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Characteristics of international patent application outcomes

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Abstract

International patent application outcomes are modelled using a matched sample of 70,250 patent applications to determine how the outcomes vary across technology area, non-obviousness of the invention and priority country.

Keywords: Patents; Patent harmonization; Non-obviousness

JEL classification: O31; O34

1. Introduction

All developed countries apply the same criteria — novelty, non-obviousness and utility — to determine whether an invention is eligible for patent protection. In addition, the Trilateral Patent Offices – the United States Patent Office (the USPTO), the Japanese Patent Office (the JPO) and the European Patent Office (the EPO) – have attempted to harmonize examination protocols. Despite this, recent evidence suggests that aggregate grant rates in the USPTO, the EPO and the JPO vary substantially (Quillen and Webster, 2001, 2006). However, these studies are based on aggregate data and hence cannot control for the fact that differences in observed granting rates may be caused by the quality of the patent application.

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In order to control for patent application quality, we examine patent office outcomes using a matched sample of 70,250 non-PCT applications that have been submitted to all three trilateral patent offices and have a single, common priority application.[1] This approach is similar to Graham et al. (2003) who use a matched sample of patents to investigate whether EPO opposition procedures affect patent quality. We then analyze patent application outcomes using a multinomial logit model to determine whether the decisions made by the patent offices vary systematically across patent characteristics such as technology area, non-obviousness of the invention and priority country.

Our results suggest that application outcomes do vary systematically across all three patent offices. In particular, priority country appears to have a strong effect on the outcome of decisions at the JPO and, to a lesser extent, the EPO. This has important implications for the ongoing debates regarding patent quality and patent harmonization, which we briefly discuss at the end of this paper.

2. Background

An inventor who wants legal protection in different countries must apply for a patent in each jurisdiction. Although the same patentability threshold applies, each office conducts its own search for prior art and uses different tests to examine the size of the inventive step involved in the invention. Thus, it is possible that a single invention that results in patent applications in multiple jurisdictions will be granted by one patent office and rejected by others. This potentially creates investment uncertainty for firms interested in launching new products in multiple markets.

There are a number of possible reasons why patent application outcomes for a given invention may vary across patent offices. First, there may be differences in the legislative environment governing the different offices. For instance, the US currently has a ‘first-to-invent’ rule while the rest of the world uses a ‘first-to-apply’ rule. Second, institutional factors may also affect the patent application outcomes since differences in incentives or resource allocation decisions across the offices may affect the quality of the examination (Cockburn et al., 2002). Third, there are unobserved interactions between the applicant and the patent examiner in each office which are likely to affect the final outcome.

In this paper, we focus on the effects of patent characteristics – including the area of technology, the increment in originality over existing prior art (i.e. the size of the inventive step), and the priority country – on patent application outcomes. Technology area matters because if the application is in an emerging/immature technology area, it may be much harder to determine whether the application meets the patentability criteria. The size of the inventive step may also affect the patent application outcome since it should be easier to accept patent applications which are appreciably more inventive than existing art. The country of origin may affect patent application outcomes if local applicants are more familiar with the idiosyncrasies of the local patent system or if patent examiners favour local over foreign patent applicants.

[1] The priority date is the year in which the first patent application of a ‘family’ was first lodged with a patent office. This application is subsequently referred to as the priority application.