The European Unified Patent Court and Non-Practicing Entities: A Year of Early Evidence*

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Abstract

The debate on Non-Practicing Entities (NPEs) has primarily concerned U.S. patent policymakers, where most NPE lawsuits occur. However, with the introduction of the Unified Patent Court (UPC), European policymakers are now paying closer attention, as it could boost NPE activity by increasing the litigation value of patents.

In this article, I conduct an analysis of all infringement cases filed during the first year of operation of the UPC. I identify cases initiated by NPEs and collect details of the patents litigated and the companies involved. The main findings suggest that the UPC could become an attractive venue for NPEs to litigate their patents, particularly against large and non-European companies. NPEs initiate 13.0% of all cases, with their activity concentrated exclusively in the latter half of the year (December 2023 - May 2024), during which they represent 24.6% of total cases and 43.0% in the Electrical Engineering sector. In terms of patent characteristics, NPEs tend to litigate patents of lower quality than those pursued by other types of litigants.

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1 Introduction

Non-practicing entities (NPEs) have become major players in the patent market, primarily driving patent assertions. Their business model focuses on using patents to generate revenue through licensing and enforcement, rather than practicing the invention (Morton and Shapiro, 2013; Chien, 2008). NPEs, acting as independent entities or patent brokers, file patents or, more commonly, purchase them from inventors to license to businesses, while also focusing on enforcement. They have reshaped the IP landscape by offering inventors higher returns but also increasing litigation risks for manufacturers and service providers (Cohen et al., 2019; Huang et al., 2024).

On June 1, 2023, Europe has introduced a new patent system that significantly streamlines patent protection across the region. The introduction of unitary patents allows inventors to secure protection in multiple EU countries[1] with a single application, while the newly established Unified Patent Court (UPC) provides a centralized legal forum for patent disputes. In doing so, the UPC reduces the need for multiple parallel litigation before different national courts, reducing both costs and complexity for patent holders, thus potentially incentivising NPE activity. However, filing before the UPC poses greater risks for NPEs, as they could face 'pan-European' invalidation of their patents. Therefore, it remains uncertain whether the introduction of the UPC will attract more NPEs to Europe.

This paper presents early trends in NPE-initiated infringement cases at the UPC and compares the quality of patents litigated by NPEs to those litigated by other types of plaintiffs. The empirical findings are drawn from a newly compiled dataset of all infringement cases filed with the UPC between 1 June 2023 and 31 May 2024. For each case, I gather information on the involved parties, identifying which were NPEs, along with their turnover and industry sector. Additionally, I collect data on the disputed patents, including details such as quality (proxied by the number of forward citations, family size and the age of the patent at the time of litigation) and technology area.

The rest of the paper is organized as follows. In Section 2, I discuss the literature background. Section 3 presents the data and the empirical results. Section 4 concludes with policy implications of the results.

2 NPE and innovation

Since the earlier 2000s, the involvement of NPEs in patent markets has been a topic of significant debate. Some view them as intermediaries that reduce matching costs, facilitate patent rights enforcement, and provide liquidity, ultimately making the secondary market for inventions more efficient (Steensma et al., 2016; Lemus and Temnyalov, 2017). Critics argue that NPEs exploit market frictions to extract unjustified rents, imposing a hidden cost on innovators that discourages R&D, and acting as an "unwanted tax" that generates inefficiencies and deadweight loss (Bessen et al., 2011).

[1] As of now, 18 EU member states have joined the UPC.

Most existing empirical evidence tends to support this latter perspective. Some authors show that NPEs significantly raise costs for manufacturing companies, leading to a decrease or a shift of their R&D investments. For example, Bessen et al. (2011) estimate that NPE litigation cost defendants in the US approximately half a trillion dollars in wealth between 1990 and 2010. Furthermore, recent evidence suggests that NPEs impact not only the firms directly targeted by their assertions, but also influence non-target peer firms operating in the same technological areas where litigation is pursued. For instance, when firms observe NPE lawsuits, those in the same industry as the targeted companies often redirect their innovation efforts to avoid the high litigation risks associated with NPE assertions (Huang et al., 2024) often resulting in patents with lower value (Chen et al., 2023). Similarly, when firms become aware that patents have been acquired by NPEs, they tend to reduce their use of those patents (Orsatti and Sterzi, 2024).

