PATENTS PPLICATIONS COMPARISONS BETWEEN THE USA AND EU

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ABSTRACT
The United States Patents and Trademarks organization (USPTO) and the European Patents Union (EPO) are two notable regulating bodies that show a great deal of heterogeneity in their patent systems (Adams, 2016). The differences between the two bodies are largely attributed to legal frameworks and policies that govern similar industries in the two regions. Overall, there are notable statistical differences in the number of patent applications in the United States and the European Union. This paper aims at discussing the statistical results of patent applications comparison between the USA and the European Union.

KEYWORDS: *European Patent Application, US Patent Application, EU and US Patent Application Comparison, Patent Statistics, Patent Filing*

1. INTRODUCTION

For most part of the last century, Europe and the United States have been clear leaders in developing products, technologies, systems, and entire industries that create high-value jobs to economies around the world. In that period, intellectual property rights (IPRs), especially trademarks and patents, have become important assets that not only announce new scientific and technological developments to the market but also provide protection (Aldieri, 2012). Patents provide the inventor exclusive holder rights to control and benefit from the patented discovery. Because of the importance of patents and trademarks in economic growth, various countries have developed regulators that focus on providing technical and legal framework beneficial in managing IPRs regionally and worldwide. The United States Patents and Trademarks organization (USPTO) and the European Patents Union (EPO) are two notable regulating bodies that show a great deal of heterogeneity in their patent systems (Adams, 2016).

2. PATENTING SYSTEMS, THE EUROPEAN PATENT OFFICE AND UNITED STATES PATENT OFFICE

The differences between the United States Patents and Trademarks organization (USPTO) and the European Patents Union (EPO) are largely attributed to legal frameworks and policies that govern similar industries in the two regions. Overall, there are notable statistical differences in the number of patent applications in the United States and the European Union. This paper aims at discussing the statistical results of patent applications comparison between the US and the European Union.
Regardless of the backdrop in economic growth worldwide, the last five years have seen exponential growth in global intellectual property filing activity in the United States, Europe, and Asia. By the year 2018, for instance, global patent activity reached 12.39 million worldwide, representing a 26.8%

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growth from the year 2016 (WIPO, 2018). It is important to indicate that most of this worldwide growth was attributed to China as the main driver in filings for the last few years (Metzger, 2018). Trademark filing activity in China has grown by 55.2% in the last five years, claiming a high share of global patents and trademarks filings. Furthermore, Kim and Lee (2015) recognize the internationalization of patent systems, which is reflected by an increased number of non-resident filings throughout the world. The non-resident filings share has increased from 43.6% in the year 2006 to 51.2% in the year 2018, with the USPTO governing the largest percentage (USPTO, 2018). In that regard, growth metrics in the last five years are attributed to the internationalization and standardization of patent governance models between bodies such as the USPTO and EPO. Despite the ongoing collaborations between different patent governing bodies, there are still ongoing discussions on the differences in timeliness, cost, legal frameworks, and many other factors that determine the quality of patents and patenting processes. Legal policies, regulations, and procedures determine the quality and number of granted patents.

The USPTO and EPO are two collaborating bodies that have different patent search and legal examination framework. The EPO has a relatively compact examination process with limited or no opportunity for amendments (Figure 1). Fraga et al., (2016) indicate that upon final rejection of a filed patent, EPO does not give an opportunity to request for further examination (Fraga et al., 2016). As a result, the number of successful patents in Europe is significantly lower than those granted in the United States or China. The USPTO, on the other hand, is different from EPO as search and examination processes continue indefinitely until an amicable patent is granted (Ghosh, 2016).

Additionally, EPO's search process has three examiners that work through databases and search engines to find comprehensive information on prior patent interventions before deciding on awarding patents to individuals or companies. Conversely, the USTPO has one examiner who conducts and updates the search and examination operations throughout the patenting process. These procedural differences indicate that EPO's initial search results carry more value that USTPO's search results.

From the hierarchical representation in Figure 1, it is evident that filing amendments are more constrained at the EPO. As a result, a patent may be amended after receiving search results, but once the examination process begins, further amendments are denied (Cotter, 2013).

As mentioned earlier, the USTPO is less constrained and allows amendments to be literally made throughout the entire process. As a result of these bureaucratic challenges and barriers, the EPO has a fewer number of patent applications in comparison to the USTPO. However, Chung (2016) argues that the reason Europe has fewer successful applications is that "the majority of non-granted applications in the EPO are withdrawn, not refused." Of all non-granted applications between the years 2002 and 2018, USTPO has withdrawn 81%, refused 6%, and 13% are with pending statuses. EPO, on the other hand, has had 49% of its non-granted applications refused rather than withdrawn or on pending status (Fraga et al., 2016) Therefore, the EPO allows individuals and companies to put their best foot forward from the beginning while the USTPO allows ongoing negotiations before final publication. By doing so, Europe ends up with fewer granted patents than the United States.

