



Canadian patent profile: Some explorations in patent statistics[☆]



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The aim of this paper is to present the patent profile of Canada and Canadian inventors. Different measures of patent statistics have been used to compare Canada's profile with that of other countries. Also, the patent intensity of technologies and industries has been presented. Comparing Canada's patent profile with that of other countries using different patent statistics suggests that Canadian companies do not utilize patents as much as their counterparts in other industrialized countries. This is despite the fact that IP protection in Canada is not an obstacle to innovation according to the surveys of Canadian innovative companies.

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1. Introduction

During the last three decades, the most common assets of companies have shifted from largely tangible assets to intangible and knowledge-based assets such as intellectual property (IP) rights, research and development (R&D), software, skills, organisational know-how and branding. Studies in several OECD countries show that firms now invest as much in intangible and intellectual assets related to innovation as they invest in traditional capital such as machinery, equipment and buildings [23]. Considering this new trend, providing consistent and comparable information on intellectual assets would help investors to better assess future earnings and the risks associated with different investment opportunities. This piece of information would also help policy makers in the design and use of different instruments to enhance the innovative capacity and economic growth of the country. The aim of this paper is to provide some statistics on the use and exploitation of patents in Canada and by Canadian inventors. These patent statistics will give a better picture of the Canadian patent profile from domestic and global perspectives.

A patent is a government grant to the inventor(s) giving the right to exclude others from making, using or selling an invention. The argument for government intervention to provide patent rights is that without this protection, competitive market systems fail to provide enough incentives for the private sector to undertake sufficient research and development (R&D) to generate new ideas and

technologies which are important sources of long-run economic growth. When the government grants a patent, it trades off short term exclusive (monopoly) rights to the use of an invention in return for an incentive to create the invention as well as the early publication of the invention instead of using secrecy to protect the invention [8]. Patents allow successful innovators to benefit from their innovative efforts and also to provide an incentive to future investors. More specifically, patents are granted for three purposes¹ [15]:

- they are legal means of providing exclusive rents and market share to inventors and companies as compensation for their investment costs,
- since they require public disclosure of the technical nature of the new invention, they increase the stock of public knowledge, and,
- protecting patents can serve as a support for international technology transfer.

The structure of this paper is as follows. The next section discusses the profile of Canadian patents. This includes both patent applications filed in Canada and the Canadian patent applications globally. Section 3 discusses the relationship between patent statistics and innovation, and ranks selected countries by using this measure. Section 4 presents the performance of public institutes – universities and governments – in terms of filing patent

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¹ There is a large body of literature that examines the costs and benefits of a patent system and its relationship with innovation. This discussion is beyond the scope of this paper. Interested readers may refer to Hall and Harhoff (2011) [8] and Gallini (2012) [4] among others for further discussion on this topic. The impact of patent system on exports can be found in Rafiqzaman (2002) [25].

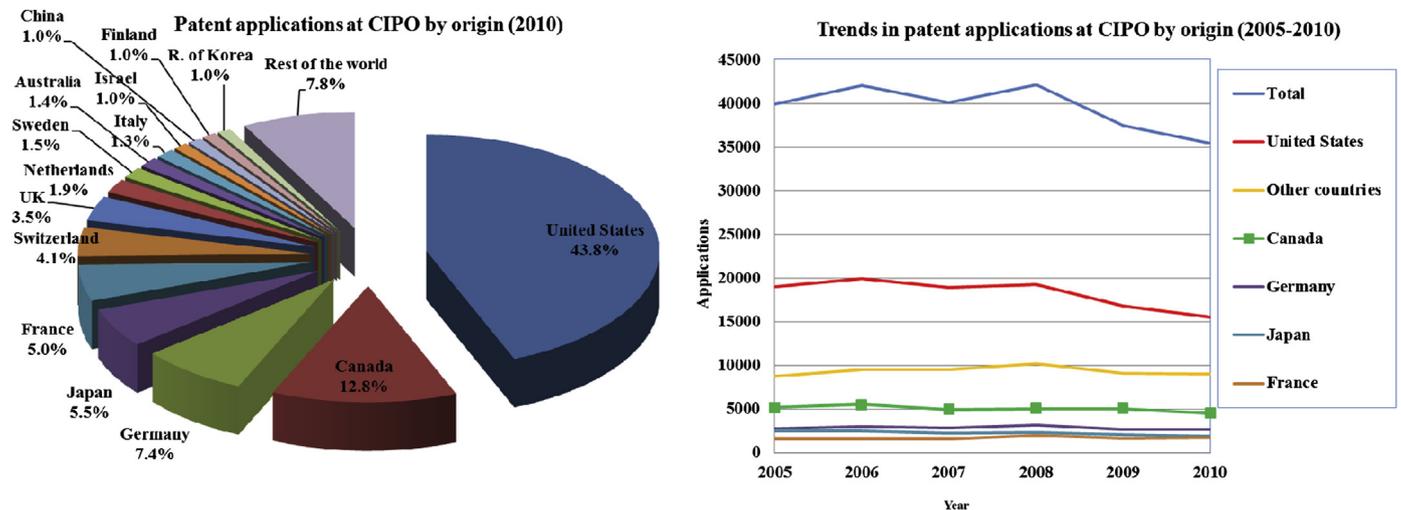


Fig. 1. Patent applications at CIPO by source country. Source: WIPO Statistics Database, 2011.

