture of other special purpose machinery	1.50
3190	Manufacture of other electrical equipment n.e.c.	1.49
7010	Real estate activities with own or leased property	1.47
3311	Manufacture of medical and surgical equipment and orthopaedic appliances	1.41
2412	Manufacture of fertilizers and nitrogen compounds	1.32
2222	Service activities related to printing	1.30
7120	Renting and leasing of other machinery, equipment, and tangible goods	1.25
2022	Manufacture of builders' carpentry and joinery	1.24

7130	Renting of personal and household goods n.e.c.	1.24
2520	Manufacture of plastics products	1.21
2911	Manufacture of engines and turbines, except aircraft, vehicle and cycle engines	1.17
3000	Manufacture of office, accounting and computing machinery	1.13
2923	Manufacture of machinery for metallurgy	1.12
5154	Wholesale of furniture and instalations for manufacturing, retail and services	1.08
2693	Manufacture of structural non-refractory clay and ceramic products	1.05
2892	Treatment and coating of metals; general mechanical engineering on a fee or contract basis	1.02
7496	Heliographic printing services, photocopying and other forms of reproductions	1.01
1912	Manufacture of luggage, handbags and the like, saddlery and harness	0.99
2102	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard	0.98
2023	Manufacture of wooden containers	0.97
7494	Photographic activities	0.97
122	Other animal farming; production of animal products n.e.c.	0.96
3140	Manufacture of accumulators, primary cells and primary batteries	0.95
2913	Manufacture of bearings, gears, gearing and driving elements	0.91
7210	Hardware consultancy	0.90
5221	Retail of grocery, deli and health food products	0.85
3520	Manufacture of railway and tramway locomotives and rolling stock	0.83
5124	Retail sale of cigarettes and tobacco	0.82
2925	Manufacture of machinery for food, beverage and tobacco processing	0.81
7250	Maintenance and repair of office, accounting and computing machinery	0.81
2899	Manufacture of other fabricated metal products n.e.c.	0.79
2429	Manufacture of other chemical products n.e.c.	0.75
5020	Maintenance and repair of motor vehicles	0.72
5262	Repair of electric household goods	0.72
4544	Painting and interior decoration, completition and finishing	0.72
142	Support activities for animal production except the veterinary	0.70
2893	Manufacture of cutlery, hand tools and general hardware	0.67
4533	Plumbing, heat and air-conditioning installation	0.66
5149	Wholesale of other intermediate products, waste and scrap	0.63
7430	Advertising	0.56
5012	Sale of used motor vehicles, except motorcycles	0.54
5151	Wholesale of machinery, equipment and implements of special use	0.54
5190	Other wholesale	0.53
3220	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy	0.51
2691	Manufacture of non-structural non-refractory ceramic ware	0.51
2413	Manufacture of plastics in primary forms and of synthetic rubber	0.51
9302	Hairdressing and other beauty treatment	0.49
5222	Retail sale of meat, produce and game	0.49

9230	Library and archives activities, museums activities and operation of historical sites and buildings and cultural services n.e.c	0.49
2423	Manufacture of pharmaceuticals, medicinal chemicals and botanical products	0.48
2696	Cutting, shaping and finishing of stone	0.48
4542	Completion and finishing of walls and floors	0.48
2930	Manufacture of domestic appliances n.e.c.	0.47
2029	Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials	0.46
5239	Other retail sale in specialized stores	0.45
2811	Manufacture of structural metal products	0.44
7290	Other computer related activities	0.42
2320	Manufacture of refined petroleum products	0.42
115	Production of seeds and other forms of propagation of agricultural crops	0.41
2710	Manufacture of basic iron and steel	0.41
3420	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers	0.40
2924	Manufacture of machinery for mining, quarrying and construction	0.39

Notes: based on patents filed in 2014-2019.

9.3. Trade mark-intensive industries

Table 27Error! Reference source not found. presents the complete list of trade mark-intensive industries and the information related to their intensity measured in terms of trade marks per 1,000 employees.

Table 27: Complete list of trade mark-intensive industries.

