



# THOUGHT LEADERSHIP BRIEF

## Tickets to the Global Market: Chinese Exporters' US Patents Drive Interconnected Economic Success

Robin Gong

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### KEY POINTS

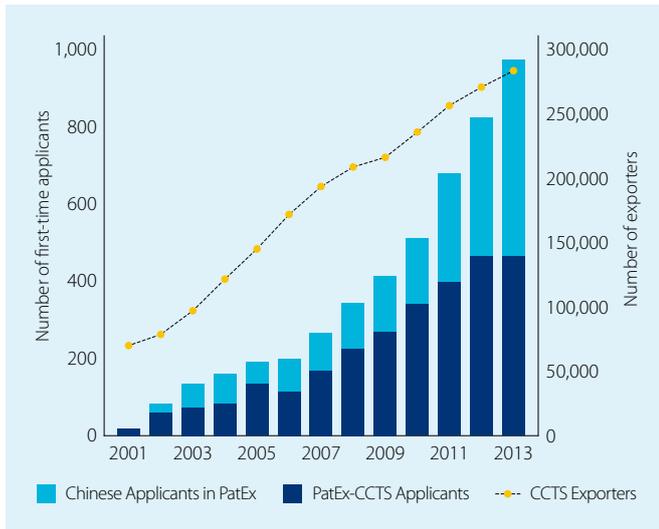
- ▶ In the present day, over 50% of patent applications submitted to the U.S. Patent and Trademark Office (USPTO) originate from inventors located outside of the United States. Notably, a significant portion of these inventors are from emerging markets. these international patent activities plays a vital role in facilitating the success of firms from emerging economies in the global marketplace.
- ▶ Our study on Chinese exporters filing patents in the USPTO reveals that successful first-time applicants achieve substantially greater export growth compared to their similarly situated counterparts that failed. Furthermore, these successful applicants are more likely to survive and expand in their existing markets, with their competitive advantages in foreign markets lasting for at least five years after their initial patent application success.
- ▶ A US patent provides Chinese exporters with more than just market protection in the US. Successful applicants are able to expand in markets beyond the US, as a US patent award signals the Chinese firm's ability to produce high-quality products and their credibility in honoring contracts. This helps to alleviate information frictions in international trade, ultimately benefiting the firm's global business prospects.



## ISSUE

Global patent activity has been steadily increasing over the past few decades. For instance, more than half of all patent applications received by the US Patent and Trademark Office (USPTO) are now from foreign countries, with many of them coming from emerging economies. Notably, there is a remarkable surge of first-time Chinese applicants applying for US patents during 2001 to 2013 (Figure 1). These trends raise some critical policy questions: why do firms patent their innovations abroad? What challenges do firms from emerging economies with weak intellectual property rights (IPR) face in the global marketplace? Can established patent authorities in developed countries act as global hubs to alleviate these challenges?

Figure 1.



