Assessing the Link Between Standards and Patents

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ABSTRACT

Some policymakers, courts, and academics have expressed concerns that when a firm’s patents are incorporated into a standard, the patents gain importance and can bestow on the patent holder market power that can be abused when the standard is commercialized. This paper extends the existing literature on the effect that standards can have on patents. This analysis has two aims: first, to better understand how an SSO might confer importance on included patents and second, to move closer to an empirical understanding of the impact of a standard on included patents. The authors create a dataset of patents named to voluntary standard setting organizations, as well as the patent pools that sometimes develop around such standards. The authors rely on proxies to capture a patent’s importance or value.

Keywords: Market Power, Patents, Standard Setting, Standard Setting Organization (SSO), Standards

1. INTRODUCTION

It is widely recognized that voluntary standard setting efforts are pro-competitive and welfare enhancing.1 Even so, the full competitive implications for firms choosing to participate in a standard setting organization (SSO) are not entirely clear and have been the subject of considerable debate. In particular, some policymakers, courts, and academics have expressed concerns that when a firm’s patents are incorporated into a standard, the inclusion can enable patent holders to abuse their position when the standard is commercialized.2 The argument can be summarized as follows. Prior to the definition of a standard, many firms may compete over technologies, but once the standard is defined and the technologies are chosen, that competition ceases. Since the components of a standard are complementary, they are all “essential” for implementing the standard. Thus, under this view, even firms with patents that read on relatively minor components of a standard will be able to “hold up” licensees for excessive royalties by threatening not to license on any other terms.3

In the theoretical academic literature, quite a bit of attention has been focused on the consequences of standard-granted market power, namely patent hold up, but very little has been devoted to the workings of how standards might enable patent holders to practice such hold up. For instance, what is the particular mechanism responsible for conveying ex post market

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power? Is it simply the hold up of switching costs that essential patents can provide patent holders for extorting licensees after a standard is defined, as noted above? Do the broadened consumer markets that can be enabled by standards have any effect? Does publicity, where patents essential for a standard are disclosed and more widely advertised than would otherwise be the case, play any role? Moreover, how broad might an ex post effect be? That is, does the effect hold for every single patent declared essential for a standard? Is naming a patent to a standard as potentially essential enough, or must the patent actually be essential? Since SSOs tend not to conduct essentiality determinations, actual essentiality would introduce considerable uncertainty into the process.

This paper has two goals: first, to help shrink the gap in the current literature regarding how an SSO can confer importance on included patents and second, to build on the handful of empirical papers in the literature that assess the link between standard setting and patent importance or value. We examine voluntary standard setting organizations, as well as the patent pools that sometimes develop around such standards, with the aim of providing some detailed measurements of the effect standardization might have on included patents.

Citations present a reasonable proxy of patent importance or value. Holders of patents representing follow on research are often compelled to cite the key patents that came before them and patent examiners include key patents in the prior art of the patents they review. In addition to recognizing key predecessors, cites can be an important defensive measure: the citations included in a patent application circumscribe that patent’s claims but they can also provide safe harbor for claims of infringement from other patent holders – a factor that is especially important for U.S. patents where private litigation is more common. Because citations offer readily available objective measures, forward citations have been used extensively in empirical studies as proxies for patent value or importance. Nevertheless, while the literature has established a clear link between citations and patent value, it appears that citations explain only a small portion of patent value. In particular, Gambardella, Harhoff, and Verspagen (2008) observe that:

Citations explain value as much as the other three indicators combined, and the right tail of citations is correlated with the right tail of our value measure. Yet, the four indicators only explain 2.7% of the variance of patent value. Thus, while the use of these indicators as proxies for value, particularly citations, may be justified, predictions based on these indicators carry significant noise. After using country, technology, and patent class fixed effects, we only explain 11.3% of the variation in patent value. The ‘measure of our ignorance’ about the determinants of patent value is then still sizable, which calls for additional research to fill the gap.

The question we consider is a different, although related one. Instead of trying to explain the private value of patents to their holders, we examine the importance that a standard may confer on a patent, which in turn might affect the bargaining power of the patent holders whose patents are named to the standard. At the most fundamental level, separating the legitimate importance created by the standardization process from any illegitimate patent importance that might enable a patent holder to hold up implementers of the standard is difficult to do both conceptually and empirically. In examining measurable effects on patent importance, we find that some SSOs appear to enhance some included patents’ importance or value, but most do not. Moreover, the effects change over time, across standards, and across patents. Thus, we conclude that for any given patent a broad range of SSO effects is possible, some even negative but most equal to zero.

The paper proceeds as follows. In section 2 we describe how standard setting works in practice as a means of moving beyond the general switching cost hold up theory to identify when and how an SSO could grant or enhance a patent’s importance. As part of that analysis, we consider the alternatives to cooperative standard setting, which form the benchmarks
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