

## **Future Directions for Research on Immigration**

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*Abstract.* How does the international migration of talent affect the creation of knowledge, the organization of work, and the rate of economic growth across nations? In recent decades, much of the intellectual firepower in research on immigration has been aimed at estimating the impact of the inflow of low skilled foreign labor on the economic well being of native-born workers in the United States and other high income countries. For the United States, at least, it is not at all clear that low skilled immigration matters very much for national welfare. In coming decades, it is how the world allocates skilled labor that will help determine which countries advance economically and which do not. Currently, governments are setting immigration policy on skilled labor flows largely in the dark. The literature has yet to produce compelling empirical evidence on the costs and benefits of skilled migration for either origin or destination countries. Future research on immigration should focus on the empirical analysis of how the inflow of skilled foreign labor affects productivity growth and innovation in receiving countries and how the outflow of talent affects prospects for growth and development in sending countries. Sound empirical analysis requires exploiting natural experiments or conducting experiments in the field. Recent events suggest prospects are favorable on both fronts.

### *Challenge Question*

How does the international migration of talent affect the creation of knowledge, the organization of work, and the rate of economic growth across nations?

#### *1. Background*

A primary lesson of research on economic growth over the last several decades is that the pace of economic progress in a country is strongly associated with its access to highly skilled labor. Countries produce skilled labor through educating and training their own workers or by importing talent from other nations. Virtually all major US corporations in technology fields search for talent internationally, no longer viewing labor markets as defined by national borders. American Universities, as well as educational institutions in other advanced countries, have long sought to attract the best and the brightest worldwide. Students see studying abroad as a way to get their foot in the door of foreign labor markets. The United States, the dominant country in higher education for the last half of the 20<sup>th</sup> century, is seeing its market lead erode as other countries, including China, rapidly improve their educational institutions, introducing more

competition in the global search for skilled labor (Freeman, 2009). Governments, for their part, often appear ambivalent about skilled immigration, being relatively generous in providing visas to foreign students but stingy in granting work visas to these students upon graduation or to other prospective skilled immigrants.

One would think that given the importance of skilled labor for economic growth, research on immigration would have made skilled labor flows a central focus of study. Alas, this is not the case. Over the last three decades, there has been an outpouring of research on immigration, motivated in part by the increase in labor inflows in high income countries. In the United States, for instance, the share of foreign born individuals in the population increased from 5% in 1970 to 13% in 2008. While the literature has covered a wide range of topics – including immigrant assimilation, the causes of illegal immigration, and the political economy of immigration policies – the bulk of intellectual firepower has been aimed at estimating the impact of low skilled immigration on the economic well being of native-born workers in the United States and other high income countries (Hanson, 2010). To be sure, the consequence of low skilled immigration for wages is an important issue. Because immigration changes the national supply of labor, economists are predisposed to consider the impact of such supply shifts on prices. Since 1980, earnings inequality in the United States has increased sharply, leading many economists to ask whether the arrival of large numbers of low skilled foreign workers could be behind changes in the US wage structure. Despite the immense volume of work, we are far from a consensus on how much immigration matters for the low end US labor market. Reputable economists can be found on both sides of the issue, with some claiming that immigration has significant negative effects on wages and others claiming that no such effects exist.

For the United States, at least, it is not at all clear that low skilled immigration matters very much for national welfare. Whether or not immigration hurts low skilled native workers, most economists agree that the aggregate effects in the US – which involve summing gains to employers and losses to workers – are small. The academic debate, then, has been primarily about the distributional consequences of immigration. The impact of immigration on growth has been lost in the mix.

## *2. Immigration and economic growth*

If immigration is going to transform an economy, it must be through its effect on innovation and total factor productivity. Once we raise the issue of productivity, the focus immediately shifts from low skilled to high skilled immigration. Research on economic growth identifies the relative supply of high skilled workers – and in particular those in science and engineering – as a key factor underlying a country's R&D capacity and thereby its growth rate (Jones, 1995). In the United States, foreign born students account for over 40 percent of PhDs awarded in science and engineering. While doubling the supply of illegal immigrants (currently 5% of US workers) in

the US labor force would likely have at most second order effects on economic growth, doubling the supply of high skilled immigrants could have a first order effect.