applications. Section 5 presents Canadian patents by field of technology and industry classes. Section 6 summarizes the findings.

2. Canadian patent statistics

The Canadian Intellectual Property Office² (CIPO) is responsible for administering Canada's system of IP rights (patents, trademarks, copyrights, industrial designs and integrated circuit topographies). Inventions are patentable in Canada under the Patent Act. In order to obtain a patent in Canada, the inventor or its agent must file an application at CIPO. In order for the application to be patentable, the invention must satisfy, for example, the conditions of novelty, utility, and ingenuity. A substantive examination and the consequent grant of a patent may be deferred by the inventor for up to five years. Through a patent, the government (CIPO) gives the inventor the right to stop others from making, using, or selling the invention from the day the application is filed³ to a maximum of 20 years after the day on which the patent application was filed conditional that the patent will be eventually granted. In exchange, the inventor must provide a full description of the invention so that all inventors can benefit from this knowledge. Patent applications are open to public inspection 18 months from the earlier of the filing date in Canada or the filing date in another country (priority date).

It is worth picturing the trends of patent numbers in the world before presenting the patent statistics of Canada. In terms of global patent statistics, we observe a surge in patenting in the world: from 1995 to 2008, total patent filings in the world grew by 85.6%. This growth is mainly due to the fast growth at the State Intellectual Property Office of China (SIPO), the United States Patent and Trademark Office (USPTO) and the Korean Intellectual Property Office (KIPO) such that three-quarters of the total growth can be attributed to these three offices. However, between 2005 and 2008 the growth in patent applications worldwide slowed, and then dropped by –3.6% in 2009 coinciding with the decline in world economic output. Despite the weak economic recovery, patent filings worldwide increased strongly again in 2010 [28].

Different reasons were suggested for this growth in worldwide patent numbers, with the main three being as (i) multiple filings for the same invention in different countries, (ii) improvements in research and development (R&D) productivity, and (iii) patenting in new technological areas. However, statistics do not suggest that the last two factors can explain the worldwide surge in patent activity: On one hand, the business sector R&D expenditures have grown faster than first filings. On the other hand, no single field of technology can account for the worldwide increase in patent filings. According to WIPO (2011), multiple filings for the same invention seem to be the main factor behind the surge in global patent activity in recent years. Another important factor in the worldwide growth of patent filings is the emergence of the Chinese and Korean economies that resulted in a rapid increase in patent filings by those countries.

Canada experienced more or less the same trend in patent numbers. The rest of this section will present Canadian patent statistics. Figure 1 presents the patent applications at CIPO by source country. Canada is usually referred to as an office of second filing since most of its applications are non-resident filings (about 83%). Another country with a similar situation is Australia with 90.3% non-resident filings. In 2010, 43% of patent applications in Canada were from the United States, versus 13% with Canadian origins.⁴ It is worth mentioning that the share of resident (or Canadian) filing at CIPO more than doubled since the 1980s [2]. Germany (7.4%), Japan (5.5%), and France (5%) were the next main patent filers in Canada (Fig. 1 – left). China had the fastest growth in terms of the number of applications in Canada in 2005–2010, though its numbers are still quite low compared to other countries (150 applications in 2005 versus 345 in 2010). Figure 1 (right) also shows that Canada experienced the same decreasing trends in receiving patent applications due to the recent recession.

Nikzad (2012) addresses the determinants of foreign patenting in Canada and finds that the patent activity of foreign countries is the most important determinant of the number of patent applications in Canada [20]. This finding is consistent with Gallini et al. (2001) [3] which suggest an increase in foreign patenting in Canada may be due to an increase in innovative activity of foreign countries

² McMaster (2007) explains the Canadian Patent System and its developments over time [17]. Harhoff (2011) discusses the impact of a deferred examination request in the Canadian Patent System [10].

³ The 20-year starts from the priority date, which is the date an application was first filed globally. This date may be different from the filing date of the application at CIPO.

⁴ According to WIPO, the country of origin of a patent application is determined based on the residency of the first-named applicant [28].

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