



Les défis de développement pour les villes et les régions dans une Europe en mutation

## International Collaboration and the Likelihood of Obtaining a Patent

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### Résumé / Summary

The literature on patent prosecution has increased dramatically over the last twenty years with two simple reasons for this interest. First, there has been an ever increasing tendency of organizations and inventors to pursue patents as a means of protecting and appropriating their inventions. For instance, in 1995 global patent applications marginally exceeded 1 million, while in 2015 this figure is almost 2.9 million (source: WIPO).

Second, patents have been shown to be related closely with a number of economy-wide variables. Since the study of Griliches (1981) scholars have shown that patents positively contribute to firm's market value (see for instance Blundell et al 1999). Further, patents have been linked to the successful acquisition of Venture Capital by startups (Mann and Sager 2007). Perhaps the most important contribution of patents has been shown in the studies by Lerner (2009) and Moser (2005) where they provide some evidence that patents and patent laws may spur innovation; however, more work needs to be done to establish a causal relationship between the two.

The literature on patent prosecution examines characteristics and behavior of the two parties involved: i) the patent office, representing the central planner, and ii) the innovators.

Our focus is on the latter. Our objective is to examine whether international inventor collaboration in a patent application is more likely to result in a patent than no such collaboration. Our focus is on the 28 EU member countries and we explicitly distinguish between countries with high and low innovative activity. After we establish whether such collaborations are more likely to result in a patent, we will examine whether quality or more intense prosecution are responsible for the higher likelihood.

We have already drawn information from a series of patent datasets from the Office of the Chief Economist at the USPTO. We have obtained information on all 509,073 patent applications filed between 2001 and 2009 and disclose at least one EU located inventor. Of these, approximately one hundred thousand disclose inventors from more than one country. This latter group is one average five percentage units more likely to obtain a patent. However, the average number masks significant variability both in the composition of countries and collaborations.

We will further examine the number of forward citations of the issued patents in an effort to estimate invention quality. To approximate the intensity of patent prosecution, we have already compiled data on continuations, requests for continuing examination and the application length.

One of the EU's core problems is the income inequalities across its countries and regions. On the one hand, many Northern EU countries experience a high GDP per capita and low unemployment rates while most of the EU South faces a number of challenges. Further, and perhaps more importantly, convergence between these regions is still elusive and faced with many challenges. Both policy makers and scholars have identified that innovation activity is the engine of growth and a key in achieving a larger degree of economic coherence across countries.

However, for the innovator to devote time and money to a risky project, s/he needs to have an understanding on how to protect his/her invention. In countries where knowledge about the patent system is limited, the incentives to perform innovation activity are further diminished. To make matters worse, patent prosecution is costly and infused with many hidden costs. Berger (2005) estimated that the cost of obtaining a single patent from the European Patent Office could reach up to 30,000 Euros when legal counsel and drafting services are included to the fees required to be paid.

This project seeks to provide comprehensive insights on whether collaborations from innovative laggard countries with top innovators help in alleviating any of these challenges as evident from patent award likelihood.

Keywords: International inventor collaborations, likelihood of patent grant, patent prosecution, USPTO.

JEL classification: O31, O32

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