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Information Economics and Policy

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Investing in legal advice[★]

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ARTICLE INFO

Article history:
Received 7 June 2017
Revised 6 March 2018
Accepted 29 June 2018
Available online 30 June 2018

JEL classification: K00 K41 O34

Keywords: Litigation Patents Strategic value Competition

ABSTRACT

I study the effect of strategic product market considerations on the resource spending decision of plaintiffs in patent lawsuits. I use a unique sample of US patent litigation cases and focus on an important decision of the plaintiffs; their decision to hire external attorneys. I find that plaintiffs hire significantly more attorneys if they are in a horizontal relationship with the defendant rather than in a vertical relationship, i.e., if the litigants compete on the product market. This strategic product market effect is more pronounced the more concentrated the product market is.

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1. Introduction

The use of intellectual property such as patents is an important part of corporate strategy in an increasingly knowledge-based economy. Over the last decades, the number of patent applications has increased strongly (Kortum and Lerner, 1999; Hall, 2005). Because patents have to be enforced through costly litigation, the importance of patent litigation has also increased. Recent research devoted to patent litigation has analyzed the determinants of a patent's litigation risk (Lanjouw and Schankerman, 2001; 2004), and the decision to settle a patent lawsuit (Somaya, 2003). However, despite an extensive theoretical literature on litigation tournaments (e.g., Katz, 1987; Plott, 1987), there is little evidence for factors that drive litigation expenditures.

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This article aims to partially fill this gap by analyzing a litigant's decision to invest in the enforcement of patent rights. Specifically, I focus on how strategic motives regarding the product market affect the decision to spend resources on a patent lawsuit. The large number of lawsuits in the smartphone industry, including the litigation series between Apple and Samsung starting in 2011, or the patent case filed by Imperial Tobacco against eleven American ecigarette makers, highlight the importance of the strategic product market value of a patent and the use of patents and patent litigation as strategic tools to gain a competitive advantage (Economist, 2010; 2014). However, litigants in a lawsuit are not necessarily product market competitors because patents offer not only protection against competition, they also serve as a mean to generate licensing revenues (Arora and Ceccagnoli, 2006). Therefore, I distinguish between cases in which the litigants compete on a product market and cases in which the litigants are in a vertical relationship. Furthermore, I differentiate between cases for which there existed a contractual vertical relation before the lawsuit and cases for which this was not the cases. This differentiation aims to identify cases in which information disclosure as part of the contractual vertical relationship was supposedly used for infringement (Buss and Peukert, 2015). Thereby, this is to the best of my knowledge the first study to characterize the business relationship of litigants in patent litigation.

The underlying assumption of the theoretical literature on litigation tournaments is that the resources spent by a litigant positively affect the probability of winning. Unfortunately, because the

^{*} I am grateful to two anonymous reviewers, an anonymous associate editor and the editor Christiaan Hogendorn for valuable comments. The paper benefited also significantly from comments and suggestion by seminar and conference participants at the Copenhagen Business School, the Max-Planck-Institute for Competition and Innovation in Munich, the Norwegian School of Economics, the University of Marburg, the Annual Meeting of the American Law and Economics Association 2016, the Munich Summer Institute 2016 and the Nordic Conference on Industrial Organization 2016.

¹ These costs are not of minor importance. A survey conducted by the American Intellectual Property Law Association finds median litigation costs for patent infringement suits that last at least until the end of discovery ranging from \$0.4mn to \$5.0mn, depending on the amount at risk (AIPLA, 2015). However, note that the majority of patent cases settles much earlier.

amount spent on lawsuits is private information of the litigants, a monetary amount for litigation expenditure is not available for empirical research. In order to analyze the litigation investment decision nonetheless empirically, I rely on a unique sample of US patent litigation cases filed between 2004 and 2007, and focus on an important decision of the plaintiffs; their attorney choice. In patent litigation cases, the official complaint of the plaintiff provides not only information on the related litigants and the underlying patents but also the names of all external attorneys hired by the plaintiff at the time of the cases filing. Legal representation plays a crucial role in litigation. Ashenfelter and Dahl (2012) and Ashenfelter et al. (2013) show that being represented by a lawyer increases the prospect of winning US arbitration cases. Chen et al. (2015) show that the strength of legal representation, measured by the number of lawyers, has a positive impact on the winning probability at Taiwan's Supreme Court. Because more attorneys are likely to be related to higher spending in monetary terms, the number of attorneys appears to be a natural candidate for a proxy measure of litigation investments.

However, this interpretation of the number of attorneys may be misleading if the litigants substitute quantity for quality, i.e., if they hire multiple attorneys instead of one better, more expensive attorney. Therefore, I analyze in a first step the quantity-cost relation of the plaintiffs' decisions, i.e., the relation between the number of attorneys to the costs of the attorneys. I observe a positive relation between the two characteristics, implying that no substitution effect exists.