Of course, if the US absorbs more high skilled labor from the rest of the world, countries losing these workers, be they the workers' home countries or other high income destinations, will be affected. If an engineer leaves, say, Pakistan to work in the United States, the supply of engineers will change by a larger percentage amount in Pakistan than in the US, owing to the fact that in Pakistan skilled labor is relatively scarce. That scarcity, however, isn't sufficient to yield high wages for Pakistani engineers. The paucity of physical capital, the use of outdated technology, and the persistence of weak legal and political institutions hold down the productivity of high skilled labor in Pakistan, keeping wages low. The development economics literature has devoted considerable attention to brain drain from developing countries, arriving at a conclusion that any two-handed economist would love. One possibility is that the exodus of skilled labor hurts Pakistan by directly reducing the supply of human capital. Another possibility is that the prospect of migrating to the United States is sufficiently attractive that capable students in Pakistan obtain more education than they would have absent the opportunity to emigrate, giving Pakistan more human capital on net with emigration than without it (yielding a brain gain). Whether high skilled emigration raises or lowers the stock of human capital in developing countries is therefore an empirical question, which the literature has failed to answer. The literature has produced intriguing evidence in international cross sectional data in support of the brain gain hypothesis (which is subject to the concern that what appears to be brain gain is just unobserved country heterogeneity in education that happens to be correlated with emigration), but we have not yet seen convincing time series or panel data which shows that increasing prospects for emigration causes students in a country to increase their schooling by enough to offset the exodus of talent.

### *3. The future of immigration research*

We are left then with two fundamental and interrelated questions about international labor flows: if we move one skilled worker from a low income country to the United States, by how much does US productivity growth change and by how much does the low income country's stock of human capital adjust? In coming decades, how the world allocates skilled labor will in part determine which countries advance economically and which do not. Currently, governments are setting immigration policy on skilled labor flows largely in the dark. The literature has yet to produce compelling empirical evidence on the costs and benefits of skilled migration for either origin or destination countries.

How should we go about attempting to understand the impact of international migration on growth? Arguably, theory is well ahead of empirical analysis. We have well developed bodies of theoretical work on how migration affects growth rates internationally. What we lack is

empirical analysis that identifies the sign and magnitudes of these effects and uncovers the theoretical mechanisms that account for them. Simply correlating the supply of immigrants or emigrants with productivity growth or other outcomes is not informative, as the migration of labor is not random. Labor moves across borders in response to economic incentives, leaving countries with poor growth and moving to ones with better prospects.

Rigorous empirical analysis requires sound experimental design, either by exploiting natural experiments in the data or by conducting experiments in the field. Regarding natural experiments, environmental shocks (e.g., earthquakes in Haiti, tsunamis in Indonesia, floods in Pakistan) and geopolitical events (e.g., the events of 9/11) disrupt either the outflow of labor from sending countries or the inflow of labor in receiving countries, providing opportunities for causal identification of migration's impacts on productivity growth in one set of countries or the other (the receiving countries in the former case; the sending countries in the latter). A few recent papers exploit such an approach. Field experiments would require getting governments to agree to randomize how they allocate visas across individuals, companies, countries, and/or time. Such randomization may not be as farfetched as it sounds. Currently, the United States already allocates about five percent of its permanent residence visas through an annual lottery. And when applications for temporary work visas for high skilled labor (H-1B visas) exceed the visa quota in a given year, the entire stock of visas is allocated through a lottery among applicants (as occurred, for instance, in 2007 and 2008). Simply giving researchers access to data on these randomization episodes would advance migration research immensely. Further, given the desire for knowledge among government officials regarding how immigration affects growth, one would expect at least some high income countries to be willing to subject their immigration policies to rigorous analysis involving at least some degree of randomization.

#### *4. What disciplines would be involved?*

Economists come first to mind, as scholars in the discipline have spent a great deal of time thinking about the determinants of economic growth and the consequences of international migration. However, the set of questions involved extends well beyond economics and even beyond the social sciences. For political scientists, there are the questions of what determines political support for high skilled immigration, why countries are more open to international trade than to international labor flows (which has received some attention in the recent literature), and how the exodus of skilled labor affects decisions governing economic policy in origin countries. For sociologists, the questions include how combining native and foreign workers within a business affects the organization of firms, how corporations manage innovation across borders, how international labor markets for very high skilled labor are organized, and the manner in which migration affects the international transmission of ideas. And for engineers, there are questions about how combining native-born and foreign workers, either in one country or in

multiple countries, affects the optimal organization of production processes both within and across firms.

### 5. *Closing thoughts*

The political debate on immigration in the United States, as in other advanced countries, remains mired in tired invective about the adverse consequences of admitting individuals from poor countries. While the popular discussion may occasionally make for entertaining political theatre, it is poor guide for rigorous analysis of international migration. The literature has misallocated time and energy on the low skilled end of the spectrum, where the aggregate welfare consequences for the United States are likely to be small. It is time that empirical research shifted towards the consequences of skilled labor flows on economic growth.

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