CLANAE code	CLANAE description	Trade marks per 1,000 employees
2213	Publishing of recorded media	1,245.59
5252	Retail sale via stalls and markets	825.09
5242	Retail sale of books, newspapers and stationery in specialized stores	723.70
9220	News agency activities	663.37
9214	Dramatic arts, music and other arts activities	630.20
7494	Photographic activities	573.45
7410	Accounting, bookkeeping and auditing activities; tax consultancy, Market research and public opinion polling; Management consultancy activities	494.99
5259	Other non-store retail sale	435.99
2230	Reproduction of recorded media	423.90
2211	Publishing of books, brochures, musical books and other publications	392.12
2219	Other publishing	384.13
9309	Other service activities n.e.c.	381.97

5251	Retail sale via mail order houses	375.60
3694	Manufacture of games and toys	363.31
3692	Manufacture of musical instruments	354.58
7210	Hardware consultancy	344.03
2423	Manufacture of pharmaceuticals, medicinal chemicals and botanical products	325.46
6711	Administration of financial markets	321.00
6620	Management of Pension funding (AFJP)	311.93
3330	Manufacture of watches and clocks	276.25
1722	Manufacture of carpets and rugs	268.28
150	Hunting, trapping and game propagation including related service activities	240.32
1422	Extraction of salt	234.42
2212	Publishing of newspapers, journals and periodicals	224.78
1552	Manufacture of wines	217.29
7010	Real estate activities with own or leased property	216.92
3691	Manufacture of jewelry and related articles	212.89
7430	Advertising	208.38
1820	Dressing and dyeing of fur; manufacture of articles of fur	202.20
9211	Motion picture and video production and distribution	198.67
3693	Manufacture of sports goods	198.13
2422	Manufacture of paints, varnishes and similar coatings, printing ink and mastics	196.39
7230	Data processing	182.15
9213	Radio and television activities	181.57
7300	Research and Development	169.55
6590	Financial service activities, except central banking and monetary intermediation.	167.69
2429	Manufacture of other chemical products n.e.c.	167.35
7421	Architectural and engineering activities and related technical consultancy	157.32
5225	Retail sale of beverages	156.49
5249	Retail sale of used products, n.e.c.	154.52
9219	Other entertainment activities n.e.c.	151.15
9230	Library and archives activities, museums activities and operation of historical sites and buildings and cultural services n.e.c	150.87
502	Fish farming and aquaculture	149.71
5241	Retail sale of used furniture in specialized stores	148.15
8520	Veterinary activities	143.15
1551	Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials	142.88
1553	Manufacture of malt liquors and malt	138.27
2691	Manufacture of non-structural non-refractory ceramic ware	135.53
5135	Wholesale of furniture, lighting equipment and other household articles	133.36
2699	Manufacture of other non-metallic mineral products n.e.c.	130.68

9302	Hairdressing and other beauty treatment	124.25
5152	Wholesale of other machinery and equipment for general purpose	121.23
1533	Manufacture of prepared animal feeds	120.09
1543	Manufacture of cocoa, chocolate and sugar confectionery	118.14
2413	Manufacture of plastics in primary forms and of synthetic rubber	117.31
7240	Data base activities	117.21
3000	Manufacture of office, accounting and computing machinery	116.81
1549	Manufacture of other food products n.e.c.	116.42
7130	Renting of personal and household goods n.e.c.	115.86
7496	Heliographic printing services, photocopying and other forms of reproductions	113.86
5233	Retail sale of household appliances, articles and equipment	112.34
5134	Wholesale of optical instruments and photographic equipment, watches and jewelry and related articles	111.57
1520	Manufacture of dairy products	105.06
2421	Manufacture of pesticides and other agro-chemical products	104.88
6719	Activities auxiliary to financial intermediation n.e.c.	104.85
2424	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	104.54
1531	Manufacture of grain mill products	103.83
5261	Shoe and leather products repair services	103.77
1912	Manufacture of luggage, handbags and the like, saddlery and harness	103.31
5131	Wholesale of textiles, clothing and footwear	101.13
6340	Travel agency activities and other reservation service and related activities	100.91
5190	Other wholesale	100.36
7499	Other business activities n.e.c.	99.57
7220	Software consultancy and supply	97.87
2222	Service activities related to printing	97.32
5262	Repair of electrical household goods	95.47
3320	Manufacture of optical instruments and photographic equipment	94.60
3311	Manufacture of medical and surgical equipment and orthopedic appliances	91.34
3590	Manufacture of motorcycles, bicycles and invalid carriages	90.00
5234	Retail sale of hardware, paint and glass	89.08
5149	Wholesale of other intermediate products, waste and scrap	86.24
5133	Wholesale of pharmaceutical and medical goods, cosmetic and toilet articles in specialized stores	86.24
1110	Extraction of crude petroleum and natural gas	84.43
3699	Other manufacturing n.e.c.	83.93
5237	Retail sale of optical instruments and photographic equipment, watches and jewelry and related articles	83.79
5239	Other retail sale in specialized stores	82.42
3190	Manufacture of other electrical equipment n.e.c.	81.84

