

Does Stronger Intellectual Property Rights Protection Induce More Bilateral Trade? Evidence from China's Imports

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Summary. — Most of the previous studies on the trade effects of intellectual property rights (IPR) protection have been from the perspective of major industrialized nations. However, much of the current debate on the effects of IPR protection involves large developing countries. This study contributes to the literature by analyzing the impact of stronger IPR laws in China on its bilateral trade flows. We estimate the effects of IPR protection on China's imports at the aggregate and detailed product categories for both developed and developing countries. The empirical results suggest that increased IPR protection stimulates China's imports, particularly for knowledge-intensive products.

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1. INTRODUCTION

In the past two decades, the nature of the linkages between intellectual property rights (IPR) and international trade has been the source of much debate and controversy. Disagreements persist on whether stronger IPR stimulate or discourage trade. Two key developments contributed to the recent interest in this issue. In the political arena, the status of IPR as a form of trade barrier became an issue of greater global concern after the enactment of a special provision in the US Trade Act of 1988 which linked American trade policy to the prevailing IPR regimes in bilateral trading partner nations. In addition, IPR became even more important when increasing national disputes over IPR led to the multilateral World Trade Organization's (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) in 1994. Since trade in knowledge-based goods is an important source of innovation and technology for low-income countries, it is not surprising that one of the main issues surrounding the IPR debate was centered on the need for greater IPR protection in developing countries. But despite the importance of IPR laws to developing countries, relatively limited empirical evidence exists on the impact of IPR regimes on bilateral trade flows with developing nations (Leger, 2005; Schneider, 2005).

This study focuses on China as a case study of the impact of strengthened IPR laws on international trade. Although other large developing nations (e.g., Brazil, India, and Mexico) have also upgraded their patent laws to meet international standards, China is a particularly interesting case because of its huge population and significance to the global economy. Also, China is usually at the center of debates about intellectual property violations and has been part of many international disputes with several industrial nations (especially the United States) over IPR infringements (Cheung, 2009). For example, on April 10, 2007, the United States filed a complaint with the WTO with regards to China's lack of protection and enforcement of intellectual property rights. The complaint listed four areas of concern: (a) clarification on the enforcement thresholds needed for prosecuting acts of trademark counterfeiting and copyright piracy; (b) Chinese customs' disposal of confiscated goods that infringe intellectual property rights; (c) the scope of coverage of criminal procedures and penalties for

unauthorized reproduction or distribution of copyrighted works; and (d) the denial of copyright protection and enforcement for creative works that are unauthorized or censored in China (WTO, 2009; Zhu & Liu, 2008).

The relatively high level of complaints against China's IPR practices may be an indication of the existing gap between IPR laws on the books and actual enforcement. Dimitrov (2009) contends that "... China has the highest levels of copyright piracy and trademark counterfeiting in the world, even though it also provides the highest per capita volume of enforcement." Unfortunately, there is lack of reliable data on enforcement of IPR laws to allow for rigorous empirical analyses of such issues.

This paper contributes to the literature by analyzing the impact of the strengthening of IPR laws in China on its bilateral trade flows. China's recent reform of its IPR laws and its status as a large developing nation with a strong threat of imitation makes it an interesting case study on the effect of patent protection on trade. As in previous studies, we also explore the possibility that the trade effect of patent protection may vary by product sectors and by the level of economic development in trading partner countries (Maskus & Penubarti, 1995; Smith, 1999). Since industrialized countries (i.e., major OECD countries) are the main producers of new technology, it could be expected that the strengthening of patent protection in China would have a stronger effect on bilateral trade (import) flows to China from OECD countries relative to import flows from non-OECD countries. The results from this study provide much needed empirical evidence on the current debate regarding policy reforms in IPR regimes and its effects on technology transfer and trade with China.

This paper differs from previous studies in several ways. First, this is the first empirical study based on one developing country that experienced significant changes in its IPR systems in the past two decades. Thus, this analysis from the perspective of a large developing country provides an alternative to most previous studies that usually emphasize export flows from a major industrialized nation to a diverse group of importers (Maskus & Penubarti, 1995; Rafiquzzaman, 2002;

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Smith, 1999, 2001). Second, in contrast to studies based on data from a single year, this study uses panel data (1991–2004) that cover a more extended time period and allow for the consideration of the dynamic nature of the relationship between international trade and policy changes in IPR regimes.

Third, this paper applies two alternative measures of IPR protection as proxies for IPR regimes: (1) annual patent applications by foreign residents (firms), and (2) Index of Patent Rights developed by Ginarte and Park (1997). It is possible that patent applications, an alternative measure of patent rights, may be more reflective of actual patent activities. Previous studies typically use patent rights indices or scores based on the works of Rapp and Rozek (1990) and Ginarte and Park (1997). These indices usually use a scoring method that is often arbitrary in the choice of weights on the importance of various criteria. Although useful in some cases, the index-based measures of patent rights may not adequately capture the dynamic nature of the interaction between changes in patent laws over time and their potential impact on other economic variables (e.g., trade). When possible, it may be more instructive to use actual data on the number of patent applications over time as adopted in this study. Hence, in addition to adopting the commonly used Index of Patent Rights measure by Ginarte and Park, we also use annual patent applications by foreign residents (or firms) for Chinese patents as a measure of the strength of patent rights protection in China. The growing number of foreign patents filed each year may be a good indicator of growing confidence of foreign firms in the patent rights protection offered in China. This measure of IPR protection accounts for more variation across time and may be less susceptible to measurement errors.

