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Global Diffusion of Intellectual Property Rights: Analysis on Challenges and Benefits

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Abstract of Dissertation

Throughout history, we experienced the development of many legal approaches with the aim to preserve and safeguard intellectual property rights, granted to individuals over their intellectual work. This dissertation examines the overall efficiency of the system, the mechanisms employed to enforce IPRs, as well as the countries' evolution when it comes to their roles in this changing international policy environment. The research covers also the importance of intellectual property rights in economic activity and highlights some emerging trends in the IPRs field through a brief econometric analysis, which demonstrates the significance of IPRs in both the production of intellectual assets and the application of private knowledge for the overall business performance. Intangible resources have become more crucial for companies as a method to differentiate themselves from their competition, therefore, the intellectual property system is now desirable and vital for all economic players, particularly small and medium-sized companies. However, observed data shows that small and medium-sized enterprises have major problems in properly exploiting the IPRs, which might limit their capacity to leverage their creative and innovative talents; thus, the paper looks into some of the barriers and techniques used to overcome them.

Worldwide, countries have coordinated and aligned to a significant degree their legislation protecting intangible goods. A substantial harmonization of IP Law is associated with the concept of policy diffusion, in which countries' jurisdictions do not establish such laws to address domestic policy issues. The study then examines the difficulties that developing countries face in changing their intellectual property rights regimes while minimizing the negative consequences of increased protection by focusing on foreign direct investment and trade. Finally, the analysis underlines the importance of developing an exit strategy to adopt during the pandemic, which necessitates financial organization, judgment, collaboration and a rigorous approach. Exit options must be offered in a transparent and timely way to give banks and governments time and flexibility to address economic activities and intellectual property issues that arise during the development of new medications, vaccines, and general technologies to tackle COVID-19's dangers.

Introduction

Intellectual property rights are a common type of legal protection which main purpose is to safeguard those who create new inventions and contribute to the spread of knowledge. Besides the protection guaranteed to individuals, the purpose of intellectual property rights is also to encourage new creations, including technology, artwork and general goods that might increase economic growth. These rights offer incentives for individuals to continue being innovative; by doing so they may provide new technologies while enabling our world to improve and evolve even faster.

Many companies in a variety of industries rely on the enforcement of their patents, trademarks, and copyrights, while consumers can also be assured of quality when purchasing IP-backed products.

IPRs have received a lot of attention in recent years, both in academic circles and in public policy debates. This has gone hand-in-hand with their increasing use—particularly when it comes to patents—and the reforms in the national and international legal frameworks that have resulted in the strengthening of IPRs and the fast growth of sectors in which knowledge, innovation and appropriability play a key role.

Intense debates among researchers have taken place on a wide range of issues, including the reasons for the growing use of IPRs, the impact of the strengthening of IPRs on innovation, the role of IPRs in developing countries and whether there is a need for international harmonization of the laws regulating the matter and the consequences of IPR legislative reforms on poor communities in areas such as health or traditional knowledge.

Intellectual property plays an important role in fostering the creation of new knowledge; the fact that the value of knowledge is difficult to assess explains why such difficulties arise for IP titles and, in consequence, for trading IP titles on markets. Along with capital and labor, knowledge is an essential factor of economic progress and plays a key role for both developed and developing countries in multiple areas. Therefore, policymakers are searching for new methods to boost their economies, assist their residents, and strengthen national competencies in a variety of sectors

Private-sector companies and industries likewise are looking for ever-more competitive ways to succeed, by developing and incorporating creative and useful innovations into products and services that we all benefit from and enjoy in every area of life.

All these aspects will be analyzed in detail throughout this dissertation, which focuses on the challenges and benefits experienced by developed as well as developing countries during the global diffusion of intellectual property rights, while trying to achieve a general wellbeing for their industries, small and medium-sized enterprises and citizens; this research aims to determine if greater intellectual property regulation is a desirable approach for economic growth and overall development.

As mentioned, intellectual property rights can have a vital role in growing the economies of developed and developing countries all over the world, in spurring innovation, in giving large and small firms a range of tools to help drive their success and in benefitting consumers and society through a continuous stream of innovative, competitive products and services and an expansion of society's overall state of knowledge.

Intellectual property rights enforcement may have a major impact on society by providing opportunities to improve, but it may also undermine some areas of it. Some critics, especially those who support the free culture movement, argue that intellectual property may harm health when we consider the pharmaceutical patents, copyrights extensions or health technology in general; they argue that it can severely prevent progress and benefit concentrated interests at the expense of the worldwide community.

We will investigate this matter while discussing an exit strategy to use during these difficult times signed by the pandemic. In fact, the major emphasis of current intellectual property law is balancing rights such that they are strong enough to promote the development of intellectual products but not so powerful that they impede their widespread use.

Chapter I: What are Intellectual Property Rights?

This chapter provides an important insight into the basics of intellectual property protection, by giving an overview of different IPR instruments and how they are enforced and implemented. It also provides an explanation on compromises reached by a country when its residents pursue a protection for their intellectual works abroad. Lastly, the final part of this section defines the countries' evolution regarding the IPRs, their role in the development process with a changing international policy environment.

1.1 International Instruments Related to the Protection of Intellectual Property Rights

Throughout the years, multiple legal instruments with the aim to protect intellectual property have been proposed and implemented. These instruments cover a variety of subjects and differ in the extent of protection and field of application based on the society's interests on safeguarding creators and consumers. The different intellectual property rights instruments are synthetized in Table 1: "IPRs: Instrument, Subject Matter, Fields of Application, and Related International Agreements."[1]

[1] Braga, Carlos A. Primo, Carsten Fink, and Claudia Paz Sepulveda. "Intellectual property rights and economic development." The World Bank, 2000.

Table 1: IPRs: Instruments, Subject Matter, Fields of Application, and Related International Agreements

Type of IPR	Instruments of Protection	Subject Matter	Main Fields of Application	Major International Agreements
Industrial property	Patents, utility models	New, non-obvious inventions capable of industrial application.	Manufacturing, agriculture	Paris Convention, Patent Cooperation Treaty (PCT), Budapest Treaty, Strasbourg Agreement, TRIPS
	Industrial designs	Ornamental designs	Manufacturing, clothing, automobiles, electronics, etc.	Hague Agreement, Locarno Agreement, TRIPS
	Trademarks	Signs or symbols to identify goods and services	All industries	Madrid Agreement, Nice Agreement, Vienna Agreement, TRIPS
	Geographical indications	Product names related to a specific region or country	Agricultural products, foodstuffs, etc.	Lisbon Agreement, TRIPS
Literary and artistic property	Copyrights and neighboring rights	Original works of authorship	Printing, entertainment (audio, video, motion pictures), software, broadcasting	Berne Convention, Rome Convention, Geneva Convention, Brussels Convention, WIPO Copyright Treaty 1996, WIPO Performances and Phonograms Treaty, Universal Copyright Convention, TRIPS
Sui generis protection	Plant breeders' rights	New, stable homogenous, distinguishable plant varieties	Agriculture and food industry	Convention of new Varieties of Plants (UPOV), TRIPS
	Database protection	Electronic databases	Information processing industry	European Council Directive 96/9/EC
	Integrated circuits	Original layout designs of semiconductors	Microelectronics industry	Washington Treaty, TRIPS
Trade secrets		Secret business information	All industries	TRIPS

Note: All international treaties except TRIPS, the Universal Copyright Convention, and the European Council Directive 96/9/EC are administered by the World Intellectual Property Organization. The European Council Directive 96/9/EC provides an example of the evolving definition of IPRs in the area of database protection.

Source: Adopted from Primo Braga (1996) and World Intellectual Property Organization (1997).

We will start our classification presenting *patents*, which are legal titles transferring the owner the exclusive right to make commercial use of inventions such as a "product or a process that provides a new way of doing something or offers a new technical solution to a problem." [2] To qualify for patent protection there are requirements that need to be followed. In fact, inventions must be new, industrially applicable and non-obvious. Furthermore, the term of protection is limited to 20 years from filing the date of the application, after this period of time the new product or process becomes of public domain. Patents are recognized as the most common type of IPR protection, and they are used by a great number of manufacturing industries to protect them from being copied by other firms, since "patent protection means that the invention cannot be commercially made, used, distributed, or sold by others without the patent owner's approval."[3]

[2] WIPO, "Frequently Asked Questions: Patent Basics". Official Website: https://www.wipo.int/patents/en/faq_patents.html

[3] WIPO, "Frequently Asked Questions: Patent Basics". Official Website: https://www.wipo.int/patents/en/faq_patents.html

Some undertakings resort to *utility models* for protection instead of patents because their novelty criteria are considered being less stringent and are typically used for "minor inventions". These two forms of IPRs protection have a similar system. Utility models protect minor improvements of existing products that do not fulfill the patentability requirements, but they still cover an important role in local innovation. This protection grants exclusive rights for a limited period of time—generally four to seven years—preventing others from commercially using the invention without any sort of authorization.

Industrial designs, on the other hand, protect ornamental features of goods such as cars, shoes and clothing for approximately fifteen years until further renewal. An industrial design may consist of three-dimensional features or two-dimensional features, for example patterns, lines or colors and in many countries, they are not considered part of the family of patent rights but, instead, are established in separate laws.

When it comes to *trademark, it* is a sign able to distinguish the goods or service offered by one enterprise from the goods or service services by other companies. Trademarks, which can be words, symbols or signs, seek to exclusively identify a good's source of origin as well as to protect a firms' reputation for quality; they are used by almost all industries with the aim to maintain a high standard. A trademark registration will give exclusive right to the use of the registered trademark, implying that it can be used by the owner only or licensed to a third party for use in return for payment. The protection guaranteed lasts for usually ten years and it can be renewed on payment adequate fees, additional to the fees required for the initial registration.

Geographical indicators are similar to trademarks in the sense that they identify a product with a certain region. A Geographical indicator (GI) is a sign used on products that possess a specific geographical origin and, therefore, have qualities and/or reputation due to that specific place of production. Due to these characteristics of the products holding a GI protection—usually obtained by acquiring rights over the sign—third parties are unable to use it for their products that do not conform to the applicable standard.

It's worth pointing out the distinction between Protected Geographical Indication (PGI) and Protected Designation of Origin (PDO) while explaining Geographical Indicators. First of all, the PDO mark is given to products whose manufacturing regions are firmly confined to a specific geographical area and whose unique features are the determining element in obtaining the product's values. PGI instead, denotes a higher level of quality control that focuses on production techniques rather the ingredients' region of origin; it

emphasizes “the link between a product's name and its unique geographic location, when a product's quality, prestige, or other attribute is mostly due to its geographical origin.”[4] It is important to keep in mind that, the relationship between the good and its area of origin is not as strong as the products registered as PDO. In both situations, conformance to the regulations is monitored by specific organizations, expressly recognized by “the Ministry of Agricultural, Food and Forestry Policies”, in charged to monitor the production process as well.

Moving on with our table’s list, we discuss *Copyright and neighboring rights* that protect original work of authorship. This legal term defines rights that creators have over their literary, artistic and scientific works, in particular economic and moral rights. Economic rights allow the owner to profit financially from the use of their material by other people, while moral rights protect the author's non-economic interests. Both of these aspects are important and need to be safeguarded. Copyright protection lasts during the authors lifetime and is forwarded to fifty until seventy years after the artist’s passing away.

The intellectual property rights that have been briefly described are considered the traditional forms of IPRs, but changes in technology and industries have brought up the necessity to develop new forms of protections, the so-called sui generis.

We will start by explaining the *layout designs for integrated circuits,* which protect producers of semiconductors. Electronic circuits are being used extensively nowadays and are characterized by components, such as transistors and resistors, that have been assembled in a specific order of a semiconductor material. Given that, the construction of layout designs necessitates large investments, they are protected by a unique intellectual property system; otherwise, corporations may replicate them for a fraction of the cost. The protection of layout design may seem similar to copyrights; however, the term of protection is shorter, typically ten years.

Regarding the *database protection*, which is unrelated to other forms of protection, it safeguards analog and digital databases if they are original by reason of the selection or arrangement of their content.

When it comes to *plant breeders’ rights*, the aim is to safeguard new plant varieties that are different from current kinds. The sale and distribution of propagating materials are

[4] European Commission, “Quality schemes explained: Aims of EU quality schemes.” Official Website: https://ec.europa.eu/info/food-farming-fisheries/food-safety-and-quality/certification/quality-labels/quality-schemes-explained_en

included as exclusive rights for a period of fifteen years, although these exclusive rights are subject to two fundamental exceptions: research exception and farmer's privilege. The first privilege allows farmers to utilize a protected variety to produce a new variety, whereas the second advantage allows them to re-use seeds from their own crop varieties.[5] Finally, the last IPRs we will present is the p*rotection of trade secrets*, which are part of many countries IPRs system. "Trade secret protection differs from the other forms described since it does not grant an exclusive and explicit title to the creator of a work considered original. On the other hand, trade secrets are rights on confidential information which may be licensed or sold, and it safeguards a company's commercially sensitive information from unlawful disclosure by a small number of people."[6]

The conditions that determine whether a trade secret protection is infringed depends on the circumstances and unfair practices and they usually include industrial or commercial espionage, breach of contract and breach of confidence.

1.2 The Governance of Intellectual Property Rights

The legislative mechanisms previously mentioned are just a few of the many components that make up a national intellectual property protection framework. In order to reach an efficient system's performance multiple aspects should be considered for an overall great performance. For example, we should take into consideration the institutions administering and enforcing these IPRs, their mechanisms and the rules in regard to the treatment of non-nationals. For patents, trademarks, industrial designs and plant breeders' rights, the administration on intellectual property rights is most significant: to be guaranteed a protection in one of these instruments, applicants are required to submit their intellectual work to a national IPRs office, which will then examine their eligibility for a potential protection.

Considering copyright, generally the protection is applied ones the intellectual work is created, even though authors may prefer to register their completed work at a copyright office.

[5] Braga, Carlos A. Primo, Carsten Fink, and Claudia Paz Sepulveda. "Intellectual property rights and economic development." The World Bank, 2000.

[6] Braga, Carlos A. Primo, Carsten Fink, and Claudia Paz Sepulveda. "Intellectual property rights and economic development." The World Bank, 2000.

The judicial system of a country plays a very important role in the effective application of intellectual property rights. In fact, authors who believe are somehow being copied, fight for their title in courts, where they request for the unfair practice to be stopped.
In order to instantly end the infringing activity, they may demand for a preliminary injunction and if the allegation of infringement is confirmed by trial, the addressed court requests the biased action to cease and, on top of that, to pay punitive charges to the title holder. There have been multiple treaties' negotiations when it come to the protection of intellectual work with the aim to create cooperation among different states. The majority of these conventions are directed and supervised by the World Intellectual Property Organization, which is a specialized and self-funding agency of the United Nations. The organization's principal purpose is to lead the establishment of a balanced international IP system that promotes creativity for the benefit of all people and countries, not just a few. The World Intellectual Property Organization established nine strategic goals reflecting the challenges faced by WIPO and therefore, by intellectual property in this rapidly changing environment. The goals are the following:

"

- Balanced Evolution of the International Normative Framework for IP
- Provision of Premier Global IP Services
- Facilitating the Use of IP for Development
- Coordination and Development of Global IP Infrastructure
- World Reference Source for IP Information and Analysis
- International Cooperation on Building Respect for IP
- Addressing IP in Relation to Global Policy Issues
- A Responsive Communications Interface between WIPO, its Member States and All Stakeholders
- An Efficient Administrative and Financial Support Structure to Enable WIPO to Deliver its Programs

" [7]

[7] Assemblies of the Member States of WIPO Fifty-Sixth Series of Meetings "Medium-term strategic plan for the world intellectual property organization (wipo") for 2016-2021, Document prepared by the Secretariat, Geneva (2016). Official Website:
https://www.wipo.int/about-wipo/en/goals.html

WIPO generally imposes its conventions' signatories to adhere to the national treatment principle in the protection of IPRs, but most of the countries fail to impose common standards of protection.

Since intellectual property rights are established by national laws, they apply at the level of each jurisdiction and may not be guaranteed elsewhere. A mutual agreement that safeguards citizens seeking protection for their work in a country other than their own is considered extremely significant; thus, the Paris Convention has played an important role since its stipulation in 1883. In fact, the Convention includes a national treatment which requires that "Each Contracting State shall offer the same protection to nationals of other Contracting States as it does to its own nationals when it comes to industrial property protection. Non-Contracting State nationals are also entitled to national treatment under the Convention if they are domiciled in a Contracting State or have a real and effective industrial or commercial enterprise there." [8]

The United States has the strongest IPRs regime systems compared to other countries.

As we know, IPRs rule structures varies considerably from country to country, adopting different levels of protection. The US in this case, ensures a protection for all types of intellectual property, providing an institutional system to administer and assure equal treatment of nationals and non-nationals by providing a strong state's enforcement of intellectual property rights, but also by adhering to international IPRs conventions.[9] Developed countries tend to follow these principles despite the fact that there are differences in the legal coverage and governance of IPRs. In fact, some governments strive to preserve just certain and constrained categories of intellectual property, with minimal enforcement measures, whereas others seek to protect all sorts of intellectual property. The level of economic development plays a crucial role, and it will be discussed in detail throughout the next chapter. The least developed countries traditionally offer a weak standard of protection, unless the colonial influences contributed to the adoption to more advanced regimes similar to the ones we nowadays find in industrialized countries. The main reason why developing countries do not have a strong system of protection is due to the fact that they believe they had a lack in ability to create intellectual work, and

[8] Vashishtha, Eisha. "Summary of Paris Convention for the protection of Industrial Property". (2020).

[9] Braga, Carlos A. Primo, Carsten Fink, and Claudia Paz Sepulveda. "Intellectual property rights and economic development". The World Bank, 2000

therefore there was little to no gain from IPRs protection. As countries started to become more developed, they adopted a higher standard of protection to become competitive and compelling to the industrial market, since they now had more resources devoted towards the creation of intellectual property and faced increasing pressure for protection from abroad.[10]

1.3 The Role of Intellectual Property Rights in the Development Process

Over the last fifteen years, the relationship between IPR and development has become a cause of growing concern for two linked reasons: first of all, the gap in knowledge is what tends to divide developed from developing countries and a disproportionate IPR regimes can cause a relevant impediment in closing the knowledge gap we are talking about. At the same time, the Agreement on "Trade-Related Intellectual Property Agreements" (TRIPS) discussed during the Uruguay Round, established a Western approach in enforcing IPR regimes in developing countries, which is an aspect that caused developing countries to worry since it might delay and disrupt their access to knowledge and therefore, development. To address this issue and work towards a fair regime, the General Assembly of the World Intellectual Property Organization, for the very first time advanced an IPR agenda entirely developmentally oriented, with the aim to determine and verify how different intellectual property regimes affect the development process.[11]

Intellectual property can play an essential role in the development process; it is in fact designed to increase welfare by supporting and enhancing innovation, but it may also have the opposite effect, so let's see how these two aspects can affect a country's well-being. The impact that IPRs have on both welfare and innovation depend on the specific intellectual property regime, its details and sector, for this reason institutional impositions play an important role. Many nuances go into the creation of an intellectual property

[10] Siebeck, Wolfgang, et al. "Strengthening protection of intellectual property in developing countries". World Bank Discussion Papers 112 (1990).

[11] Dosi, Giovanni, and Joseph E. Stiglitz. "The role of intellectual property rights in the development process, with some lessons from developed countries: an introduction."
"Intellectual property rights: Legal and economic challenges for development" 1 (2014): 1-55.

system and its rules, and we must remember that they have an impact on whether an IPR system helps or hinders innovation. Intellectual property is only one fraction that contributes to innovative research—a country's IPR system does not exist in isolation—it can be considered partially part of a country's innovative system that can affect the competitiveness and performance of the entire economy and its citizens prosperity. Furthermore, an IPRs regime that may be proper to one country might be considered inappropriate for another. Especially, advanced economies established some regimes constructed in a way that is likely inappropriate for developing countries to adopt, particularly in areas like agriculture and health. One main reason for this is that "institutional transplants generally don't work"; policies meant to fit all circumstances are not a good idea in many different fields, including IPR.[12] Indeed, institutional structures should be sensitive to different objectives, history and situations of each country.

As pointed out previously, several aspects need to be taken care of because based on these differences, IPRs may not be the perfect way to promote innovation. The effects of IPR on innovation depends on the design of its regime and the conventional idea that the stronger the IP regime the higher the level of innovation may be wrong. Partha Dasgupta and Paul A. David—two brilliant economists—made multiple researches on this topic and they argue that intellectual property rights are not necessary for new technologies and they suggest that different mechanisms similar to open science may be more efficient.[13] Furthermore, administrative and enforcement costs are associated with IPRs, and they may sustain market power in the face of inadequate competition, as well as the possibility of licensing abuses. Moreover, uneven patent and trade-secrets restrictions could stifle follow-on innovation and limit imitation, while severe copyright and database protection could limit fair-use access to educational, scientific, and cultural materials.[14]

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[12] Braga, Carlos A. Primo, Carsten Fink, and Claudia Paz Sepulveda. "Intellectual property rights and economic development". The World Bank, 2000

[13] Dosi, Giovanni, and Joseph E. Stiglitz. "The role of intellectual property rights in the development process, with some lessons from developed countries: an introduction." Intellectual property rights: Legal and economic challenges for development 1 (2014): 1-55.

[14] Keith E. Maskus, "Intellectual Property Rights and Social Development: Issues and Evidence" WIPO (2016) Complete PPT document, slide number 4, Official Website: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiuxG9pqbzAhUEMewKHUaWACsQFnoECBQQAQ&url=http%3A%2F%2Fwww.wipo.int%2Fedocs%2Fmdocs%2Fmdocs%2Fen%2Fwipo_ipda_ge_16%2Fwipo_ipda_ge_16_t4.pptx&usg=AOvVaw3qs9b0CU4NIEjucwXSJ8R4

On the other hand, other studies suggest that IPRs are of crucial importance in preserving and enhancing development. They ratify that IPRs "improve international and national innovation incentives, expand trade and investment in high-technology goods and networks, support markets for international knowledge transfer and diffusion and improve consumer guarantees of product origin but especially, offer more scope for protecting and developing traditional knowledge".[15]

Therefore, we might assume that the real benefits of implementing IPRs are yet ambiguous, but we will further discuss them once we cover the economic and statistic performance of IPR on the next chapter.

[15] Keith E. Maskus, "Intellectual Property Rights and Social Development: Issues and Evidence" WIPO (2016) Complete PPT document, slide number 4, Official Website: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiuxG9pqbzAhUEMewKHUaWACsQFnoECBQQAQ&url=http%3A%2F%2Fwww.wipo.int%2Fedocs%2Fmdocs%2Fmdocs%2Fen%2Fwipo_ipda_ge_16%2Fwipo_ipda_ge_16_t4.pptx&usg=AOvVaw3qs9b0CU4NIEjucwXSJ8R4

Chapter II: Intellectual Property Rights and Economic Performance

This chapter discusses the significance of intellectual property rights in terms of economic development, as well as some current progress in the IPRs sphere of action. It tries to figure out how significant intellectual property rights are in both the creation of intangible capital and the application of unique information and knowledge in businesses. This area also describes the importance of IPRs in transnational products exchange, along with the role of intellectual property rights in trade. The section then continues by providing information on the different sorts of intellectual property rights, a discussion of some current trends in the subject, and an overview on disparities between industrialized and emerging countries concerning IPRs. Intellectual property rights are becoming increasingly crucial in international trade of goods and services, as demonstrated by the global diffusion of intellectual property rights and their increasing demand in the international context.

2.1: The Increasing Importance of Intellectual Property Rights for Firms

Innovation represents the creation of new value, whether it is created through new technology, new business models, new products or new forms of social entrepreneurship. Innovation is considered crucial for the overall world economic and social development and therefore, should be prioritized by policymakers because it is the primary generator of long-term growth as well as improvements in quality of life.

For example, the United States Department of Commerce claimed in 2010 that technological innovation is responsible for three-quarters of the country's growth rate after World War II ended.[16] Similarly, between 2000 and 2007, innovation accounted for two-thirds of private-sector productivity growth in the United Kingdom.[17]

Due to the advent of knowledge in the economy field, the employment of formal intellectual property rights protection mechanisms (IPRs) by businesses has grown in importance in the last forty years or more around the world.[18]

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[16] Arti Rai et al., "Patent Reform: Unleashing Innovation, Promoting Economic Growth and Producing High-Paying Jobs" (Washington, D.C.: U.S. Department of Commerce, April 13, 2010).

