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Who Influences USPTO Patent Examiners?

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Who influences USPTO patent examiners?

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Key words: patents; patent office, USPTO, patent attorney

Abstract

We test for evidence that the patent attorney has an extra-ordinary influence on the patent examiner using data on examiner citations of 93 608 patent applications to the USPTO. We find that examiners cite patents from the same patent attorney (as used for the focal application) at an abnormally high rate. This evidence is consistent with the view that attorneys are influencing the examiners reports. Coupled with new evidence that non-blocking examiner citations have a positive effect on the grant decision, this suggest that the grant decision may be compromised.

Introduction

If there are substantial non-merit based factors in the decision to grant a patent, and if the legal right, per se, has a notable commercial effect, then a patent system is unlikely to be achieving its pro-innovation potential. There is newly emerging evidence that the legal right does influence whether or not the invention is commercialised. Unfortunately there is also evidence that non-merit based factors affect the probability of being granted ([1] de Rassenfosse et al, for example, find only a weak correlation between the technological merit and grant). In this paper, we examine whether the patent attorney is one of these non-merit based factors influencing the patent examiner, *ceteris paribus*.

As mentioned, there is mounting evidence, which shows that the legal right has an effect on commercial outcomes, over and above the technological merits of an invention. Economists in the US and Australia have recently found that firms with a granted patent (relative to applications that were refused) have: higher stock market capitalizations, and, for patent-assertion entities, greater litigation rates ([2] Feng and Jaravel); longer inventor tenure ([3] Melero et al); more progress towards

commercialization ([4] Webster and Jensen); and, for start-ups, higher employment and sales growth ([5] Farre-Mensa et al).¹

In this paper, we show statistical evidence to suggest that in the US, the patent attorney, who is a partisan agent of the applicant, is having notable effects on examiners' reports. Specifically, this evidence is the tendency for examiners to cite the prior art from the same attorney firm who handled the application under examination. It constitutes a prima facie case that the examiner is being influenced by the attorney and this is of concern given the evidence that prior art reports are statistical determinants of grant ([6] Sun and Wright). In short, our evidence suggest the patent system is being influenced by factors other than the objective scientific merit of the invention.

How does the patent application process work?

Patents give their owners legal rights to exclude others, for up to 20 years, from selling or manufacturing the invention as described in the patent document. To obtain a patent, the owner of the invention must demonstrate that the invention is both new-to-the-world and not obvious to someone skilled in the technology. To prove this, the owner must submit detailed technical documentation about their invention. In particular, to establish novelty and non-obviousness, the owner needs to clearly articulate the state of the known technology at the time of patent application. Almost all inventors use a registered patent attorney to undertake both the task of documenting this evidence and dealing with the patent office examiners who adjudicate on the application.

In practise, it is the patent attorney, not the inventor or the owner of the invention, who negotiates with the examiner ([11] Lemley and Sampat). Attorneys usually draft the patent document and guide the direction of patent examination ([12] Glazier). The complexity and ambiguity in judging the improvement of the underlying invention gives the patent attorney scope to influence the examiner ([13] Langinier and Marcoul). These negotiations are iterative and can take several years. See

¹ [7] Sampat and Williams also found that examiner leniency had no dampening effect on follow-on innovation. This 2017 body of research follows earlier work by [8] Cockburn et al and [9] Lichtman [10] Lemley that found examiner heterogeneity affects the examination outcome.

<https://www.uspto.gov/patents-getting-started/patent-process-overview#step1> a formal description of the process.

Why is the examiner important?

To execute the law and realise the intention of innovation policy, patent examiners should judge applications purely on the technological merits of the application before them.² There is already evidence that the examination decision is affected by the residential location of the applicant and inventors. For example, [14] Azagra-Caro and Tur have found evidence of national bias within EPO patent examiners and [15] Webster, Jensen and Palangkaraya have found similar evidence for EPO and JPO examiners.

As mentioned, an application for a patent should only be granted if the said invention is sufficiently inventive relative to what is already known (this is called 'prior art'). Identifying prior art involves a difficult search process and can be quite subjective. Prior art is represented in a patent report as a 'citation'. Citations can work either for, or against, the application.³ They define a boundary of known technologies that deem the said application to be either highly, or marginally, inventive. The applicant is required to cite all prior art they know of, but in addition, the examiner may cite further prior art to justify their decision. [6] Sun and Wright have found that the number of non-blocking prior art citations has a strong positive correlation with gaining a grant.