3310	Manufacture of medical and dental instruments and supplies; Manufacture of measuring, testing, navigating and control equipment	79.24
7290	Other computer related activities	77.38
5154	Wholesale of furniture and installations for manufacturing, retail and services	76.76
1810	Manufacture of wearing apparel, except fur apparel	76.73
3130	Manufacture of insulated wire and cable	76.39
6712	Security dealing activities	75.59
2914	Manufacture of ovens, furnaces and furnace burners	75.32
6030	Transport via pipelines	74.44
9241	Sporting activities	73.85
2893	Manufacture of cutlery, hand tools and general hardware	72.00
1721	Manufacture of made-up textile articles, except apparel	71.81
2919	Manufacture of other general-purpose machinery	70.64
5238	Retail sale of books, newspapers and stationery in specialized stores	70.10
5132	Wholesale of books, newspapers and stationery in specialized stores	69.36
4543	Glass installation in building construction	69.28
3210	Manufacture of electronic valves and tubes and other electronic components	67.83
2430	Manufacture of man-made fibres	67.54
6420	Telecommunications	65.49
2911	Manufacture of engines and turbines, except aircraft, vehicle and cycle engines	65.26
2320	Manufacture of refined petroleum products	64.72
5031	Wholesale of motor vehicle parts and accessories	63.89
5232	Retail sale of textiles, clothing, footwear and leather goods	63.53
2519	Manufacture of other rubber products	61.49
1544	Manufacture of macaroni, noodles, couscous and similar farinaceous products	60.56
6521	Monetary intermediation of banking financial entities (including public and private banks)	59.86
2922	Manufacture of machine-tools	59.77
115	Production of seeds and other forms of propagation of agricultural crops	59.63
3530	Manufacture of aircraft and spacecraft	59.37
5151	Wholesale of machinery, equipment and supplies	58.19
142	Support activities for animal production except the veterinary	57.69
5139	Wholesale of other household goods	57.12
2221	Printing	56.42
5221	Retail of grocery, deli and health food products	56.17
2109	Manufacture of other articles of paper and paperboard	55.94
5012	Sale of used motor vehicles, except motorcycles	55.92
2930	Manufacture of domestic appliances n.e.c.	55.73

Notes: based on trade marks registered in 2014-2019.

9.4. Design-intensive industries

Table 28 presents the complete list of design-intensive industries and the information related to their intensity measured in terms of designs per 1,000 employees.