[17] National Endowment for Science, Technology, and the Arts, "The Innovation Index: Measuring the UK's Investment in Innovation and Its Effects" (NESTA, 2009),

[18] Hall, B. H. "Is intellectual property important for future manufacturing activities." Future of Manufacturing Project Evidence Paper 12 (2013).

The vast availability of goods and services in today's markets has made it difficult for industries to gain a competitive advantage; every firm seeks to develop new and improved products that will provide higher value to users and consumers than the products offered by competitors in order to stay ahead of the competitors in this environment.
Businesses rely on innovations to cut costs and increase product quality; therefore, firms must continually seek to explain the unique value of their product in a crowded market; IPRs turn human knowledge into tradable assets and give a wide range of IPR tools on which businesses can rely to help them succeed through creative business model. To ensure that intellectual property rights are properly protected, firms' executives must have a thorough understanding of how the IP system and its instruments work; by doing so, they may increase sales and profits. The amount of awareness of how to manage intellectual property (IP) varies by company, but small and medium-sized businesses (SMEs) in particular fall behind. Businesses and their advisors must understand that legal protection of IPRs is insufficient itself, and that a successful IP management strategy must be considered. [19]

The role played by intellectual property in a firm is crucial and it depends on different factors, for example the business model, the market, the type of IP used, the stage of the business and the managers' awareness of the need of its preservation. Given the importance of intellectual property towards organizations nowadays, chambers of commerce and business groups around the world are seeing an increasing demand for IP support services. As representatives of the private sector, business membership groups are well positioned to assist enterprises in better understanding and utilizing intellectual property assets in their operations. Chambers of commerce and business groups may give their members a competitive advantage and thereby strengthen their local economies by emphasizing the major benefits of using protected IP assets to differentiate enterprises in the marketplace.
Despite the fact that many organizations are becoming more conscious of the core and growing relevance of IP for their operations, most do not have an easy way to learn how to use the IP system's tools properly and effectively in their models and strategies. IP

[19] World Intellectual Property Organization, and Wipo. "Making Intellectual Property Work for Business: A Handbook for Chambers of Commerce and Business Associations Setting Up Intellectual Property Services". World Intellectual Property Organization, 2012.

asset management knowledge, skills, and competences are in short supply, making them expensive or inaccessible to the great majority of businesses. Furthermore, micro, small, and medium-sized businesses (SMEs) are particularly in need of such knowledge, as they are often unaware of the difficulties and/or possible benefits of using the IPR system's instruments effectively to improve their competitiveness and success. To encourage and assist business membership organizations in fulfilling this duty, the ICC (International Chamber of Commerce) has created several instruments to raise awareness of the importance of intellectual property by assisting them in offering IP services, such as a web portal dedicated to offering IP resources for business associations and links to the ICC's own IP services, including policy, anti-counterfeiting and piracy, training, and publications.

When contrasted to traditional sources of production such as land, labor and capital, knowledge development and management plays a significant role in wealth creation in today's economy[20]: the intellectual property system is critical to the economic growth strategies of countries at all levels of development around the world. The IPR system promotes innovation and fosters trust, both of which are essential for providing better goods and services to users and consumers, therefore as a result IP has a number of good effects, including: "generating substantial incentives for domestic innovation; inducing knowledge spillovers that help others innovate; increasing a country's R&D, FDI, and exports of goods and services, but above all guaranteeing that a country's businesses can focus on being productive and innovative rather than having to spend too much time and money defending their intellectual property in a risky environment". [21]

[20] World Intellectual Property Organization (WIPO), "Intellectual Property Rights and Innovation in Small and Medium-Sized Enterprises" (Paris: WIPO, 2015), Official Website: https://itif.org/publications/2019/04/25/way-forward-intellectual-property-internationally

[21] Ezell, Stephen, and Nigel Cory. The way forward for intellectual property internationally. Information Technology and Innovation Foundation, 2019.
William Davidson and Donald McFetridge, "International Technology Transactions and the Theory of the Firm," Journal of Industrial Economics, 32:253–64, 1985;
Carsten Fink and Keith E. Maskus, "Intellectual Property and Development: Lessons From Recent Economic Research" (Washington, D.C. World Bank and Oxford University Press, 2005).

2.2: Econometric and Statistical Analysis of IPRs and Firm Performance

The importance of intellectual property rights in economic activity varies by country and is determined by different aspects, for example the resources invested in developing intellectual assets and the amount of protected knowledge and information employed in production and consumption.

The amount of fund spent on research and development (R&D) by a country is, in fact, a good indicator of how much money is devoted to the creation of new knowledge and information. Studies on how stronger IPR regulations—such as patents and trademarks—affect R&D activities in an economy demonstrate the link between intellectual property rights and innovation.

The relationship between IPR and innovation can also be demonstrated in studies of how the adoption of stronger IPR laws, with regard to patents, copyrights, and trademarks, affect R&D activity in an economy. Studies found that R&D can have a positive effect on the overall economy; the GDP ratios are positively related to the strength of patent rights, implying that IPRs and growth are inextricably linked, since GDP serves as an overview of a country's economy. In fact, it allows analysts to assess its size and rate of growth; despite its shortcomings, GDP is an important tool for policymakers and companies to use when making strategic decisions. Moreover, economist Cavazos Cepeda discovered that IPRs have a beneficial impact on the amount of R&D in an economy, with each 1% increase in IPR protection resulting in a 1% rise in R&D [22]—as assessed by improvements in a country's Patent Rights Index score—equal to a 0.7 percent rise in domestic R&D level on average.[23]

Between developed and developing countries there are differences in the type and sectoral composition of R&D activity. In general, there is a growing importance of the private sector as a source of R&D funding, which has led to a greater reliance on intellectual

[22] Ezell, Stephen, and Nigel Cory. "The way forward for intellectual property internationally". Information Technology and Innovation Foundation, 2019.
William Davidson and Donald McFetridge, "International Technology Transactions and the Theory of the Firm," Journal of Industrial Economics, 32:253–64, 1985;
Brent Allred and Walter Park, "Patent rights and innovative activity: evidence from national and firm-level data," Journal of International Business Studies, 38, no. 6 (2007): 878-900.

[23] Cavazos-Cepeda, Ricardo, Douglas Lippoldt, and Jonathan Senft. "Policy complements to the strengthening of IPRs in developing countries". No. 104. OECD Publishing, 2010.

property protection as a mechanism to foster the creation of new knowledge and information. However, it should be noted that, within this process, R&D funding privatization is concentrated in developed countries. Furthermore, industrial countries have a long history of relying on intellectual property rights, which many developing economies lack.

Moving on, the use of proprietary knowledge and information in production and consumption, which is owned by both domestic and foreign residents, is the second channel through which IPRs influence economic activity.[24] Accordingly, a 3% rise in domestic R&D was connected with a 1% increase in copyright protection. Likewise, a 1% increase in trademark protection resulted in a 1.4% rise in R&D spending.

As previously announced, the ability of predicted profits to stimulate innovation is becoming more prominent in economic growth explanations. Policymakers dispute whether more intellectual property protection will boost or stifle growth in their countries. This question is not easily answered; therefore, an econometric and statistical analysis is needed to point out this issue.

IP researchers haven't always been recognized for looking into IP issues from a statistical point of view. Cases and statutes are studied and evaluated, theories proposed and argued, and policy proposed and tested. IP scholars, on the other hand, have mostly ignored empirical research. As a result, it's no surprise that economists have essentially taken over this sector, with little input or cooperation from the IP community. Economists are educated in the domain of econometrics and are competent at organizing and aggregating data before subjecting it to various types of statistical analysis. One of the most noteworthy examples is research aimed at determining the relationship between innovation and intellectual property; the first step in applying econometric tools to this problem is to identify a suitable metric for measurement. Until recently, the most appropriate proxy for measuring the number and quality of innovation has been to focus on and use the numerous sources of patent data that are accessible. Therefore, a question that instantly grabs our attention is whether we should, as members of the IP community, be more critical of the use of patent data for this purpose. [25]

[24] Braga, Carlos A. Primo, Carsten Fink, and Claudia Paz Sepulveda. “Intellectual property rights and economic development”. The World Bank, 2000

[25] Wilkof, Neil. "The econometrics of IP: The case of patents and innovation." (2014): 95-95.

In order to try to pursue an econometric and statistical analysis, we will explore the relationship between Index scores and a variety of economic indicators (the statistical likelihood of two variables occurring together). Because the Index covers a wide range of intellectual property rights, it can be used to investigate the relationship between a certain type of IP right and a certain economic sector. The Pearson Correlation Coefficient is a statistical study that is used to determine whether the Index's scores are related to other economic variables: it is a commonly used statistical tool for determining if two variables are connected or correlated to one another, and it returns a number ranging from -1 to 1, indicating the strength of the link. Therefore, "the Pearson Correlation Coefficient indicates if two variables have a linear relationship and whether it is positive or negative."[26] It's crucial to remember that correlation does not imply causation; correlation is a statistical test of the existence of a linear relationship between two variables. This means that a strong to extremely strong correlation implies that the two variables have a linear relationship, the nature of which is dependent on the variables.

Let us now concentrate on the economic outputs in which IP plays a significant role. These markets are classified into competitiveness, value added and creativity. The World Economic Forum evaluates economies based on their competitiveness—the collection of institutions, regulations, and circumstances that affect a country's production level. The significant link between Index scores and scores from the Global Competitiveness Report (0.79) implies that the IP environment is vital for financial competitiveness. On average, economies with Index scores higher than the median are 21% more productive than those with lower values.[27]

A functioning government and competent agencies that successfully promote and regulate economic activity are essential to a productive economy. A dysfunctional government can stifle growth and discourage entrepreneurship by overregulating or underregulating. The World Bank assigns a rating to economies based on their method of doing business, or if the regulatory environment is conducive to the development and

[26] Zack, "Pearson Correlation Coefficient" 2019. Official Website: https://www.statology.org/pearson-correlation-coefficient/

[27] "Rene Belderbos et al., Where to Locate Innovative Activities in Global Value Chains: Does Co-location Matter? (Paris: Organisation for Economic Cooperation and Development Publishing, Paper No. 30, 2016), Official Website: https://www.theglobalipcenter.com/wp-content/uploads/2018/02/GIPC_IP_Index_2018_Annex.pdf

management of a local business. When comparing Index scores to Ease of Doing Business rankings, a substantial connection of 0.78 is found, implying that areas with robust IP rights are also hotbeds of entrepreneurship. According to the association between these two characteristics, economies with strong IP ecosystems are around 60% more likely to have a favorable business climate.

Moreover, evidence demonstrates that business sophistication—the capacity to adopt new technology and adapt how organizations and units conduct tasks—depends more on economic potential and resiliency than on fundamental physical and human capital investment. Advanced economies have, for the most part, exhausted basic infrastructure as a source of productivity, and are instead focusing on more strategic approaches such as total business networks and operational efficiency—new, more efficient methods to make things work; the level of economic knowledge is critical for developing an entrepreneurial, energetic, and creative environment. On the Global Competitiveness Report, there is a substantial correlation of 0.80 between Index scores and business sophistication pillar scores. The importance of the IP environment in driving technological advancement and creating incentives to engage in more innovative activities is demonstrated by this strong link. On average, "economies that score above the Index's median are 24 percent more flexible at adopting new technologies and upgrading procedures than economies that score below the Index's median".[28]

The importance of technology creation for greater living standards and long-term progress is a recurring subject throughout this examination. The creation of technology is the product of innovative thought and high-value economic activities. Creativity also refers to the ability to transform innovation "inputs" like a trained labor, infrastructure, and IP framework into innovation "outputs," or direct and measurable economic consequences.

Globalization is pressuring economies to move up the value chain, primarily through productivity improvements and technological advancements, in order to remain competitive. Productivity gains are often the result of the efficient use of technological developments, as well as entrepreneurship and new methods to the development and delivery of goods and services.

[28] "Rene Belderbos et al., Where to Locate Innovative Activities in Global Value Chains: Does Co-location Matter? (Paris: Organisation for Economic Cooperation and Development Publishing, Paper No. 30, 2016), Official Website: https://www.theglobalipcenter.com/wp-content/uploads/2018/02/GIPC_IP_Index_2018_Annex.pdf

In most Organization for Economic Co-operation and Development (OECD) countries, "investments in knowledge and technology developments have increased faster and yielded greater rates of return than infrastructure, machinery, and equipment since the mid-1990s."[29] The link between knowledge and technology outputs—a strong predictor of a country's high-tech sector's stability and growth—and patent protection has improved from 0.71 in the third edition of the Index to 0.75. These findings point to a strong, statistically significant link between the two factors: economies with well-developed IP systems produce up to 80% more knowledge and technology.

IP protection, on a broad level, is strongly linked to real levels of innovation. Innovation can be defined in a range of methods, and thus assessed in a number of different ways, but one measure that is currently accessible is the Global Innovation Index, Innovation Output subindex—an aggregate measure that looks at a variety of variables that reflect knowledge generation and advancement. The link between innovation output and IP rights is 0.86 and therefore, very strong.

Knowledge-based, technological, and creative outputs are 75 percent higher in economies with strong IP regimes than in nations with weak IP regimes.

In contexts where copyright protection is present and enforced, creative activity, artistic expressions, audiovisual outputs, and other types of entertainment and cultural exchange are more intense. The correlation between scores on the copyright-related variables in the Index and creative activity has remained quite robust, currently standing at 0.85. [30]

[29] "Rene Belderbos et al., Where to Locate Innovative Activities in Global Value Chains: Does Co-location Matter? (Paris: Organisation for Economic Cooperation and Development Publishing, Paper No. 30, 2016), Official Website: https://www.theglobalipcenter.com/wp-content/uploads/2018/02/GIPC_IP_Index_2018_Annex.pdf

[30] "Rene Belderbos et al., Where to Locate Innovative Activities in Global Value Chains: Does Co-location Matter? (Paris: Organisation for Economic Cooperation and Development Publishing, Paper No. 30, 2016), Official Website: https://www.theglobalipcenter.com/wp-content/uploads/2018/02/GIPC_IP_Index_2018_Annex.pdf

2.3 Global Demand and IPRs' Distribution: The Importance in International Transactions

IPRs are becoming increasingly important in international trade of products and services as well. Since the 1980s, export growth has outpaced global output growth, and the share of knowledge-intensive or high-technology items in total world goods trade has doubled from 12 % to 24 % between 1980 and 1994.[31] However, the majority of international transactions in high-tech commodities occurs between industrialized economies. It should be noted that, determining the total importance of IPRs in services trade is difficult. Only three primary service categories are routinely reported in balance of payment statistics: transportation, travel, and "other services."

Intellectual property rights are especially important for "other services," such as "computer and information services" and "royalties and license fees."[32] Royalties and license fees cover the legal use of intangible assets, such as trademarks, patent and franchises, as well as the use of produced originals or prototypes, such as texts and films, through licensing agreements.

However, definitions vary based on the reporting economy. Royalties and license payments, for example, are used in some nations to track the acquisition or transfer of property rights. The United States has traditionally been the largest supplier of property rights and hence the largest beneficiary of royalties and license fees. It can be noted that, total royalties and license fees climbed from $6.7 billion on average in 1980-82 to $23.2 billion on average in 1993-1995 and they are still increasing nowadays. The majority of intellectual property exports from the United States are intra-firm, that is, from U.S. parent businesses to their international affiliates. In fact, around $18.2 billion of the $23.2 billion in royalties and license fees in 1993-1995 was intra-firm.

The growing relevance of intellectual property rights in international transactions is reflected in the expansion of multinational production. Between 1982 and 1994, the worldwide stock of foreign direct investment (FDI) — a measure of the investment that

[31]Braga, Carlos Alberto Primo, Carsten Fink, and Claudia Paz Sepulveda. "Intellectual property rights and economic development." Washington, DC: World Bank, 1999.

[32] Braga, Carlos Alberto Primo, Carsten Fink, and Claudia Paz Sepulveda. "Intellectual property rights and economic development." Washington, DC: World Bank, 1999.

underpins international production—increased fourfold. Over the same time span, it more than doubled as a share of global GDP, reaching 9%. FDI towards developing countries increased dramatically in the early 1990s. Moreover, FDI flows to developing nations were around $110 billion in 1996, accounting for nearly one-third of global FDI inflows. Foreign direct investment flows to emerging countries, on the other hand, are concentrated in a few states. In both 1994 and 1995, four nations—China, Mexico, Malaysia, and Brazil—accounted for 55% of all FDI flows to developing nations. Furthermore, the relevance of foreign direct investment flows in terms of domestic capital formation is only considerable for a few economies and FDI flows have been volatile in the past, most prominently during the Asian crisis.

In the past years, nearly 50% of FDI outward stock in the United States was in services (including wholesale commerce, banking, finance, insurance, and real estate) and 36% was in manufacturing. There are important statements that prove to us that IPRs are important for FDI in general. Many economists have cited the availability of intangible assets as one of the primary reasons for companies to go global rather than providing a foreign market through an arm's length export arrangement. These assets include new technology, personnel know-how, management abilities, a reputation for excellence; properties that frequently translate into explicit intellectual property ownership. R&D investment, for example, is an excellent predictor of multinational involvement in a given area, with 50 multinationals from developed nations accounting for 26% of all patents granted in the United States between 1990 and 1996, representing 3.3 percent of total U.S. goods and services exports.

We can therefore highlight the fact that intellectual property rights (IPRs) have become increasingly important in international trade of products and services. Indeed, this phenomenon has been one of the primary sources of the rising demand in emerging countries for better protection requirements, as indicated in the previous section.

There are a number of factors driving the increased demand for IPR protection. One has to do with the growing relevance of intellectual property rights in foreign transactions, as previously mentioned. As a result, patentees and trademark owners are looking for larger regional coverage for their intellectual property. Indeed, the increase in the number of countries in which the same application is submitted explains a portion of the expansion in the number of worldwide grants for industrial property rights. Since the 1980s, many

countries have improved their intellectual property regimes, fueling interest in the protection of knowledge- and information-intensive businesses.

However, globalization can only account for a portion of the rising demand for safeguard and preservation; multiple filings across countries account for only a portion of the rise in total number of industrial property grants. The number of "residents only" grants has also increased. This empirical pattern could suggest to a speeding up of the invention of new technologies in the case of patents. Additionally, an increase in the number of domestic grants could indicate changes in the behavior of businesses in terms of their willingness to file patent applications. Furthermore, increased R&D expenses in some industries in one hand, as well as the shortening of new product life cycles on the other, have generated extra incentives for corporations to employ IPRs as a competitive strategy. Increased dependence on the patent system, as well as an increase in the number of domestic grants, could be a reflection of changes in the legal landscape for title holders. However, one cannot rule out the possibility that the increase is due to a "real" increase in patentable discoveries.

Despite the fact that industrial property statistics from emerging nations have a number of weaknesses, the industrialized countries' supremacy in global industrial property ownership is undeniable. It has also been highlighted that in emerging countries statistics on industrial property demonstrate a substantially larger predominance of foreign citizens in national patent and trademark registrations.

The expanding global desire for intellectual property protection may also be seen in the area of plant breeders' rights, however this sort of intellectual property is now covered only in a few high-income and middle-income nations. However, there has been overall a global increase in domestic plant-variety registrations, implying either a faster production of new varieties or a greater dependence on the plant breeders' rights system, or a mix of the two. Since plant variety protection is provided by a small number of developing nations, it's not unexpected that industrial countries dominate plant variety registrations—only 10% of worldwide domestic grants in 1994-95 came from developing nations.[33]

Because copyright titles are often not registered, determining the global demand for copyright protection is more challenging. With the advent of sophisticated copying

[33] Braga, Carlos Alberto Primo, Carsten Fink, and Claudia Paz Sepulveda. "Intellectual property rights and economic development". Washington, DC: World Bank, 1999.

technology and the expanding globalization of the entertainment industry, copyright protection has become increasingly important. The application of copyright to protect computer software has greatly expanded the scope of this sort of protection. The rapid growth of the Internet has increased demand for copyright protection in the digital information sector, which, as previously stated, is expected to grow in the future.

In many economic contracts, intellectual property is the most valuable component. Indeed, knowledge-intensive commodities and services are rapidly dominating global trade flows, which are growing at a higher rate than capital and labor-intensive flows.[34] In 2014, global cross-border exports of commercial knowledge- and technology-intensive goods and services totaled $4 trillion, with $1.6 trillion in commercial knowledge-intensive services and $2.4 trillion in high-tech product exports.[35] In fact, knowledge, rather than labor, capital, or resource-intensive components, accounts for around half of current global trade flows, and this knowledge-intensive component is rising at a higher rate than labor-intensive flows, at over 1.3 times the rate of labor-intensive flows.[36] Knowledge and technology flows are at the heart of emerging production and innovation networks, particularly global value chains (GVCs) and global innovation networks (GINs). GVCs are the methods by which businesses transport "material" goods and services (both final and intermediate) across international borders. Intangible and immaterial assets are transferred across countries using GINs. GVCs are more common and sophisticated, reflecting the trend of companies establishing international production and distribution networks for physical goods, whereas GINs reflect the more recent trend of companies developing and deploying intangible goods and research and development alongside these production networks, or elsewhere as part of dispersed, specialized global operations. The rise of GVCs and GINs highlights how technological improvements and globalization have enabled businesses to restructure and manage their design, production,

[34] .James Manyika et al., "Global Flows in a Digital Age" (McKinsey Global Institute, April 2014). Official Website: https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/global-flows-in-a-digital-age

[35] National Science Board, "Science and Engineering Indicators 2016: Chapter 6: Industry, Technology, and the Global Marketplace" (Washington, D.C.: National Science Foundation Board, 2016),

[36] James Manyika et al., "Global Flows in a Digital Age: How Trade, Finance, People, and Data Connect the World Economy" (McKinsey Global Institute, April, 2014),

marketing, customer service, and other processes to boost their competitiveness and innovation.

Companies are forming GINs in order to capitalize on foreign knowledge, technology, and human resources by building worldwide R&D centers as well as local collaborative alliances and networks.[37]

This represents a shift in not only how corporations structure their own R&D, but also how they pursue innovation, as many organizations open up their operations to more cooperation agreements and involvement with external partners.[38] Chemicals, electronics, business services, and wholesale and retail trade are among the industries pursuing co-inventions and GINs most aggressively. Suppliers, customers, universities, and government institutions are forming new multidisciplinary and cross-sectoral partnerships with companies in these and other industries.

[37] Rene Belderbos et al., "Where to Locate Innovative Activities in Global Value Chains: Does Co-location Matter?" (Paris: Organisation for Economic Cooperation and Development Publishing, Paper No. 30, 2016), Offical Website: https://www.theglobalipcenter.com/wp-content/uploads/2018/02/GIPC_IP_Index_2018_Annex.pdf

[38]Organisation for Economic Cooperation and Development Publishing (OECD), "Open Innovation in Global Networks", (Paris: OECD, 2008), Official Website: https://www.oecd-ilibrary.org/science-and-technology/open-innovation-in-global-networks_9789264047693-en

Chapter III: Intellectual Property Rights Benefits to the European Economy and Small and Medium-Sized Enterprises' Competitiveness

IPRs protection is often believed to be an element of economic policymaking, despite the fact that economic theories of growth and development have largely neglected, or only tangentially considered, the function of IPR policy. This section will cover the network of interrelated economic effects of intellectual property rights protection by ensuring a clear explanation on its implications for the dissemination of knowledge and information within and between economies and its effect as an incentive for the creation of new knowledge and information. Moreover, we will focus on Small and Medium-Sized Enterprises, particularly on the role of IP in creating innovation, their transition to sustainability and the obstacles that SMEs confront when it comes to the IP system. The OECD countries' economies have undergone fundamental changes as a result of the "knowledge economy," making it necessary for businesses and policymakers to face new issues. One of the major challenges that businesses face is how to effectively manage existing and new knowledge in order to optimize the firm's innovative and creative potential. Intellectual property rights have emerged as useful tools for controlling innovation and addressing some of the enterprises' "market failures." To properly manage a firm's intellectual assets, it is becoming increasingly vital for entrepreneurs, inventors, researchers, SMEs, and business consultants to have a comprehensive understanding of the IP system.