When analyzing the impact of NPEs on innovation dynamics, the quality of the asserted patents plays a critical role in determining whether NPE activities promote or hinder innovation. High-quality patents can foster investment in R&D, while low-quality patents can create a hostile environment that discourages innovation. NPEs might litigate high-quality patents for stronger court cases and sustainable IP enforcement (Shrestha, 2010; Fischer and Henkel, 2012). However, they may also prefer cheaper patents to build large portfolios and achieve quick settlements (Chien, 2008) and to litigate old, widely adopted technologies; this increases the likelihood of multiple companies using the technology, expanding the pool of potential infringers (Love, 2012).

In the following section, I present early trends in NPE-initiated infringement cases at the UPC, with a specific focus on comparing the quality of patents litigated by NPEs to those litigated by other types of plaintiffs.

3 Empirical Analysis

3.1 Data sources

For this analysis, I combine different sources of data. The main data come from the UPC cases register[2], which provides comprehensive patent litigation information from the UPC courts. I analyze all parties involved in infringement cases filed from June 1, 2023, to May 31, 2024; I then consolidate names, and identify those considered as NPEs. I define a NPE as any entity, excluding universities, research centers, and individuals, that does not actively practice the invention. To identify NPEs, I rely on IAM-Media (`https://www.iam-media.com`), a well-known for-profit platform that offers tools, intelligence, and legal expertise in intellectual property. Additionally, I conduct a search on ORBIS (`https://login.bvdinfo.com/R0/Orbis`) to determine the plaintiffs' business sectors and identify relevant IP and law firms. In

[2] `https://www.unified-patent-court.org/en/registry/cases`

this process, I include one IP law firm (https://www.suinno.com/en/home/) that is not featured on IAM-Media.[3] Thanks to ORBIS, I also collect financial information (turnover) for the last available year. Finally, I gather the characteristics of the patents involved in the infringement cases using the 2024 EPO-OECD Patent Quality Database (Squicciarini et al., 2013).

3.2 Key figures

A total of 131 infringement cases are filed with the UPC. Among these, 17 were initiated by NPEs, accounting for 13.0% of all cases. Nine NPEs are identified among the plaintiffs: Network System Technologies (6 cases), Headwater Research LLC (4), Ona Patents SL (2), Nera Innovations Ltd. (1), Lionra Technologies Ltd. (1), ICPillar LLC (1), Daedalus Prime LLC (1), Suinno Mobile & AI Technologies Licensing (1). Notably, the activity of NPEs is concentrated exclusively in the latter half of the year (December 2023 - May 2024), during which they represent 24.6% of total cases and 43.0% in the Electrical Engineering sector[4] (See Figure 1). Finally, more than 70% of NPE-litigation case are initiated by companies based in US.

3.3 The quality of NPE-litigated patents

In this section, I assess the relationship between the type of plaintiff (NPE vs. non-NPE) and the quality of patents litigated at the UPC. The aim of using a regression analysis is to estimate these relationships while controlling for some factors that may also correlate with the type of plaintiff.[5] As controls, I include the technology of the patents, the year of patent filing, where the patents were enforced, the country and the size of the defendant.

In line with existing literature (Hagedoorn and Cloodt, 2003), I use three variables as proxies for patent quality. First, I consider the number of citations a patent receives within the first five years after its publication, commonly referred to as "forward citations". Second, I consider the size of the patent family to which the patent belongs, defined by the number of patent documents that cover the same invention across various national patent offices and within individual offices. Third, I consider the patent's age at the time of litigation, measured as the time elapsed between the filing date and the litigation date. Patents litigated later in their term are typically associated with technologies that have already been developed and may be nearing obsolescence.

I use a patent-case-defendant combination as the unit of analysis, for a total of 200 observations. I estimate both POISSON and OLS models with the log transformation of the dependent variable (+1, in case of *Citations*) to reduce skewness. Robust standard errors account for heteroskedasticity. In case of POISSON models, I exponentiate the coefficient to obtain the incidence rate ratio (IRR).