Table 28: Complete list of design-intensive industries

CLANAE code	CLANAE description	Designs per 1,000 employees
2720	Manufacture of basic precious and non-ferrous metals	15.56
3692	Manufacture of musical instruments	13.58
2691	Manufacture of non-structural non-refractory ceramic ware	10.07
3694	Manufacture of games and toys	8.76
3150	Manufacture of electric lamps and lighting equipment	8.55
3691	Manufacture of jewellery and related articles	7.13
3190	Manufacture of other electrical equipment n.e.c.	6.60
3410	Manufacture of motor vehicles	6.17
5259	Other non-store retail sale	6.15
7210	Hardware consultancy	5.42
2029	Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials	5.40
2899	Manufacture of other fabricated metal products n.e.c.	5.20
5134	Wholesale of optical instruments and photographic equipment, watches and jewellery and related articles	4.50
2915	Manufacture of lifting and handling equipment	4.45
7421	Architectural and engineering activities and related technical consultancy	4.31
1920	Manufacture of footwear	4.24
5241	Retail sale of used furniture in specialized stores	4.12
5251	Retail sale via mail order houses	4.01
2520	Manufacture of plastics products	3.63
2930	Manufacture of domestic appliances n.e.c.	3.46
7494	Photographic activities	3.39
9309	Other service activities n.e.c.	3.27
3699	Other manufacturing n.e.c.	3.26
7410	Accounting, bookkeeping and auditing activities; tax consultancy, Market research and public opinion polling; Management consultancy activities	3.22
5135	Wholesale of furniture, lighting equipment and other household articles	3.19
8520	Veterinary activities	2.92
3610	Manufacture of furniture	2.80
7300	Research and Development	2.76
2695	Manufacture of articles of concrete, cement and plaster	2.39
5032	Sale of motor vehicle parts and accessories	2.14
5152	Wholesale of other machinery and equipment for general purpose	2.08

2919	Manufacture of other general-purpose machinery	2.04
7010	Real estate activities with own or leased property	1.97
2109	Manufacture of other articles of paper and paperboard	1.87
2222	Service activities related to printing	1.84
9219	Other entertainment activities n.e.c.	1.82
2413	Manufacture of plastics in primary forms and of synthetic rubber	1.78
3310	Manufacture of medical and dental instruments and supplies; Manufacture of measuring, testing, navigating and control equipment	1.69
3590	Manufacture of motorcycles, bicycles and invalid carriages	1.60
2692	Manufacture of refractory ceramic products	1.52
2424	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	1.50
2732	Casting of non-ferrous metals	1.42
9214	Dramatic arts, music and other arts activities	1.37
2102	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard	1.34
1721	Manufacture of made-up textile articles, except apparel	1.34
7430	Advertising	1.28
4541	Other construction installation	1.26
7130	Renting of personal and household goods n.e.c.	1.24
5239	Other retail sale in specialized stores	1.18
5133	Wholesale of pharmaceutical and medical goods, cosmetic and toilet articles in specialized stores	1.18
2924	Manufacture of machinery for mining, quarrying and construction	1.18
5223	Retail sale of fruits, legumes and vegetables in specialized stores	1.15
3511	Building and repairing of ships	1.13
5235	Retail sale of furniture, articles of cork, straw and plaiting materials, mattresses, lighting equipment and other household articles in specialized stores	1.11
2891	Forging, pressing, stamping and roll-forming of metal; powder metallurgy	1.11
1533	Manufacture of prepared animal feeds	1.07
3220	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy	1.02
2893	Manufacture of cutlery, hand tools and general hardware	1.01
5190	Other wholesale	0.96
5149	Wholesale of other intermediate products, waste and scrap	0.94
1553	Manufacture of malt liquors and malt	0.94
3311	Manufacture of medical and surgical equipment and orthopaedic appliances	0.94
2693	Manufacture of structural non-refractory clay and ceramic products	0.92
2913	Manufacture of bearings, gears, gearing and driving elements	0.91
1549	Manufacture of other food products n.e.c.	0.88
5212	Other retail sale of new goods	0.86
7120	Renting and leasing of other machinery, equipment, and tangible goods	0.84
2925	Manufacture of machinery for food, beverage and tobacco processing	0.81
3420	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers	0.80
9230	Museums, libraries, archives, and cultural activities.	0.73

2912	Manufacture of pumps, compressors, taps and valves	0.72
4531	Electric, electromechanical and electronical installation and maintainance	0.71
2922	Manufacture of machine-tools	0.70
2811	Manufacture of structural metal products	0.68
3320	Manufacture of optical instruments and photographic equipment	0.66
1110	Extraction of crude petroleum and natural gas	0.64
2812	Manufacture of tanks, reservoirs and containers of metal	0.63
5131	Wholesale of textiles, clothing and footwear	0.62
2101	Manufacture of pulp, paper and paperboard	0.60
3120	Manufacture of electricity distribution and control apparatus	0.60

Notes: based on designs filed in 2014-2019.