3.1 The Benefits of Industries with Intensive Use of Intellectual Property Rights

IPRs have become increasingly essential for businesses in recent decades, as seen by their rapid rise in use. They are no longer viewed just as instruments to reward innovation, discourage copying, and protect a company's product and service image. IPRs provide firms with new ways to profit from their original works and appropriately monetize their intellectual property, in addition to its conventional role. IPRs have evolved into versatile tools that give businesses a variety of strategic options. Firms can, for example, opt to license IPRs or form R&D joint ventures to allow others to utilize them, generating important economic activity. Many modern firms' patent "portfolios,

technology licensing programs, brand equity, and goodwill" [39] define much of their worth, and have become critical to their financial performance. Indeed, intangible assets, rather than tangible assets, now account for the majority of the corporate value of many large businesses in industrialized nations.[40] Ideas and creativity are frequently the most important inputs, replacing conventional elements of production like land and labor. Businesses are adapting their business models to meet this shifting environment, and they're utilizing their intangible assets to get acceptable returns on their investments. They have a number of options for safeguarding their intellectual property, ranging from official to informal methods. Furthermore, rather than focusing on a single IPR at a time, companies are increasingly considering their whole intellectual property portfolio and making decisions based on the combination and interaction of several IPRs. Combining IPRs has the potential to significantly improve a firm's competitive position in the market, and research has shown that IPRs may be employed in a complementary manner to produce additional income streams and improve financial performance.

We will be focusing on a study conducted by the World Intellectual Property Organization (WIPO) to investigate the relationship between a firm's ownership of IPRs as recorded in official national and European IPR registers and its economic performance. The main indicator of economic performance was decided to be productivity. Other measures, such as profitability, might have been used, however the ORBIS database's coverage of such indicators is less comprehensive than that of revenue. A significant statistical test was undertaken with the goal of examining patterns of IPR ownership by European businesses. It begins by examining whether, on average, IPR-owning businesses vary significantly from non-IPR-owning firms in terms of important financial and corporate characteristics such as revenue and staff count. It then looks into how IPR ownership is linked to business characteristics. The study uses cross-tabulations to look at how IPR ownership differs between large and small businesses, as well as between

[39]European Union Intellectual Property Office. "Intelectual property rights and firm performance in the European Union", Firm-level analysis report. (February 2021).
[40] Finance, Brand. "Global intangible finance tracker (gift) 2017. An annual review of the worlds intangible value." (2019).

industries and countries. In addition, the average stocks of IPRs will be examined and compared among company types in this chapter.

According to the findings of these statistical tests, revenue per employee for IPR owners is substantially higher than for non-owners. When all IPRs are included, revenue per employee for IPR owners is 20.2 percent greater than for non-owners. Patents, trademarks, and designs all have average premiums of 36.3 percent, 20.9 percent, and 32.2 percent, respectively. In the case of patents and trademarks, European-level rates are greater than national rights but in the case of designs, European-level prices are comparable to national rates. When it comes to employment, patents, trademarks, and/or designs, owners have a larger workforce than non-owners (employing 2.6 times the number of workers compared with non-owners). These disparities are more pronounced among patent and design owners, particularly those with European-level rights. Employees who work for firms with patents, trademarks, and/or designs receive a higher pay (19.3 percent on average) than those who work for organizations without these forms of IPR. The largest effect is linked to possessing patents (52.6%), followed by designs (29.7%), and trademarks (17.4 percent). For all three categories of IPR, European-level rights are associated with higher pay premiums than national rights.

The main finding of these analyses is that IPR ownership, especially patents, trademarks, and designs, is significantly linked to greater economic performance at the business level. This link is particularly significant in the case of SMEs, which we will cover in more detail soon; only 8.7% of SMEs hold any of the three IPRs studied, but 55.6 percent of large businesses do. This isn't to say that IPRs aren't used in commercial operations by 44.4 percent of major companies. They may make use of IPRs, but they are not the legal proprietors. IPR ownership may reside with other companies within the group if they are part of a wider group structure. For SMEs, there is a particularly significant link between IPR ownership and income per employee. SMEs with IPRs generate 68 percent more income per employee than SMEs without. Furthermore, these findings apply to all three IPRs studied as well as combinations of those IPRs. Moreover, the fact that businesses with a combination of IPRs typically outperform those with only one of these rights indicates that IPRs complement one another. This aspect is especially significant for SMEs. These findings support data from earlier research released by the EPO and the EUIPO that IP rights are important for economic success. IPR-intensive businesses provide a significant contribution to the EU economy, according to studies conducted in 2013, 2016, and 2019.

The findings add to the growing body of data indicating there is a positive relationship between IPR activity and firm performance, particularly among smaller enterprises that are the backbone of Europe's economy.[41]

3.2 The Creation of Information and Knowledge

Intellectual property rights (IPRs) are usually believed to be a part of economic policymaking, despite the fact that economic growth and development theories have largely neglected, or only tangentially studied, the function of IPRs policy. The cost of reproducing intellectual work is often a small percentage of the production cost; many economic actors can consume the blueprint for a new machine, the computer code for a software application, the screenplay for a play, or a television broadcast with zero (or extremely low) marginal cost. From a static perspective, selling at marginal cost would maximize consumer welfare, but it would reduce incentives to invest in new intellectual works or upgrading existing knowledge. IPRs are designed to allow property owners to price their items above marginal cost and repay their initial investment by giving temporary exclusive rights.

Patents might be viewed as a second-best answer to the issues raised by knowledge's public-good features. The period of patent protection might theoretically be adjusted to encourage the creation of new products and manufacturing methods at a socially desirable pace, by taking into consideration also the static distortions that patents cause due to increased market power, as well as the costs of running a national patent office.

For several industries, patents are seen to play a vital role in the innovation process.

The availability of patent protection, for example, is crucial in the pharmaceutical industry. However, apart from the pharmaceutical and chemical industries, surveys conducted in the U.S and the U.K in the 1950s and 1970s revealed that patents were not a very effective technique of collecting returns from R&D in most businesses and recent research in the United States, Japan, and Europe tends to back up these conclusions.[42]

[41] European Union Intellectual Property Office. “Intellectual property rights and firm performance in the European Union”, Firm-level analysis report. (February 2021).

[42] Braga, Carlos Alberto Primo, Carsten Fink, and Claudia Paz Sepulveda. “Intellectual property rights and economic development”. Washington, DC: World Bank, 1999.

Firms in “high tech” industries, such as aerospace and semiconductors, consider first-to-market advantage and rapid progression to be more effective ways to benefit from R&D than patent protection.

Overly strong patent protection, as demonstrated by excessively wide patent claims, is sometimes thought to stifle innovation by making it impossible for researchers to further improve a technology without infringing on patent holders' rights. Some researchers have pointed out that firms pursue patents primarily to have a legal instrument to dissuade competitors and defend their market position in the industry. In the same way, the introduction of new biotechnology research tools has put further strain on the existing patent system. Biotechnology advances (such as gene sequences, proteins, transgenic plants, animals, and methods of human gene therapy) began to receive patent protection well beyond that provided to traditional pharmaceutical compounds or plant types in many industrialized countries. As a result, many developed nations’ companies have gathered patents covering fundamental research tools, crucial genes, and procedures, making it difficult for others to enter this new business.[43] In order to promote dynamic competition, these tendencies have underlined the significance of ensuring that prior discoveries can be utilized at acceptable costs in future innovation processes.

There is little evidence that the patent system is effective in stimulating the generation of new knowledge and information in developing countries. As previously stated, unlike most industrial countries, developing countries do not have a heritage of relying on patents. Furthermore, strict originality criteria for patent grants may not be appropriate for fostering tiny, incremental, and adaptable discoveries that are common in developing countries. As a result, some analysts have suggested that the utility model system or other innovation-registry-type systems would be more valuable to researchers in underdeveloped nations. As previously stated, the scope, term, and exemptions to exclusive rights differ from the patent system, reflecting the various circumstances in which new software, plant varieties publications and many more, are developed.

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[43] Barton, J.H. 1997. “Biotechnology Patenting.” Paper commissioned by the World Development Report.

The basis for protection for trademarks and geographical indications is typically defined in terms of incentives for quality investments rather than innovation. They help to reduce information asymmetries between producers and customers when it comes to product quality. There is a significant distinction between trademarks and other types of IPRs that promote innovation.

Unlike investments in knowledge development, quality investments are often "acceptable" from the perspective of the investing business. In theory, trademarks do not prevent imitation or duplication of protected items if they are offered under a different brand name. In practice, however, companies frequently utilize trademarks in conjunction with promotional activities to distinguish their products from those of competitors and therefore gain market power.

Trade secrets are sometimes considered as a necessary complement to the patent system: an innovation is typically protected as a trade secret before a patent application can be submitted. More broadly, trade secrets are rationalized as a means of encouraging innovations that do not meet the rigorous requirements for patentability of items and processes. When comparing trade secrets to patents, it's worth noting that trade secrets don't have to pay for administrative fees like application and grant procedures. Trade secrets, unlike patents, do not contributes to the current of knowledge available to the general public.

It should be highlighted that intellectual property rights are merely one of several tools available to encourage the creation of new knowledge. Alternatives and/or complements to the proprietary approach include public institutions producing knowledge directly, governments using subsidies and targeted procurement policies (as in the case of defense contracts in many industrialized countries), and the scientific community rewarding those who can establish priority of discovery.

There is limited information available on the impact of IPR protection on R&D investment across the economy. This is due in part to the difficulty in demonstrating causality, as not only do IPRs drive R&D, but the desire for protection is also higher in nations that invest more in R&D.[44] Finally, the impact of national or regional IPR laws on the composition of global R&D might well be considered. Stronger patent protection in developing nations is sometimes suggested to encourage research in rich economies on

[44] Gould, D.M. And W.C. Gruben. 1996. "The Role of Intellectual Property Rights in Economic Growth." Journal of Development Economics 48:323-350.

topics that are of particular relevance to developing countries; new medications, for example, are being developed for tropical and warm environments, which are prevalent in developing countries.

Again, the data is weak, while one could anticipate IPRs to be one of several variables affecting private firms' willingness to participate in such expenditures.

3.3 The Dispersal of Information and Knowledge Between Economies

IPRs, even though they're important in different areas, such as the dispersal of new information, some researchers suggest that they may limit the spread of knowledge and information in a variety of ways by providing exclusive rights and therefore, making it difficult. Patents, for example, restrict others from utilizing proprietary information, even for a limited time. A monopolistic or oligopolistic conduct among intellectual property title holders (i.e., lower output and higher pricing) can result in less than ideal and efficient distribution of new knowledge and information. As previously stated, this is part of the IPR protection trade-off: increased market power helps intellectual property owners to recoup their original information- and knowledge-generating investments. At the same time, IPRs have the potential to aid dissemination. Patents are provided in return for the patent claim's disclosure. Inventors have an incentive to share knowledge that would otherwise be kept secret in return for temporary exclusive rights. Other agents may not directly replicate the original claim until the patent expires, but they can utilize the information in the patent to create new ideas and file patent applications on their own. Furthermore, the title of an IPR provides a legal tool that can be used to trade and license a technology. Technology disclosure can be made easier with protection in advance of outsourcing, licensing, and joint-venture agreements. By providing more information to purchasers and sellers of technology, the IPRs system helps to create markets for information and expertise. IPRs, like tangible property rights, can make intangible property markets more efficient and minimize transaction costs.[45]

By affecting international transactions, IPRs also influence the transfer of information between economies. Technology is disseminated internationally through a variety of methods, including trade, FDI, international license agreements, and technical aid.

[45] Braga, Carlos A. Primo, Carsten Fink, and Claudia Paz Sepulveda. "Intellectual property rights and economic development". The World Bank, 2000.

In fact, rather than domestic innovation, most developing countries gain access to technology through these methods of dissemination. IPR protection may foster the development of technological capabilities in developing nations to the extent that it expands the spectrum of internationally traded goods and services.
According to one study, the growth-enhancing effect of patent protection becomes more pronounced as economies become more open.
However, the impact of enhanced protection on trade flows is uncertain from a theoretical standpoint. Because local enterprises are not allowed to replicate the protected goods, a foreign firm with strong patents experiences less exports of its patented items while simultaneously increasing its market size. Several studies have attempted to assess the effects of various levels of intellectual property protection on trade flows. While some of them discover a favorable IPRs-trade link on a broad scale, this positive link does not appear to hold true for high-tech trade.

Foreign direct investment is a second pathway for worldwide knowledge diffusion. Multinational corporations, for example, externalize proprietary information to their local partners through joint venture agreements. Even completely owned subsidiaries engage and educate local workers, and part of their expertise is transferred to local companies through contractual agreements (suppliers, buyers). Higher knowledge spillovers from foreign businesses and employees to local firms and workers might be expected if stronger IPRs encourage greater FDI.
Intellectual property protection does impact FDI decisions, according to evidence based on surveys of multinational firms from Germany, Japan, and the United States. However, the impact varies by industry: pharmaceutical and chemical companies appear to be more sensitive to the host country's IPR regime. Furthermore, the strength of a country's intellectual property system is only one of many factors that influence the country's overall investment from the standpoint of international investors.
A further aspect of the significance of IPRs in the distribution of information on an international scale, is how protection "influences multinational businesses' vertical integration".[46] Firms may be hesitant to invest abroad in stages of production that require a large transfer of intellectual knowledge, which may readily leak to rivals if they are not

[46] Braga, Carlos A. Primo, Carsten Fink, and Claudia Paz Sepulveda. "Intellectual property rights and economic development". The World Bank, 2000.

well protected. According to surveys, the host country's IPRs system is extremely essential for choices to invest in R&D facilities, somewhat important for FDI in manufacturing, and of low importance for sales and distribution outlets. IPR protection is determined to be more essential for choices on investment in facilities that manufacture entire goods than for those that create components or assembly facilities when it comes to the manufacturing process alone.

Another method for international knowledge dissemination is direct technology transfer through licensing agreements. In nations with poor IPR protection, companies may be hesitant to license their technology to unrelated companies.
According to surveys, U.S. companies, for example, value intellectual property protection more than investment decisions when it comes to the transfer of advanced technology. However, only a little amount of empirical study has been done in this area.
Increased IPR protection might provide rights' holders far more market influence in the future. If this is the case, such businesses may be anticipated to limit their sales or output in specific markets, resulting in higher monopolistic pricing for consumer products and industrial inputs. Furthermore, in an economy that imports technologies, as is the situation in the vast majority of developing nations, rent transfers from consumers to suppliers may be repatriated overseas.

3.4: Intellectual Property support for SME Policy: The role of IP in Creating Innovation

It is impossible to overstate the importance of SMEs to a country's economic progress and goals; small and medium-sized companies (SMEs) can benefit from intellectual property (IP), which can boost their competitiveness and offer an income stream. The importance of intellectual property (IP) in the success of creative SMEs has long been recognized since it allows innovative firms to appropriate the benefits of their creativity, inventiveness, and R&D efforts, while also providing an incentive for more innovation.[47] According to recent data from the EU Intellectual Property Office (EUIPO), enterprises that use IP rights perform better, and this is especially true for SMEs. SMEs with IP rights generate over 32% more income per employee than those without.

[47] OECD, "Enhancing the Competitiveness of SMEs through Innovation", 2004

They also hire more people faster and pay better wages. As a result, IP is critical for smart and long-term growth. Nonetheless, the same figures indicate how few SMEs in the EU employ IP: just 9% of SMEs have registered IP rights, compared to 36% of major corporations[48]. SMEs do not use the IP system mostly because they do not perceive the value, lack the requisite knowledge, and believe the procedures are extremely expensive.[49] As a result, assisting SMEs in gaining access to, using, and leveraging the IP system is a significant challenge.[50]

All inventive and creative start-ups and SMEs should be aware of the benefits of employing intellectual property as well as the risks of not doing so. These rights must be managed once they have been safeguarded in order to generate wealth and allow innovation to play its full role.[51] Member States deploy a number of methods and support measures to encourage and assist SMEs in their usage of intellectual property. This is demonstrated in the annexed "report on existing national initiatives seeking to improve IP civil enforcement procedures for SMEs,"[52] which is the result of a consultation process with Member States in 2015 and 2016. The Commission proposed EU-level measures to encourage SMEs' use of IP in the Single Market Strategy. In order to fulfill that objective, the Commission implemented a package of IP-support measures for start-ups and SMEs, which will improve coordination and consistency in addressing their sub-optimal use of IP across the EU.

Different programs exist to increase awareness of IP at the EU, national, and local levels, but the difficulty is to ensure that messages are simplified, easily accessible, and meet the

[48] EUIPO, "Intellectual property rights and firm performance in Europe: an economic analysis" (EUIPO, 2015), Official Website: https://euipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/documents/reports/IPContributionStudy/IPR_firm_performance_in_EU/2021_IP_Rights_and_firm_performance_in_the_EU_en.pdf

[49] EUIPO, "Intellectual property SME scoreboard", (EUIPO, 2016), Official Website: https://euipo.europa.eu/tunnel-

[50] OECD, "SMEs and entrepreneurship: lessons from the global crisis and the way forward to job creation and growth" (OECD, 2010), Official Website: https://www.oecd.org/cfe/smes/46404350.pdf

[51] European Commission, "Good practice report on innovative instruments to facilitate access to finance for the cultural and creative sectors" (European Commission, 2015).

[52] European Commission, "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Europe's next leaders: the Start-up and Scale-up Initiative Putting intellectual property at the service of SMEs to foster innovation and growth" {COM(2016) 733 final}.

genuine business requirements of creative SMEs. This will necessitate improved coordination among all stakeholders. National IP offices, Patent Information Centers, and national IP support coordination are only a few examples of public agencies devoted to IP whose activities must be tightly integrated with business support instruments and innovation assistance.

Some Member States offer crucial advice on the IP potential of a company's intellectual assets in the context of its specific market. These services, known as IP pre-diagnostic services, can be especially useful in assisting SMEs in determining the value of their intellectual assets as well as incorporating IP into their company plan. Such services should be made more widely available in the EU and should include all IP protection techniques, regardless of whether they are registered or unregistered. To this aim, the Commission services will use COSME money to support a program of IP pre-diagnostic services that will be executed in collaboration with Member States, the EUIPO, and other relevant European IP players.[53] COSME is playing a crucial role: through the financial instruments that have been accessible since August 2014, the Competitiveness of Enterprises and Small and Medium-sized Enterprises project is strengthening SMEs' access to funding.

Patents are costly, and the patent system may be complicated for small businesses.

Today, the European Patent Office can protect an innovation throughout the Single Market, but only at a significant expense. Furthermore, European patents must be maintained (and defended) in each Member State where they are validated, adding to the administrative burden. Innovative SMEs and start-ups that wish to patent in Europe utilizing European patents will benefit from the Commission's assistance. In 2017, a pilot initiative was started to fund innovative SMEs seeking and receiving patents. The subsidies will pay half of the expenses of preparing European patents for award, as well as a portion of legal fees.

[53] Commision Implementig Decision "On the adoption of the work programme for 2017 and the financing for the implementation of the Programme for the Competitiveness of Enterprises and small and medium-sized enterprises", Brussels, 8.11.2016 C (2016) 7033 final - C (2016) 7033 of 8.11.2016. Official Website: http://www.imm.gov.ro/adaugare_fisiere_imm/2020/02/COSME2017WP_CDecision.pdf

This will assist creative SMEs in the early stages of product development by drastically lowering patent fees. As a result, they should have easier access to financing and investment.

It is not enough to get creative start-ups and SMEs to use the IP system, whether by registering rights or through other IP protection techniques. Once such businesses have acquired IP rights, they must figure out how to make the most of the system.
Start-ups and SMEs might make more revenue through licensing or selling their protected intellectual property, if they had the right tools, such as agreed-upon valuation methodologies. Evidence shows that enforcing IP rights is expensive and difficult, particularly for start-ups and SMEs dealing with major corporations. In this regard, during the ongoing revision of Directive 2004/48/EC on the enforcement of intellectual property rights, the Commission will give special attention to SMEs and their challenges.
Let's recall that the Directive 2004/48/EC of the European Parliament and of the Council of 29 April 2004 on the protection of IPRs, also known as IPRED, is a European Union directive on intellectual property enforcement that was enacted under the Treaty of Rome's Single Market provisions.
SMEs can be encouraged and assisted in using intellectual property in a variety of ways. One of them is raising awareness and offering information.
Dedicated websites, publications, helpdesks, information points, e-learning tools, awareness campaigns, and workshops, lectures, and seminars are all available for general IP preparation and expertise. To maximize outreach, impact, eliminate duplication, and add a cross-border focus, all of these initiatives and schemes would benefit from extensive mapping and cooperative coordination efforts. Innovation is an important factor in determining productivity and long-term growth. By overcoming the productivity and salary inequalities between SMEs and large corporations, supporting innovation in established SMEs can promote inclusive growth. On average, SMEs are less inventive than large corporations. However, some small businesses are very inventive and may outperform huge corporations in terms of production. Companies that efficiently build and employ internal strategic resources and work with external partners in the innovation system do better. Governments may help SMEs innovate by creating a healthy business climate, assisting SMEs in developing and successfully utilizing their internal strategic resources, and establishing an innovation framework that is effective in commercializing research and inclusive of a diverse variety of SMEs.

3.5: SME Strategy: Supporting SMEs in Their Transition to Sustainability

Small and medium-sized companies (SMEs) are at the heart of inclusive growth strategies: more creative SMEs are more productive, able to pay higher wages and provide better working conditions for their employees, reducing disparities. Furthermore, recent market and technological advances provide fresh opportunity for SMEs to innovate and flourish. Digitalization is hastening the spread of knowledge and allowing the emergence of new business models, which may allow companies to scale swiftly with few people, tangible assets, or a geographic footprint.[54]

Internal strategic resources are exploited to invest in in-house innovation and interact with external partners, resulting in differences in SME performance and growth orientation. On one hand, evidence suggests a substantial relationship between improved managerial abilities and formal management techniques and increased production on the other.[55] Process innovation, for example, frequently incorporates cost-cutting strategies, the success of which is dependent on the company's managerial competencies. Similarly, in order for SMEs to adopt Industry 4.0, which entails the use of automation and digitalization in manufacturing, strong managerial skills are required. Many governments have backed the development of managerial skills in small businesses, both in low- and high-tech industries. The Operational Efficiency Program in Canada, for example, helps manufacturing SMEs improve operational efficiency by allowing them to measure and analyze their performance against the industry standard. The goal is to minimize waste in the manufacturing process and increase the efficiency of the business process. A large-scale management training course for microbusiness owners in traditional industries has been offered by Mexico. All these measures are being considered part of strategies aiming to increase sustainability.

Workforce skills are particularly vital, especially in small organizations where a higher proportion of employees are involved in the implementation of business innovation than in large corporations. In this regard, there is evidence that SMEs that allow employees to acquire problem-solving abilities and apply their expertise are more likely to succeed in

[54] OECD (2017c), "Going Digital: Making the Transformation Work for Growth and Well-Being", Meeting of the Council at Ministerial Level, 7-8 June 2017.

[55] OECD (2017b), "Enhancing Productivity in SMEs: Interim Report", OECD Working Party on SMEs and Entrepreneurship.

developing new products or processes than those that do not.[56] Governments in OECD nations encourage the development of business training groups to boost worker training and strategy in SMEs. This method offers significant advantages for both the government and small firms: governments can reach a larger number of businesses with a single policy intervention, while small businesses can afford better trainers and learn from their peers in the same training group.

The vast majority of SMEs lack an IPR strategy and do not include IPRs into their overall business plan or model, which is mostly due to a lack of understanding and competence among SMEs. In reality, intellectual property rights enable the growth in term of personnel, revenue, or customer base, and have a considerable influence on job creation, innovation, and the competitiveness of national and sub-national economies, as well as contributing to wage and income improvements.

