

How to attract international students?

Studying abroad benefits the students, the host country, and those remaining at home

Keywords: higher education, migration, study

ELEVATOR PITCH

In knowledge-based economies, attracting and retaining international students can help expand the skilled workforce. Empirical evidence suggests that open migration policies and labor markets, whereby students can remain in the host country post-study, as well as good quality higher education institutions are crucial for successfully attracting international students. Student migration can positively affect economic growth in both sending and receiving countries, even though migrants themselves reap most of the gains, mainly through higher earnings.

KEY FINDINGS

Pros

- ⊕ International student migration results in higher wages for the migrants, without negative effects on most native workers.
- ⊕ International student migration can foster economic growth in both home and host countries.
- ⊕ Native students are not crowded-out by international students, nor does their presence reduce learning in the classroom.
- ⊕ Open visa policies can improve both the number and the quality of incoming international students.

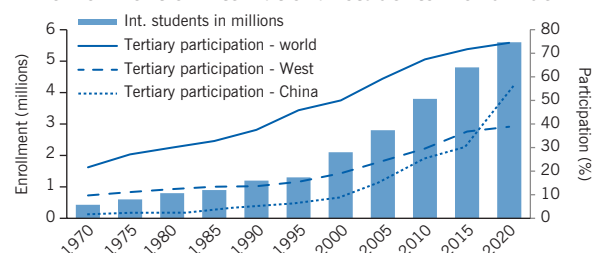
Cons

- ⊖ Some sending countries are at risk of brain drain, and their economic growth can falter as a result of excessive student emigration.
- ⊖ Overdependence on international students might affect the financial stability of higher education institutions in host countries.
- ⊖ Institutional differences between labor markets might impose wage penalties on international graduates who return home.

AUTHOR'S MAIN MESSAGE

While both home and host country economies can gain from student migration, individual migrants gain the most. Attractive destinations have high-quality universities, large returns to skills, and migration policies that allow students to work after completing their studies. A large fraction of international students return home, especially when the home economy is booming, returns to skills are high, and wages are based on individual productivity. Several policy options may further improve the benefits of international student migration, including harmonizing qualifications across countries and increasing both visa and labor market openness.

Strong demand for higher education reflected in rising enrollment of international students worldwide



Note: Tertiary participation = ratio of all participants in ISCED levels 5–8 divided by population aged 18–23 or 19–24; can over-estimate participation.
 Source: UNESCO. Online at: <http://data.uis.unesco.org/#>; World Bank. Online at: <https://databank.worldbank.org/source/education-statistics-%5e-all-indicators>

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MOTIVATION

Economic models predict that a more educated workforce improves a country's growth rate. In knowledge-based economies, the rates of participation in higher education are already high; even so, fulfilling the demand for highly qualified workers requires that economies attract skilled migrants, especially for countries with an aging working-age population. Between 2000 and 2015, the share of migrants in the tertiary educated working-age population increased from 11% to 16% in OECD countries, with half of them coming from non-OECD countries [1]. Meeting such high demand for skilled workers is challenging for many countries. One solution is to attract foreign students and retain them after graduation.

In 2018, some 5.5 million people worldwide were studying at colleges or universities outside their home country. International higher education has dramatically expanded over time (Illustration on p. 1), driven by higher demand as income has risen in developing countries. This is exemplified by the rise of Chinese international students, now accounting for almost 18% of all international students (Figure 1). This demand for higher education cannot be met locally due to a lack of opportunities and concerns about the quality of higher education. Figure 1 reports the large change in the origin and destinations of international students over the last 20 years. In 2000, with the exception of China, the largest sending countries were mostly rich developed countries. By 2018, the majority of large senders were developing countries. There is considerable scope for even more internationalization of higher education. Participation in higher education worldwide is only 39% of the relevant age cohort, compared with 76% in the West, with China's participation rate expanding rapidly (Illustration on p. 1).