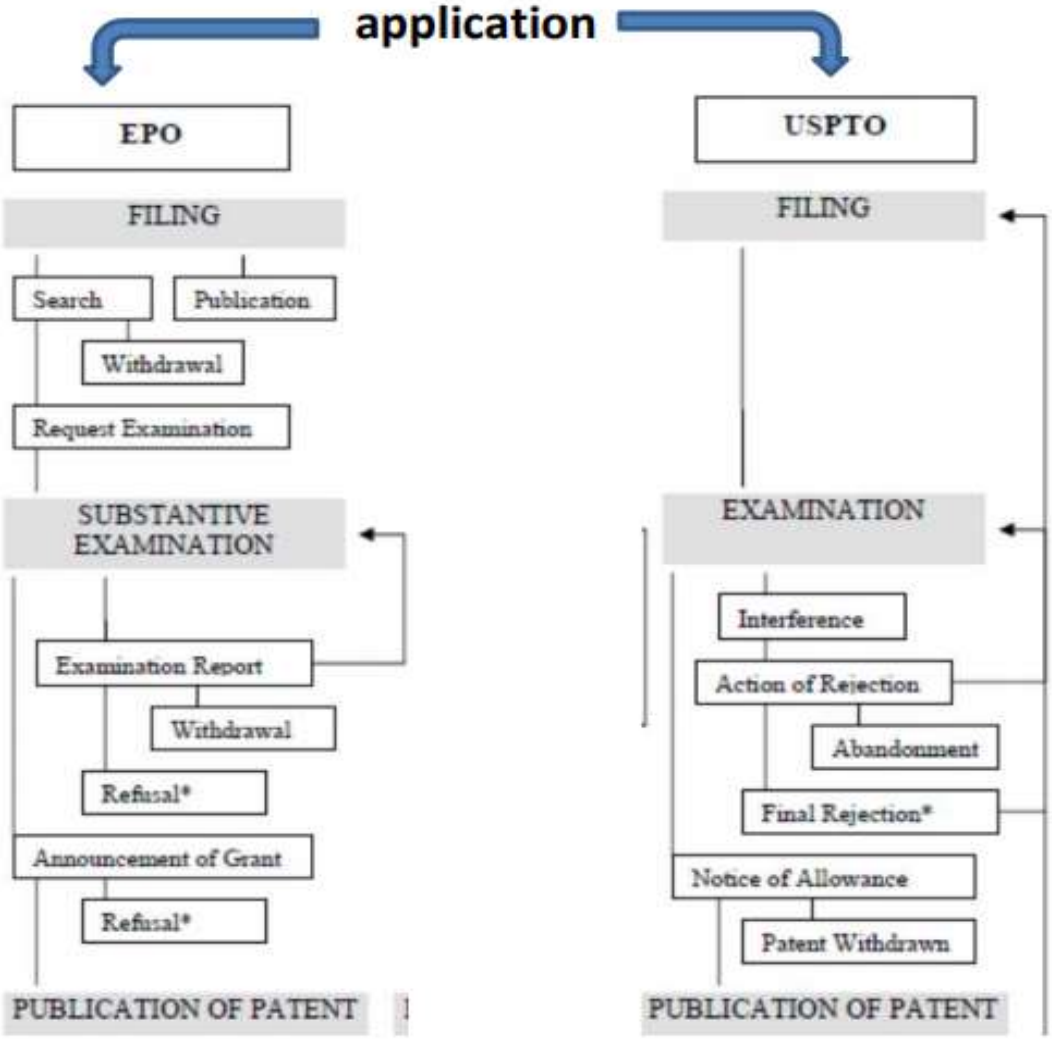

Figure 1. EPO and USPTO application filing process
*Source***:** adapted from the USPTO