For over two decades, sustainable development has been one of the European Union's primary goals, and it is now a key focus for the Next Generation EU, which has committed 750 billion euros to initiatives tackling sustainability-related issues. Supporting European SMEs in their transition to more sustainable business models contributes to Europe's development of a more equitable and environmentally friendly economy. Another of the EU's primary goals is to create an environment that is favorable to current businesses and new entrepreneurs. During the last decade, the passage of the Small Business Act (SBA) in 2008 and the Entrepreneurship 2020 Action Plan have been the most important European policy frameworks for SME policy. Three pillars support the strategy: Building capacity and providing assistance for the transition to sustainability and digitization; improving market access while reducing regulatory burdens; enhancing financial access. The European Union provides a wide range of financial tools to EU businesses in the form of grants, loans, guarantees, and contributions, regardless of their size or industry. Overall, EU financing possibilities may be classified into two groups based on how they are distributed, which are direct management and shared management. More than 76

[56] OECD (2015b), "Skills and Learning Strategies for Innovation in SMEs", OECD Working Party on SMEs and Entrepreneurship. Official Website: https://www.oecd.org/cfe/smes/ministerial/documents/2018-SME-Ministerial-Conference-Parallel-Session-4.pdf

percent of the EU budget is managed through the "shared managed" system, which involves collaboration with national and regional governments. Certain European initiatives, on the other hand, are handled directly or indirectly by the European Commission through partnerships with other European organizations or agencies, such as the European Investment Bank (COSME is considered part of the direct management).[57]

Intellectual property rights are a critical component in supporting long-term sustainable innovation. As organizations look for ways to achieve a competitive edge via sustainable innovation, the question of how to profit from it becomes increasingly important. Throughout the years, firms are progressively being compelled to engage in sustainable innovation, both as internal drives and as external constraints; Companies are looking at sustainable innovation as a strategy for gaining a competitive advantage and new opportunities for SMEs. There appear to be sufficient grounds to assume that IPRs can best encourage long-term innovation by giving rights that allow inventors to pursue various goals. Profit maximization is one goal, but social effect may also be linked to a well-crafted IPR strategy, such as selective licensing. Is it possible to develop a responsible IPR framework that can guide enterprises, as well as IPR institutional actors, toward more sustainable practices? Current institutions tend to provide enough regulatory freedom for economic actors to engage with IPRs according to a variety of standards: some players will utilize this area to develop strategic approaches, while others will use it to promote long-term inclusive and sustainable practices.[58] Several elements, such as the sort of demands from consumers, suppliers, or investors, may have a role in enabling the second decision. To explain motives and processes, a conceptual framework on responsible IPR might be established on firm-level theories like resource dependency[59] or institutional economics.[60] For organizations that wish to make responsible IPR

[57] Generali Projects on "Sustainability and SMEs, EU for Sustainability", Official Website: https://www.sme-enterprize.com/eu-for-sustainability/

[58] Castaldi, C. (2021), "Sustainable innovation and intellectual property rights: Friends, foes or perfect strangers?", in Voinea, C. L., Roijakkers, N., & Ooms, W. (Eds.). (2021). Sustainable Innovation: Strategy, Process and Impact. Routledge.

[59] Pfeffer, J., & Salancik, G. R. (2003). "The external control of organizations: A resource dependence perspective". Stanford University Press.

[60] Scott, W. R. (2013). "Institutions and organizations: Ideas, interests, and identities." Sage publications.

practices an integral part of their sustainability aims, such a conceptual framework may be converted into organizational tools.

3.6: How to Overcome the challenges faced by SMEs concerning the IP system?

Governments in many nations are dealing with challenges such as low productivity growth, weak trade and investment, along with increasing or persistently high income, wealth, and well-being disparity. Because small and medium-sized businesses account for nearly 95% of the business population and play a significant role in the national economy in terms of GDP, job creation, export performance, and achieving long-term national economic development, most governments have placed increasing emphasis on facilitating their formation and development. However, empirical data shows that SMEs encounter substantial challenges in effectively utilizing the IP system, which may limit their capacity to maximize their inventive and creative skills. It is therefore critical that programs aimed at raising knowledge and promoting more effective use of the IP system by entrepreneurs and SMEs include IP into a larger development framework of assistance for SMEs [61]; let's now see how this may be achieved.

Due to the extreme importance of knowledge as a source of production and competitiveness, the intellectual property system has increasingly been thrust into the spotlight of the knowledge economy. Over the last two decades, statistics on patent applications and patent awards reveal a substantial growth in patenting, resulting in what has been dubbed the "pro patent age." In knowledge-based industries such as biotechnology, information and communication technologies (ICT), nanotechnology, and sophisticated chemicals, the increase in patent applications has been particularly substantial for many reasons, such as:

- "More protection for IPRs, increased international harmonization of the IP system, and easier access to, and more effective enforcement of IP rights in foreign countries have all resulted from legislative reforms at the national, regional, and international levels".[62]

[61] Burrone, Esteban. "Intellectual property rights and innovation in SMEs in OECD countries." (2005).

[62]TRIPS Agreement, Articles 41 to 61, Official Website: https://www.wto.org/english/docs_e/legal_e/27-trips_05_e.htm

- Since the enactment of the Bayh-Dole Act in the United States and similar legislation in many other countries, there has been a surge in patenting among universities and public-sector R&D institutions, resulting in the creation of an institutional framework that is better suited to the promotion of university-industry collaboration and the commercialization of publicly funded research results.
- The growth of patentable subject matter has also contributed significantly. For example, Diamond vs Chakrabarty was a United States Supreme Court case focusing on whether genetically modified organisms can be patented or not. [63]

  The Courts decision, made in 1980, resulted in a flood of patent applications for biotech-related goods and this fueled the spectacular expansion of the biotechnology sector in the United States and, later, in other OECD nations.
- Outsourcing manufacturing processes to subcontractors, both domestically and in low-cost overseas regions, has heightened the requirement for exporting enterprises to retain control of their products' unique and creative characteristics.

All of these factors contribute to a greater active use of the IP system, particularly in OECD countries, indicating a higher perceived value of IP rights ownership.

Government policies have consistently sought to encourage SMEs to innovate over the last two decades, based on the understanding that the development of a vibrant and dynamic SMEs sector necessitates constant creativity and innovation to adapt to rapidly changing market conditions, short product cycles, and intense market competition[64]. SMEs, on the other hand, are a very diverse group. Their ability to generate new and creative products, processes, and services varies dramatically based on their industry, size, emphasis, resources, and the business climate in which they operate. In comparison to other manufacturing businesses, where it may be more difficult to appropriate R&D

[63] Robinson, Douglas, and Nina Medlock. "Diamond v. Chakrabarty: a retrospective on 25 years of biotech patents." Intellectual Property & Technology Law Journal 17.10 (2005): 12-15.

[64] OECD "Istanbul Ministerial Declaration, Fostering the Growth of Innovative and Internationally Competitive SMEs", adopted at the Second OECD Ministerial Conference on SMEs, 2-5 June 2004. Official Website: https://legalinstruments.oecd.org/public/doc/155/155.en.pdf

results through patenting, obtaining a license for an intellectual property right is typically considered particularly crucial in the so called “discrete product industries”.

IP rights are becoming increasingly vital for emerging businesses as well, in particular given the fact that these industries need to gain a competitive advantage since they already have limited resources. Effective IP rights management may open up new economic prospects for organizations with the necessary skills, innovative capacity, and resources to take use of the IP system’s many possibilities. SMEs, on the other hand, are frequently restricted in many more ways than larger businesses when it comes to making effective and efficient use of the IP system. The important element to remember is that SMEs of all sizes and technical complexity can profit from various components of the intellectual property system, depending on their requirements and technological capabilities; therefore, an important question that we tend to pose ourselves is whether or not SMEs are aware of, have access to, and are making effective and efficient use of the IP system, and if not, what are the constraints that are stopping them from doing so.

SMEs have a variety of challenges when it comes to adopting the IP system, according to studies from various nations (particularly OECD countries). This is frequently due to a lack of understanding of the IP system’s ins and outs, a lack of clarity about its importance to their company strategy and competitiveness, and a perception that the system is too difficult and expensive to utilize. According to a survey conducted by the Roland Berger Forschungs Institut for the European Patent Office on the use of the patent system by production industries, one out of every three companies in countries that are members of the European Patent Convention and engaged in R&D activities could be considered potential patent applicants, but only one out of every six actually apply for patents.[65] According to the survey, the primary reasons why SMEs do not file for patents are the price and time required for filing applications, although some SMEs also noted the patent system’s ineffectiveness. The poll also found that SMEs have a significant lack of knowledge about the patent system, which results in a low rate of potential applicants submitting patent applications and a lack of active government assistance for SMEs in the patenting process. One of the most significant impediments for SMEs is the cost of

[65] European Patent Office (EPO), “Utilization of Patent Protection in Europe”, EPO script, 3 (1994).

patenting[66]. Companies must budget for not just the official fees associated with the acquisition of IP rights, but also the costs associated with application preparation and prosecution, legal advice, and translation costs if the applicant wants to file for protection in another country. Many SMEs may believe that the costs of protection outweigh the potential benefits of protection, especially since a significant portion of the costs may be incurred before the product reaches "the market, lenders and government programs rarely provide financial support for the protection of IP rights."[67]

Besides from the fees, a few other elements of the application procedure, such as the time it takes to secure a patent or a trademark registration, may prevent SMEs from seeking IP protection. The growing volume of applications at various IP offices has resulted in a backlog and, as a consequence, an increase in the time it takes to get a patent or register a trademark from filing to issuance. A patent can take up to 4 years to be obtained in some instances. A long wait for a patent causes a lot of uncertainty for SMEs, making it difficult to enforce the patent or locate potential licensees or partners to help them market their invention. Moreover, a WIPO study conducted on the use of the IP system by SMEs in Norway highlights the fact that small businesses not only apply for patents less frequently than large businesses, but also have a much lower success rate (in terms of being awarded the patent) when they do. This indicates that SMEs that engage in patent protection are generally unsuccessful in getting patents. There could be a variety of reasons for this, including a lack of prior art knowledge, poorly prepared patent applications, restricted access to proper legal guidance, and a lack of resources to see the application approval.[68]

Because of some of the obstacles to using the patent system, SMEs frequently use other methods of appropriating their ideas. Secrecy, exploitation of lead-time benefits, moving quickly down the learning curve, utilization of complementary sales and service capabilities, technical complexity, on-going innovation, and trust-based partnerships are

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[66] Derwent, "Dismantling the barriers: A Pan- European survey on the use of patents and patent information by small and medium-sized enterprises" (2000).
Cordes J, Hertzfeld H and Vonortas N, "Survey of High Technology Firms, US Small Business Administration" (1999);
European Patent Office (EPO), "Utilization of Patent Protection in Europe", EPO script, 3 (1994).

[67] Sati-Salmah Sukarmijan and Olivia De Vega Sapong, "The importance of intellectual property for SMEs; Challenges and moving forward" International Agribusiness Marketing Conference 2013, IAMC 2013, 22-23 October 2013, Kuala Lumpur, Selangor, Malaysia, Official Website: https://daneshyari.com/article/preview/375852.pdf

[68] WIPO, "Norwegian SMEs and the IPR-System: Exploration and Analysis" (2003 a), Official Website: https://www.wipo.int/edocs/pubdocs/en/wipo_pub_890.pdf

some of the alternatives to patenting.[69] Furthermore, companies may depend on trade secret and/or unfair competition legislation to preserve their sensitive company knowledge while using secrecy as a strategy of appropriating innovation. There is a widespread perception that SMEs use trade secret protection by default, for instance, to avoid the costs and administrative procedures associated with patent protection, rather than putting in place the necessary safeguards to ensure that confidential information is treated as a legally protectable trade secret. The enforcement of IP rights is another factor to consider when analyzing challenges to SMEs' adoption of the IP system. The challenges that businesses may encounter in monitoring and enforcing their IP rights in the marketplace may act as further deterrents to filing for protection in the first place. Furthermore, many user groups are concerned about the risk of their patents being invalidated during patent litigation, increasing the uncertainty around patent ownership.

To sum up the main findings, there are several challenges to SMEs using the IP system more widely and effectively. First, SMEs' lack of understanding of the IP system restricts their exposure to it and their ability to successfully exploit all of its parts, which include not just patents but also utility models, trademarks, industrial designs, trade secrets, patent databases, copyright, and other IP rights. SMEs with poor IP management abilities are less able to fully profit from the system, which discourages future use.

Second, insufficient access to relevant human resources and/or legal counsel complicates the use of the IP system and reduces the odds of success in the application procedure for IP rights registration/grant. Effective IP management necessitates a diverse set of abilities, spanning from legal to scientific/technical to commercial, which not all SMEs have on staff. In fact, such competence is inadequate in many, if not most, SMEs support institutions; this is also true of private-sector SME consultants and business advisors. Lastly, high expenses, not just for acquiring and preserving IP rights, but also for monitoring and enforcing them, are a further impediment, particularly for companies that operate in many geographically dispersed markets. National Intellectual Property Offices (IPOs) have long been seen as the protectors of the IP system on a national level in the majority of countries. In recent years, the increasing importance of intellectual property rights in a knowledge-based economy has begun to influence how national, regional, and local governments view intellectual property rights and the IP system as a whole.

[69] Burrone, Esteban. "Intellectual property rights and innovation in SMEs in OECD countries." (2005).

To overcome the challenges faced by SMEs, there has been a shift in the focus of national IPOs in many nations. While IPOs' traditional functions of examination, registration, and grant of IP rights remain central to their day-to-day operations, they are increasingly devoting resources to a range of additional services aimed at facilitating access to and reaping the benefits of the IP system by a variety of means. However, it is becoming increasingly clear that institutions must seek to target not only the entrepreneurs themselves, but also their business advisers, whether they are private sector consultants, employees of chambers of commerce and industry, or investors and employees of financial institutions, in order to be successful in their efforts to promote a wider and more effective use of the IP system by SMEs. Furthermore, some IP offices have gone into providing personalized legal and technological support in the field of IP to their clients to partially overcome the obstacle of limited access to important legal information on IP rights. It is critical that programs aimed at raising knowledge and promoting better use of the IP system by entrepreneurs and SMEs include IP into a larger development framework of assistance for new and current SMEs. The impressive accomplishment of assisting new and existing SMEs in becoming and remaining competitive through better use of the IP system can only be realized if all relevant actors in the public, private, and civil society sectors in OECD countries work together to close the expertise, availability, and use of the IP system gap among inventors, research scientists, and business owners.

Given the noticeable role played by IPRs in different context, nowadays we can also experience the European Commission support – as we discussed in the previous paragraphs - in allowing capital to SMEs giving them the chance to collaborate with a number of financial institutions in Europe, including the European Investment Bank Group and local financial intermediaries. Through guarantee providers (banks, leasing firms, national promotional institutes) and venture capital funds, EU financial instruments provide loan guarantees and equity funding to increase small business financing alternatives. They also help small businesses have access to a variety of financing options through regulatory measures, education, and the sharing of best practices.[70]
Therefore, we can say that, in the last years, slow but significant progress has been made, giving us reasons to be optimistic about the future; an important project known as the

[70] European Commission, "Internal Market, Industry, Entrepreneurship and SMEs" Official Website: https://ec.europa.eu/growth/access-to-finance/funding-policies_en

Unitary Patent, is already in the process. The European Commission is working on putting together a patent package. Once it is established, it will create a European patent with unitary effect as well as a new patent court, which will provide a unique specialized patent jurisdiction. The unitary patent is a legal title that will guarantee equal and consistent protection in all nations involved through a single contact, resulting in significant cost savings and reduced administrative hassles. [71] Creators will be able to safeguard their innovation in all participating nations by filing a single patent application. There will be no need to register the patent in each country after it has been obtained. The unitary patent protection will make the current European system easier and less costly. In participating nations, it will put an end to complex validation procedures and substantially reduce the cost of transcription. As a result, it is anticipated to encourage research, development, and technological improvements, therefore assisting the EU's economy. Furthermore, the unitary patent system will provide a protection that is even more efficient respect to the existing approach. Many innovators nowadays tend to patent their discoveries in few nations due to the high expenses of local registrations. This reduces the value of discoveries since the lack of enforcement in other nations makes it easier to copy them. The Commission will continue to work with the countries that agreed to participate in the creation of the Unified Patent Court (UPC). At the moment, the Commission is urging the EU member states to adopt the Unified Patent Court Agreement as quickly as possible, in order to harmonize IPR protection.

[71] European Commision Website "Internal Market, Industry, Entrepreneurship and SMEs" - Unitary Patent. Official Website: https://ec.europa.eu/growth/industry/policy/intellectual-property/patents/unitary-patent_en

Chapter IV: The Global Diffusion of Intellectual Property Law

In this chapter we will highlight how similar intellectual property rules are adopted by very diverse governments; nations worldwide have mostly unified laws regulating intangible commodities. Given the enormous differences in internal sociopolitical circumstances as well as economic inequalities between states, such homogenization is surprising. Policy diffusion best describes the global expansion and alignment of intellectual property laws. States seldom enact such legislation in response to domestic policy issues, instead they are regularly compelled to enact IPR rules established primarily in the US and the European Union. We are also going to focus our attention on traditional knowledge, its definition and sphere of application while lasty, two case studies on multiple countries will help us better understand the reason why a state rejects or adopts a specific policy.

4.1 Policy Diffusion and Coercion: Empirical and Theoretical Overview

Before diving into the theoretical and empirical aspects of policy dissemination and coercion, a brief overview is required. First of all, diffusion of policy is a subgroup of the broader idea of dissemination, which has been used in a variety of areas with the aim to explain the spread of social and cultural practices, as well as information and technology.[72] Researchers are all interested in the same set of questions: how can ideas and behaviors spread from one group to another? Also, why do some ideas and behaviors spread faster than others? First of all, cross-national or cross-cultural research is made more difficult by the fact that ideas and behaviors migrate between cultures. This problem has been called "Galton's problem" in the past; Galton claims that, when comparing cultural features, scholars cannot assume that the civilizations in question are independent samples. As a result, seeking to explain cultural features solely through endogenous cultural variables invalidates the idea of cultural borrowing.[73]

[72] Rogers, Everett M. 2003. "Diffusion of innovations". 5th ed., free press trade pbk. ed edn. New York: Free Press. Official Website: https://teddykw2.files.wordpress.com/2012/07/everett-m-rogers-diffusion-of-innovations.pdf

[73] Ross, Marc Howard, & Homer, Elizabeth. 1976. "Galton's Problem in Cross-National Research". World Politics, 29(01), 1–28. Official Website: https://www.cambridge.org/core/journals/world-politics/article/abs/galtons-problem-in-crossnational-research/3919C49D626707821ABAB3E10CC65158

The core insight of policy diffusion is that governments' policy choices are mutually dependent: governments make policy decisions based on a variety of elements, including internal domestic considerations, internal aspects, and wide exterior environmental factors, as well as what other governments have done. As a result, Graham (Professor of Law and Information System at the University of New south Wales) defines policy dispersion as "when one government's decision to embrace a policy innovation is influenced by the decisions of other countries." Coercion, economic competition, learning, and constructivism have all been identified as major processes of policy dissemination: "There is agreement that competition, learning, and social emulation are the main drivers of diffusion." [74]

Despite the fact that numerous vivid examples surrounding policy diffusion have surfaced, we are still far from having a systematic, general knowledge of how diffusion works. In this chapter, we'll look at these theoretical and empirical issues one by one. Five significant theoretical issues that hinder policy diffusion research are conceptual overlap across processes, a failure to take coercion seriously, poor definitions of dependent variables, incorrect assumptions about policy success, and a failure to examine policy adopters' motivations. The most difficult problem is the ideas overlap; states may adopt policies similar to those of its rivals in order to seem business and investment friendly. Competitive markets may even be considered decentralized types of coercion because they apply fines to nonconforming actors.[75] Therefore, depending on one's perspective, what appears to be competition might also be described as learning, imitation, or coercion. For this main reason, it is quite impossible to distinguish learning and imitation.

Learning new behaviors through imitation is a powerful and versatile strategy.

Imitative learning is used to transmit down a wide range of human behaviors, from social interaction styles to tool usage.[76]

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[74] Michael, Gabriel J. " To Promote the Progress"? Explaining the Global Diffusion of Intellectual Property Law. Diss. The George Washington University, 2014.

[75] Meseguer, Covadonga, & Gilardi, Fabrizio. 2009. "What is new in the study of policy diffusion?" Review of International Political Economy, 16(3), 527–543.

[76] Nehaniv, Chrystopher L., & Dautenhahn, Kerstin. 2007. "Imitation and social learning in robots, humans and animals: behavioural, social and communicative dimensions." Cambridge, UK ; New York: Cambridge University Press.

In most studies of policy spread, the two notions form an implicit connection.
Also, coercion, which appears to be more easily distinguishable from other policy spread mechanisms, suffers from theoretical ambiguity; coercion on the other hand, is a policy diffusion mechanism that tries to explain the spread of policies through the use of force. The capacity of one actor to force another actor to do an involuntary action that benefits the first player is the traditional definition of coercion.[77] In the context of policy dissemination, coercion may refer to stronger players pressuring weak actors to embrace policies that they would not otherwise adopt willingly. Coercion may take many forms, ranging from legal negotiations within the context of a mutually beneficial trade deal to unilateral demands enforced by sanctions threats. If intellectual property legislation is enforced by coercion, we expect diplomatic discussions or other political techniques to be used rather than military action. In the literature on intellectual property rights, there are claims that the United States threatens other countries in order to force stronger intellectual property protection. [78] Despite the fact that coercion is frequently mentioned among the methods of policy transmission, few researches consider it to be a realistic option. Loan conditionality is the archetypal example of coercion as a tool of policy spread for the great majority of authors in international relations and comparative politics.

The topic of policy success is another theoretical issue that emerges in the study of policy dissemination. By assuming that governments would implement effective policies, some academics use a measure of policy success as proof of rational learning. First, there's the issue of determining how to assess policy effectiveness.
A policy's success or failure is frequently socially created, politically disputed, and even indeterminable. Because we don't know why a state adopted a policy that appears to have worked in another state, we can't use it as proof of learning. Second, even if a policy is proven to be effective, it does not imply that other governments will follow this example. Many parts of IP law are extremely political, and the notion of success is also highly politicized. While basic concepts of intellectual property law claim that copyright and patent laws are required for creativity and innovation, empirical research has thrown doubt on such claims. Recent IP law studies have revealed that, despite the lack of protection, some industries thrive on innovation. Even if it can be demonstrated that a

[77] Schelling, Thomas. 1966. “Arms and Influence”. New Haven: Yale University Press.
[78] Yu, Peter K. 2005. From Pirates to Partners (Episode II): “Protecting Intellectual Property in Post-WTO China”. American University Law Review, 55, 901.

certain IP policy aids in the achievement of specific objectives, governments may publicly reject "efficient" solutions because they are focused on other policy challenges, putting IPRs in second place.

To conclude our empirical and theoretical evaluation, multiple research methodologies are needed to advance our understanding of policy diffusion: quantitative methods to prove the plausibility and universal application of mechanisms, and qualitative methods to go beyond plausibility and show which mechanisms are at work. The study must be thoroughly defined in order to produce a credible research project; in order to do so, what model should researchers apply? While some researchers believe that using various and mixed strategies may have certain advantages, others prefer to use monomethods. In this case, there are still studies being done in the area, and there are differing opinions, but one thing is certain: the decision to adopt a multimethod approach is motivated by serious flaws in the existing research, some of which may be created by using a single method approach[79]. In fact, when it comes to delivering complete solutions to problems, mono-method research is frequently inadequate.

A mixed-method research methodology leverages the strengths of quantitative and qualitative research paradigms in discovering solutions, resulting in multiple and more credible sources of information: it has been discovered that it produces broad-based scientific data that policymakers find more appealing.

4.2 Traditional Knowledge

"While there is not yet an accepted definition of Traditional Knowledge (TK) at the international level, it can be said that TK in a general sense embraces the content of knowledge itself as well as traditional cultural expressions, including distinctive signs and symbols associated with TK", this is the explanation that has been given by the World Intellectual Property Organization.[80] When addressing traditional knowledge, the term "traditional cultural expression" (TCE) is commonly used to indicate a culture's artwork, crafts, music, songs, and mythology.

[79] Ahmed, Amel, and Rudra Sil. "When multi-method research subverts methodological pluralism—or, why we still need single-method research." Perspectives on Politics 10.4 (2012): 935-953.

[80] World Intellectual Property Organization. 2010a. "Traditional Knowledge". Official Website: http://www.wipo.int/tk/en/tk/

Traditional cultural expressions are often used interchangeably with the term "folklore," which was once the most common label for such works. Although it has taken on a negative connotation in some contexts, the term "folklore" is still used in national legislation and scholarly publications.

