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Author(s): Heikkilä, Jussi

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The demand for IPR services – to use or not to use a professional representative?

Jussi Heikkilä¹

Abstract

We analysed the use of professional representative services and related outcomes in patent, utility model, design right and trademark filings. We found that 1) there is a positive association between the use of a professional representative and the likelihood of grant or registration; 2) the demand for professional intellectual property rights (IPR) services is heterogeneous between IPR types: applicants are most likely to hire professional representatives (IPR agents and attorneys) for patents, followed by utility models, design rights and trademarks; and 3) individual applicants are less likely to use professional representatives compared to firm applicants.

Keywords: patent, trademark, design right, utility model, representative

JEL classification: O32, O34

¹ email: jussi.1.heikkila@jyu.fi, Jyväskylä University School of Business and Economics, University of Jyväskylä, Jyväskylä, Finland

1 Introduction

When a firm or an individual applies a patent for an invention, a patent attorney is typically hired to draft the patent application. The role of patent attorneys, and more generally, the role of service providers related to intellectual property rights (IPR agents and attorneys) has been a relatively under-researched topic in IPR literature until recently (Wagner, 2006; Somaya et al., 2007; Reitzig & Wagner, 2010; Somaya et al. 2012; Gaudry, 2012; Frietsch et al., 2015; Süzeroglu-Melchiors, 2017; Süzeroglu-Melchiors et al., 2017; de Rassenfosse et al., 2018; Frietsch & Neuhäusler, 2019). The expertise of patent attorneys is often crucial in drafting patent applications and patent claims (Doran & Webster, 2019), which ultimately define the scope of patent protection and, thus, affect the appropriability of innovation investments. Wagner (2006) analysed the use of patent attorneys in patent applications at the European Patent Office (EPO) and reported that the share of applications which had been filed via patent attorneys increased steadily from approximately 60% in 1980 to over 80% in 2000. Patent owners may also outsource part of administration of their IPRs (e.g., payment of renewal fees) to specialized IPR firms (Süzeroglu-Melchiors et al., 2017) and purchase IPR strategy consulting from these firms. The experience and quality of the representative often impacts the patent filing's outcome, as demonstrated by the findings of de Rassenfosse et al. (2018) and Frietsch and Neuhäusler (2019).

While patent attorneys and agents have been the subjects of prior research, to our knowledge, there are no studies on the demand for expert services in the case of other IPR types. To address this research gap in the literature on IPR services, this article extends the established analysis from patent attorneys to the use of specialists of other IPR types, namely trademarks, design rights and utility models (UMs). We use the umbrella term “professional representative” to refer to attorneys and agents who specialize in these IPRs. Patents protect technical inventions and have been the main IPR of interest in past economics literature. Trademarks protect brands and design rights protect the aesthetic aspects of products. UMs are an alternative protection method for technical

inventions, in particular, for small inventions and those which require rapid protection.² Typically, the formal application process for each of these IPRs is different. Patents and UM applications are typically more complex compared to trademark and design right filings. In patent and UM filings, the applicant is required to disclose and describe the invention in such a manner that a person skilled in the relevant art is able to replicate it. Drafting patent claims, which define the scope of protection, requires special expertise and often negotiations with patent examiners (Reitzig, 2004; Doran & Webster, 2019). In contrast, trademark applications consist of words and/or figures, and the scope of the design rights is defined by drawings or photographs. Specialized IPR service firms and IPR attorneys sell their expertise to help customers succeed in the filing and prosecution processes of IPRs.

The remainder of the paper is structured as follows: Section 2 presents the hypotheses, section 3 describes the institutional context and the data used to test the hypotheses, section 4 reports the results and section 5 concludes.

² Not all countries have UM systems.

2 Hypotheses

Since studies have shown that the use of professional representatives is associated with filing outcomes in the case of patents (e.g., de Rassenfosse et al., 2018; Frietsch & Neuhäusler, 2019), we expect that the outcomes of filings also differ for UMs, design rights and trademarks by the use of professional representative. Particularly, we expect that the use of a professional representative is positively associated with grant or registration of the IPR.

Hypothesis 1: *The use of a professional representative is positively associated with grant/registration of the IPR application.*

As the filing and prosecution processes of IPRs differ between types, we expect that the necessity of IPR services and professional representatives will differ accordingly.