My further analysis indeed reveals that strategic product market considerations play an important role in the litigation spending decision; a plaintiff competing with the defendant(s) on the product market hires significantly more attorneys. The strategic value of the patent towards the product market increases the stakes and the plaintiff spends more on legal representation. Furthermore, I show that the intensity of this effect increases in the product market concentration. This result not only shows the strategic use of a patent but also that the competitive situation between the litigants is reflected in the enforcement strategy at court, and it highlights the importance of product market competition for the resolution of patent disputes; a factor that has not been considered so far in the empirical literature. In contrast, I do not find an effect of a former contractual vertical relationship on the number of attorneys. Hence, the plaintiffs in those cases do not behave differently to plaintiffs in cases without such a relation and without product market competition between the competitors. The latter group of cases can be seen as cases where the patentee considers the accused infringer or relying on the protected technology but the infringer does not agree.

Because I use on a large number of patent and litigant characteristics as control variables, I also provide evidence on the effect of these factors on the plaintiffs' decisions. The number of patent claims show a positive, declining effect on the number of attorneys hired by a plaintiff. Furthermore, I find a positive effect of the patent family size and weak evidence for a positive effect of the number of self-citations a patent receives. All other patent characteristics show no significant effect. Large firms, and firms with large patent portfolios, employ more attorneys, whereas individual plaintiffs employ fewer. On top of that, the plaintiffs' decisions also depend on the size of the defendants; large firm defendants imply significantly more plaintiff attorneys. These differences in firm size fit well to recent empirical evidence on the so-called patent premium and the litigation risk of patents. Arora et al. (2008) define the patent premium as the incremental value of innovations realized by patenting them. They show that the patent premium is higher for large firms and presume that this is due to different abilities to enforce their patent rights.

2. Background and hypotheses

A patent grants the patent holder a legal right to restrict access to the underlying technology. Among other benefits, it increases the effectiveness of licensing (Arora and Ceccagnoli, 2006) and potentially allows to exclude competitors. Unfortunately for a patent holder, patents are not self-enforcing; the patent owners have to enforce their rights through costly litigation. Even worse, patents are not perfectly defined property rights, and the patentee might lose an infringement law suit. Patents can be seen as probabilistic property rights (e.g., Shapiro, 2003; Lemley and Shapiro, 2005). A patentee might lose a lawsuit because the accused infringer might be found not infringing the product, or because the patent is declared invalid. The latter is indeed a substantial risk as roughly 40% of all patents litigated in 2008 and 2009 whose validity was decided were found to be invalid (Allison et al., 2014).² The imperfect character of patents makes decision-making about infringement and validity inherently difficult for courts. In a lawsuit the judge and/or jury depend on evidence and arguments provided by the litigants. This leaves scope for the litigants to influence the judgment in their favor by spending resources on legal advice or other legal services.

Any patent lawsuit starts with the formal complaint of the plaintiff. Afterwards, the pretrial discovery takes place. Defendants answer the complaint, and provide information for their opponents and the court. Once the discovery phase is over, the trial takes place, ending with a judgment. If the patentee prevails, the court may adjudge the patentee a certain amount for compensation of the damage.³ Additionally, the judgment may deter the infringer(s) from selling any product that is based on technologies protected by the patent without consent of the patentee.⁴ If the patentee loses, the court either finds the patent not infringed or even invalid. Usually, all litigants bear their own costs.⁵ However, a settlement may take place in every phase of the lawsuit. In fact, in patent cases, as well as in most legal areas, the majority of disputes settle. Even though, most cases do not go through all of these phases, the prospect of doing so affects the decisions of the litigants throughout the lawsuit.

Starting with Tullock (1975), a large body of literature analyzes the litigants' decisions to devote resources to lawsuits theoretically (e.g., Katz, 1987; Plott, 1987; Gravelle and Garoupa, 2002). These articles have in common that by deciding to spend resources on legal advice, the litigants try to maximize their payoffs from the lawsuit. The litigants weigh up the productive effect of spending more resources with the associated costs.

In the economics literature a large number of studies is devoted to the analysis of the role of the market structure for innovation (see, e.g., Kamien and Schwartz, 1982). A lesson from these studies is that strategic considerations play an important role for the innovation decision. Blind et al. (2006, 2009) show that the same is true for the patenting decision. In my analysis, I bring together these strategic considerations with the incentives to invest resources into lawsuits.

If strategic product market considerations are important in a patent dispute, the strategic value of a patent in a lawsuit will be dispute-specific and will depend on the relationship between

² See also Henry and Turner (2016) who provide a long-term perspective on the development of the invalidity rates.

³ There exist a number of principles to calculate damages, with unjust enrichment, lost profit and reasonable royalties being the most prominent ones. See Chopard et al. (2014) for a comparison of lost profit and unjust enrichment regarding the innovation and litigation decisions.

⁴ An alternative remedy is the payment of ongoing royalties, see Shapiro (2016) for a discussion of these alternatives.

⁵ This is the case unless the court finds a case exceptional according to US code Section 285

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