The cost of filing also plays a huge role in the difference between granted patents in the United States and Europe. Currently, European and American companies are depending on R&D to compensate the shrinking budgets and increased business competition across the globe (Schlee, 2017). USPTO and EPO costs of the application are differentiated based on the mode of filing, the number of pages of the claims, the number of claims, type of the applicant, and category of the claim. In the United States, regardless of the type of patent, an applicant is required to pay three categories of fees: filing, search, and examination. Filing fees are costs related to the processing of the patent application and depends on specific factors such as patent type and mode of application. Filing fees under the USPTO cost between $50 and $700. Search fees are the fees related to searching existing patent applications similar to the new application. They cost between $40 and $660. Examination fees are those associated with reviewing of the patent application and range between $150 and $760. In that regard, the USPTO application fee is at least $2,120.
Chung (2016) indicates that the EPO has a significantly lower number of granted patents because of the cost of application. It is estimated that the EPO patenting process costs roughly twice as much as USTPO's (figure 2). According to Winks (2018), European patent application costs are prohibitively higher because, before the year 1978, applicants had to apply as individuals in each nation. After the

formation of the EPO through the European Patent Convention in 1978, the entire application process was unified. As opposed to the USPTO, the EPO has a filing, search, and claims fees that are adjusted every two years and must exclusively be paid in euros. The average filing fee is 210 Euros, the average search fee is 1300 Euros, and the average claims fee is 235 Euros. Depending on various factors, the total cost until the grant is approximated to rise to at least 5,000 Euros, which is approximately $5,600.

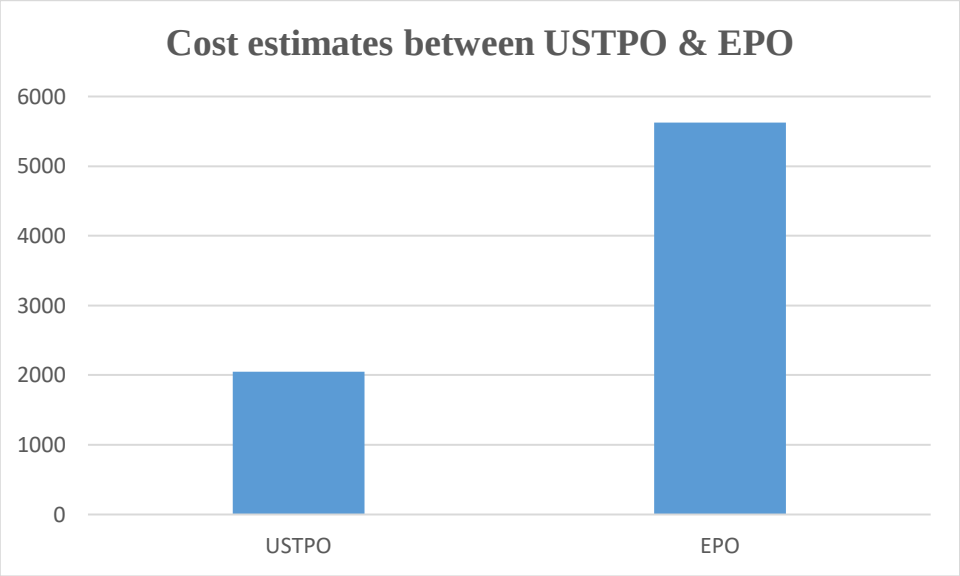

Figure 2. Cost Estimates USPTO and EPO
Source: USTPO

In both USPTO and EPO, the cost of patenting is largely affected by similar factors. The type of applicant or size of the business has a significant impact on the cost of a patent as larger firms pay more money in comparison to individuals or smaller businesses. The invention of technology also plays a crucial role in determining the cost of a patent. For instance, patents with more technology behind it are more expensive in comparison to those that do not rely on much technology. Market opportunities for the invention also play a crucial role in determining the cost of the patent. In a strong market such as pharmaceutical or telecommunication, inventors spend more money to get the best protection for their inventions. Most importantly, the geographical jurisdiction of the patent plays a huge role in patent application costs. Winks (2018) argue that EPO patents are more expensive than EPO because Europe has jurisdiction in 38 countries in comparison to USPTO's jurisdiction in the U.S. alone. Currently, the cost of obtaining a patent in Europe depends on the geographical scope, complexity of the application, and the duration. For instance, obtaining a patent across more countries is more expensive compared to a limited geographical scope. The protected rights and length of existence contribute to the total cost. For instance, the costs of patenting rise significantly with the complexity of inventions.

Patent cost= (*Application Filling Fee+ designation Fee+ Transfer Fee+ Search Report+ Request for Examination+ Granting and issuing fee+ Additional Costs Per Country*)

It is imperative to indicate that less complex applications can be filed in less than ten hours. However, more complex applications incur more costs. Besides, examination fees and attorney fees can vary with the complexity of the patent. Winks (2018) reveals that obtaining a national patent costs at least 5,000 € until patent grant 100.000 € and beyond for Patent families and a further 1,000 €for every designated country in Europe. As mentioned earlier, obtaining a patent in the United States is relatively cheaper compared to Europe.