Hypothesis 2: *The likelihood of using a professional representative is heterogeneous across IPR types.*

We compare the differences in the use of professional IPR services between firm applicants and individual applicants. Hiring a professional representative can cost several thousands of euros. As firms, on average, have more resources than individual applicants, we expect them to more frequently use representatives in the filing and prosecution of all IPR types (cf. Frietsch & Neuhäusler, 2019).

Hypothesis 3: *Firm applicants are more likely to use professional representatives compared to individual applicants.*

3 Institutional context and data

Finland is a developed Nordic country which has advanced IPR institutions.³ It has been a member of the European Union since 1995 and became a member of the European patent convention in 1996. Although the availability of transnational filing routes for IPRs has decreased the demand for national filing routes in Europe (Hall & Helmers, 2018), IPR services are still largely national (Frietsch et al. 2015). The filing processes for patents, utility models and design rights differ at the Finnish patent office. The patent examination process typically takes years and involves negotiating the scope of patent claims and describing the invention.⁴ In the case of utility models, design rights and trademarks the application process is much simpler and quicker with mere weeks or months separating the filing date and the registration decision date.

Our main data source is the Finnish Patent and Registration Office (PRH). The data covers PRH's registers (i.e., population) of patent filings from 1990–2010, UM filings from 1992–2010, trademark filings from 1993–2010 and design right filings from 1990–2010. Since data on applicants' origin countries was not available for patents and UMs in PRH's data, we extracted this information from the European Patent Office's Worldwide Patent Statistics Database (PATSTAT, April 2016 edition). We excluded foreign applicants and focused on Finnish applicants, since Finnish IPR laws require foreign applicants to use a local registered representative if they do not have a domicile in Finland (cf. de Rassenfosse et al., 2018).⁵ The data includes ready-made classification of applicants into two groups: individual applicants and companies.

³ World Economic Forum's Global Competitiveness report 2017–2018 ranks Finland 2nd in intellectual property protection. Available at <https://www.weforum.org/reports/the-global-competitiveness-report-2017-2018>

⁴ PRH: "How to apply for a patent at PRH" Available at: <https://www.prh.fi/en/patentit/applyforanationalpatentinfinland/howtoapplyforapatentatprh.html>

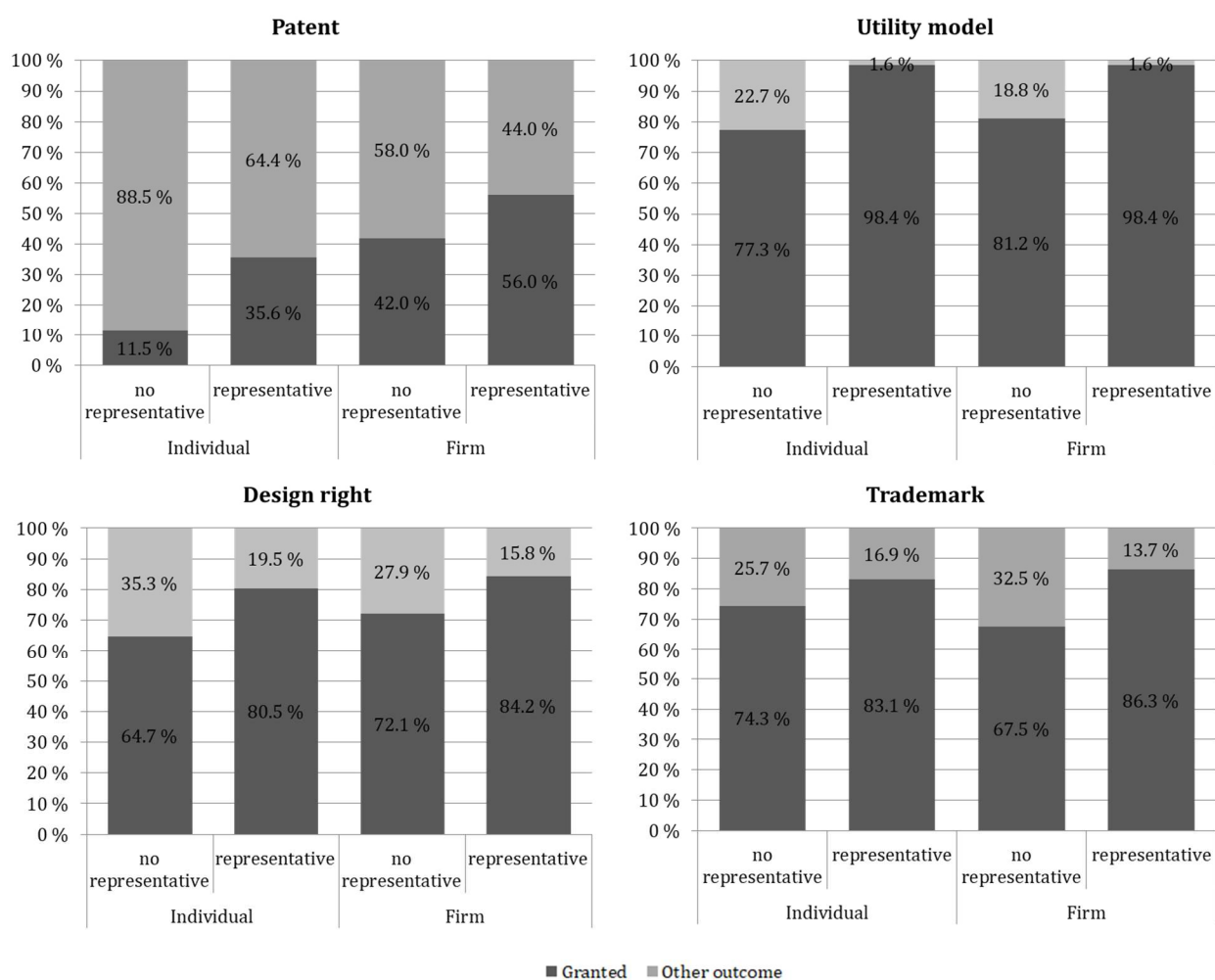
⁵ Finnish patent law, Finnish design right law, Finnish trademark law 31§, Finnish utility model law 10§. See also <https://www.prh.fi/en/patentit/theabcofpatenting/patentagents.html> Last accessed 1st June 2019. Foreign applicants are typically firms that have international business operations and they typically use representatives. We checked that only a few percent of foreign applicants do not have listed representatives for each IPR type.

