



Immigration is the key to emerging markets becoming innovation hubs

In 2019, the World Intellectual Property Organization (WIPO) [reported](#) that China alone accounted for almost half of all the world’s patent filings, with India also registering impressive increases in global patent production. “Asia has become a global hub for innovation,” declared WIPO Director General Francis Gurry.

Just a few decades ago, emerging markets constituted a negligible share of global patent production. But ever since, multinational enterprises

(MNEs) started to conduct innovation more globally. By 2018, according to the U.S. Bureau of Economic Analysis (BEA), the 20-year growth rate of research and development (R&D) activities of U.S. MNEs in foreign countries—estimated to be 6 percent—exceeded the growth rate of R&D within the U.S., estimated at 4 percent. What explains this important shift? Our answer, [based on our latest research paper](#), is human mobility.* *Figure 1a* shows the patents filed vby inventors in the 15

countries that constitute the study’s sample. Inventors in countries such as the United States, Japan and Germany—the leaders in patent production among that group—filed more than 80 percent of all patents in the sample in 1995. In 2015, their share diminished significantly, while inventors in emerging markets such as China, India, Taiwan, and South Korea, represented a much larger share of patents in 2015 than what they did in 1995 (*Figure 1b*).

Figure 1a.

The share of global patents in selected countries

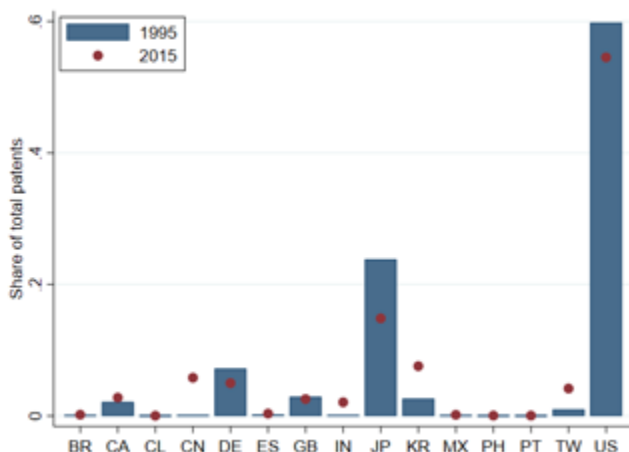
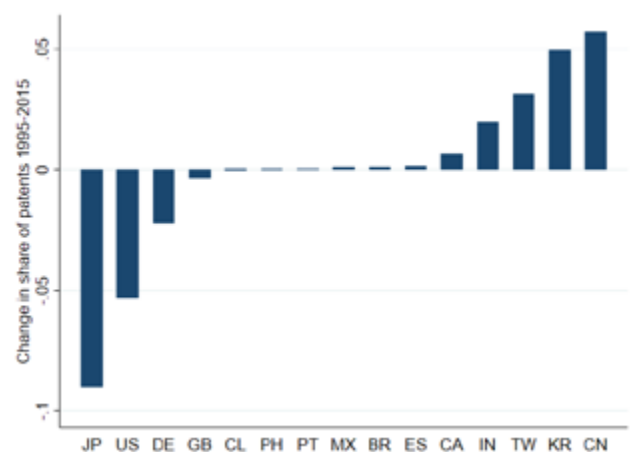


Figure 1b.

The change in share of global patents in selected countries



Source: [Human Mobility and the Globalization of Knowledge Production: Causal Evidence from Multinational Enterprises](#)

*A policy brief was previously published by [Brookings](#).

We document that human mobility is an important driver of this pattern. We do so by investigating whether and to what extent innovation outcomes of multinational corporations (MNCs) change following immigration reforms that ease or harden barriers for migration into a country. Our study relies on a new dataset that we compiled with the exhaustive list of work-related migration reforms adopted in 15 countries over the period from 1990 to 2016, which we match with the patenting activities of over 70,000 subsidiaries of multinational corporations that perform innovation.

Our results on local knowledge production show that pro-business migration reforms significantly increase the number of patents filed by the MNC within a country, while the opposite is true for policies deterring work-related migration. The effect is not symmetric: reforms deterring migration have a larger detrimental impact on innovation than the positive effect generated by reforms loosening restrictions.