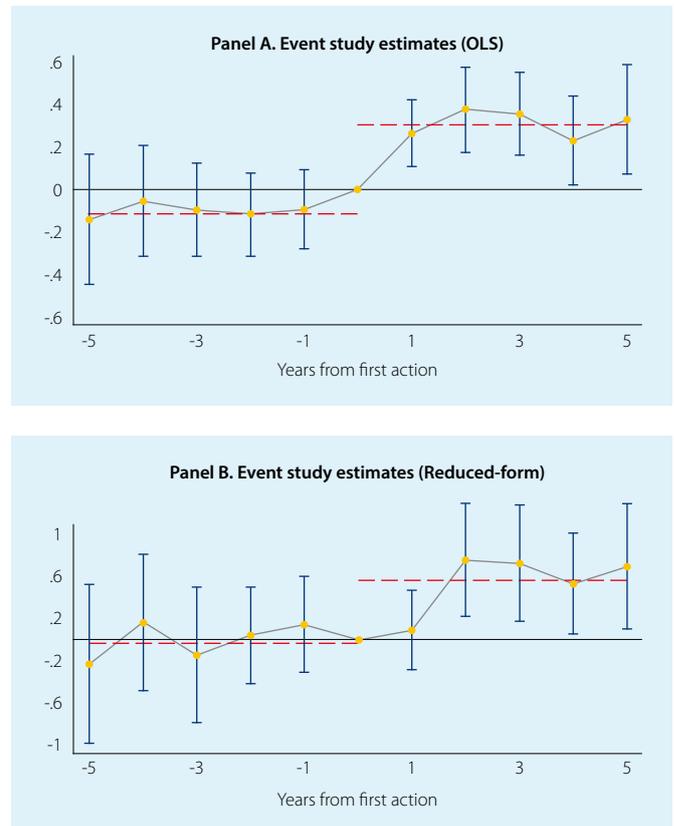
The previous trade literature has established that innovation is closely related to firms’ export activities. Recent work also finds that the strength of a destination’s IPR enforcement may affect its export appeal. However, few studies have investigated how cross-border patenting, conditional on firms’ innovation prowess, affect firms’ export performance. Examining these questions can reveal not only important lessons for international trade, but also inform the mechanisms that underlie patent activity and its economic outcomes more generally. Additionally, this research has crucial implications for firms in emerging economies seeking to expand their global market presence.

## ASSESSMENT

In this study, we manually match Chinese customs data to US patent records and identify over 1,800 Chinese exporters that have ever applied for a US patent. Compared to an average Chinese exporter, exporters filing for a US patent are bigger, more productive, more technologically advanced, and more successful in foreign markets. We then compare the export outcomes between successful and unsuccessful patent applicants and leverage the quasi-random assignment of USPTO patent examiners to identify the causal effect of a US patent grant on the subsequent export performance of Chinese firms.

We find that USPTO patent approval significantly improves the export activity of Chinese firms. A successful first patent application increases annual export growth by 18 percentage points over the 3 years following the patent grant. This is driven in equal parts by greater survival and expansion in incumbent destination-product markets (87%), with limited contribution of entry into new markets (13%). A flexible event study analysis (Figure 2) further reveals that the effect of a patent grant materialises quickly and remains relatively stable five years out.

Figure 2.