The registers contain information on the representatives the IPR owners have authorized to represent them before PRH. A caveat is that an owner may change her representative during an IPR's term. Nonetheless, we confirmed from PRH that the named representatives are largely the ones that were involved in filing the applications. In principle, representatives can be agents or attorneys of specialized IPR service firms and law firms, in-house attorneys of companies or other representatives (e.g., individuals). In our analysis, we focus on the first category which we refer to as "professional representatives". All specialized IPR service firms and law firms were manually identified and classified as professional representatives.

4 Results

Figure 1 illustrates the shares of granted or registered applications based on the use of professional representatives for each IPR type. There is clearly a positive association between the use of a professional representative and granting or registration of IPRs. For both individual applicants and firm applicants the share of granted IPRs is higher when a professional representative is used.

Figure 1. The use of professional representatives and filing outcomes



Notes: Data is from 1990–2010 for patents and design rights, from 1992–2010 for UMs and from 1993–2010 for trademarks. Only Finnish applicants included. Category “other outcome” consists of a variety of “not granted” outcomes including withdrawn and rejected applications.

Figure 1 did not account for filing-level characteristics and technology field differences. Therefore, the following regression model was estimated to test Hypothesis 1:

$$Grant_{ijt} = \alpha + \beta_1 D(Representative)_i + \delta' \mathbf{x}_i + \theta_j + \eta_t + \varepsilon_{ijt}$$

where the dependent variable $Grant_{ijt}$ is a dummy variable which equals 1 if the IPR i was granted (or registered in the case of UMs, TMs and design rights) and 0 otherwise. α is constant. $Representative_i$ is a dummy variable which equals 1 if the applicant used a professional representative in filing i and 0 otherwise. \mathbf{x}_i is a vector of filing-level control variables. θ_j is an IPR classification fixed effect. η_t is an application year fixed effect. ε_{ijt} is a filing-specific error term.

We estimated probit models using maximum likelihood and report the average marginal effects in Table 1. We controlled for certain filing-level characteristics. For patents, UMs and design rights we included an indicator of whether the application was a priority filing or a subsequent filing. For trademarks we included an indicator of whether the application was for a word or a figurative trademark. IPR classification fixed effects are as follows: 3-digit international patent classification (IPC) classes for patents and UMs, Locarno classes (2-digit) for design rights and Nice classes for trademark classes.