9.5. Copyright-intensive industries

Table 29 presents the complete list of copyright-intensive industries considered in this study and their corresponding factors.

Table 29: List of copyright-intensive industries considered in the study.

ISIC code	ISIC description	Type	Factor
2211	Publishing of books, brochures, musical books and other publications	Core	100%
2212	Publishing of newspapers, journals and periodicals	Core	100%
2213	Publishing of recorded media	Core	100%
2219	Other publishing	Core	100%
2221	Printing	Core	100%
2222	Service activities related to printing	Core	100%
2230	Reproduction of recorded media	Core	100%
6340	Travel agency activities and other reservation service and related activities	Core	100%
6420	Telecommunications	Core	100%
7210	Hardware consultancy	Core	100%
7220	Software consultancy and supply	Core	100%
7230	Data processing	Core	100%
7240	Data base activities	Core	100%
7290	Other computer related activities	Core	100%
7421	Architectural and engineering activities and related technical consultancy	Core	100%
7430	Advertising	Core	100%
7494	Photographic activities	Core	100%
7499	Other business activities n.e.c.	Core	100%
8000	Education	Core	100%

2211	Publishing of books, brochures, musical books, and other publications	Core	100%
9211	Motion picture and video production and distribution	Core	100%
9212	Motion picture projection	Core	100%
9213	Radio and television activities	Core	100%
9214	Dramatic arts, music and other arts activities	Core	100%
9219	Other entertainment activities n.e.c.	Core	100%
9220	News agency activities	Core	100%
9230	Library and archives activities, museums activities and operation of historical sites and buildings and cultural services n.e.c	Partial	75%
9100	Activities of other membership organizations n.e.c.	Partial	71%
5233	Retail sale of household appliances, articles and equipment	Interdependent	67%
5239	Other retail sale in specialized stores	Interdependent	56%
3694	Manufacture of games and toys	Partial	46%
3692	Manufacture of musical instruments	Interdependent	35%
3691	Manufacture of jewelry and related articles	Partial	34%
3000	Manufacture of office, accounting, and computing machinery	Interdependent	30%
3130	Manufacture of insulated wire and cable	Interdependent	30%
3220	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy	Interdependent	30%
3230	Manufacture of television and radio receivers, sound or video recording or reproducing apparatus, and associated goods	Interdependent	30%
3320	Manufacture of optical instruments and photographic equipment	Interdependent	30%
5151	Wholesale machinery, equipment and of other special-purpose machinery	Interdependent	28%
7120	Renting and leasing of other machinery, equipment, and tangible goods	Interdependent	28%
2101	Manufacture of pulp, paper and paperboard	Interdependent	25%
2429	Manufacture of other chemical products n.e.c.	Interdependent	25%
5149	Wholesale of other intermediate products, waste and scrap	Interdependent	25%
7130	Renting of personal and household goods n.e.c.	Interdependent	20%

9.6. PVRs granted by industry

Table 30 shows the full list of industries that were granted PVRs in 2014-2019, together with their absolute intensity.

Table 30: Absolute PVR intensity of industries with granted PVRs.

CLANAE code	CLANAE description	PVRs granted
115	Production of seeds and other forms of propagation of agricultural crops	146
7300	Research and development	93

5149	Wholesale of other intermediate products, waste and scrap	43
5121	Wholesale of agricultural raw materials and live animals	17
2421	Manufacture of pesticides and other agro-chemical products	13
111	Growing of cereals and other crops n.e.c.	17
1600	Manufacture of tobacco products	1
1553	Manufacture of malt liquors and malt	1
1514	Manufacture of vegetable and animal oils and fats	2
114	Growing of spices and medicinal and aromatic plants	4
1531	Manufacture of grain mill products	1
112	Growing of vegetables, horticultural specialties and nursery products	1
7010	Real estate activities with own or leased property	2
8000	Education	13
5122	Wholesale of food, beverages and tobacco	1

Notes: based on PVRs granted in 2014-2019.