English-speaking countries with high-quality universities have a large share of the international student market (Figure 1), benefiting from the great prevalence of English knowledge among prospective students, and high returns to English competencies. Higher education has thus become a major exporting sector. For example, in 2018 higher education export income (tuition fees plus living expenditures) reached \$41 billion in the US, the fourth largest exporting sector; the corresponding figures were £23.3 billion for the UK and AUS\$ 38 billion in Australia [2]. Commensurately, higher education providers have become financially dependent on international students. International students represent between 15% and 28% of the student bodies in Australia, Canada, the UK, and New Zealand. In the US, their share of awarded degrees at undergraduate, master's, and PhD levels were 5%, 18%, and 13% respectively in 2017/18 [3] and even higher across the OECD. These shares are usually higher in science, technology, engineering, and mathematics (STEM) fields and higher-level qualifications (master's or PhD), which are associated with higher wages and employment opportunities, especially when visa opportunities are greater for individuals holding these qualifications.

While the US and OECD countries have long been the destination of choice for international students, their shares have recently decreased. China and Russia have been gaining rapidly, owing to the increased quality of their institutions, geo-political reasons, and the rise of anti-migration policies in the West (Figure 1).

Notwithstanding the increase in the share of the global population able to afford tuition fees, the expanding demand for higher education is driven by increasing returns to skills in the labor market. Technological changes have polarized labor markets and increased wages of highly qualified workers. For international students the financial gains to

Figure 1. Top 10 sending and receiving countries from 2000 to 2018

<i>Sending countries</i>					
2000		2010		2018	
<i>Country</i>	<i>Share</i>	<i>Country</i>	<i>Share</i>	<i>Country</i>	<i>Share</i>
China	7.4	China	15.0	China	17.8
Korea	3.3	India	5.6	India	6.7
Japan	2.8	Korea	3.3	Germany	2.2
Greece	2.8	US	1.8	Vietnam	1.9
Germany	2.6	Malaysia	1.6	Korea	1.8
France	2.4	France	1.5	France	1.8
Malaysia	2.2	Nigeria	1.4	USA	1.5
US	2.2	Russia	1.3	Kazakhstan	1.5
Morocco	1.9	Vietnam	1.2	Nepal	1.5
Italy	1.9	Canada	1.2	S. Arabia	1.4
Total	2,096,718		3,776,751		5,571,402
<i>Receiving countries</i>					
2000		2010		2018	
<i>Country</i>	<i>Share</i>	<i>Country</i>	<i>Share</i>	<i>Country</i>	<i>Share</i>
US	22.7	US	18.1	US	17.7
UK	10.6	UK	10.3	UK	8.1
France	6.5	Australia	7.2	Australia	8.0
Australia	5.0	France	6.9	Germany	5.6
Japan	2.8	Germany	4.9	Russia	4.7
Russia	2.0	Japan	3.7	France	4.1
Spain	1.9	Canada	2.8	Canada	4.0
Belgium	1.9	China	1.9	Japan	3.3
Canada	1.7	Italy	1.9	China	3.2
Austria	1.4	Austria	1.8	Turkey	2.2
Total	2,096,718		3,776,751		5,571,402

Note: No data for intake of students in Germany was reported before 2004. Other sources using data from the Chinese Ministry of Foreign Affairs (see NAFSA. *Losing Talent 2020: An Economic and Foreign Policy Risk America Can't Ignore*. Washington, DC: NAFSA, 2020 [2]) report a much higher number of international students studying in China, which would give it a market share of 9% in 2019.

Source: Author's own compilation based on data from Unesco Institute of Statistics. Online at: <http://data.uis.unesco.org/#>

migrating are large, especially if they remain in a knowledge-based economy, and are the main drivers of their decision to study abroad.

The early literature on skilled migration focuses on brain drain, often seen as condemning sending countries to low economic growth as their brightest citizens move abroad. More recent studies suggest that this concern may be overblown for at least three reasons: (i) the possibility of migrating and achieving increasing returns to education strengthens incentives to acquire an education, thereby improving the average education level in the sending country; (ii) remittances and network effects may stimulate growth in the home country; and (iii) most migrant students return home, bringing new skills, capital, and an international network.

Student migration generates gains for both host and home countries—but most gains are for the migrants themselves. To understand why, it helps to review the recent evolution of international student migration, the mechanisms that encourage it, and the policies—both at home and abroad—that can foster it.