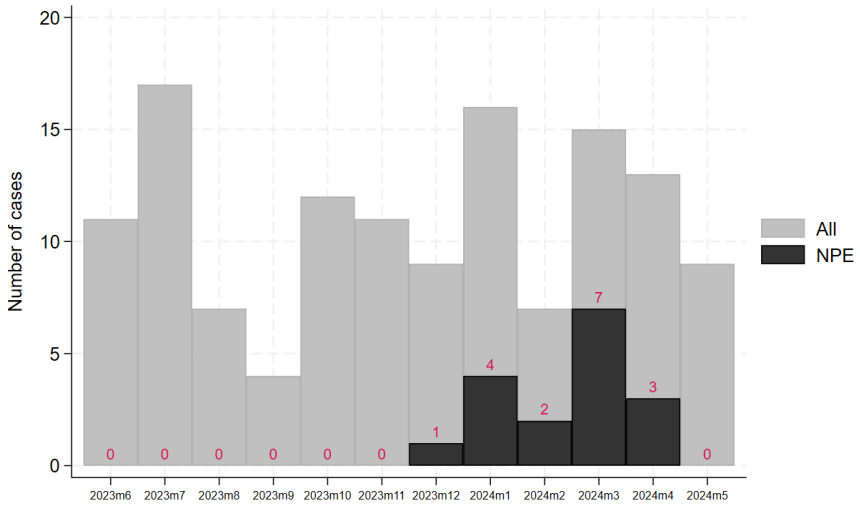
[3] Econometric results presented in Section 3.3 do not change if I remove this firm from the list of NPE.

[4] Based on the IPC-Technology concordance table developed by the WIPO in 2011. See Squicciarini et al. (2013)

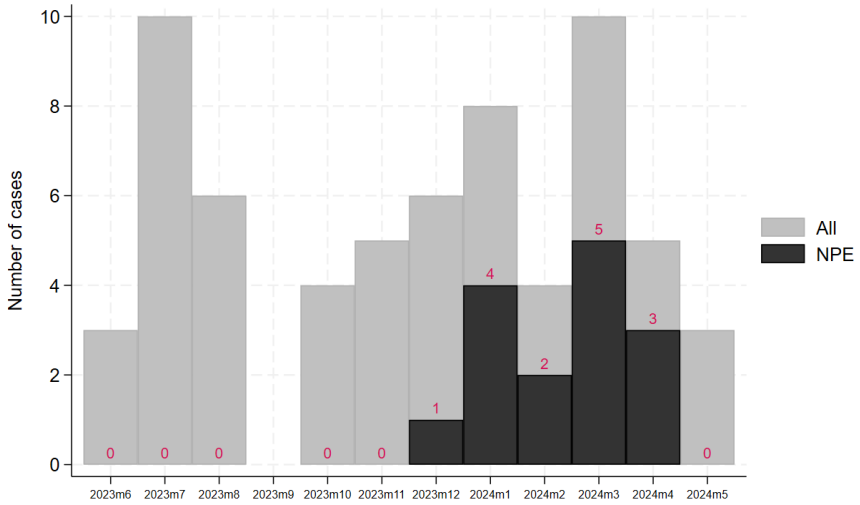
[5] In an earlier version of the paper (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4894833) I discussed how NPE-initiated litigation cases differ from non-NPE cases in terms of the types of defendants involved

Figure 1: Number of infringement actions at UPC

(A) All cases



(B) Electrical Engineering



Notes: Proceeding, Infringement Action. My elaboration.
Source: https://www.unified-patent-court.org/en/registry/cases.

The summary statistics broken down by type of plaintiff are shown in Table 1. The econometric results are shown in Table 2. Regardless of the model or the dependent variable used, econometric results consistently show that patents litigated by NPEs are of significantly lower quality compared to those litigated by other types of plaintiffs. After controlling for observable characteristics at both the patent and litigation case levels, our estimates indicate that, relative to non-NPE litigated patents, NPE-litigated patents receive approximately 68.4% fewer citations (Column 1), have a 34% smaller family size (Column 3), and are 15% older (Column 5).

