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## The timing of trademark application in innovation processes

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### ABSTRACT

An emerging stream of literature is studying the extent to which trademarks can be used to measure innovation. The picture of the usefulness of trademarks for innovation studies, however, is far from complete. Starting with cues from the patent literature, this paper studies the relationship between the timing of trademark applications and innovation. The trademark literature provides competing predictions on whether companies apply for trademarks early or late in the innovation process. Using a large sample of trademarks referring to innovation, we undertake a first empirical test of these predictions. Our findings suggest that in many instances reality is not as clear cut as the predictions suggest. However, when trademark data is combined with data on firm age, sector and size it is possible to predict whether a trademark refers to early or late-stage innovation.

### 1. Introduction

An emerging field of empirical literature is concerned with how trademark statistics might potentially measure innovation (Allegrezza and Guarda-Rauchs, 1999; Greenhalgh and Rogers, 2012; Schautschick and Greenhalgh, 2016; Schmoch, 2003). Because many trademarks are filed to signal the introduction of new products or services (Mendonça et al., 2004) and because they are usually assumed to be filed close to the market introduction of new products (Hipp and Grupp, 2005), they may measure downstream, late-stage innovation that is not adequately captured by patent statistics (Candelin-Palmqvist et al., 2012; Flikkema et al., 2014). Other authors have argued that trademarks may be filed earlier in the innovation process and may therefore indicate early stage innovation as well (Lemper, 2012; and Zhou et al., 2016). This paper investigates whether organizations file trademark applications early or late in the innovation process, examining factors influencing the timing of trademark applications.

The current literature provides competing predictions about the timing of trademark applications. However, the empirical evidence is scarce and the results mixed. To enhance our understanding, this paper considers the timing of trademark application during the innovation process. We explore whether trademark application timing can be explained by two factors, around which there are competing views in the literature: the joint use of patents and trademarks, and the micro-level innovation mode. This approach will help us gain insight into whether trademarks can be used to measure innovation at different stages of the

innovation process. In Section 2, we review the literature about the timing of patent applications to determine whether reasons for early or late filing identified in relation to patents also apply to trademarks. This review provides the background for Section 3, in which we consider the competing explanations of why companies apply for trademarks early or late in the innovation process. In Section 4, we present the research design and the data collection methods. Section 5 is dedicated to the results, while the final section includes the discussion and implications for future research.

### 2. The timing of patent and trademark applications

Firms benefit from various intellectual property rights (IPRs) to appropriate returns from innovation (Davis, 2006; Teece, 1986). The actual timing of the engagement of different IPRs requires great precision. Empirical studies into the timing of such applications are limited and most focus on the timing of patenting in particular (Harhoff and Reitzig, 2001; Hipp and Grupp, 2005; Johnson and Popp, 2001). The reason for early patenting is obvious and embedded in the patent system: the first to file a patent which is ultimately granted, gains the monopoly right.

Because of their nature and relatively short handling times at IPR offices, the literature assumes that trademarks are registered close to the market introduction of a new product or service (Hipp and Grupp, 2005; Rujas, 1999). Studying a sample of SMEs, Flikkema et al. (2014) show that this is largely correct for about 60% of the trademarks

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**Table 1**  
Competing arguments for early versus late application for trademarks.

Antecedents of the timing of trademark application	Arguments for early trademark application	Arguments for late trademark application
1.1. Does the <i>combination with patents</i> affect the timing of the trademark application?	Trademark application enables the attraction of venture capital and thus will often be filed earlier than patents.	Trademark application predominantly serves to protect brand names for new products and services, therefore it suffices to apply for a trademark just before the launch of a new product or service. Protection of complementary assets is not needed in upstream stages of the innovation process. Combination with patents reduces the need for early trademark application as a mechanism for protecting IP.
2. Does the <i>innovation mode</i> affect the timing of the trademark application?	<p>A. <i>Length of development cycle:</i></p> <ul style="list-style-type: none"> <li>i. Product innovation, new-to-the-world innovation or B2B innovation imply longer duration of development cycles and therefore higher probability of trademark application in the early stages to foster a market orientation.</li> <li>ii. For most service innovations, opportunities for patenting or benefiting from other IPRs are limited and the priority principle also applies to trademarks, which results in earlier trademark application.</li> </ul> <p>B. <i>Start-up versus incumbent firms:</i></p> <p>Trademarks mark the start of an innovative start-up, entrepreneurs attempt to benefit from trademarks to attract venture capital in upstream stages of the innovation process and, finally, trademarks are possibly used in upstream stages of the innovation process as a substitute for patents.</p>	<p>A. <i>Length of development cycle:</i></p> <ul style="list-style-type: none"> <li>i. Product innovation, new-to-the-world or B2B innovation imply late trademark application for reasons of very long development cycles, which approximate or exceed the period of the use in commerce requirement (five years).</li> <li>ii. Service innovation, B2C and incremental innovation have shorter development cycles and new services emerge on the service job. This leads to late trademark application.</li> </ul> <p>B. <i>Start-up versus incumbent firms:</i></p> <p>Start-ups prefer secrecy, especially for more radical innovation, because they do not have deep pockets to counter the violation of IPRs as do mature firms.</p>

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