The main finding from this study is that the strengthening of patent laws in China led to an increase in its import flows, particularly in knowledge-intensive goods. This paper's empirical results further support the hypothesis that the strengthening of IPR laws has a strong market expansion effect in China for trade with both OECD countries and non-OECD developing countries. Also, the results suggest that the effects of IPR protection on import flows vary by different product sectors and are strongest in the knowledge-intensive sectors. The rest of the paper is organized as follows. Section 2 contains an overview of IPR reforms in China and section 3 provides a brief review of empirical literature on the effects of IPR on international trade. Section 4 describes the model specifications and data used in the analysis. Section 5 provides a discussion of results and implications for policy in developing countries and Section 6 concludes the paper.

2. OVERVIEW OF IPR PROTECTIONS IN CHINA

Among developing countries, China is particularly suitable as a case study for analyzing the impact of IPR reforms on bilateral trade flows. Although China is one of the largest economies in the world and operates a significant trade surplus with most other nations, it is a net importer of capital-intensive manufacturing products. For example, about 80% of China's imports are used as intermediate inputs in its growing manufacturing sectors (Tongzon, 2001). Surprisingly, China had no patent rights protection before 1985. However, since the establishment of its first patent law in 1985 and two substantial revisions in 1992 and 2000, China has undergone a gradual reform of its patent systems in order to achieve compliance with international laws. Although the 1985 version of China's patent law contained its most comprehensive requirements hitherto, it still lacked several important components.

In 1992, mainly due to the pressure from the United States, China's patent law was substantially amended to bring it closer to those of many industrial nations. The strengthening of China's patent laws was also accelerated by its membership in several IPR-related international treaties, such as the World Intellectual Property Organization (WIPO) in 1995. Most recently, the latest revision of China's patent law was made in 2000 as a part of the preparations for China's entry into the WTO. Furthermore, as a recent member of the WTO, China made significant efforts toward aligning its IPR laws (i.e., patents, copyrights, and trademarks) with the requirements of the TRIPS agreement and other major international IPR conventions (Maskus, 2004). For instance, the duration of patent protection had to be extended to 20 years for patentable products (e.g., chemical and pharmaceutical products, electronics, food, and beverages). Unlike US patent laws which recognizes the "first to invent" rule, China abides by the "first to file" system for patents as a means of protecting innovations by the inventors who are the first to file for patents. Nevertheless, the "first to file" rule is consistent with practices in the European Union and other nations. As a member of WIPO and the WTO, the Chinese government is required by international patent laws to perform international patent searches and prosecution of patent rights infringements within China (US Department of Commerce, 2003).

Similar to the reforms in its patent laws, China also made significant upgrades to its copyrights and trademarks laws to conform to international standards. No copyright law existed in China until 1990. This law was later revised in October 2002 to conform to the TRIPS agreement as China joined the WTO. In contrast to the patent laws, no Chinese registration is necessary for copyrighted works by individuals from member countries of the copyright international conventions (e.g., the Berne Convention and the Universal Copyright Convention). For example, as signatory to the Berne Convention, Chinese copyright laws now classify computer software programs as copyrighted works worthy of IPR protection. China's first trademark laws were made as recently as 1982. Similar to the other forms of IPR, the trademark laws were amended in October 2001 to conform to international standards such as the Paris Convention and the TRIPS agreement. China operates under a "first-to register" system and the trademarks rules apply to collective marks, logos, and three-dimensional symbols (US Department of Commerce, 2003).

Despite the existence of IPR laws on the books, the relatively low degree of China's enforcement of IPR laws has been a source of on-going debate and controversy with other nations. Significantly more complaints have been brought to the WTO against China regarding IPR laws violations than any other country in the world (Cheung, 2009; Dimitrov, 2009). However, the Chinese government continues to revise and improve its IPR policies as evident in its promulgation of the "Compendium of China National Intellectual Property Strategy" on June 5, 2008. This is a new national five-year IPR improvement strategy plan with the stated goal that "China will take measures to dramatically raise the level of IP, make IPR utilization further effective, prominently improve IPR protection, and greatly enhance public awareness about IP throughout the society" (SIPO, 2008). Since 1992, patent applications by foreign residents for Chinese patents have increased steadily with an annual growth rate of 19% (see Figure 1).¹ The majority of Chinese patents (invention patent applications) are filed by foreign firms and the most important foreign patentees are from Japan, the United States, EU countries, and South Korea.

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