Table 1: Summary statistics (average values)

	NPE (n=35)	Non-NPE (n=165)
Variables		
Dependent variables		
5-year citations	2.23	6.04
Family Size	8.43	11.6
Patent Age	15.8	13.4
Control variables		
Defendants: large companies	0.86	0.55
Defendants: companies based in the EU	0.20	0.42
Courts: Germany (dummy)	0.83	0.76
Application year	2008.2	2010.6
Field: Electrical engineering (dummy)	0.94	0.47
Field: Chemistry (dummy)	0	0.15
Field: Mechanical engineering (dummy)	0	0.11
Field: Instruments (dummy)	0.057	0.21

Notes: The unit of observation is the patent-case-defendant combination, for a total of 200 observations.

Table 2: Patent quality

	[1] Citations POISSON IRR	[2] Citations (Ln+1) OLS	[3] Family Size POISSON IRR	[4] Family Size (Ln) OLS	[5] Age POISSON IRR	[6] Age (Ln) OLS
NPE	**0.317*** (0.137)**	**-0.889*** (0.323)**	**0.640*** (0.087)**	**-0.526*** (0.169)**	**1.159*** (0.054)**	**0.153*** (0.053)**
Filing Year dummies	Yes	Yes	Yes	Yes	No	No
Technology dummies	Yes	Yes	Yes	Yes	Yes	Yes
Germany Court dummy	Yes	Yes	Yes	Yes	Yes	Yes
Defendants' Country dummies	Yes	Yes	Yes	Yes	Yes	Yes
Defendants' Size dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	200	200	200	200	200	200
R2		0.350		0.387		0.186

Notes: Robust standard errors in brackets, p-value *** <1%, **<5%, *<10%. Constant is estimated but not reported. Tech dummies refer to the technological classes of the patent: "Electrical Engineering", "Chemistry", "Mechanical Engineering", "Instruments", and "other fields". Defendants' sector dummies refers to the NACE 2 main code. 3 dummies are created: "Manufacturing", "Wholesale", and "Other sectors". Defendants' country dummies refers to the headquarter address. Five dummies are created: "US", "DE", "FR", "CN or S.Korea", "Other countries".

4 Discussion

According to the Darts-IP Clarivate Report[6], from 2018 to 2023, infringement actions initiated by NPEs represented approximately 10% of all actions in Germany and around 5% in France. These figures are considerably lower than those in the United States, where NPEs account for more than 50% of infringement actions.

Will the introduction of the UPC lead to a greater presence of NPEs in Europe? The main factors influencing PAE activity, and explaining their differing presence in the EU versus the US, include legal uncertainty around patent rights, the potential for substantial damage awards, litigation costs, market size, jurisdictional fragmentation, and specific legal system features — such as fee-shifting[7] and the ease of obtaining injunctions (Fusco, 2013; Thumm, 2018). The introduction of the UPC has altered some of these dynamics, narrowing the gap between the EU and US. Notably, the UPC allows NPEs to enforce patents across multiple countries with a single lawsuit, expanding their market reach, and increasing increasing the total return on their enforcement activity. Additionally, the the possibility of obtaining

[6] https://clarivate.com/lp/2024-non-practicing-entity-global-litigation-report/

[7] Fee shifting occurs when the losing party is required to cover the legal costs of the winning party.

unitary injunctions across a large market will increase a patent's litigation value, potentially boosting PAE activity within a unitary patent system.

In this article, I analyse all infringement cases brought before the UPC in its first year. Early evidence suggests that the UPC could become a central venue for NPE litigation: approximately 13.0% of cases are initiated by NPEs, with a notable presence in the second half of the year (24.6%), especially in electrical engineering where they represent the 43% of the cases. NPEs, typically based in the US, tend to litigate patents that are generally older and of lower quality compared to those pursued by manufacturing companies.

EU policymakers should thus closely monitor certain types of entities, in particular those pursuing aggressive patent litigation and opportunistic monetisation and enforcement. To mitigate potential issues of excessive bargaining power for patent holders, the UPC should adopt a balanced approach in the context of granting injunctive relief to prevent NPEs from using litigation as a tool to extract settlements, especially when enforcing older or lower-quality patents. Furthermore, UPC should hire technical experts to aid judges to providing clear legal standards and interpretations related to patents, reducing ambiguity and uncertainty in patent enforcement (Masur and Ouellette, 2021). Finally, the UPC should enhance transparency by implementing regular monitoring and public reporting on NPE activity. This initiative would help track trends and identify sectors or patent types that are particularly vulnerable to NPE litigation.

Disclosure statement

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