Quality of granted patents is an essential indicator in comparing EU and US patent applications. According to WIPO (2018), patent statistics in technology, cost of patenting, opposition and invalidation, processing procedures for patents, international fillings through the Patent Corporation, and use of utility models as alternatives to patents are important indicators in analyzing trends in patent activity. The WIPO (2018) statistics database reveals that the United States and Japan owned a majority of patents in force as at 2006- 1.2 million and 1.6 million patents respectively. As of 2012, patents in force in the United States rose to 2.1 million. Analyses by country of origin show that France, Switzerland, and the Netherlands rank higher in terms of patents in force. On the other hand, Utility models protect minor inventions, and although they are provided through a similar system, they are assigned to inventors for a specific time. A review of the utility model grants by the patent office by 2006 reveals that EU countries dominate the United States in grants by resident and non-residents.

Despite a sizeable increase in resident patent applications, resident fillings in Germany, France, and the UK have remained relatively stable. In the United States, patent fillings have increased significantly. In his work, Metzger (2018) revealed that when seeking patent protection, most inventors prefer filing with the European Patent Office rather than national patent offices. Results reveal that the European Patent Office accounts for 87.6% of the patent fillings. In their work, Kim and Lee (2015) argue that standardization is essential in achieving worldwide compatibility. Intellectual property rights are a crucial tool if worldwide standardization is to be achieved. While criteria for patents in the EU are of technical character, in the United States, patentability of inventions depends on any of the four statutory categories in the U.S. Patent Act. Kim and Lee (2015) document that what is patentable in the United States may not necessarily be patentable in Europe.

The United States' Patent System rewards the first-to-invent and does not recognize prior user rights. In Europe, the Patent system is based on first-to-file (Eimer, 2018). According to Chung (2016), there are several turns and twists regarding patentable inventions. Chung argues that the EU Patent Office scrutinizes patents more closely compared to the United States' Patent Office. The extra scrutiny by EPO implies that there are likely to be less legal issues regarding the patents. US patent office practices and policies have in some extents hurt the quality of the patents in the United States. PTO guidelines lack a consistent characterization of patent quality and requirements for specific fields – a factor that has resulted in high numbers of legal conflicts for patent infringement (Fraga et al., 2016). High quality patents motivate innovators and reduce the potential of abusive litigation. Chung (2016) documents that in the past decade; patent-related lawsuits have been filed by companies that make financial gains from litigating patents instead of selling products. Such a trend shows a weakness in the ongoing programs and practices in the PTO. According to Fraga and Colleagues (2016), improving the quality of patents is a complex process that entails improved training of employees, refining of policies, automation of activities, and other measures.

Patented inventions in the United States do not often go through in Europe. Besides the higher rates in Europe- (twice as much to obtain a patent in Europe), extra scrutiny provided by three officials and conveyances in contract laws makes the process more complex. The contrast in the patenting process explains the sizable increase in applications and granted patents in the United States, while those in EU countries have remained stable over the past decade. According to the World Bank Statistics, the Patent applications in EU residents as of 2015 decreased from 119, 259 (thousand) in 2000 to 105,040 (thousand) in 2015 while those in the United States increased from 131,100 (thousand) to 313,152 (thousand).

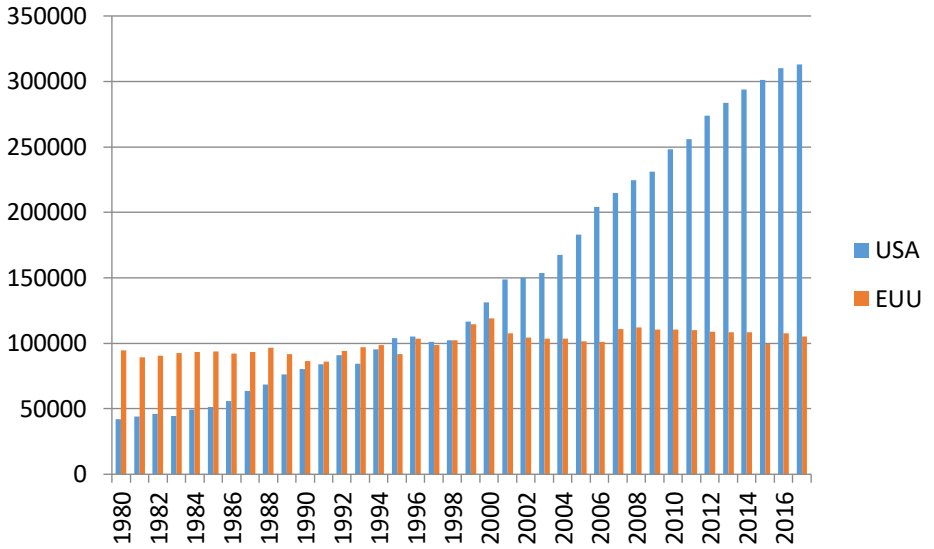

Figure 3. A comparison of Patent Applications between USA and EU Residents Between 1980 and 2016, - (World Bank, 2019)