In the second part of the paper, we explore the role that GMIs play in explaining changes in the global production of knowledge, leveraging the global nature of our dataset. First, we show that reforms adopted in the U.S. generate spillovers for other countries' innovation. In particular, we find that when the U.S. relaxes immigration constraints, the patent production of other countries is reduced, whereas when the U.S. restricts immigration, firms

in other countries increase their patenting. Finally, we find that while negative reforms decrease the share of global patents by a similar amount across all countries, positive migration reforms have a stronger effect on the share of global patents filed in countries with low initial shares of knowledge production. This finding suggests that policies affecting human mobility have contributed to the observed shift in the geography of innovation towards emerging markets.

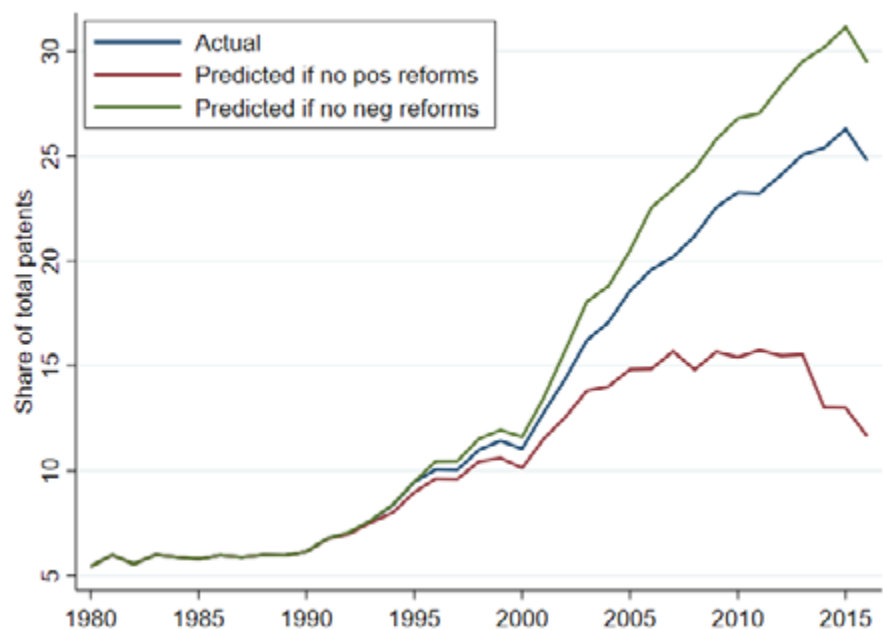
Figure 2 visualize back-of-the-envelope calculations based on our main findings. If emerging markets would not have adopted any reform restricting migration, they would have reached up to 30% of patents filed by 2015 instead of the 25% that we observe in the data. On the contrary, if they would have adopted only restrictive migration reforms (but no loosening ones), they would have remained at 12% of total knowledge production.



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"The Edmond de Rothschild Group and the Paris School of Economics have created the "Economics of International Migration" Chair to develop research activities aimed at improving knowledge of international migration. The Chair conducts rigorous research based on historical and contemporary data in order to better understand the motivations and implications of international migration for the global economy as well as for the receiving and sending countries."

Figure 2.
Predicted trends in countries with low initial invention shares



Source: Human Mobility and the Globalization of Knowledge Production: Causal Evidence from Multinational Enterprises

Our findings provide strong evidence that inventor mobility causally facilitates MNEs' global production of inventions and shifts the geography of patenting production, carrying important policy implications. In particular, the severe asymmetry in the effects associated with positive and negative reforms underlines how policies deterring human capital mobility are heavily

detrimental to local and global knowledge production and might behard to reverse through subsequent improvements. This is particularly true when considering that other countries could benefit from attracting talent turned away from places like the U.S. Thus, whether the slowdown in international mobility was caused by the COVID-19

global pandemic, or by countries enacting reforms that deter immigration, it is the world that will pay the cost in terms of much less innovation—one of the most important drivers of economic growth and prosperity—in the years to come. To reverse the trend, more immigration, not less, is the answer.

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