Some individuals and organizations, such as the World Intellectual Property Organization (WIPO), have begun to use the phrase "traditional knowledge" in a more restrictive sense, distinguishing it from traditional cultural representations. WIPO adopts tougher and non-overlapping definitions of traditional knowledge in its negotiations with the Intergovernmental Committee on Patent Rights, Genetic Resources, Traditional Knowledge, and Folklore; the term "traditional wisdom" is used to describe:

"knowledge resulting from intellectual activity in a traditional context, and includes the know-how, skills, innovations, practices and learning that from part of traditional knowledge systems, and knowledge embodying traditional lifestyles of indigenous and local communities or contained in codified knowledge systems passed between generations. It is not limited to any specific technical field, and may include agricultural, environmental and medicinal knowledge, and knowledge associated with genetic resources" (World Intellectual Property Organization, 2006).[81]

Despite its efforts, there is currently no universally accepted definition of traditional knowledge, as WIPO points out. The principles it represents are frequently misunderstood, despite its widespread use. Incomplete and ambiguous definitions make it difficult to classify laws by country; certain laws may adhere closer to the limited concept of traditional knowledge, while others may not fall into either group.

Because the link between traditional knowledge and intellectual property is unclear, it's possible that traditional knowledge protection may exist beyond the scope of intellectual property law. States may use different methods to protect traditional knowledge, either openly, as in the United States' approach of utilizing competition law, or implicitly, as in the United Kingdom's approach of using common law.

Traditional knowledge, in the form of traditional cultural manifestations, had been discussed in regional and international settings as early as the 1960s, despite a substantial rise in attention to traditional knowledge in the last decade. In fact, in 1963, delegates from African nations gathered in Brazzaville with members from UNESCO and the

[81] Michael, Gabriel J. "To Promote the Progress"? Explaining the Global Diffusion of Intellectual Property Law. Diss. The George Washington University, 2014.

Bureaux Internationaux Réunis pour la Protection de la Propriété Intellectuelle to form a working group (BIRPI, the predecessor to WIPO)[82]. This and subsequent discussions resulted in the creation of a model law in 1965, which was sent to UNESCO and BIRPI and included particular provisions for safeguarding African traditional cultural expressions[83]. Furthermore, members of the Berne Convention (the world's foremost copyright convention, now included by reference into TRIPS and the WTO) convened in Stockholm in 1967 to update the treaty's wording. They decided, among other things, to include a new section addressing traditional cultural manifestations, but not by name, because the idea was deemed too difficult to describe. [84] Many nations began including restrictions pertaining to traditional cultural expressions in their intellectual property laws between 1967 and 1977 and at the same period, traditional cultural manifestations received explicit acknowledgment at the world and regional levels.

The next worldwide consideration of traditional knowledge in the context of intellectual property occurred in 1996. Traditional knowledge was not mentioned in TRIPS, which was completed in 1994 and went into force in 1995. National legislative effort to protect traditional knowledge via intellectual property law continued in the post-TRIPS era, but at a faster pace. Indeed, around 40 countries made some reference to traditional knowledge, broadly defined, in their intellectual property laws between 1967 and 1995. However, at least 44 countries have followed suit between 1995 and now.

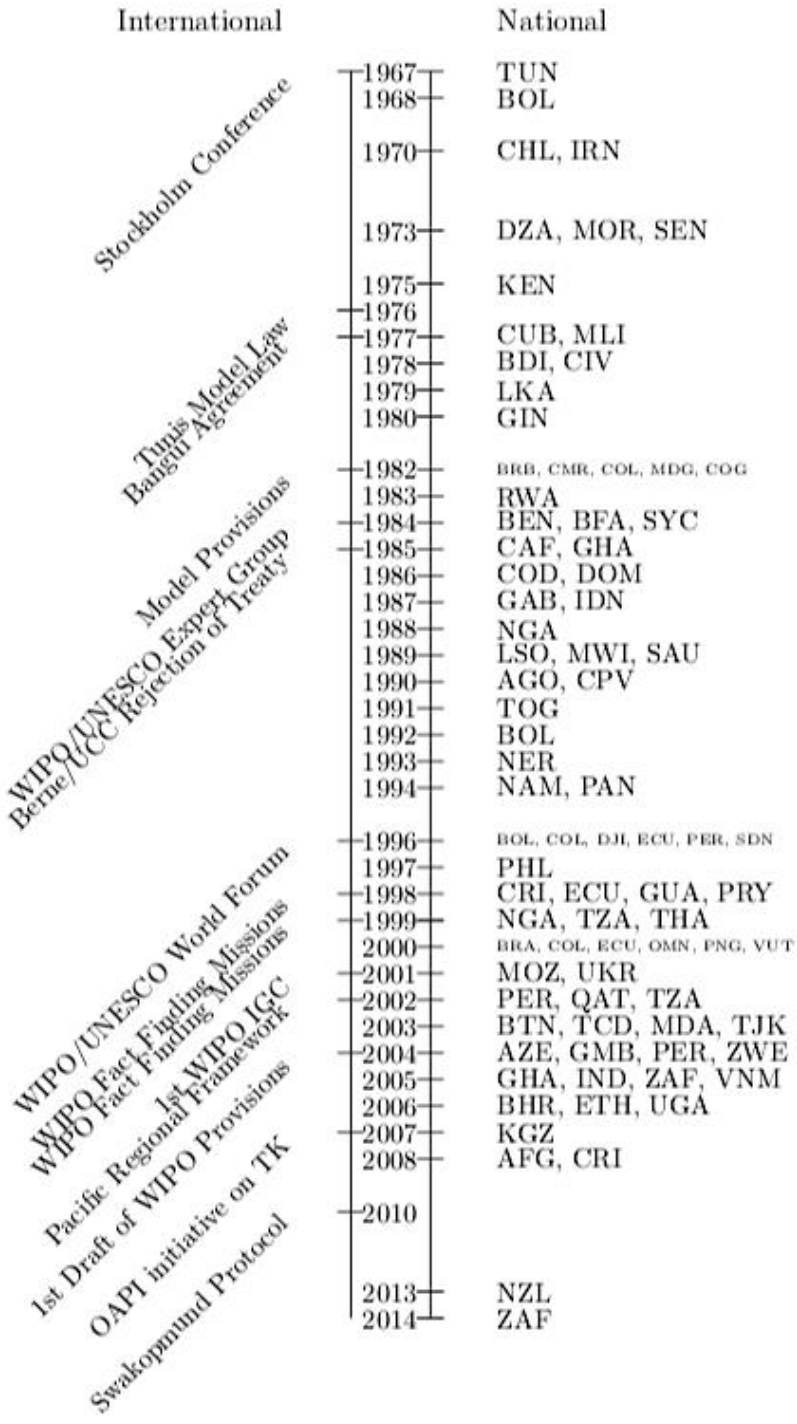
In the image provided, we can easily understand the timeline of the major events divided in pre -TRIPS and post -TRIPS era; despite the fact that TRIPS itself paid little attention to the issue, it serves as a useful reference point in the debate of conventional knowledge.

[82] Zografos, Daphne. 2010. “Intellectual property and traditional cultural expressions”. Cheltenham, UK; Northampton, MA: Edward Elgar.

[83] Hunt, Harriett Fran. 1969. “African Folklore: The Role of Copyright”. African Law Studies, 1, 87.

[84] World Intellectual Property Organization. 1971. Records of the Intellectual Property Conference of Stockholm, June 11 to July 14, 1967 (WIPO/S/73)

Figure 1: A Timeline of Important Events in TK Protection [85]



[85] Michael, Gabriel J. " To Promote the Progress"? Explaining the Global Diffusion of Intellectual Property Law. Diss. The George Washington University, 2014.

If pre-TRIPS actions on traditional knowledge were an expression of cultural and political identity, the post-TRIPS era may be defined by developing countries attempting to reinterpret intellectual property to better suit their needs. A high majority of post-WTO/post-TRIPS national intellectual property legislation protecting traditional knowledge can be explained by policy dispersion.

The growth of conventional knowledge protection legislation in developing nations poses a challenge to current policy diffusion processes. Because developed countries have less motivation to encourage the preservation of IP held mostly by developing countries, coercion is not a particularly feasible method of transmission for traditional knowledge. Developed countries, on the other hand, are more likely to profit from traditional knowledge that is weakly protected or unprotected, allowing it to be marketed without restrictions or the need to pay licensing fees or royalties. Traditional knowledge policies might potentially provide competitive advantages to countries who implement them. In tourism-dependent countries, such rules may help to prevent in-expensive overseas knockoffs of traditional items from competing with real ones. Traditional knowledge policies may provide competitive advantages to a country's domestic people, but they may also create obstacles or raise expenses to international firms, resulting in a competitive disadvantage. It's possible that some countries will follow the policies of other countries that have previously passed laws safeguarding traditional knowledge, either as a consequence of prior adopters' lessons learned or for societal reasons. The current research, on the other hand, generally implies that countries would emulate either leaders (political, economic, moral, or otherwise) or peers. Nevertheless, the expansion of traditional knowledge policies throughout the world has taken a unique path, with some of the most ardent supporters hailing from the world's smallest and weaker nations (Tunisia was the first country to pass such legislation).
It is interesting to point out that, because most industrialized countries resist or are ambivalent about traditional knowledge, adoption cannot be considered as a strategy to persuade them.[86]

[86] Michael, Gabriel J. " To Promote the Progress"? Explaining the Global Diffusion of Intellectual Property Law. Diss. The George Washington University, 2014.

4.3 Fair Use: Evidence of Policy Adoption. The Cases of The Philippines and Singapore

Through a coercive free trade agreements and WTO accession agreements, the United States and the European Union tried to enable the adoption of strong data and the diffusion of intellectual property policies throughout the world. Developing nations have implemented a new form of intellectual property to protect traditional knowledge in response to the imposition of what may appear that developed countries are constantly attempting to export their intellectual property policies, whereas developing countries are always resisting. It would be incorrect to draw such a conclusion. In fact, developed countries are selective in which IP policies to encourage abroad, and developing countries sometimes adopt developed countries' IP policies without external encouragement. In this regard, we'll focus on the notion of fair use in copyright law and its relatively limited dispersion. Due to the small number of nations that have adopted fair use, this chapter also provides an opportunity to see if the typical mechanisms outlined in the literature can explain the slow adoption of the policy and what forces might be working against it. Folsom v. Marsh, a case from 1841, is well-known. It is said to be the first lawsuit in the United States dealing with fair use. Until 1976, when the Copyright Act was officially codified, the theory was confined to case law. Interestingly, despite several possibilities, the United States has made minimal efforts to persuade other nations to adopt a similar approach to fair use in their own legislation. Only a handful of other nations had rules similar to fair use as of 2014. So, what are the reasons why, despite the absence of support from the country that created the concept, different countries decided to embrace fair use? When counties contemplate adopting fair use, they are generally driven by a desire to balance international demands for stronger copyright protection, which is sometimes paired with concerns about creating a creative and competitive intellectual property regime or alleviating other local issues. When governments, on the other hand, examine fair use but eventually reject it, it is generally out of deference to native rights holders. To put it simply, when a nation is under pressure from abroad to improve its copyright rules, and local rightsholders are weak, the country is more likely to follow the American fair use model. This event is known as "policy diffusion by imitation", in which countries embrace a policy because it represents a standard, hence providing advantages and minimizing the consequences of rejecting the standard.

What do we mean precisely with fair use? Fair use is a limitation on copyright holders' rights in the U.S. law. Copyright typically grants the copyright holder exclusive rights to exploit their own work. Anyone seeking to replicate a copyrighted work in its entirety or in part would need to get permission or a license from the rights holders. The theory of fair use, on the other hand, allows for a wide range of uses, including full copies of copyrighted work in some instances, without the requirement for permission or a license. Therefore, reporters and researchers can reference sources by copying passages from copyrighted works; authors and comedians can spoof others' works, even if it involves replicating material and characters; and instructors can create numerous copies of a copyrighted work for classroom use. Let's recall the 17 U.S. Code § 107 - Limitations on exclusive rights: Fair use:

"Notwithstanding the provisions of sections 106 and 106A, the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include:

(1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
(2) the nature of the copyrighted work;
(3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
(4) the effect of the use upon the potential market for or value of the copyrighted work.

The fact that, a work is unpublished shall not itself bar a finding of fair use if such finding is made upon consideration of all the above factors." [87]

[87] Cornell Law School. Legal Information Institute, Lii U.S. Code Title "17. Copyrights Chapter 1. Subject Matter And Scope Of Copyright Section 107". Official Website: https://www.law.cornell.edu/uscode/text/17/chapter-1
Legal Information Institut, Cornell Law School "Limitation on Exclusive Rights: Fair use" , Official Website: https://www.law.cornell.edu/uscode/text/17/107

Although these instances refer to the Copyright Act's case law, the openness of the American doctrine of fair use is its defining characteristic.

Fair use enables the creation and dissemination of breakthrough technology and services that, without an open and flexible approach, would likely never be adopted widely. For example, the open-ended character of fair use is crucial to search engines, which are one of the most significant breakthroughs of the Internet era and a vital tool for business and education. While search engines can work in a variety of ways, many current search engines, including the most popular, such as Google, employ "crawlers" that copy huge parts of web pages, if not the entire page to be included in the search engine. This copying occurs automatically and without the authorization of the copyright holder in the case of copyrighted materials. The United States Court of Appeals for the Ninth Circuit has concluded that when search engines replicate third-party copyrighted works in order to filter or cache them, they are engaging in behavior allowed by fair use.

Fair use is essential for the development and distribution of new products and services. Legislators could not have predicted how innovative products and services would interact with copyright law. Such goods/services would have been delayed several times if the United States had been subject to an exhaustive list of copyright limitations and exceptions. An author claims that Europe's absence of an open-ended fair-use approach to copyright limits and exceptions is a key factor for the continent's failure to build its own search engines, relying instead on US-based search engines[88].

Apart from the United States, the Philippines appears to have been one of the earliest nations to embrace American-style fair use. Section 185 of the Intellectual Property Code, introduced in 1997, has fair use rules that are quite similar to those in US law. Earlier to this, copyright was governed by the Decree on Intellectual Property of 1972, which did not include a fair use clause and instead relied on a list of limits and restrictions. The 1997 Intellectual Property Code was adopted in part to comply with the Philippines' TRIPS [89] commitments, but it was partly in reaction to pressure from the US to remedy perceived weaknesses. The revised Intellectual Property Code was the product of "many years of

[88] Band, Jonathan. 2008. "Google and Fair Use". Journal of Business and Technology Law, 3, 1.

[89] Negre, Ferdinand M., & Perez, Jonathan Q. 2009. The Philippines. In: Goldstein, Paul, Ganea, Peter, Garde, Tanuja V., Straus, Joseph, & Woolley, Ashley Isaacson (eds), "Intellectual Property in Asia". Law, Economics, History and Politics. MPI studies on intellectual property, competition, and tax law, no. 9. Springer.

intensive negotiations between the Philippine government and the United States administration."[90] The new Intellectual Property Code increased the degree of protection provided to copyrighted works in the Philippines substantially. Prior to the current Intellectual Property Code, the Philippines had a "Reprinting Law" that allowed for compulsory textbook licensing "as a temporary or emergency measure whenever the prices thereof became so exorbitant as to be detrimental to the national interest".[91] In order to achieve TRIPS compliance, the new Intellectual Property Code repealed the Reprinting Law.

Given the similarities between U.S. law and other areas of Philippine law, as well as the country's overall constitutional structure and U.S. control from 1898 to 1946, it's not unexpected that the Philippines plainly modeled its fair use laws after American law. Furthermore, taking a U.S.-style approach to copyright restrictions and exceptions has the additional benefit of reducing the likelihood of the US government objecting to such measures in bilateral negotiations or unilateral evaluations of intellectual property legislation, such as the Special 301 process. While the Philippines was already interested in creating a conducive environment for innovation by adopting specific limitations, the United States' demand for stronger copyright protection provided compelling motivations to adopt a general fair use approach that would balance the changes required to achieve TRIPS compliance while also satisfying the United States.

Moving on with the Singapore's case, the Copyright Act of Singapore was updated in 2004 to include a broad defense to infringement. Despite the fact that the amendment utilizes the term fair dealing, "its wording allows the law to be more flexible when deciding whether or not a particular use of a copyrighted work is fair. This flexibility, which stems from the use of ambiguous wording, is similar to the American approach to fair use." [92] Before this modification, Singapore's fair dealing regulations used the Common-wealth model, which exempted only research, private study, criticism, review, and reporting from breach. Singaporean lawmakers acknowledged the issues that an overly stringent approach to fair dealing had caused as early as 1998. Singapore's fair

[90] Ancheta, Alonozo Q. 1998. "Philippines Begins New IP Regime". IP Worldwide, Feb., 9–11.

[91] Ancheta, Alonozo Q. 1998. "Philippines Begins New IP Regime". IP Worldwide, Feb., 9–11.

[92] Ghafele, Roya, & Gibert, Benjamin. 2012. "The Economic Value of Fair Use in Copy- right Law". Counterfactual Impact Analysis of Fair Use Policy On Private Copying Technology and Copyright Markets in Singapore.

dealing provisions for research were revised in that year as a result of a lawsuit between two technology corporations, to allow the potential of commercial research.[93] While the Minister for Law's emphasized on fair use's role in fostering information sharing and creative works implies a possible economic incentive for adopting American-style fair use, there is no indication of such a purpose. The evidence given, on the other hand, strongly suggests that there is a desire to establish balance in copyright legislation. The United States' push for TRIPS-plus copyright rights spurred Singapore's copyright revisions in 2004. These proposals sparked a debate in Parliament about whether increased protections would throw the copyright system off balance. As a result, Singapore's copyright restrictions have been relaxed.[94]

4.4 Fair Use: Evidence of Policy Rejection. The Cases of Australia and Canada

In this section, we'll look at a few countries that considered implementing fair use but ultimately decided against it. Australia, New Zealand and Canada are among the nations in this group. Foreign requests for increased copyright protection have been made in some of these nations, but not in others. However, one common feature emerges from an examination of the decision-making process that led to each country's rejection of fair us: domestic right-holders have consistently expressed strong hostility to the notion of fair usage. This opposition is reflected in rights holders' formal contributions to governmental authorities tasked with evaluating copyright law, as well as the outputs of those bodies, which frequently advise against going so far as to embrace American-style fair use. In certain circumstances, these outputs expressly note rights-holder disagreement as a justification for rejecting fair usage. In contrast, there is little indication of coordinated push from rights holders against fair usage in countries that have accepted it. I'll now present evidence of copyright holders' internal hostility to fair use in two nations that considered but ultimately rejected American-style fair use: Australia and Canada.

As a consequence of a bilateral free trade agreement with the United States, Australia was recently required to substantially improve the amount of protection offered by its

[93] Band, Jonathan, & Katoh, Masanobu. 2011. “Interfaces on trial 2.0”. Information society series. Cambridge, MA: MIT Press, 2011.
[94] Michael, Gabriel J. “To Promote the Progress"? Explaining the Global Diffusion of Intellectual Property Law”. Diss. The George Washington University, 2014.

copyright laws. Previously to the AUSFTA (Australia-U.S. Free Trade Agreement), Australia's copyright restrictions were "very tightly written and not nearly as liberal as similar provisions in the copyright legislation of many other nations" according to a report[95]. Despite the fact that Australia was already undergoing copyright reform at the time, the AUSFTA "pushed most of the current domestic reform agenda to one side."[96] Some Australian stakeholders expressed concerns about apparent inequities in the FTA's intellectual property chapter during the talks leading up to the AUSFTA, saying that it did not do enough to "defend the interests of users, consumers, and new innovators."[97]

As a result, Australia amended its Copyright Act in 2006 to include additional limits and exceptions. Unlike the eight nations mentioned above, however, the amendment did not take an open-ended, American-style approach to copyright restrictions and exceptions, despite the fact that it was explicitly contemplated. Instead, the amendment introduced a so-called "hybrid" exemption that, while allowing for specified non-infringing applications, restricts them to a certain segment of users, such as educational institutions.[98]

Despite the recommendations of numerous panels tasked with evaluating Australia's copyright laws, the Australian government, under pressure from local rightsholders, refused to adopt an American-style fair use policy. Indeed, local rights holders' opposition to fair use appears to have been the sole basis for Australia's rejection to embrace it. Foreign demands for stronger safeguards prompted Australia to explore adopting fair use in order to achieve balance, a motive that was stated clearly in studies advocating fair use implementation. Rights holders who were well-organized and reasonably influential were able to persuade the Australian government to disregard these recommendations.

[95] Bond, Catherine, Paramaguru, Abi, & Greenleaf, Graham. 2007. "Advance Australia Fair? The Copyright Reform Process". The Journal of World Intellectual Property, 10(3-4), 284–313.

[96] Michael, Gabriel J. " To Promote the Progress"? Explaining the Global Diffusion of Intellectual Property Law. Diss. The George Washington University, 2014.

[97] Hudson, Emily. 2013. "Implementing Fair Use in Copyright Law: Lessons from Australia. "Intellectual Property Journal, 25(3), 201–229.

[98] Hudson, Emily. 2013. "Implementing Fair Use in Copyright Law: Lessons from Australia." Intellectual Property Journal, 25(3), 201–229.

Australia would have joined the ranks of adopters above if these rights-holders had been less strong.

The United States has exerted substantial pressure on Canada's intellectual property policies, as it has on Australia's. In contrast to Australia, Canada already had a free trade agreement with the US (NAFTA), making US pressure less effective in enforcing legislative reform. Therefore, when Canada amended its copyright law in 2005, it was partly to update laws that had not been modified since 1997 to account for a new technological environment, but it was also in response to requests from the United States for better protection. Canada's Copyright Modernization Act, as famous Canadian copyright researcher Michael Geist put it, "might be defined as the Reduce US Pressure Copyright Act."[99] The modifications did, however, provide major benefits for users of copy-righted works, including legalizing time shifting and protecting user-generated content, as well as significantly increasing fair dealing. Because Canada's legislative wording still includes a comprehensive list of authorized reasons, we believe the country has not adopted American-style fair use. The existence of this list implies that there are some conceivable applications that do not come within the allowed goals of fair dealing; several Canadian rightsholders opposed the adoption of American-style fair use in terms of anticipated modifications to Canada's legislative language. The main criticisms of the American model were that it had the potential to generate uncertainty and, as a result, litigation in Canada, as well as disrupt existing collective licensing arrangements. Instead, rightsholders suggested that any amendments increase the list of specific exclusions and limitations as needed, which is exactly what the Copyright Modernization Act did.
Thus, significant rights-holder opposition appears to have played a key part in the legislature's decision not to include American-style fair use in Canada's new copyright law.

[99] Geist, Michael. 2011. "Why Canada's New Copyright Bill Remains Flawed". The Toronto Star 1st Oct.

Chapter V: Intellectual Property Rights: The Challenges faced by Developing Countries

Since the implementation of the Agreement on Trade-Related Aspects of Intellectual Property Rights, developed countries and business organizations have launched actions to take measures aimed at the enforcement of IPRs in developing countries. Despite the fact that many of these projects focus on counterfeiting and piracy, their scope is far broader and includes any sort of infringement. In this part, we'll look at how certain developing nations have attempted to strategically use stronger IPRs as a development tool. They may look into IPR policy, for example, as a way to attract capital and foster domestic innovation, with the potential to enhance development on both the extensive and intense dimensions. We'll also focus on the problems they could face in terms of IPR enforcement and administration, as well as the economic repercussions of strengthening IPRs. Since the 1970s, much has changed economically throughout the world, with a number of emerging countries becoming well-known in a number of crucial areas. Nonetheless, for the foreseeable future, many nations will continue to be consumers rather than creators, of vital products and technology. Increasing IPR might lead to increased import for such countries; in fact, it would be reasonable to say that there is a direct link between the types of intellectual property in use in a country and its economic growth, whether defined in terms of gross national product or per capita income distribution. Therefore, we will concentrate on the link between intellectual property rights and trade activity, with the assumption that more trade, particularly in the form of FDI, will help to enhance economic growth.

5.1: Enforcement and Administration of Intellectual Property Rights

The United States and the majority of European countries have a fairly well-defined IPR policy, as we have seen, which is implemented and protected by their laws. However, this is not the case for many of their international partners. Developing countries, in particular, frequently lack adequate IPR protection.