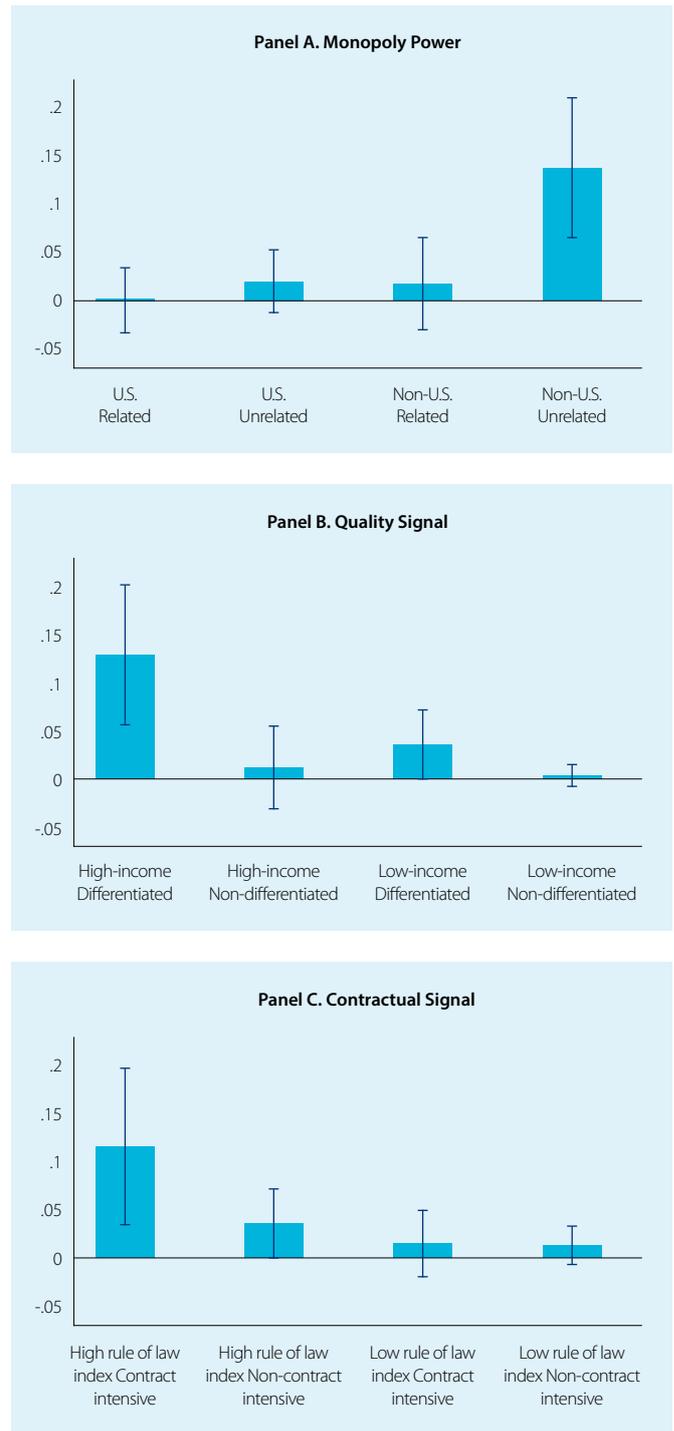




Why should a US patent grant benefit Chinese firms' export growth? Since a patent gives exclusive rights to deploy an invention in the patent authority's jurisdiction, a natural conjecture is that a US patent grant strengthens the Chinese applicant's monopoly power and sales of products under patent protection specifically in the US market. We apply Natural Language Processing (NLP) methods to identify products in a firm's export portfolio that are technologically related to a patent award and may therefore enjoy market protection. Surprisingly, we find that exports to the US of products technologically related to the first patent grant contributes only 15% of the overall patent-induced export growth (Figure 3 Panel A). Instead, we find that 79% of the patent effect is driven by an increase in exports of unrelated products to non-US markets. We also observe that Chinese exporters do not differentially revise the pricing or sales of technologically related products in the US market. In sum, the data indicates that some other mechanism must be at play and first-order other than the monopoly power mechanism.

We then propose that US patent recognition acts as a signal that can alleviate information friction in international trade and provide evidence consistent with a US patent sending a signal about two desirable attributes of a Chinese firm: its capacity to deliver high-quality products and its credibility to honor contractual obligations. US patents boost export growth relatively more for goods with greater scope for quality differentiation, especially in richer destinations that have greater willingness to pay for quality (Figure 3 Panel B). USPTO patent approval also stimulates exports relatively more for products with greater contract reliance, especially to destinations with a stronger rule of law and hence higher demand for such goods (Figure 3 Panel C). We also show that a US patent exerts bigger effects on less seasoned Chinese exporters and for markets with more competitive and more volatile Chinese sellers. This is consistent with a patent signal being more relevant when there is more asymmetric information about a specific supplier and greater supplier heterogeneity.

**Figure 3.**



## RECOMMENDATIONS

Our findings suggest that global patent hubs, such as the USPTO, the European Patent Office (EPO), and the Japan Patent Office (JPO), may confer benefits to foreign patent holders that extend beyond market protection in their own jurisdictions. Firms from emerging economies can signal their quality capacity and contract credibility and overcome trade barriers due to information frictions by obtaining patent recognition from such global patent hubs.

These results have various important policy implications. Emerging economies seeking to promote trade, especially with profitable developed markets, may find it advantageous to strengthen collaboration with countries with well-established IPR institutions. Improving the quality of home institutions can also enable domestic patent grants to act as valid signals in the global market. From a global perspective, patent hubs may be welfare-enhancing to the extent that they alleviate market frictions arising from information asymmetry and support global growth through worldwide innovation.



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