Table 1. The likelihood of grant

Dependent variable	<u>Pr(Grant=1)</u>			
IPR type	Patent	Utility model	Design right	Trademark
Time period	1990-2010	1992-2010	1990-2010	1993-2010
Estimates	M.E.	M.E.	M.E.	M.E.
	(1)	(2)	(3)	(4)
D(Representative)	0.214*** (0.005)	0.209*** (0.008)	0.166*** (0.013)	0.204*** (0.005)
D(Firm applicant)	0.207*** (0.006)	0.019** (0.007)	0.068*** (0.012)	-0.050*** (0.007)
D(Priority)	-0.022** (0.010)	-0.038* (0.017)	-0.073 (0.049)	
D(Figurative)				0.137*** (0.004)
Application year dummies	X	X	X	X
Technology class dummies	X	X		
Locarno class dummies			X	
Nice class dummies				X
Log pseudolikelihood	-25958.57	-2662.76	-3830.40	-25019.84
Pseudo R2	0.13	0.21	0.06	0.06
N	43713	9678	6927	46161

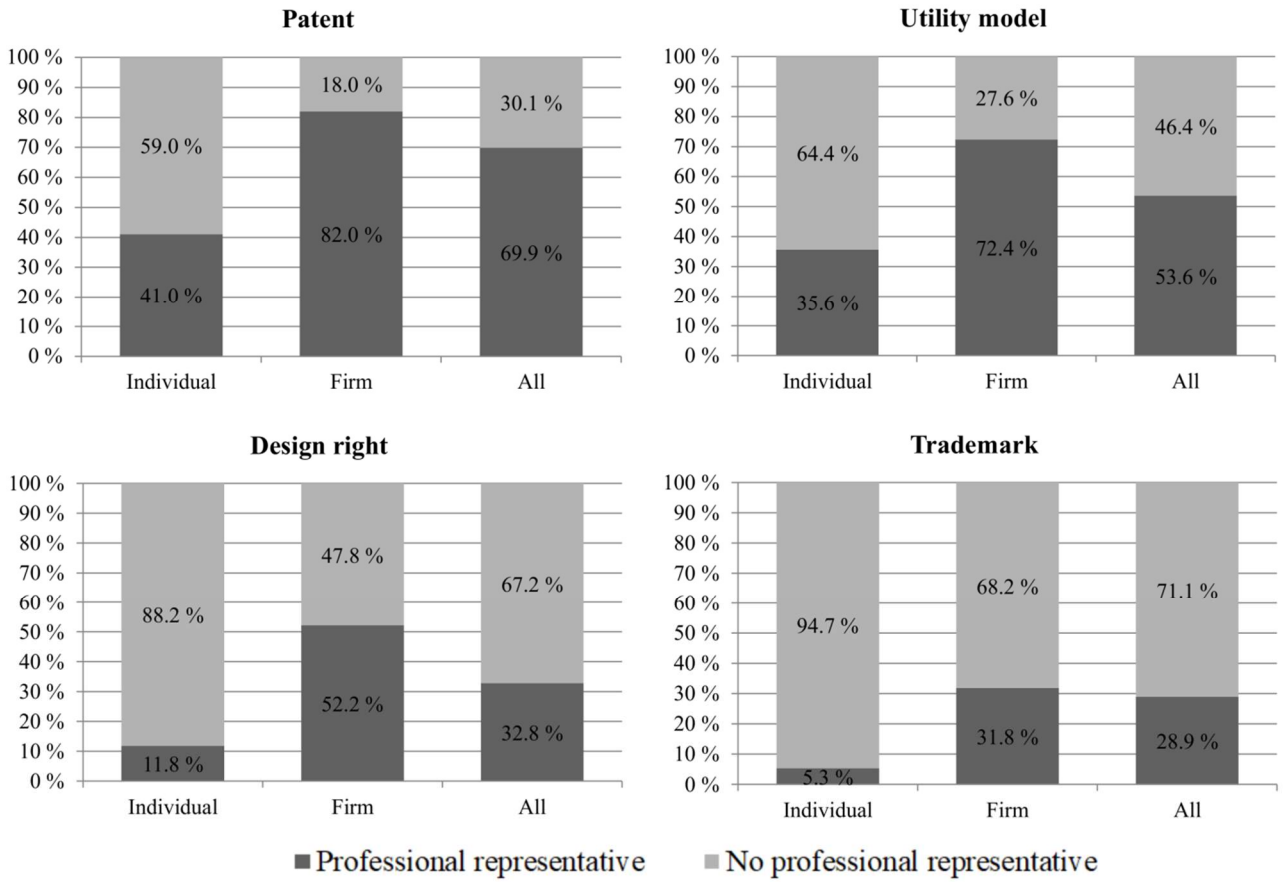
Notes: The reported estimates are average marginal effects. All models were estimated using the populations of filings by Finnish applicants. Robust standard errors in parentheses. ***, ** and * refer to 0.1%, 1% and 5% significance levels, respectively.

