

Research proposal for research grant (summary in 2 pages)  
NBER Innovation Policy Working Group

## **Patent nonuse: Are patent pools a solution?**

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### **Research objectives**

Studies have depicted that the rate of unused patents comprises a high portion of patents in North America (35% Non-use on average), Europe (37% Non-use on average) and Japan (64% Non-use on average). The importance of the issue of nonuse is also highlighted within the literature on strategic patenting, IPR policy and innovation economics. In spite of the fact that the literature has identified some factors explaining patent nonuse, still it is not clear why a high share of patents is left unused. Particularly, the literature has not distinguished between used and unused blocking patents in order to further investigate the drivers of unused blocking patents. Moreover, although the current literature has emphasized on the role of patent pools in dealing with issues caused by patent thickets and blocking patents, to date no study has addressed the effect of patent pools on the rate of use of blocking patents. Indeed, the effect of patent pools on the rate of use of those blocking patents which are included in the patent pool is obvious since they will be licensed out after inclusion in the patent pool. Patent pools may favor the use of pooled blocking patents through decreasing licensing transaction cost and providing equal and non-discriminatory access of all the members and potential licensees to the pool's technology. Nevertheless, the effect of patent pools on the rate of use of blocking patents may not be limited only to the pooled blocking patents. Becoming a member of a patent pool may also favor the use of those blocking patents which are owned by the pool members but are not included in the patent pool. Such an effect might be a result of the members' access to the patent pool's complementary technology, their collaboration with each other, and benefiting from enhanced information sharing and increased technological spillover provided by the patent pool. Moreover, some characteristics of the patent pools such as those associated to the difference among the pooled patents, the difference between patent pool members and their patent portfolios or their composition within a patent pool might also moderate the effect of patent pools on the rate of use of these patents. The results of this study are expected to have practical implications for strategic decision-making and for policy makers dealing with the issue of overlapping IPRs and cumulative innovations.

### **Research questions**

The research raises the following main questions: What are the factors explaining unused blocking patents? How different are the factors affecting the rate of unused blocking to fence patents from factors affecting the rate of unused blocking to play patents? Do patent pools intensify the rate of patent use? Which characteristics of the patent pools will affect the rate of use of patents?

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## Expected contributions

The expected contribution to the literature is as follows. First, the study aims to investigate patent-specific, invention-specific and technology-specific determinants of unused blocking patents and understand how different they are for blocking to fence vs. blocking to play patents. The study also provides new evidence in order to fill the gap in empirical analysis of both types of blocking patents by employing an original dataset. Second, the study examines the effect of patent pools on the rate of use of unused blocking patents with the intention of contributing to the current discussion on social, economic and technological benefits of patent pools. Accordingly, in order to contribute to better understanding of the role of patent pools in intensifying the rate of patent use this study intends to investigate those characteristics of the patent pools which may affect the rate of use of unused blocking patents.

## Methodology

The primary source of the data for this study is PATVAL II database which is a cross-country database developed within InnoS&T project in 2010 and 2011, intended for studying the determinants of patent licensing, patent sale and new venture creation by universities and PROs. The survey collected information on inventors' education, invention process, inventors' motivations and rewards and use and value of patents by surveying inventors of 22,533 EPO patents with propriety dates between 2003 and 2005 in Europe (Austria, Belgium, Switzerland, Czech Republic, Germany, Denmark, Spain, Finland, France, United Kingdom, Greece, Hungary, Ireland, Italy, Luxembourg, The Netherlands, Norway, Poland, Sweden, Slovenia), USA, Japan and Israel, through employing a harmonized questionnaire across all the surveyed regions. This data was compared with supplementary information obtained from other sources on the patent, technology, region and inventor. There are a number of indicators obtained through PatVal II database. In order to conduct this study patent-level data (data on use and value of patents), organization-level data and technology-level data will be employed from PatVal II database.

As the secondary source of data for this study, I have created a dataset of over 175000 patents collected from 39 patent pools. These patent pools consist of pools included in *MPEG LA* patent pool package comprising AVC/H.264, MVC, VC-1, Wireless Mesh, MPEG-4 Visual, MPEG-2 Systems, ATSC, 1394 and MPEG-4 Systems, *DVD6C* patent pool package including 16 patent pools, *Sisvel* licensing programs including MPEG Audio, DVB-T, DVB-T2, ATSS, WSS, H.264SVC and TOP teletext, 3G pools including W-CDMA, G.711.1, G.729.1, *ULDAGE* pool package including CATV and ARIB and finally *One Blue* patent pool including BD Drive, BD-PC, BD Software, BD Player/Recorder, BD-R/RE, BD-ROM and BD Aftermarket Drive. Besides the patent-level data for each patent pool, I have also collected relevant information regarding each patent pool such as patent pool's technology, royalty and licensing terms, patent pool standard, formation year, administrator, country of origin, patent pool size, name of licensors holding each patent, number of licensors and finally number of licensees. Some of this information such as patent pool size, patent pool age (based on the formation year) and country of origin will be employed as control variables.

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