9.7. GIs registered in Argentina

Table 31 shows the full list of geographical indications in Argentina.

Table 31: List of geographical indications in Argentina

Product	Geographical indication
Wines	25 de Mayo
Wines	9 de Julio
Wines	Agrelo
Wines	Albardón
Wines	Alto valle de Río Negro
Wines	Angaco
Wines	Añelo
Wines	Arauco
Wines	Avellaneda
Wines	Barrancas
Wines	Barreal
Wines	Belén
Wines	Cachi
Wines	Cafayate - Valle de Cafayate
Wines	Calingasta
Wines	Castro Barros
Wines	Catamarca
Wines	Caucete

Wines	Chapadmalal
Wines	Chilecito
Wines	Chimbas
Wines	Colón
Wines	Colonia Caroya
Wines	Confluencia
Wines	Córdoba Argentina
Wines	Cruz del Eje
Wines	Cuyo
Wines	Distrito Medrano
Wines	El Paraíso
Wines	Famatina
Wines	Felipe Varela
Wines	General Alvear
Wines	General Conesa
Wines	General Lamadrid
Wines	General Roca
Wines	Godoy Cruz
Wines	Guaymallén
Wines	Iglesia
Wines	Jáchal
Wines	Jujuy
Wines	Junín
Wines	La Consulta
Wines	La Paz
Wines	Las Compuertas
Wines	Las Heras
Wines	Lavalle
Wines	Luján de Cuyo
Wines	Lunlunta
Wines	Maipú
Wines	Mendoza
Wines	Molinos
Wines	Neuquén
Wines	Paraje Altamira
Wines	Patagonia
Wines	Pichimahuida
Wines	Pocito
Wines	Pomán
Wines	Pozo de los Algarrobos
Wines	Quebrada de Humahuaca

Wines	Rawson
Wines	Río Negro
Wines	Rivadavia de San Juan
Wines	Rivadavia de Mendoza
Wines	Russel
Wines	Salta
Wines	San Blas de los Sauces
Wines	San Carlos de Mendoza
Wines	San Carlos de Salta
Wines	San Javier
Wines	San Juan
Wines	San Martín de Mendoza
Wines	San Martín de San Juan
Wines	San Rafael
Wines	Sanagasta
Wines	Santa Lucía
Wines	Santa María
Wines	Santa Rosa
Wines	Sarmiento
Wines	Tafí
Wines	Tinogasta
Wines	Tucumán
Wines	Tunuyán
Wines	Tupungato - Valle de Tupungato
Wines	Ullum
Wines	Valle de Chañarmuyo
Wines	Valle de Uco
Wines	Valle del Pedernal
Wines	Valle del Tulum
Wines	Valle Fértil
Wines	Valle de Zonda
Wines	Valles Calchaquíes
Wines	Valles del Famatina
Wines	Vinchina
Wines	Villa Ventana
Wines	Vista Flores
Wines	Zonda
Fruit, vegetables and cereals fresh or processed - artichoke	Alcauciles Platenses/ Alcachofas Platenses/Alcauciles Romanesco, Híbridos Violeta y Blanco
Fruit, vegetables and cereals fresh or processed -cantaloupe	Melón de Media Agua, San Juan

Meat product - Goat	Chivito Criollo del Norte Neuquino / Chivito mamón /Chivito de veranada
Meat product - Lamb	Cordero Patagónico
Meat product - Salami	Salame de Tandil
Meat product - Salami	Salame Típico de Colonia Caroya
Beverages - Yerba mate	Yerba Mate Argentina/ Yerba Mate Elaborada con Palo
Other products - Quince jam	Dulce de Membrillo Rubio de San Juan

Source: Own elaboration based on https://www.cancilleria.gob.ar/es/acuerdo-mercosur-ue/propiedad-intelectual.

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