From the above illustration, it is evident that since 2000, the numbers of patent applications in the United States have increased significantly while those in the EU have remained stable. According to Ghosh (2016), although patent approvals have been rising in the United States, it does not necessarily mean there have been more innovations. According to Ghosh (2016), the numbers portray the opposite. Over the past decade, several patents have been resubmitted and approved. Approval of the resubmitted patent applications has contributed to the gradually increasing patents. Cotter (2013) asserts that the current patent laws in the United States do not encourage innovation and have loopholes that lawyers maneuver around to attain USPTO standards.

Archambault's (2002) work, on methods for using patents, draws insights from scientometrics to explore greater analytical possibilities between EU and US patents. Although there are several challenges in comparing data from WIPO and USPTO, there are clear comparative assessments that can be made regarding patents granted, independent and institutional investors, and novelty and intellectual property. It is important to acknowledge that most patents have more than one inventor. Some of them have co-inventors residing in different countries. Such complexities of co-invention imply co-invention is a vector in the generation of new knowledge and the inventive process. How the United States and the EU handle co-invention and collaboration is, therefore, a matter of interest. According to Archambault (2002), collaboration is still limited in the United States. Fastest growing and more established countries do not often collaborate as is the case for the United States.

3. DISCUSSION

Although the inventor field of patents is the first indicator in measuring inventions, the originality depends on the capacity to clarify policy patents to increase innovation. According to WIPO (2018), IP rights have been on the policy agenda in recent years. An understanding of how the patent system has evolved over the years is crucial to development, economic growth, and in developing effective practices for the patent system. Every patent system's credibility depends on the enforceability of patent rights. In the United States, judges have no technical training regarding intellectual property, and most disputes are determined by a unified litigation system (Helmers, 2018). In Europe, patents are enforced at the national level by the European Patent Office. For instance, in Germany, invalidity

cannot be challenged in court but through the patent office that granted the patent. In the UK, patent conflicts can be challenged before the Supreme Court at its discretion. France has a competent tribunal that hears patent cases and a Supreme Court that hears appeals of the Appeal Court's decisions. The Netherlands, on the other hand, has specialized intellectual Property judges at district and supreme courts. Although the district courts do not determine patent conflicts, they play a crucial role in processing infringement proceedings and advising higher courts (Schlee, 2017).

In their works, Reilly (2019) and Murray and Van Zimmerman (2019) argue that the differences in EU and US patent applications pose problems during substantive examinations in instances where applications were based on US applications. Patent reforms debates in the US and EU are not just focused on improving the functionalities of patent regulators. In both the United States and Europe, the legislature plays a crucial role within the context of patent policymaking. The legislator is accountable for secondary actors and in contexts of IP agreements. For instance, in Europe, the EU Trademark Regulation has been redefined to enhance clarity and rationality. According to Murray and Van Zimmerman (2019), without proper patent systems, the risks can undermine the credibility of patents amongst innovators and the larger public.

It is important to note that over the past two decades, both EPO and USPTO have been under serious pressure. The increasing number of patent applications has increased workload and resulted in significant problems. Both EPO and USPTO have been criticized for their responses to these problems. However, both offices have adapted to these challenges by close technical and administrative cooperation to achieve infrastructure compatibility, automated translation, and mutual recognition of results (Eimer, 2018). In the United States, efforts to implement a genuine patent system started with the implementation of the Patent Clause in the American Constitution. However, more work needs to be done in developing efficient patent systems that foster innovation and economic performance.

4. CONCLUSIONS

Intellectual Property has become a crucial tool in economic growth and innovation. The United States Patents and Trademarks organization (USPTO) and the European Patents Union (EPO) have notable statistical differences in the number of patent applications, policies and application processes. Over the past two decades, the United States has seen an influx in the number of patent applications. On the other hand, patent applications in Europe have remained stable. The differences in numbers can be attributed to several factors- including the differences in patent application procedures, costs, and changes each system has implemented in strengthening patent rights. Although Europe's EPO grants fewer patents, the quality offered is better compared to its USPTO American counterpart. Both offices have taken some important steps in reforms and requirements set out by international treaties, courts and patent offices. However, statistical analyses reveal prominent differences in the two systems.

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