In developing nations, the activity used by some industry groups and governments to strengthen the enforcement of intellectual property rights (IPRs) is causing significant concern. While the primary justification for such action is to combat counterfeiting and piracy, wealthy countries want to go much beyond what is required to combat these

crimes and try to pursue a broader strategy.[100] If successful, this extension could shift the balance of power between title holders, rivals, consumers, and general public. It's crucial to remember that the economic and social consequences of IPR infringement and enforcement measures in developed and developing nations might be quite different. In the former, the costs of IPR enforcement may be offset by economic and other benefits, such as increased tax revenues. Increasing enforcement actions, on the other hand, may necessitate the use of already scarce resources in developing nations to protect what are essentially economic interests of multinational businesses. Furthermore, enforcement policies that do not appropriately consider public interests may deny access to IPR-protected products to a considerable percentage of the population in developing countries. Governments and industry in developed nations, as well as business groups and coalitions, are making significant attempts to persuade developing countries that wider and more efficient regulations are in their best interests.

Furthermore, proponents of stronger enforcement methods sometimes miss the fact that IPRs, as defined by the TRIPS Agreement, are not universally accepted by cultures with diverse social structures, cultural attitudes, and legal traditions. Let's recall that the TRIPS Agreement is the first international convention on intellectual property rights [101] to incorporate detailed enforcement norms.

The specific enforcement requirements included therein were largely based on submissions made by the European Commission and the United States administration during the Uruguay Round. Actually, there has been a prior attempt by the U.S, with the cooperation of the European Communities, to develop a set of anti-counterfeiting measures during the GATT Tokyo Round, but it received no support from other Contracting Parties. Developing nations, did not seek major modifications to the European and US draft texts throughout the talks since they were concerned mainly on the practical requirements contained in Part II of the Agreement,[102] focused on the standards concerning the "availability, scope and use of intellectual property rights." [103]

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[100] Correa, Carlos, and Carsten Fink. "The Global Debate on the Enforcement of Intellectual Property Rights and Developing Countries." Issue Paper 22 (2009).

[101] Bernard M. Hoekman and Michel M. Kostecki (2001), "The Political Economy of the World Trading System: The WTO and Beyond" Oxford: Oxford University Press, p. 282.

[102] UNCTAD-ICTSD (2005), "Resource Book on TRIPS and Development", New York: Cambridge University Press, p. 578.

[103] Act, Final. "Annex 1C: Agreement on trade-related aspects of intellectual property rights (TRIPS agreement)." Adopted on15 (1994).

It was in 1996 when industrialized countries were required to abide by the TRIPS Agreement's requirements. Only in January 2000, at the end of the general transitional period outlined in Article 65.2 of the Agreement, were provisions for developing nations and economies in transition made obligatory. However, soon following the implementation of the Agreement by the US and European Union, domestic and international enforcement rules proliferated. Both the United Nations and the European Union have promoted the enforcement and administration of Intellectual Property Law worldwide, or at least they tried. As a matter of fact, in the field of IP enforcement, several authorities in the United States have taken a variety of steps.

The National Intellectual Property Law Enforcement Coordination Council (NIPLECC) was established in 1999 by the Treasury/Postal Appropriations Act (Pub. L. 106-58), with the goal of coordinating "domestic and international intellectual property law enforcement among federal and foreign entities." [104] Most importantly, in addition to multiple measures made at the national level, several efforts were directed at foreign countries as well, such as technical aid. Furthermore, through unilateral measures, as well as bilateral and international channels, the US State Department has taken an active role in IP enforcement. It has collaborated with other US government agencies and WIPO to produce "focused technical assistance pilot plans for developing countries" such as a "technical assistance pilot plan to combat commerce in counterfeit and pirated goods and to enhance IP enforcement." [105] The main focus was on strengthening law enforcement and deploying State Department resources in other countries to urge foreign government officials and local communities to take action to combat piracy and counterfeiting.

The State Department is in its sixth year of formally financing IP criminal enforcement training and technical assistance programs in developing nations in order to further promote the rule of law and IP protection globally.

In the European setting, IP enforcement activism is also prevalent, and the EU's efforts haven't been limited to the internal market only. In fact, in 2014, the European Commission suggested a series of initiatives in a letter titled "Strategy for the

[104] Correa, Carlos, and Carsten Fink. "The Global Debate on the Enforcement of Intellectual Property Rights and Developing Countries." Issue Paper 22 (2009).

[105] NIPLECC (2008), op. cit., Appendices, p. 41. Official Website: https://www.hsdl.org/?view&did=35494

Enforcement of Intellectual Property Rights (IPRs) in Third Countries."[106] These actions include a provision to the Commission with a long-term plan of action with the goal of significantly lowering the level of IPR violations in third countries; Describe, prioritize, and coordinate the mechanisms available to the Commission's services in order to achieve their goals. Inform right-holders and other interested parties about the options and actions that are currently available and will be implemented. We can sum up the initiatives by expressing the strategy: "The Community, being a market that traditionally invests heavily in IP-protected goods and services and receives considerable added-value for this effort, is particularly affected by poor enforcement of IP, even when it takes place in third countries, and even if the pirated / counterfeit goods or services are not destined for the Community market." [107]

The point made by the strategy is clear and it specifically states that the plan does not attempt to impose unilateral answers to the problem — it is apparent that any recommended solutions will only be effective if the recipient country prioritizes and considers them significant. The Commission is willing to provide a hand in establishing such conditions. But the key element is the fact that the plan will not suggest a one-size-fits-all approach to IPR enforcement. It will be necessary to adopt a flexible strategy that considers various requirements, levels of development, WTO membership or non-membership, and the nations' primary IPR issues. Lastly, the Commission is ready and eager to demonstrate cooperation and build synergies with nations that share its concerns and are confronted with comparable issues.

It is critical, however, that this strategy focuses largely on positive and helpful activities. It is important to beefily mention that the Commission has made it clear that it intends to go beyond the TRIPS Agreement and implement EU enforcement measures in other countries. Revisiting the approach to the IPR sector in bilateral agreements, particularly the clarification and reinforcement of policies, is one of the "concrete behaviors" recommended at the bilateral/multilateral level. In line with this strategy, one of the most notable features of the EU's planned free trade agreements (FTAs) for developing countries is a considerable increase of IP enforcement duties above TRIPS criteria.

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[106]European Commission, "Strategy for the Enforcement of Intellectual Property Rights (IPR) in Third Countries", op. cit., p. 15.

[107] European Commission, "Strategy for the Enforcement of Intellectual Property Rights (IPR) in Third Countries", op. cit., p. 15.

Lastly, over the last ten years, developed countries have increased their collaboration in the area of enforcement. In addition to the above-mentioned US-EU Intellectual Property Working Group, the European Commission as well as Japan decided to begin an "EU-Japan Joint Strategy for IPR Enforcement in developing countries, specifically in Asia", at the 2003 EU–Japan Summit. Other affluent nations, such as the OECD and the Group of Eight, have also mirrored this activity (G8). Strengthening the international legal framework for the enforcement of IPRs is one of the G8's agenda goals, as indicated at its summits over the previous three years. The fundamental goal of the enforcement operation we analyzed is to modify the legislation and practices of developing country administrations and courts when it comes to IPRs. As previously stated, the improvements requested are not confined to activities pertaining to trademark counterfeiting and copyright infringement, which only serve as a vehicle for more comprehensive reforms in enforcement laws that apply to different infringement enforcement rules. Efforts to reach a broad enforcement and administration of IPRs in developing countries is still trying to be worked on till this day: important goals have been reached in the past but the road to harmonization is not easy to follow and requires time, which is currently being allocated to it.

5.2: Intellectual Property: Foreign Direct Investment and Trade

Traditionally, promoting FDI and R&D in particular, has been prominent on many countries' policy agendas, as inward R&D flows are thought to offer net advantages to the host country, according to the Organization for Economic Co-operation and Development (OECD). There has been a rising scholarly literature on the link between IPRs and FDI inflows in developing nations during the last two decades. The connection between IPRs and FDI choices is complicated from a theoretical standpoint.

Let's look at reasons. To begin with, greater IPRs can lead to ownership benefits; companies are more inclined to invest when host nations have strong IP protection, since this protection decreases the danger of copying and leads to a higher net demand for protected products[108]. As a result, IPRs have a beneficial impact on FDI volume by

[108] Primo Braga, C.A. and C. Fink (1998a) "Relationship between Intellectual Property Rights and Foreign Direct Investment". Duke Journal of Comparative & International Law 163(9): 163–88.

allowing foreign businesses to compete successfully with domestic enterprises.[109] Furthermore, stronger IPRs can result in location benefits; IPRs can impact not just the volume of FDI, but also where multinationals opt to base that investment.

Because IPRs are territorial in nature, they vary across national borders. Stronger IPRs in some developing nations can be a location advantage that benefits multinationals choices in this regard. On the other hand, emerging nations with inadequate intellectual property rights may be less appealing to international investors. However, it is fair to believe that in the framework of TRIPS, the tendency toward standardization of IPRs under TRIPS will counterbalance such geographic benefits; in this sense, nations with lower protection can become more appealing as their IPRs improve, whereas those with strong IPRs can lose their relative attractiveness.[110] Finally, greater intellectual property rights can help to improve the quality of foreign direct investment. The composition of FDI is influenced by IPRs. Stronger protection may attract FDI in high-tech industries, where such rights are crucial. Furthermore, it may cause FDI projects to change their concentration from sales to production.

Nevertheless, there are also arguments against greater intellectual property rights. Some economists suggest that strong IPRs have a detrimental impact on FDI because they provide rights holders more market power. As a result, strong IPRs force businesses to divest and limit their service to other nations, at least in theory.[111] The market power impact can lower the foreign firm's demand elasticity, causing it to invest—or manufacture—less of its patented product in the host nation, or items made by a patentable method in the market with stronger IPRs. Because IPRs decrease competition among companies, stronger IPRs may allow foreign firms to charge prices, making them higher; as a result, higher prices might compensate for lower investment or output. Strong IPRs can not only boost foreign businesses' market dominance, but they can also lead

[109] Smarzynska Javorcik, B. (2004) "The Composition of Foreign Direct Investment and Protection of Intellectual Property Rights: Evidence from Transition Economies". European Economic Review 48(1): 39–62.

[110] Maskus, K.E. (2004) "The Role of Intellectual Property Rights in Encouraging Foreign Direct Investment and Technology Transfer". In C. Fink and K.E. Maskus (eds) Intellectual Property and Development: Lessons from Recent Economic Research, pp. 41–74. New York: World Bank/Oxford University Press.

[111] Maskus, K.E. and M. Penubarti (1995) "How Trade-related Are Intellectual Property Rights?' Journal of International Economics 39(3–4): 227–48.

multinationals to change from overseas manufacturing to licensing as their preferred form of delivery.[112] When protection is insufficient, according to Ferrantino— lead economist in the World Bank's Trade and Competitiveness Global Practice—enterprises prefer FDI to licensing because internalized foreign production allows them to maintain direct control over their proprietary assets. Strengthening IPRs reduces the incentive for FDI in R&D-intensive industries at the margin in this situation.[113]

Considering trade, increasing and improving trade flows via liberalization is still a top objective for policymakers in many nations, primarily in the developed world. During the 1990s and 2000s, a significant corpus of academic research addressing the link between intellectual property rights and international commerce emerged. The connection between IPRs and commerce, however, remains unclear from a theoretical standpoint within this body of literature. Let's start by pointing out that, firms serving international markets benefit from stronger IPRs because they provide legal remedies in the event that their assets are violated. Stronger IPRs broaden the markets that companies service in this regard. Furthermore, strong IPRs can boost bilateral exchange to international markets by lowering the costs of avoiding knowledge asset loss. Foregone income as a result of lower bilateral exchange and/or efforts paid to make knowledge assets harder to duplicate are examples of such costs. Strengthening IPRs might thus have a favorable impact on trade while markets are expanding.[114] Moreover, harmonization of intellectual property rights regimes on a global scale can lower trade transaction costs.

On the other hand, strong IPRs increase ownership advantage, and this increased ownership has the potential to raise or limit bilateral exchange. Strong rights, according to the market power idea, limit bilateral exchange by securing a temporary monopoly over the protected information. The patent (grant) holder, whether local or foreign, is credited with this market dominance. Firms with strong patent protection in foreign markets can use their market dominance to limit volume and raise the unit price of

[112] Primo Braga, C.A. and C. Fink (1998a) 'Relationship between Intellectual Property Rights and Foreign Direct Investment'. Duke Journal of Comparative & International Law 163(9): 163–88.
[113] Primo Braga, C.A. and C. Fink (1997) "Economic Justification for the Grant of Intellectual Property Rights: Patterns of Convergence and Conflict". Chicago–Kent Law Review 439(72): 439–62.
[114] Maskus, K.E. and M. Penubarti (1995) "How Trade-related Are Intellectual Property Rights?" Journal of International Economics 39(3–4): 227–48.

bilateral trade to that market.[115] The behavior of businesses is influenced by numerous factors. When markets are segmented, few near substitutes are accessible, and technological absorption capacities are low (market power can be generated by relatively little IPR strength). Strong IPRs can promote market segmentation and decrease the ability to substitute products at the same time. As a result, under market power conditions, a negative connection between IPR strength and bilateral flows might arise, particularly if technical absorptive skills are inadequate.[116] Companies are likely to limit the number of protected items available and raise the price of those that remain. Lastly, in a strong-rights environment, a company may prefer to service a foreign market through FDI or licensing of its intellectual property rather than direct export. Strengthening intellectual property protection can have a detrimental impact on trade flows in this regard.[117] But, in terms of FDI and trade, what is the evidence from the standpoint of developing countries? Next, we'll look into it.

5.3: Evidence from The Perspective of Developing Countries

The majority of empirical research has looked at the impact of IPRs on FDI and trade from the perspective of industrialized nations; just a tiny portion of the research has looked at the implications of these rights from the perspective of developing countries. Empirical data is provided by surveys of foreign investors in industrial countries or econometric studies assessing the impact of various IPR regimes on a cross-section of countries. We'll look into whether rising FDI from rich countries has had an influence on economic growth, as well as if IPRs have an impact on outward FDI from developing countries. Through foreign direct investment, intellectual property rights appear to have a favorable influence on economic development. New evidence on the foreign direct investment impact on industrial growth is presented by Branstetter et al. (2007). They used "firm-level panel data on US multinational enterprises to examine how they adjusted to a series of intellectual property changes made in 16 countries across Asia, Europe,

[115] Fink, C. and C.A. Primo Braga (2004) "How Stronger Protection of Intellectual Property Rights Affects International Trade Flows". In C. Fink and E. Mansfield (eds) "Intellectual Property and Development: Lessons from Recent Economic Research", pp. 19–40. New York: World Bank/Oxford University Press.

[116] Smith, P.J. (2001) "How Do Foreign Patent Rights Affect US Exports, Affiliate Sales and Licenses?" Journal of International Economics 55(2): 411–39.

[117] Hassan, Emmanuel, Ohid Yaqub, and Stephanie Diepeveen. "Intellectual property and developing countries: a review of the literature". RAND, 2010.

Latin America, and the Middle East".[118] Their research revealed that after nations enacted IPR changes, US multinationals increased the extent of their operations in those countries. Multinationals that made extensive use of IPRs had a disproportionately greater growth in input utilization in host nations. More significantly, with the restoration of labor rights, industrial activity increased overall.

This increase in multinational activity outweighed any decrease in indigenous enterprises' imitation activities. Moreover, in the case of external FDI from developing nations, some authors found that strengthening patent rights had a large and favorable impact on outward FDI from developing and least developed countries, implying that the latter could benefit from IPR harmonization.[119] Therefore, stronger IPRs, according to empirical research, have a beneficial impact on the volume of inward FDI in developing nations, particularly those with significant technological absorption capabilities. They may also have an impact on the mix of FDI by encouraging investment in manufacturing and research and development rather than sales and distribution. Furthermore, the empirical data implies that worldwide harmonization of IPR laws may assist developing nations. IPRs that are strong, encourage foreign FDI and contribute to industrial development. Additionally, international harmonization may have a positive impact on emerging and least developed nations' external FDI.

Over the last two decades, the empirical research on the implications of IPRs on commerce has expanded. Econometric research and, to a lesser extent, case studies provide the empirical evidence. The empirical research has looked at whether increasing imports from developed countries have an impact on economic development, as well as if IPR harmonization has had an impact on their export behavior. Even within these categories, however, empirical data from the perspective of developing nations is lacking, particularly when it comes to the impact of imported goods from rich countries on economic development. The implications of IPRs on exports from newly industrialized and emerging nations have been studied in a limited but expanding empirical literature.

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[118] Park, W. and D. Lippoldt (2008-01-25), "Technology Transfer and the Economic Implications of the Strengthening of Intellectual Property Rights in Developing Countries", OECD Trade Policy Papers, No. 62, OECD Publishing, Paris.

[119] Park, Walter G. and Lippoldt, Douglas (2003), "The Impact of Trade-Related Intellectual Property Rights on Trade and Foreign Direct Investment in Developing Countries", OECD Papers: Special Issue on Trade Policy, Vol. 4, No. 11, Issue 294.

Researchers Liu and Lin conducted a pooled data analysis from 1989 to 2000 to look at the link between IPRs and Taiwanese exports of high-tech industries.[120] Improvements in IPRs had a favorable influence on Taiwan's exports if the importing country had a greater R&D capability than Taiwan, according to their empirical findings.
Furthermore, the authors discovered that when an importing country's IPRs were improved, Taiwan's exports increased due to the market expansion impact.

Moving on, economists Park and Lippoldt examined also the effects of IPRs on exports from a large number of developing and least developed nations in a more extensive econometric research. Patent rights, according to their findings, have a minor impact on overall exports of emerging and least developed countries. Pharmaceuticals and computer and office equipment, on the other hand, were two areas in which exports in emerging nations were considerably affected. Patent rights have a detrimental and considerable impact on exports in the least developed nations.
To sum up our findings, there is empirical evidence that IPRs can have a positive impact on trade, at least with nations that have strong technological absorption capacities. Stronger IPRs, on the other hand, have varied consequences in various industries.
Lastly, international harmonization of IPR regimes may boost exports from emerging industrialized nations. However, further research into the implications of stronger IPRs on trade in high-tech, medium-tech, and low-tech industries is required. Varied forms of IPRs (for example, patents and copyright) are likely to have different effects on different industries.

5.4: Economic Implications of Strengthening IPRs in Developing Countries

So far, we've all perfectly comprehended that intellectual property rights (IPRs) are a set of laws and norms that safeguard the economic worth of inventions and creative creations from copycats. IPRs can help drive and reward creative and inventive activities, but they can also limit the dissemination of technological innovations and establish market power, which can result in higher consumer pricing. There are frequently substantial disparities in IPR regimes between nations, and there is a major disparity between the strength of IPRs in industrialized countries—commonly referred to as “the

[120] Liu, W.-H. and Y.-C. Lin (2005) “Foreign Patent Rights and High-tech Exports: Evidence from Taiwan”. Applied Economics 37(13): 1543–55.

North"—and developing countries, often referred to as "the South" in the literature. These disparities in IPRs can have a big impact on international economic activity: they can influence a company's propensity to transfer technology and make direct investments across borders, as well as international trade flows.[121] There have been initiatives to bridge the North-South divide by increasing IPRs in the South, such as the Uruguay Round's WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). However, the economic costs and rewards of these efforts may be unfairly allocated between the North and the South.

Since TRIPS was signed the advantages and costs of increasing IPRs in developing countries have become a significant study subject among academics in the field of international economics. As a matter of fact, researchers Lai and Qiu developed a theoretical model of trade between the North and the South in a 2003 article titled "The North's Intellectual Property Rights Standard for the South." These authors calculate the impact of an international agreement to align countries' IPR standards on economic welfare.[122] Assuming that the North has a larger demand for new products and a better capability for invention, their model predicts that before an international agreement is reached, the North will pick stronger IPRs than the South. The international agreement improves the South's IPRs in comparison to the North's pre-agreement level, which boosts global wellbeing. The North, on the other hand, reaps the advantages at the expense of the South. Producers benefit from greater earnings in the North, but consumer prices stay virtually constant, resulting in net welfare benefits. Consumer prices in the South, however, are rising, resulting in net welfare consequences. According to Lai and Qiu, developing countries would be hesitant to enhance its IPRs unless they were compensated. They propose that the North give more market access as compensation because the South has a comparative advantage in items that are not patent-intensive. In addition, Lai and Qiu construct a multi-sector negotiation in which the two countries barter over the strength of IPRs in the South and tariff levels in the North. The South's IPRs are strengthened, while the North's tariff rates are reduced. Higher negotiating leverage in the South results in a better overall outcome, while deeper trade liberalization

[121] Maxwell, Alexi, and David Riker. "The Economic Implications of Strengthening Intellectual Property Rights in Developing Countries." J. Int'l Com. & Econ. 6 (2014): 75.
[122] Lai, E. and L. Qiu. "The North's Intellectual Property Rights Standard for the South?" Journal of International Economics 59, no. 1 (2003): 183-209.

in the North results in a better overall outcome. While a single-issue agreement would not benefit both sides in their model, a multi-issue agreement benefits both the North and the South economically.

A second meaningful study has been conducted by Chen and Puttitnun; in their 2005 paper "Intellectual Property Rights and Invention in Developing Countries"[123] Chen and Puttitnun look at how a developing country's potential for innovation influences the IPR system it adopts. The international IPR regime and foreign innovation are treated as exogenous in their theoretical model, which predicts how a country's government will pick its amount of IPR protection to maximize domestic social surplus.
There are two sectors in the model: an import sector and a local sector. In the import sector, there is a foreign business with patented technology that enables it to create higher-quality items, and a local firm that can replicate that technology to the extent that IPR protection allows. In the local market, there are two companies: one that develops technology and the other that just copies it. Increased IPR protection makes copying in both industries more difficult. Higher IPRs in the import sector suggest that the foreign firm will face less price competition, leading in higher prices and a decrease in consumer surplus. Higher IPRs, on the other hand, mean more incentives for innovation in the local industry. As a result, there is a tradeoff between the benefits a nation may receive through imitation and the gains it can gain from local innovation. According to Chen and Puttitanun's concept, very poor nations will give high IPR protection in order to get access to foreign technology: Advanced nations will offer high protection to benefit their own innovators, whereas middle-income countries will provide relatively modest protection to encourage local replication of these foreign technology.

A third important study takes a more in-depth look at the situation. In fact, Branstetter and Saggi's 2011 work "Intellectual Property Rights, Foreign Direct Investment, and Industrial Development" is one of the most important additions to this theoretical field. They create a North-South model of the factors that influence innovation, imitation, and foreign direct investment. They utilize the model to look at how strengthening IPRs in developing nations affects their growth, capacity to attract FDI, and where multinational

[123] Chen, Y. and T. Puttitanun. "Intellectual Property Rights and Innovation in Developing Countries." Journal of Development Economics 78 (2005): 474-493.

manufacturing takes place. Northern businesses, Northern multinationals, and Southern imitators are the three categories of firms in the model. The cost of imitation rises as IPRs are strengthened in the South, decreasing the risk of imitation and therefore boosting the incentive for FDI. However, as the South becomes a more appealing destination for investment, it increases demand for labor and real wages in the region (while stimulating creativity in the North by relocating international production to the South, which provides extra labor in the North for research). A rise in Northern enterprises' R&D productivity reduces imitation in the South, boosts innovation in the North, boosts FDI in the South, and raises the proportion of production and sales controlled by multinational corporations.[124] In terms of production location, Branstetter and Saggi come to the conclusion that increasing IPRs in the South boosts FDI and, as a result, the percentage of Southern production undertaken by multinationals. However, because copying is reduced, the profit required to lure a Northern company into becoming a multinational through FDI is lower, lowering the value of a typical multinational firm's foreign affiliate sales relative to Northern exporter sales.

Whereas the literature continues to grow with the improvement of existing data sources, the majority of the questions remain unanswered, and more research is needed. Several fundamental themes, however, have been confirmed by the researcher's studies. To begin with, increasing IPRs in developing countries appears to have minimal impact on R&D spending and innovation rates in developed countries. However, it appears to have a considerable beneficial impact on the ratio of foreign technology transfer from North to South. Furthermore, while increasing IPRs in the South has a mixed impact on international commerce from the North to the South, it has a large positive impact on FDI in the developing country. Improved IPRs can minimize technological piracy and, as a result, establish a market for innovative items exported. Strong IPRs, on the other hand, might stimulate local manufacturing via FDI, displacing North-to-South commerce in certain items. Finally, greater IPRs can help developing nations attract FDI and knowledge transfer, as well as boost labor demand and, in some cases, innovation.