The patent examination takes place over an extended period (often several years) during which time there is regular interaction between the patent attorney and the examiner. The patent attorney will typically seek not only a grant for his or her client, but a grant with the broadest possible set of rights.

It is well established that if we include each examiner as a separate variable in an economic model to

² In Article I, section 8, the U.S. Constitution: Congress shall have power ...'To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries'.

³ According to [17] Alcácer et al, prior art citations may be used to limit or reject a patent, or to strengthen claims by establishing that earlier inventions are different or inferior to the current invention.

explain grant, then the combination of these examiner variables has significant explanatory power ([8] Cockburn et al; [10] Lemley 2009; [16] Frakes and Wasserman). The technical complexity, depth and fast-moving nature of scientific knowledge makes the examiner's task difficult, especially as the average time they take to review each application is about 19 hours ([16] Frakes and Wasserman; [18] Kuhn and Younge). By contrast, a patent attorney may spend between 10 - 80 hours on each application depending on the complexity of the technology.⁴

Accordingly, we have a situation where the examiner is under time pressure to make a decision over a complex matter but is in regular contact with a well-informed scientific peer who has a vested interest.

Method

The frequency with which citing and cited examiner-added patent pairs share the same attorney firm is used to infer whether or not examiner reports have been influenced by attorneys. If this occurrence, is higher than what we would expect to occur 'naturally' (as similar technologies in close proximity will tend to use the same expert attorney), then there is a prima facie case of attorney influence.

We use citations added for the international search⁵ as a base-line measure of the propensity for citations to occur between applications which involved the same patent attorney. International search is undertaken at about 16 months after filing without interaction with the attorney, and, as the search authorities sit in central locations (e.g. Washington DC), without undue influence from location.⁶

Accordingly, any tendency for citing-cited patents in international search report to share an attorney

⁴ Representative estimates of patent attorney fees and time allocations are hard to find. This estimate comes from <http://www.ipwatchdog.com/2015/04/04/the-cost-of-obtaining-a-patent-in-the-us/id=56485/>.

⁵ These are the citations within PATSTAT that are citn_origin: ISR and publn_auth: WO.

⁶ It is possible that Paris Convention applications to the USPTO convert to PCT after they have had an initial 'first action' by the USPTO examiners. In which case, it is possible that after the first action, some dialogue has occurred with the patent attorney, and this has then influenced the PCT International Search Report. However, given the time to first report was on average between 14.7 to 25.3 months (over 2002 to 2007) and the International Search Reports are done at 16 months, this is unlikely to have occurred. See United States Patent and Trademark Office (various) Performance and Accountability Report, 600 Dulany Street Alexandria, Virginia 22314 www.uspto.gov.

should reflect only the propensity for specific technologies to cluster in geographic areas and therefore to use the same local attorney firm.

Examiner-added citations at the USPTO should also be blind to both geographic location and identity of the attorney. In an ideal world, examiners make their decisions based purely on the technological merits of the application before them. Any difference in the propensity for examiner citations on the one hand and international search citations on the other, to cite prior art from the same attorney, would therefore suggest an influence of the attorney firm on the examination process.⁷

It reasonable to assume (given the meaning of blocking prior art citation), and, it has been established statistically, that the addition of a blocking citation would reduce that probability of grant ([19] Lazaridis and van Pottelsberghe; [15] Webster, Jensen and Palangkaraya). Recent work by [6] Sun and Wright however has found that non-blocking prior art is strongly associated with a higher probability of grant. It is most probable that if the examiner is influenced by the attorney, he or she will be adding non-blocking citations as the attorney would not proceed with the patent application if there was genuine blocking prior art. Hence we can conclude that if the attorney influences the citations the examiner adds, they it is a likely as not to have a positive effect on the probability of grant.

Data

The main data source is the OECD-EPO Worldwide Patent Statistical database, PATSTAT. It provides information on applicant name, filing date, origin of citations and applicant country of residence. Over 2000 to 2016, there were 467,522 applications to the USPTO that were also filed at the EPO, JPO, KIPO or SIPO. Of these, 107, 869 were from US resident applicants.⁸ We only have attorney information on

⁷ Analysts have previously used data on the co-location of inventors who cite each other to infer whether, or not, there has been some personal interaction between inventors ([20] Jaffe, Henderson and Trajtenberg). If inventors (acting as the applicant) are more likely to cite other inventors in their local area than what is expected given the distribution of all inventors across their field, then it is probable that physical proximity has led to greater personal interaction and familiarity with each other's inventions.