We find support for Hypothesis 1 when controlling for certain filing-level characteristics, time fixed effects and IPR classifications. There exists a statistically significant positive association between the use of professional representatives and successful grant or registration for all IPR types. Use of a professional representative is associated with an approximately 20 percentage point higher grant probability for patents, UMs and trademarks. In the case of design rights, the estimated increase in registration likelihood is slightly less, roughly 17 percentage points. As expected and in

consistence with earlier studies (e.g., Frietsch & Neuhäusler, 2019), firms are more likely to get their filings granted or registered compared to individuals in the case of patents, UMs and design rights. Interestingly, the association is negative in the case of TMs. Several robustness checks were conducted, showing robust results for different time periods and model specifications. It should be noted that the associations are only conditional correlations and cannot be interpreted as causal effects, since there are presumably severe endogeneity problems. For instance, there is probably omitted variable bias as the quality of inventions and designs are unobservable and presumably positively correlated with the use of representatives. This kind of an omitted variable would bias upwards the estimated coefficients of *Representative* dummy variables.

Figure 2 reports separately for each IPR type the shares of applicants that used professional representatives. In line with Hypothesis 2, we found that the shares differed by IPR type: Applicants were most likely to hire representatives in the case of patents (70%) followed by UMs (54%), design rights (33%) and trademarks (29%). We also found that for all IPR types, a larger share of applications by firm applicants had professional representatives compared to applications by individual applicants, a result consistent with Hypothesis 3. For both individual and firm applicants the shares of IPR applications with professional representatives followed the same pattern: the share is highest for patents, followed by UMs and design rights, the lowest being for trademarks, an expected result based on differences in the application processes. The drafting and application processes of patents (including negotiations with patent examiners about patent claims) and UMs require more special expertise than drafting trademark and design rights applications.

Figure 2. The use of professional representatives



Notes: Data is from 1990–2010 for patents and design rights, from 1992–2010 for UMs and from 1993–2010 for trademarks. Only Finnish applicants included.

Figure 2 did not consider filing-level characteristics and technology field differences. Hence, the following regression model is estimated to test Hypothesis 3:

$$Representative_{ijt} = \alpha + \beta_1 D(Firm_applicant)_i + \delta' \mathbf{x}_i + \theta_j + \eta_t + \varepsilon_{ijt}$$

where $Representative_{ijt}$ is a dummy variable which equals 1 if the applicant has used a professional representative in filing i and 0 otherwise. α is constant. $Firm_applicant_i$ is a dummy variable which equals 1 if the applicant is a firm and 0 if the applicant is an individual. \mathbf{x}_i is a vector of filing-level control variables. θ_j is an IPR classification fixed effect. η_t is an application year fixed effect. ε_{ijt} is a filing-specific error term. We estimated probit models using maximum likelihood and reported

average marginal effects in Table 2. We controlled for certain filing-level characteristics as in Table 1 and reported estimates both with and without IPR classification fixed effects.

Table 2. The likelihood to use professional representatives

Dependent variable	Pr(Professional representative=1)							
IPR type	Patent		Utility model		Design right		Trademark	
Time period	1990-2010		1992-2010		1990-2010		1993-2010	
Estimates	M.E.	M.E.	M.E.	M.E.	M.E.	M.E.	M.E.	M.E.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
D(Firm applicant)	0.341*** (0.003)	0.315*** (0.004)	0.345*** (0.007)	0.321*** (0.008)	0.357*** (0.008)	0.299*** (0.009)	0.367*** (0.010)	0.336*** (0.009)
D(Priority)	-0.050*** (0.010)	-0.052*** (0.009)	-0.221*** (0.021)	-0.223*** (0.021)	-0.324*** (0.044)	-0.218*** (0.044)		
D(Figurative)							-0.014** (0.004)	-0.007 (0.004)
Application year dummies	X	X	X	X	X	X	X	X
Technology class dummies		X		X				
Locarno class dummies						X		
Nice class dummies								X
Log pseudolikelihood	-23207.26	-21737.58	-6024.70	-5894.62	-3541.48	-3370.48	-26529.38	-28152.18
Pseudo R2	0.13	0.19	0.12	0.13	0.19	0.23	0.05	0.05
N	43717	43717	9860	9860	6937	6937	46178	46178

Notes: The reported estimates are average marginal effects. All models are estimated using the populations of filings by Finnish applicants. Robust standard errors in parentheses. *** and ** refer to 0.1% and 1% significance levels respectively.