[124] Park, W. and D. Lippoldt (2008-01-25), "Technology Transfer and the Economic Implications of the Strengthening of Intellectual Property Rights in Developing Countries", OECD Trade Policy Papers, No. 62, OECD Publishing, Paris. http://dx.doi.org/10.1787/244764462745

Chapter VI: Intellectual Property Rights: The Resilience in the Era of COVID-19

The current pandemic is heavily depending on economies across the globe. Authorities have made restrictions that limit movement and constrain economic activity in an attempt to stop the virus from spreading. Economic activity has been drastically reduced as a result of prevention strategies and behavioral changes. Non-financial companies in the pandemic-affected industries have suffered losses and capital reduction. Firms have lowered pay or laid off workers, which has impacted household income and net value. Simultaneously, the rapid and comprehensive governmental reaction, along with the availability of COVID-19 vaccinations, has decreased the probability of the worst-case outcomes. This chapter analyzes these pandemic consequences, and it highlights intellectual property rights' issues that occur while developing new medications, vaccines, and general technologies to tackle COVID-19's dangers. We shall concentrate on two aspects: the chapter compares two elements of the pandemic: technological transfer and health-commodities distribution, as well as the necessity of collaborative efforts aimed at preventing the growing objectification of health-care goods.

6.1 Economic and Financial Incentives to Exit the Crisis

Many nations have redesigned their existing budgets, established risk responses, and adopted additional expenditures in reaction to the COVID-19 pandemic. Several nations have established special COVID-19 funds to support mobilize resources and speed emergency expenditure (EBFs). As a matter of fact, over 40 countries have created funds to help them in their efforts to address the COVID-19 problem. The funds were designed due to various factors, including the need to manage the issue at a higher level. Other reasons include streamline or bypass some of the processes that usually go along the procurement and budgeting phases of a project. These steps can help speed up the response to the crisis and improve financial transparency. EBFs, however, are often considered undesirable because they can splinter a government's budget process and limit its ability to impose top-down fiscal discipline. Furthermore, if not correctly protected, the creation of EBFs without effective safeguards can cause discrepancies in public management and cause systemic corruption; this is the main reason why the International

Monetary Fund has long warned against the growth of such funds.[125] On the other hand, the WHO's extensive assessment reveals the wide range of tactics nations have used to combat the COVID-19 pandemic using EBFs; even though it is quite early to draw a conclusion, the potential advantages of establishing these funds exceed the benefits of using existing ones; in response to the COVID-19 crisis, governments have started to seek ways to allow funds to be allocated and distributed more quickly. These measures include the use of a streamlined procurement process. Various problems, such as insufficient capacity and poor governance, make the budget system susceptible. Given the fact that COVID-19 covers a wide range of activities in sectors like as health, education, and security, it demands a stronger and more exhaustive coordinating effort. According to a recent WHO survey, there are many different methods to COVID-19 funding, all having some similar aspects. The majority of these projects combine private donations with public funds. While the majority of reserves are not allocated within the budget, a few have used on-budget strategies. Most retailers operate outside of standard Public Financial Management (PFM) channels, using segregated cash management, financial administration, and announcement systems. Every fund has a stated purpose to gather money, and many of them help to coordinate adaptation strategies to the pandemic. Some also carry out COVID-19-related initiatives, such as repayments and other interactions.
Therefore, as briefly explained, governments responded to the economic crisis caused by the COVID-19 outbreak by enacting a variety of policies to aid the economy, such as the use of EBFs. But in order to give a more extensive overview, we will focus on various fiscal and monetary policies that have been adopted: a virtuous circle has formed between banks, sovereigns, and corporations as a result of these policies. To create a balanced exit plan, it's critical to understand the impact of COVID-related development strategies on bank balance sheets. Exit strategy must be clearly articulated and promptly in order for banks to offer strategies and modify their financial statements in a timely way.
The objective is to prevent a sudden and unexpected shock from damaging the economy. In response, multiple interventions were launched.

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[125] Allen, R., and D. Radev. 2006. “Managing and Controlling Extrabudgetary Funds.” IMF Working Paper No. 06/286, International Monetary Fund, Washington, DC.

When it comes to monetary policy, the Eurosystem initiated a $1.850 billion emergency purchase program for government and non-governmental assets, in January 2021. The program, which is separated into two phases, is mostly made up of securities from the public and private sectors. The European Central Bank (ECB) improved its long-term renegotiating operations—with financing conditional on banks growing credit to firms—by increasing the amount of liquidity infused, extending the period during which significantly better terms would apply, and simplifying the collateral structure. Moreover, the ECB elected to maintain key interest rates at low levels. The policy steps were designed to help economy stay afloat throughout the situation and re-establish access to capital for businesses and families by easing bank lending restrictions. The European Central Bank decided in December 2020 to extend the period of these measures to about June 2022, according to the market conditions. In terms of fiscal policy initiatives, they consist of both bilateral and multilateral actions aimed at assisting the broader economy along with certain types of businesses or sectors in surviving the COVID-19 impact. The spectrum of aid programs available at the national level has been extensive. Certain policies rewarded companies for the cost-cutting policy they had to adopts, such as the shutdowns of companies or the reduction of economic output. State subsidies to businesses were designed to reimburse businesses for certain fixed expenditures such as rent or mortgage interest. Smaller businesses, the self-employed, and those with substantial inefficiencies were frequently targeted. Aid was occasionally given in the form of tax breaks or deferrals, as well as payment benefits for hard-hit industries. Based on statistics accessible dated September 2020 on the European Systematic Risk Board, the total government aid packages connected to the outbreak in Europe equal to roughly 14% of GDP. As we'll see later, the estimated utilization of these programs was over €700 billion (about 4% of GDP), with far more than €400 billion in aid backed by state guarantees. It is quite important to keep in mind that fiscal policies differed greatly in aim, scale, and circumstances between nations. This variability is due to a number of factors. The crisis had an uneven impact, with some countries being hit worse and/or sooner than others. In response to the complex circumstances, the European Union (EU) state assistance regulations were changed to allow participating countries to directly and indirectly assist their economies through specific interventions. In March 2020, EU members approved a temporary € 750 billion recovery fund to go along with a strengthened EU budget for the years 2021-2027.

The European Commission has agreed to strengthen and improve the interim framework, which is a vital step toward balancing the insufficient budgets of member states. Further money is available to member states who need to deploy significant resources to assist short-term work initiatives and job-protection measures. The European Investment Bank Group has also pledged to provide exceptional financial assistance to businesses, with a commitment to deploy up to €200 billion to support largely small and medium-sized firms using a variety of programs.

At the moment, controls for prudential and supervisory purposes are in place. The most recent COVID-related regulatory initiatives include banking authorities' decisions to provide technical assistance to banks, such as the use of risk-based capital reserves, as well as the relaxation of loan category limitations and total loan coverage mechanisms (ECB, 2021)[126]. A lot of international organizations' involvement and collaboration are required to develop an effective departure plan. When considering exit options, restoring bank balance sheet transparency should be a top priority. As a result, before considering other options, the first and most important step should be to phase down loan assistance schemes such as moratoria. This appears to be important in order to develop effective detection criteria, accelerate Non-Performing Loans (NPL) detection, and encourage sufficient credit losses provisioning. The implementation of consistent loan standards is a crucial second step. This would lessen the risk of loan maldistribution, which is expected to increase if major borrower assistance programs are maintained for an extended period of time. It should also be important to correctly analyze bankers' credit quality, necessary for banks to determine the amount of money at risk and, as a result, the capital buffer required to resist default risk and credit losses. Because obscure balance sheets make it difficult for creditors to price institution riskiness and enforce liquidity management, boosting bank openness could allow corporations to enter financial system after the exceptional fiscal policy instrument is lifted. Moreover, gradualism is required while dismantling support measures, since particular businesses or industries may require long-term assistance depending on the pandemic's progress. Any extra or long-term support must be carefully planned to avoid deadweight loss on the side of companies and banks.

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[126] European Central Bank, “Indicative Calendars For The Eurosystem’s Regular Tender Operations And Reserve Maintenance Periods In 2021” Official Website: https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.pr200610_1~caa2fc0a02.en.html

Italy—just like many other countries—is trying to restart its economic and industrial system following the COVID-19 pandemic. Cassa Depositi e Prestiti S.p.A. has been given permission to build up strong funds granted by the Ministry of Economy and Finance. The "Relaunch Fund"[127] is being used to help enterprises with a corporate headquarters in Italy which do not engage in the banking or finance activities and with yearly revenue of more than 50 million euros. Cassa Depositi e Prestiti S.p.A. "will be capable of using the funds to invest in convertible bonds and capital expansions, as well as acquire shares registered on the secondary market in the case of strategic deals." [128]
The state will instantly intervene as if the fund seems incapable to satisfy its responsibilities. Moreover, this decree, along with many more, gives the Ministry of Department of Finance the authority to engage into the required negotiations with the European Investment Bank (EIB) in order for Italy to join the Pan-European Guarantee Fund. Therefore, the county has implemented some significant changes, but there is still a long way to go in terms of reestablishing the economy, which can only be accomplished by working together on a European level.

To sum up, the Pandemic's huge macroeconomic shock is putting the global financial system's stability and governments' ability to respond to these difficult times in jeopardy. Their reaction revealed both the advantages and disadvantages of the current policy structure. We are currently experiencing developments that will have an impact on the financial sector in the next years. In the upcoming months, our society will encounter challenges and big structural changes will keep occurring in the years to come. Leaders and intermediaries all across the world will be forced to make difficult decisions with far-reaching consequences. Current policies are being implemented more often, but new threats are emerging, therefore, policymakers will have to increasingly rely on research and debate platforms. Finally, regardless of the exit plan, this must be conveyed clearly and rapidly. It would give banks enough time and room to maneuver and market players would have time to respond appropriately.

[127]KPMG, ITALY: "Tax Developments in response to COCID-19", Official Website: https://home.kpmg/xx/en/home/insights/2020/04/italy-tax-developments-in-response-to-covid-19.html

[128] KPMG, ITALY: "Tax Developments in response to COCID-19", Official Website: https://home.kpmg/xx/en/home/insights/2020/04/italy-tax-developments-in-response-to-covid-19.html

6.2 Patent Box Regime to Promote Investment in Research & Development in Italy

In 2015, Italy introduced its first Patent Box system, a unique tax advantage that allows revenue earned from the direct use or licensing of intellectual property assets by enterprises and commercial organizations engaged in research and development activities to be taxed at a lower rate. The initiative is recent to Italy, nevertheless it follows a European pattern of evaluating attractive tax policies to encourage investment and move IP assets. A Patent Box system has previously been created in a few European nations but, unlike the majority of them, the Italian Patent Box offers a broader range of unique benefits tailored particularly to the Italian market. Now, the question of what a patent box actually is arises naturally: the Patent Box is a taxation framework for company income derived from the use of copyright material, manufactured patents, designs and models, as well as methods, formulas, and information related to judicially protected creative activity. The Patent Box was formed by Law No. 190 of December 2014, however it was recently modified and converted to Law No. 96 of June 2017, after which the Ministerial Decree was published in the Official Gazette. How does the system operate, though? This is a valid question that we ask ourselves: "The patent box system exempts 50% of revenue derived from the commercialization or direct use of qualifying IPs from both corporate income tax (IRES) and regional tax on productive activities (IRAP). Furthermore, capital gains on qualified IP sales are tax-free if at least 90% of the revenues are spent on R&D activities in the next two tax years for the development, maintenance, and enhancement of other qualifying IPs".[129]

The tax relief mainly comprises a percentage of revenue derived from the use of intellectual property being excluded from the taxable base—corporate tax (IRES, with an average incidence of 25.7 percent) as well as regional tax (IRAP, with an average level of 3.9 percent). In 2015, the amount of income excluded was set at 30%, rising to 40% in 2016 and 50% in 2017. The Italian IP Box policy is based on OECD concepts, specifically Action 5 – Final Report on "Countering Harmful Tax Practices More Effectively, Taking Account of Transparency and Substance" [130] demanding an

[129] Susanna Scapigliati, Morri Rossetti E Associati, "The Patent Box And The Recent Development Under The Italian Tax Rules 7/08/2019"

[130] Cipollini, G. "How the Italian patent box regime works." Tax notes international (2016): 321-323. Offical Website: https://www.withersworldwide.com/en-gb/insight/how-the-italian-patent-box-regime-works

impactful interchange of data among Tax Departments as well as the involvement of considerable activity where the taxpayer performed the central revenue operations. All economic revenue derived from either the direct exploitation or licensing of IP assets, as well as those who engaged in Research and Development projects to improve their IP assets are eligible for the tax deduction. The recipients are most likely corporations, business entities and foreign persons' workplace on Italian country. Foreign investors with an Italian subsidiary can apply for the system if they are based in a country that presents a double tax treaty in place and has created an efficient sharing of information with Italy; in fact, if they are registered in a county with which Italy has a mutual tax treaty allowing an efficient flow of information, Italian branches of non-resident businesses are allowed to use the Patent Box method. According to the Decree, only businesses with an economic right to use the IP and engage in R&D activities are eligible for the regime. Moreover, the regime forbids companies experiencing financial distress, liquidation or crises in general. Besides that, the recommendations, namely the "nexus approach"[131] rule, specify that all incentive beneficiaries must be true holders of firm profits earned from IPs and face the development expenses associated with the particular IP assets. According to the "nexus ratio", the earnings qualifying for the deduction are computed by multiplying the corresponding IP income. The nexus ratio is the product obtained by dividing qualified R&D costs by total R&D expenses. "The entire company's direct and indirect R&D costs for maintaining, developing, or upgrading the relevant IP asset are considered qualifying expenses. Overall expenses are defined as the sum of all qualifying expenses plus the cost of producing or purchasing the appropriate IP asset"[132]. As initially intended, the Italian patent box regime offers several processes for claiming and calculating tax relief according to the source of income, such as royalties, profits derived from the direct use of IP assets in the course of business, or capital gains deriving from the transfer of IP rights. In the first case, the estimate percentage of the tax advantage is immediately assessed by the recipient within the income tax return once the IP rights are transfers to an external party. On the other hand, if the IP rights are licensed out

[131] Cipollini, G. "How the Italian patent box regime works." Tax notes international (2016): 321-323. Offical Website: https://www.withersworldwide.com/en-gb/insight/how-the-italian-patent-box-regime-works

[132] Cipollini, G. "How the Italian patent box regime works." Tax notes international (2016): 321-323. Offical Website: https://www.withersworldwide.com/en-gb/insight/how-the-italian-patent-box-regime-works

to group enterprises, the taxpayer has the option of self-liquidating the income tax return or asking the Italian Tax Authority for an administrative judgment on the qualifying revenue.

Now considering the second option, in the case of profits the appropriate IP revenue must be determined through the Italian Tax Authority via the necessary mechanisms ruled by the government. Finally, regarding the gains on the rights transfer of intellectual property, the decree stated by the Ministry specifically explains that profits arising from the handover of the ownership on property rights are discharged from taxation if at least 90% of the earning is appropriately invested again during the second fiscal year in order to restore the advancement of other assets part of the Patent Box regime. Nevertheless, the Italian Tax Agency declared that the provision in question is not 100 percent and should be denied using the standard rate for the Patent Box system, making it difficult to properly comprehend the provision (Circolare dell'Agenzia delle Entrate' no. 11/E and dated April 7, 2016) due to this unsure phrasing. Additionally, if a net profit emerges through an intercompany transaction, the qualifying income can be defined by requesting a unilateral decision from the Italian Tax Office rather than making an independent decision on the income.

In each country, the goal of patent boxes is to stimulate research and development as well as to encourage firms to locate intellectual property in the nation. Even though it might look easy and immediate, patent boxes can contribute to the complexity of a tax regime, therefore some researchers are questioning their efficiency in stimulating innovation.

As a matter of fact, given the numerous methods accessible to corporations for transferring income linked with intangible assets, several economic experts have raised concern about its usefulness. The argument is that incentivizing businesses to patent purely for the purpose of receiving a tax break is counterproductive, especially in this context, in which we might already have an excess of licensed patent, as some of those intellectual property claims would be declared invalid if contested in court. [133]

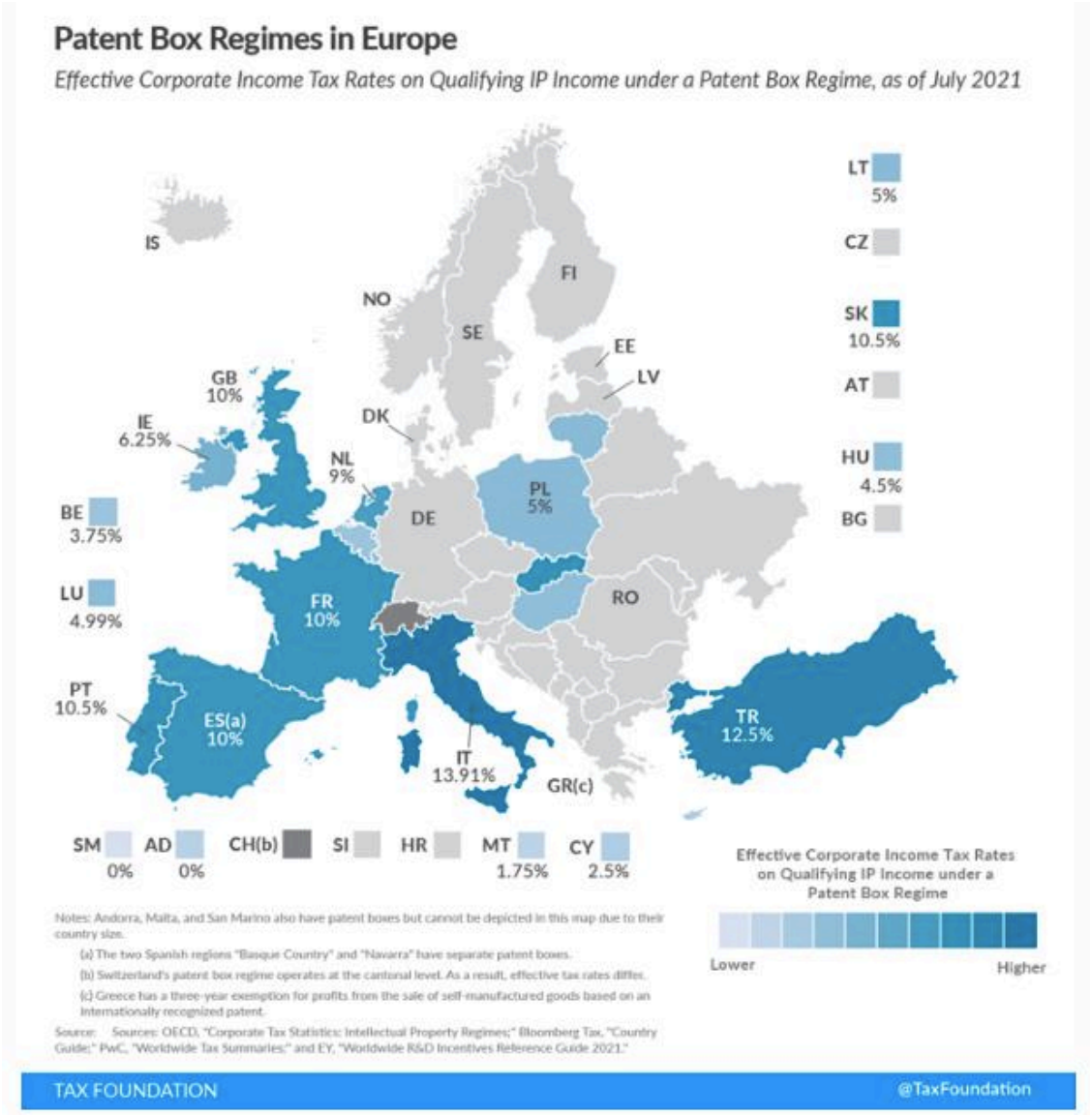
For this main reason, we introduced the "nexus" requirement before; there are concerns that patent boxes may promote an unproductive tax competitiveness among nations without a corresponding boost in inventive activity. Therefore, the OECD Base

[133] Gaessler, Fabian, Bronwyn H. Hall, and Dietmar Harhoff. "Should there be lower taxes on patent income?." Research Policy 50.1 (2021): 104129.

Erosion and Profit Shifting (BEPS) programme suggested that patents could be eligible if they meet the local development requirement. BEPS calls such a condition a "nexus" requirement, which implies that it must have a substantial economic operation in the country. This means that the revenue related with the invention must undergo continuous development in the country in order to qualify for a lower tax rate.

Multiple states have adopted the system—fourteen to be specific—and Italy presents the most reduced tax rate, which is positive for the overall businesses performance and willingness to invest in R&D. By looking at the figure below, we may get a sense of the general perspective:

Figure 2: "Patent Box Regimes in Europe" [134]



[134] Elke, Asen. "Patent Box Regimes in Europe." (2019), Tax Foundation: Official Website: https://taxfoundation.org/patent-box-regimes-europe-2021/

Table 2: “Patent Box Regimes in Europe, as of July 2021”, with a specific focus on Italy.

	Qualifying IP Assets			Tax Rate Under Patent Box Regime	Statutory Corporate Income Tax Rate
	Patents	Software	Other (a)		
Italy	x	x		13.91%	27.81%

As we can see from this table provided by the Organization for Economic Co-operation and Development (OECD.Stat), “Italy has a federal corporate income tax (IRES) of 24 percent and a regional production tax (IRAP) of 3.9 percent; thus, taking into account deductibility, a combined statutory rate of 27.81 percent. Italy’s patent box regime reduces both tax rates by 50 percent, leading to a tax rate of 13.91 percent on IP income.”[135]

The legal definition of intellectual property comprises a wide variety of resources. Unlike the majority of European Patent Box systems, which are primarily focused on patents, the Italian Government extends the advantage to further IPRs categories. The system takes into account Research and Development projects, which often include traditional activities, but it also covers investment, such as design planning and implementation, preventative measures and research; altogether, it has a wide range of applications. The Italian Patent Box system aims to stimulate the migration of IP investments made overseas, promote security protocols for made-in-Italy intellectual rights, and enable the business to use optimal tax and IP planning practices. The regime's scope covers a wide range of IP rights, which makes it unique respect to previous European patent box systems. Although certain adjustments stemming from the regime's actual functioning are still pending, the Italian tax department is confident in its performance.

Generally speaking, “the Italian Patent Box tax”[136] reduction aimed at attracting inward expenditures, might provide an excellent chance for Italian firms and international subsidiaries to expand, improve as well as retain their IP assets in Italy.

[135]Elke, Asen. "Patent Box Regimes in Europe." (2019), Tax Foundation: https://taxfoundation.org/patent-box-regimes-europe-2021/

[136] Cipollini, G. "How the Italian patent box regime works." Tax notes international (2016): 321-323. Offical Website: https://www.withersworldwide.com/en-gb/insight/how-the-italian-patent-box-regime-works

As discussed, in recent years the Italian policy has recognized the possibility to offer appropriate encouragement to companies to invest in research and development.

Tax benefits available for revenue earned from the internal and external use of qualified intellectual property is not the only way the state is trying to incentivize businesses.

As a matter of fact, expenses for personnel employed and engaged in R&D activities might as well be subject to tax exclusions from the IRAP taxable base in Italy. Even though the benefits of this nature are usually of lower value, they need to be acknowledged and taken into account. This means that employee costs associated with R&D operations may be subtracted from being charged on the regional tax. The IRAP tax rate is normally 3.9 percent to 5 percent, and it is determined[137] "on the taxpayer's net production value (NPV)". The quantity deductible is set by law. Starting from 2005, the reward has indeed been offered. The sum that can be deducted is restricted to the workers' actual R&D expenditures; labor charges for personnel employed on a proper contract are entirely deducted from the IRAP taxable basis. The offer is valid for both present investments and the ones projected.

The benefit is gained by a straightforward tax deduction from the IRAP taxable base, which taxpayers can claim on their yearly IRAP tax return. The timeframe for filing the "Modello IRAP"[138], as stated by the law is going to be the end of the 11th month following the end of the fiscal year under which the tax refund is being filed.