⁸ Applicants are deemed 'US' if they gave at least one US address on their application.

the prior art cited on these 107,869 applications that were also part of the original 467,522 applications. However, we have no reason to expect this will bias the results for our purposes.

Attorney information was collected during 2016–2017 from the USPTO Bulk Downloads of Patent Application Information Retrieval Data. USPTO patent attorney firms were identified and harmonised using a bigram match described in [21] Julius and de Rassenfosse. The attorney firm entity name was identified from this address field. This left us with 93,608 distinct applications with attorney information. As we are only examining the USPTO, our data only refers to citations that were added by the US examiner, and not the extended international family. Only citations to patents contained within the dataset are included.

Results

Table 1 shows the percentage of citing-cited patent pairs that use the same attorney firm according to the source of the citation. The base case, international search report citations, reported that only 1.8% of pairs use the same attorney firm. If the examiner was blind to the attorney, then the percentage of citing-cited patent pairs that use the same attorney firm in the examiners reports should also be 1.7%. However, we find that examiners are citing from the same attorney firm four times as often (7.2%). We include applicant-added citations for comparative reasons only. We expect to see a higher percentage of same attorney citations in applicant-added citations as we know and expect that the attorney will influence his or her client.

TABLE 1 ABOUT HERE

Table 2 presents the same information in a probit regression framework. The dependent variable = 1 if the same attorney firm is used; =0 otherwise; and the explanatory variables are whether or not the citation is examiner-added; applicant-added (with missing being international search report added); and whether in the same IPC 4 digit technology class. We model this equation for the whole sample

of 235,910 citing-cited patent pairs and for a sub-sample where the citing and cited patent are not from the same local area (US Core-Based Statistical Areas or CBSA).

TABLE 2 ABOUT HERE

Both empirical methods show the same pattern. Examiner citations are proportionately more likely to include prior art that shares the same patent attorney as the citing patent. This leads us to suspect that the attorney is influencing the consideration of the examiner. Whether this influence is a factor in the low quality of US patents is conjecture but the results here suggest it deserves further consideration.

Conclusion

Societies must decide how they use technology and how they reward different types of producers. The patent system is an institution society has designed to hasten innovation and improve global well-being. To be most effective, the decision to grant a patent should be based on whether the legal right (to limit competition) creates incentives for the creation of inventions that would otherwise not have existed. Although conceptually straightforward, this notion is difficult to translate into a practical rule and, in its place, patent offices use technological merit (i.e. novelty, non-obviousness and utility) as the basis for determining whether an additional incentive, via a grant, is needed or not. As such technological merit has become the cornerstone of the decision to grant a patent.

If other factors affect the grant decision – say the nationality of the inventor or the persuasive skills of the attorney - then the power of the patent system to bring innovation forward will be compromised. Applications that should be refused will be granted, thereby giving a monopoly rents to investors who would have invented anyway. Or applications that should be granted will be refused, thereby chilling investment into innovation. Our evidence that suggests examiners in the USPTO are influence by the attorney firm and, by extension, decision are not based solely on technological merit. Undertaking reform of the examination system to limit the influence of attorneys would therefore improve how well the patent system stimulates innovation.

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TABLES

Table 1: Use of same attorney firm for citing and cited patent by source of citation, USPTO, 2000-2006

	International Search Report citations	Examiner-added citations	Applicant-added citations ^a
Different attorney firms (%)	98.3	92.8	83.1
Same attorney firm (%)	1.7	7.2	16.9
Total (number)	82,609	108,944	44,445
Total (%)	100.0	100.0	100

Note: a Excludes self-cites. Pearson chi2(2) = 1.0e+04

Table 2. Determinants of using same patent attorney for citing and cited patent.

Dependent variable = 1 if same attorney used for citing and cited patent, USPTO, 2000-2006 (probit)

Explanatory variables	(1) All citations	(2) Not CBSA matched sample
Examiner-added citation (1/0)	0.616** (0.012)	0.396** (0.041)
Applicant-added citation (1/0)	1.138** (0.013)	0.781** (0.038)
IPC 4-digit match (1/0)	0.200** (0.011)	0.167** (0.035)
Constant	-2.255** (0.014)	-2.178** (0.040)
Observations	235,910	22,397
Pseudo R-squared	0.0843	0.0573

Note: Standard errors in parentheses ** p<0.001, * p<0.005