We find support for Hypothesis 3 when controlling for certain filing-level characteristics, time fixed effects and IPR classifications. Firms have a higher likelihood of using IPR services compared to individual applicants for all IPR types. They are approximately 30 percentage points more likely to use a professional representative for each IPR type. Several robustness checks were conducted, showing robust results for different time periods and model specifications.

5 Concluding remarks

The use of professional representatives across IPR types has thus far been a little studied topic. We found that the use of a professional representative is positively associated with patent grant likelihood and registration likelihood of utility models, trademarks and design rights. Furthermore, we found that the use of professional representatives differs systematically between IPR types: Applicants are most likely to use a professional representative for patents, followed by UMs, design rights and trademarks. This is consistent with technical inventions requiring more expertise to protect (patent and UM applications) compared to brands (trademarks) and aesthetic aspects of products (design rights). It is also found that firms are more likely to use representatives compared to individual applicants for all IPR types. This is consistent with individual applicants having less financial resources to buy IPR services compared to firms (Frietsch & Neuhäusler, 2019).

Due to unharmonized applicant name data, we could not analyse whether applicants used the same representative for several IPR types concurrently. Applicants' motives to use representatives and whether motives differ between IPR types are potential topics for future research. Future studies could also analyse how the use of representatives is associated with quality and value of each IPR type. Empirical evidence suggests that lone inventors and individual applicants have lower quality patents compared to companies (e.g., Singh & Fleming, 2011; Gaudry, 2012). Future studies could analyse to what extent this observation is explainable by the use (or non-use) of professional representatives. An important limitation for the external validity of the research results presented in this article is the focus on only one specific country, Finland. National IPR systems vary between countries and therefore it is important to conduct similar analyses and replications for other countries.

References

- de Rassenfosse, G., Jensen, P., Julius, T., Palangkaraya, A. & Webster, E. 2018. Getting international patents - does the quality of patent attorney matter. Working paper presented at the Eleventh Annual Conference on Innovation Economics at Northwestern University.
- Doran, P. & Webster, E. 2019. Who influences USPTO patent examiners. *World Patent Information* 56, 39-42.
- Frietsch, R., Schmoch, U., Rothengatter, O. & Bethke, N. 2015. The structure of the patent attorney service market in the EU Member States. Final Report.
- Frietsch, R. & Neuhäusler, P. 2019. The Role of the Patent Attorney in the Filing Process. In W. Glänzel et al. (Ed.), *Springer Handbook of Science and Technology Indicators*. Springer Handbooks.
- Gaudry, K. 2012. The Lone Inventor: Low Success Rates and Common Errors Associated with Pro-Se Patent Applications. *PlosOne* 7(3), e33141.
- Hall, B. & Helmers, C. 2019. The impact of international patent systems: Evidence from accession to the European Patent Convention. *Research Policy* 48(9), 103810.
- Reitzig, M. 2004. Improving patent valuations for management purposes—validating new indicators by analyzing application rationales. *Research Policy* 33(6–7), 939-957.
- Reitzig, M. & Wagner, S. 2010. The hidden costs of outsourcing: evidence from patent data. *Strategic Management Journal* 31, 1183–1201.
- Singh, J. & Fleming, L. 2010. Lone Inventors as Sources of Breakthroughs: Myth or Reality? *Management Science* 56(1), 41-56.
- Somaya, D., Williamson, I. & Zhang, X. 2007. Combining patent law expertise with R&D for patenting performance. *Organization Science* 18(6), 922–937.
- Somaya, D. 2012. Patent strategy and management: an integrative review and research agenda. *Journal of Management* 38, 1084–1114.
- Süzeroglu-Melchior, S., Gassmann, O. and Palmie, M. 2017. “Friend or foe? The effects of patent attorney use on filing strategy vis-a-vis the effects of firm experience”. *Management Decision* 55(6), 1122–1142.
- Süzeroglu-Melchior, S. 2017. The supply side of IP management: Understanding firms' choices regarding IP intermediaries. *World Patent Information* 50, 55–63.
- Wagner, S. 2006. Make-or-Buy Decisions in Patent Related Services. Discussion Papers in Business Administration, No. 2006-16. Munich School of Management, University of Munich.