The IRA is the governing body responsible for verifying and granting such tax deductions. It has the authority to conduct any evaluations considered necessary to ensure that the yearly final account has been prepared and submitted appropriately.

The topics that might be examined could include determining and calculating if the benefit in issue was estimated appropriately. Precise paperwork must be provided to substantiate the eligible costs and activities, and it must be verified by the taxpayer's committee of directors, the taxpayer's auditing firm, or an independent advisory.

We can conclude by saying that Italy has provided an attractive tax environment for local and international investors interested in supporting creative and innovative

[137] Worldwide R&D Incentives Reference Guide 2021, EY | Building a better working world. 2021 EYGM Limited. All Rights Reserved. EYG no. 005219-21Gbl ED None: Official Website: https://www.ey.com/en_gl/tax-guides/worldwide-r-and-d-incentives-reference-guide

[138] Worldwide R&D Incentives Reference Guide 2021, EY | Building a better working world. 2021 EYGM Limited. All Rights Reserved. EYG no. 005219-21Gbl ED None: Official Website: https://www.ey.com/en_gl/tax-guides/worldwide-r-and-d-incentives-reference-guide

concepts, as well as incentivizing business owners to pursue the scope of Research and Development by granting a special treatment financially talking, which is very needed especially during these difficult times; most nations restarted and extended R&D compensation initiatives as they created strategies to revive their economy in the aftermath of COVID-19. As countries compete to maintain economic growth in their jurisdictions, these programmes have garnered considerable attention. Furthermore, these measures allow authorities to link development to more objectives including sustainable responsibility and general equity.

6.3 Intellectual Property Response to The Pandemic

For obvious reasons, COVID-19 made it vital to have access to intellectual property, particularly in public health and education. Regardless of the fact that they contain separate sectors of IPR such as patent and copyright, both of these areas have a complex IPR structure. The role of Intellectual Property Rights during the current outbreak has gotten a lot of attention, as we all may have noticed.[139] The argument over the last few years has been about how we can and should use open initiatives and current public interest mechanisms to make IPR more accessible. To do so, we must consider access restrictions from a larger context. As a result, we can observe how the IPR roadblocks that have emerged as a result of the present pandemic are a reflection of larger barriers that existed prior to the crisis. Open Innovation has been debated for a long time and is regularly proposed as a solution to overcome IPR limitations. Various appeals for free mobility and government involvement in the domain of IPR access were made during the pandemic.[140] Open movements expands current frameworks in the context of intellectual property rights by allowing access to materials that would otherwise be prohibited.

In the case of inventions, open access (OA) and copyright law have a close link. On the other hand, regarding patent law, open innovation (OI) is growing more prominent. The

[139] Walsh, Karen, et al. "Intellectual Property Rights and Access in Crisis." IIC-International Review of Intellectual Property and Competition Law 52.4 (2021): 379-416.
''COVID- 19 Special Issue'' (2020) 42(9) EIPR; Contreras et al. (2020a); Gurry (2020).

[140] Director General, World Intellectual Property Organization, "Joint Letter to Dr Francis Gurry" (2020) Official Website: https://www.communia-association.org/wp-content/uploads/2020/04/200403-Joint-Letter-to-Dr-Francis-Gurry.pdf

term “open innovation” has been coined to describe “the use of purposive inflows and outflows of knowledge to accelerate internal innovation and expand the markets for external use of innovation respectively.”[141] While these measures may help to remove IPR-related barriers to access, there is a risk they may create competition issues and boosting the power of existing market players with large patent portfolios, putting the general public at a disadvantage in the long run.

Several IPR doctrines, many of which are based on TRIPS Agreement[142] flexibilities, have been developed to provide access in the traditional public interest. In public health emergencies, some strategies can be employed to overcome access barriers. When analyzing the link between IPR and access in the “public interest”[143], we believe that neither open movements nor pre-existing legal conceptions give appropriate or effective remedies to the access barriers we observed.

Despite the fact that open movements that map onto IPR frameworks have achieved significant success, movements that solely target IPR accessibility limitations are insufficient. As a result, we must consider alternative approaches to this problem; we will now consider other options for removing these impediments. Intellectual property is inextricably linked to the reaction to COVID-19: the research of vaccinations, therapies, and other kinds of medical supplies have become an essential element of public health preparation and response to an emergency that had and still has an impact in our societies, in which this infectious disease is able to travel faster and farther than previously[144]. IPR rules have an impact on the development of needed technologies as well as where these products are distributed. COVID-19 has highlighted the flaws in the entrenched dependence on intellectual property as a route for the creation and distribution of medical innovations needed to solve the issues posed by pandemics and epidemics. Moreover, COVID-19 has given fresh breath to opposing attempts to investigate legal and regulatory tools that might perhaps mitigate some of the issues created by the nature of intellectual property mechanisms and the flaws connected with them. Intellectual property has been

[141] Van Overwalle (2015), p. 212, citing Chesbrough (2003).

[142] WTO, ‘‘Intellectual Property and the public interest’’. Official Website: https://www.wto.org/english/tratop_e/trips_e/trips_and_public_interest_e.htm

[143] Walsh, Karen, et al. "Intellectual Property Rights and Access in Crisis." IIC-International Review of Intellectual Property and Competition Law 52.4 (2021): 379-416.

[144] MILKEN INST., “COVID-19 Treatment and Vaccine Tracker”, infra note XX, (listing over 200 COVID-19 vaccine projects and over 300 COVID-19 treatment projects as of Aug. 25, 2020).

one of the driving forces behind the commercialization of commodities best regarded as public health goods, such as vaccines, pharmaceuticals, and ventilator components. In fact, when it comes to inventions and research during a crisis, IPRs are crucial because they analyze the motivating function of patent law and policy, which can be strongly focused on medical R&D investment from a market perspective. Intellectual property's role as a driver is widely discussed these days[145]: patent rights, for example, are viewed as investment accelerators in historically hazardous and time-consuming eras[146]. However, research and experience have long demonstrated that this model fails to account for current dynamics in knowledge production across a wide range of fields. Many of the products required for pandemic planning and response have a poor track record when the research and production of health commodities is mostly based on intellectual resources. Some of these goods may be underdeveloped before a worldwide crisis happens[147], as intellectual property incentives may stifle Research and Development. Understanding the public health value of an item can be challenging and when the expected return-on-investment is considered not very appealing economically speaking[148], this occurs. Vaccines, which address these issues, demonstrate how commercial incentives (including intellectual property) are misaligned with public health aims.

While the field of vaccines as a whole has a strong patenting culture[149], the prospect of being awarded a patent is considered of modest value in terms of stimulating investment before an outbreak[150].

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[145] Stephen M. Maurer, "Intellectual Property Incentives: Economics and Policy Implications", in Oxford handbook of intellectual property law (rochelle dreyfuss & justine pila, eds.) (2018).
Adrian Towse, "A Review of IP and Non-IP Incentives for R&D for Diseases of Poverty. What Type of Innovation is Required and How Can We Incentivise the Private Sector to Deliver It?", Final Report for the WHO Commission on Intellectual Property Rights, Innovation and Public Health (2005).

[146] Henry G. Grabowski et al., "The Roles of Patents and Research and Development Incentives in Biopharmaceutical Innovation", HEALTH AFF. (2015).

[147] Ana Santos Rutschman, "IP Preparedness of Outbreak Diseases", 65 UCLA L. REV. 1200 (2018)

[148] Rutschman, "The Intellectual Property of Vaccines: Takeaways from Recent Infectious Disease Outbreaks", 118 MICH. L. REV. ONLINE 170 (2020);

[149] Ana Santos Rutschman, "The Vaccine Race in the 21st Century", 61 ARIZ. L. REV. 729 (2019).

[150] Ana Santos Rutschman, "IP Preparedness of Outbreak Diseases", 65 UCLA L. REV. 1200 (2018)

Despite the tremendous goodwill and financial commitment to faster R&D, many attempts to develop these solutions were still conducted in isolation. While a pandemic or other health emergency may temporarily remove some of the financing limitations that existed before the outbreak, the dynamics of R&D do not change fundamentally. It does not, for example, eliminate the fragmented structure of R&D processes that result in the creation of commodities required to address a global problem. As a result, there is duplication, lack of collaboration and cooperation, along with an unfair Research and Development allocation. Let's look at two alternative scenarios involving IPRs, in which we have a collaborative behavior and a non-collaborative attitude.

In the midst of a pandemic, R&D continues to depend on private innovation approaches rather than collaborations. While lack of teamwork isn't exclusively linked to the rise "of an intellectual property-based R&D culture"[151], it reflects a widespread acceptance of vaccines, therapies, and other public health services as commodities. This exploitation includes more than just Research and Development. Intellectual property may play an important role in the response to a pandemic and COVID-19 demonstrated the potentially constraining implications of a mindset that places excessively weight on IPRs dynamics in the face of a major health crisis. Consider the scenario below. Brescia, Italian number one city severely hit by the COVID-19 outbreak, quickly ran out of the valves designed to support patients to ventilators. When the hospital was unable to get replacement valves from the original developer, it resorted to local engineers, who were able to fix the valves and produce a 3D-printable prototype despite the original manufacturer's refusal to release the digital data including the printing instructions[152].

Thanks to a partnership with local 3D printer owners, the engineers were able to produce 100 valves in a single day. Unfortunately, the partners refused to share the files containing the valve printing guidelines with other companies, citing concerns about property rights liability.[153] This case illustrates how a tangle of intellectual property rights in an ambiguous legal area can obstruct the use of life-saving medical equipment during a

[151] Rutschman, Ana Santos. "The Intellectual Property of COVID-19." (2021), 7

[152] Anas Essop, "Hospital in Italy Turns to 3D Printing to Save Lives of Coronavirus Patients", 3D PRINTING INDUSTRY (Mar. 18, 2020).
Official Website: https://3dprintingindustry.com/news/hospital-in-italy-turns-to-3d-printing-to-save-lives-of-coronavirus-patients-169136/

[153] Rutschman, Ana Santos. "The Intellectual Property of COVID-19." (2021), Official Website: https://scholarship.law.slu.edu/cgi/viewcontent.cgi?article=1537&context=faculty

pandemic. During the process of delivering valves to an overcrowded hospital, many intellectual property breaches are possible, if not likely. These breaches include the creation and "use of the digital file and the printing of the valves."[154] More breaches would very certainly have occurred if the experts had shared the knowledge, which included instructions for 3D manufacturing the valves. There is presently no formal system in place to require the handover of intellectual property in the case of a public health emergency. Likewise, other areas of the legal system such as necessity or self-defense, are not addressed in intellectual property theory or law either. Although such challenges are currently unresolved, the COVID-19 pandemic has inspired the establishment and execution of a number of projects targeted at alleviating some of the adverse consequences of "our patent-centric R&D culture".[155]

As we've seen, the reaction to COVID-19 was hampered mostly by a silo attitude, but there is a positive outcome: the current outbreak has sparked a flurry of proposals targeted at enhancing Research and Development as well as distribution cooperation. To overcome inefficiencies induced by intellectual property, some of these cooperation agreements employs intellectual property tactics[156] while others suggest that instead of depending entirely on nationalist strategies to propagate medical innovations produced during the pandemic, global mechanisms for funding and distributing health commodities should be established. I will now provide few examples to explain this aspect.

In March 2020, Costa Rica's government suggested the creation of a patent pool that would cover a wide spectrum of medical innovations to the World Health Organization: This pool will need to include current and emerging rights in a variety of IPRs, including patent discoveries, pharmaceuticals, and vaccinations. It will need to contain either a voluntary assignment to which every member country should have unlimited access or the possibility of obtaining a license under fair terms.[157] "An agreement between two or more patent owners to license one or more of their ideas to each other or to third parties

[154] Ana Santos Rutschman, "IP Preparedness of Outbreak Diseases", 65 UCLA L. REV. 1200 (2018)

[155] Rutschman, Ana Santos. "The Intellectual Property of COVID-19." (2021), 10

[156] Rutschman, Ana Santos. "The Intellectual Property of COVID-19." (2021), 12

[157] Carlos Alvarado, Presidente De La República, Quesada Daniel Salas Peraza, Ministro de Salud, "Letter from Costa Rica to the World Health Organization", Knowledge Ecology Int l (Mar. 23, 2020), Official Website: https://www.keionline.org/wp-content/uploads/President-MoH-Costa-Rica-Dr-Tedros-WHO24March2020.pdf

patent pools relating health technology"[158] is the definition given by WIPO concerning patent pools. This isn't a brand-new figure on the global stage. One of the greatest examples is the Medications Patent Pool, which was founded by Unitaid in 2010 to negotiate voluntary licensing for medications essential in low-resource countries. Costa Rica's proposal was inspired in part by concerns that health technology created during the pandemic would be out of reach for the poor.[159] In late May 2020, the COVID-19 Technology Access Pool (C-TAP) was launched[160]. C-TAP has a variety of objectives, for example, through the exchange of genome sequence studies and clinical and medical trial data[161], it seeks to enhance and improve the public release of information important to COVID-19 R&D. It also pushes for clauses in agreements requiring efficient allocation of COVID-19 medicines, vaccines, and other new therapies. Las but not least, it promotes "open innovation and knowledge transfer in order to boost local manufacturing and supply capability."[162] Patent pools are often meant to decrease the risk and costs involved with patent partnerships[163], although they do have disadvantages. Because pool participation is optional, the number of people who participate, as well as their diversity and quantity, are typically limited[164]. C-TAP now has thirty nations and

[158] World Intellectual Property Organization, "Patent Pools And Antitrust A Comparative Analysis" (2014), Official Website: https://www.wipo.int/export/sites/www/ip-competition/en/studies/patent_pools_report.pdf
Rutschman, Ana Santos. "The Intellectual Property of COVID-19." (2021), Official Website: https://scholarship.law.slu.edu/cgi/viewcontent.cgi?article=1537&context=faculty
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Michael J. Madison et al., Constructing Commons in the Cultural Environment, 95 Cornell L. Rev. 657, 660-661, 681-687, 700-706 (2010);
[159] UNITAID, "The Medicines Patent Pool", Official Website: https://unitaid.org/project/medicines-patent-pool/#en (last accessed Aug. 28, 2020).
[160]WHO., "COVID-19 Technology Access Pool", Official Website, https://www.who.int/emergencies/diseases/novel-coronavirus-2019/global-research-on-novel-coronavirus-2019-ncov/covid-19-technology-access-pool
[161] Rutschman, Ana Santos. "The Intellectual Property of COVID-19." (2021), Official Website: https://scholarship.law.slu.edu/cgi/viewcontent.cgi?article=1537&context=faculty
[162] WHO., WHO "Director-General's opening remarks at the media briefing on COVID-19" - 29 May 2020 Official Website: https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the- media-briefing-on-covid-19---29-may-2020
[163] Rutschman, Ana Santos. "The Intellectual Property of COVID-19." (2021), Official Website: https://scholarship.law.slu.edu/cgi/viewcontent.cgi?article=1537&context=faculty
[164] Jorge L. Contreras, "Patent Pledges", 47 ARIZ. ST. L.J. 543 (2015).

international organizations as members[165]; while the figures are promising, they also highlight some of the patent pools' weaknesses. Despite some of the most powerful players in pharmaceutical research and development department being hesitant to contribute to the pool, C-TAP is part of a broader plan by the World Health Organization and other international public health institutions to remove R&D berries and speed up the development and deployment of new drugs. The organization has also been in charge of implementing the "COVID-19 Tools Accelerator", known as the perfect worldwide collaboration which has as main goal to speed up the creation and manufacture of critical health items.[166] All of these efforts, particularly C' TAP's worldwide approach, emphasize the importance of developing transactional intellectual property regimes that aren't constrained by totally private approaches. They are attempting to reconcile the nature of public health emergencies and scientific collaborations on one side and highly fragmented R&D methods based on protected intellectual property rights on health services on the other.

Another example of cooperation that has been established over the fight of the virus is the creation of the COVID-19 Vaccine Global Access Facility (COVAX), with the aim to support the development of new vaccines while also ensuring that they are distributed fairly across the world[167]. COVAX is a risk-sharing mechanism that is part of a larger strategy, the ACT (Access to COVID-19 Tools) Accelerator's Vaccinations Pillar and is managed by one of its three specific sectors[168]. Any country that wants to be a part of COVAX must agree to buy a certain amount of vaccine and make a financial commitment up front[169]. COVID-19 vaccinations are then purchased by COVAX at a fairly negotiated

[165] UN, COVID-19: "Countries Support One-Stop Shop to Share Science and Research", Official Website: https://news.un.org/en/story/2020/05/1065132 (last accessed Aug. 29, 2020).
[166] WHO, "The Access to COVID-19 Tools (ACT) Accelerator" (Apr. 24, 2020), Official Website: https://www.who.int/initiatives/act-accelerator
[167] Gavi, "Covax, "The Vaccines Pillar Of The Access to COVID-19 Tools Act-Accelerator", 9 November 2020 – Updated 17 March 2021, Official Website: https://www.gavi.org/sites/default/files/covid/covax/COVAX_the-Vaccines-Pillar-of-the-Access-to-COVID-19-Tools-ACT-Accelerator.pdf
[168] WHO, "The Access to COVID-19 Tools (ACT) Accelerator" (Apr. 24, 2020), Official Website: https://www.who.int/initiatives/act-accelerator
[169] Gavi, "Covax, "The Vaccines Pillar Of The Access to COVID-19 Tools Act-Accelerator", 9 November 2020 – Updated 17 March 2021, Official Website: https://www.gavi.org/sites/default/files/covid/covax/COVAX_the-Vaccines-Pillar-of-the-Access-to-COVID-19-Tools-ACT-Accelerator.pdf

price [170] and distributed to member countries as soon as they become available. Most importantly, COVAX highlights the necessity of complementing methods to strengthen intellectual property incentives while avoiding privatized or nationalistic approaches to pharmaceutical research, which is particularly essential during pandemic crises.

COVID-19 has offered a strategy for minimizing some of the fragmented nationalistic responses, as well as underlining the necessity for legal and legislative adjustments in advance of future crises. Efforts such as patent pools take a lot of time and money to complete. Moving forward, the world community should focus its efforts on enhancing some of these techniques, with the objective of transforming the above-mentioned efforts, such as COVAX or pandemic patent pools, into permanent and established institutions.[171] These advancements are required both to save time, which is of vital importance when the next pandemic strikes, but also to increase equity awareness.

[170] Rutschman, Ana Santos. "The COVID-19 vaccine race: Intellectual property, collaboration (s), nationalism and misinformation." Wash. UJL & Pol'y 64 (2021): 167.

[171] Rutschman, Ana Santos. "The Intellectual Property of COVID-19." (2021), Official Website: https://scholarship.law.slu.edu/cgi/viewcontent.cgi?article=1537&context=faculty

Conclusion

After reading this dissertation, it should be clear how important the role of intellectual property rights is. First of all, let's recall IP's tight relationship with innovation; although both innovation and intellectual property are distinct ideas, they are connected. In fact, IP is frequently created as a result of innovation, while IPRs can assist in obtaining the funding needed to develop and sell new ideas.

This research highlights, throughout each chapter, that IPRs are a critical component of economic growth. When we consider the microeconomic level, intellectual property protection gives inventors time to recoup their energy and cost spent bringing a new product or service in the market, while on the other hand intellectual property fosters economic activity and financial growth at the macroeconomic level by enhancing local innovation and foreign direct investment. In addition, the intellectual property system provides a framework for emerging nations to engage in activities promoted by developed economies. Furthermore, a properly executed IP regime might stimulate foreign direct investment.

The empirical research conducted verifies the theoretical literature's complexity; development and general welfare are dependent on a variety of circumstances. There has been a substantial debate over whether there is actually a link between IPR protection and innovation concerning development in low-income nations. This critical topic makes us question if poor/emerging countries should embrace IPR protection as a form of enrichment or if rich countries should offer additional incentives to offset the negative impacts of higher IPR protection on developing nations. The answer to this issue can be found in the policymakers' effort to adapt to the global diffusion of intellectual property by implementing these rights and giving the chance to their enterprises to grow and succeed. Nowadays marketplace is extremely competitive and, in order for a firm to survive in it, being innovative is fundamental.

Governments in both developed and developing countries are concerned about protecting intellectual property and this trend indicates a growing emphasis on Research & Development activities, as well as the need to commit to multilateral treaties.

Moreover, authorities recognize that greater intellectual property rights are important for innovation and economic progress, as we said, in order to bridge the gap between the "North" and the "South".

Another important area of policy-making that has been considered in this study is the necessity to support initiatives that aim at simplifying the application process and minimize financial costs for small and medium sized enterprises as well as encouraging businesses to make better use of the IP complex system and raise information and knowledge.

Evidence suggests that a greater understanding of IPRs influences individual businesses' actions in developed countries by motivating them to export and invest in developing countries, particularly those with significant technological capabilities.

When it come to the diffusion of policies among different countries, states have mostly coordinated and harmonized their legislation safeguarding intangible products across the world. Significant harmonization of intellectual property laws is best viewed as a kind of policy diffusion, in which governments do not establish such laws specifically to address domestic policy issues. An additional argument in favor of policy's dissemination is the fact that governments establish intellectual property laws frequently using similar or even exact same wording to other countries' legislation. Considering fair use, another interesting aspect here analyzed by providing case studies, countries with a common law heritage tend to be more prone to examine fair use in the first place, even if they do not eventually embrace it.

In recent years, governments have become more aware of the need of investing in research and development, and they have begun to provide suitable incentives to businesses to do so, for example the Paten Box system, which encourages both investment and the transfer of intellectual property assets. These incentives have also been further implemented during these tough times signed by the COVID-19 pandemic. During the difficult circumstances brought on by the COVID-19 epidemic, these incentives have been more widely used. If this scenario has taught us anything, it is the necessity of international organizations' participation and coordination in developing an efficient exit strategy.

Developing a successful exit plan involves both judgment and cooperation across many national and international entities. The pandemic highlights conflicts by emphasizing fragmented R&D and the adoption of nationalistic approaches to the distribution of new medical technology. COVID-19 has proposed a set of actions that could help to reverse some of these isolating trends while also reinforcing the need for legal and legislative changes. Therefore, countries are becoming more aware of the close relationship between

intellectual property rights and health-care equipment, as well as the need of cooperating to solve critical problems.

Intellectual property, while not as well-studied by academic subject as finance, commerce or banking, is a broad topic with a lot of potential for benefiting society as a whole by providing progress and development. In the next years, intellectual property will almost certainly grow even more in fields such politics and economics, being relevant and taken into consideration in multiple disciplines. I hope that by offering this analysis focusing on intellectual property rights, I have contributed to the diffusion of this important topic a little bit.

Abbreviations and Acronyms

- ACT: Access to COVID-19 Tools
- AUSFTA: Australia-United States Free Trade Agreement
- C-TAP: COVID-19 Technology Access Pool
- COSME: Competitiveness of Enterprises and Small And Medium-Sized Enterprises
- COVAX: COVID-19 Vaccine Global Access Facility
- ECB: European Central Bank
- EPO: European Patent Office
- EU: European Union
- EUIPO: The European Union Intellectual Property Office
- FDI: Foreign Direct Investment
- FTA: Free Trade Agreement
- GATT: General Agreement on Tariff and Trade
- GDP: Gross Domestic Product
- GI: Geographical Indicator
- GINs: Global Innovation Networks
- GVCs: Global Value Chains
- ICC: International Chamber of Commerce
- ICT: Information and Communication Technologies
- IPOs: Intellectual Property Offices
- IPRED: Intellectual Property Rights Enforcement Directive
- IPRs: Intellectual Property Rights
- IRAP: Imposta Regionale sulle Attività Produttive
- IRES: Imposta del Reddito sulle Società
- NAFTA: North American Free Trade Agreement
- NIPLECC: National Intellectual Property Law Enforcement Coordination Council
- NPL: Non-Performing Loan
- NPV: Net Production Value
- OA: Open Access
- OECD: Organisation For Economic Co-Operation and Development
- OI: Open Innovation
- PDO: Protected Designation of Origin

- PGI: Protected Geographical Indication
- PMF: Public Financial Management
- R&D: Research and Development
- SBA: Small Business Act
- SMEs: Small and Mid-Size Enterprise
- TCE: Traditional Cultural Expression
- TK: Traditional Knowledge
- TRIPS: Trade-Related Intellectual Property Agreements
- UPC: Unified Patent Court
- WHO: World Health Organization
- WIPO: World Intellectual Property Organization

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