DISCUSSION OF PROS AND CONS

A simple model of student migration

According to the human capital model, individuals invest in education to increase their future income. They invest if the income gain over their lifetime is greater than the cost (including effort) incurred for their education. This simple decision model can be expanded to one in which opportunities for education and work exist in the home country and abroad [4]. Theoretically, individuals first choose where to live and work based on where their net income will be maximized, and then decide whether, and where, to pursue their education. As such, decisions about migration for education are driven by expected labor market opportunities at home and abroad.

In turn, studying abroad may affect an individual's labor market outcomes in several ways: by facilitating integration into the host country's labor market through the acquisition of host-country-specific skills, such as language skills; by making it easier to obtain work visas in the host country through the acquisition of job skills and recognized qualifications; by improving the labor market outcomes of those who return to their home countries to work after studying and gaining relevant work experience abroad.

The decision to study abroad is determined in this model by the costs of education in both countries, the differences in the returns to skills in both countries, and the costs of (return) migration—including non-financial costs such as family circumstances. The evidence largely supports this model.

Financial and non-financial costs and returns to students

International students consider the relative costs and quality of higher education when making decisions. While survey evidence suggests that the comparatively high cost of education in the US is a major obstacle to migration [2], behavior indicates that potential returns overcome this concern. A study of the determinants of student migration from 203 source countries to 13 OECD countries supports the theoretical model: the quality

of higher education and higher wages in the host countries positively affect demand from international students, and, perhaps surprisingly, tuition fees have no significant effect [5].

Among the brightest students in five countries with large brain drain rates, studying and working abroad increases lifetime earnings by between \$500,000 and \$1,300,000. Surprisingly, despite such sizable returns to migration, these students largely claim that this is not an important factor in their decision to migrate [6].

Skilled migrants usually have lower earnings than natives, especially on arrival, which persists over time, especially for those in non-STEM occupations [7]. A range of reasons have been offered, from employers' uncertainty about the quality of foreign qualifications, to migrants' poorer language skills, and discrimination. Wage penalties are lower for migrants who came as international students, compared to high-skilled economic migrants. A 2018 study reports that high-skilled migrants are also more likely than natives to be entrepreneurs and inventors [1].

As well as tuition fees, migration entails additional financial and non-financial costs. While transportation and communication costs have fallen, proximity is still important in choosing where to study. Originating from a country close to the host country, as well as sharing the same language, correlates strongly with the number of international students. This finding is consistent with the idea that cultural proximity also matters [5]. Migrants tend to move to high-migration areas, especially areas where other migrants from their home country have already settled. Potential students are influenced by strong network effects: the flow of international students from a country is positively affected by the number of settled nationals in the host country [5]. This effect probably stems from the advice and other kinds of assistance that previous migrants provide. One study reports that up to half of student migrants have provided advice about education opportunities abroad to potential migrants [6].

Among the non-financial costs of migration are visa restrictions, labor market legislation, and family circumstances. Although visa costs are usually modest, visa policies are important in explaining migration decisions, since migration is partly determined by the possibility of integrating into the host country's labor market. For example, in 2017, 40% of allocated H-1B visas, allowing the holder to work in the US and eventually apply for permanent residency, were allocated to individuals already in the US on a student visa [1]. Changes in visa policies allowing graduates or highly qualified migrants to work affect not only the number of international students but also their quality. In 2004, the US reduced the number of visas set aside for highly qualified migrants (H-1B) to one-third of the previous level. While not directly restricting access to study in the US, this policy reduced the probability of remaining in the US after studying. Its implementation reduced the number of applicants, especially of high-ability applicants, to US universities [8]. Several other studies report similar effects for other changes to visa policies [1], [3].

Policies like the Erasmus program that allow European students to study abroad at low cost for a 12-month period have a large impact on mobility and increase the probability of subsequently working abroad [9]. Policies guaranteeing equivalence between qualifications obtained in different countries also increase student migration by expanding the set of labor markets in which to work.

Return decisions

Estimates of the proportion of international students who remain to work in the host country range from 20% to 35%. Stay rates are much higher for students with PhDs. Thus, while hosting students is clearly one way to attract skilled workers from abroad, the majority of students do not remain.

The evidence on the reasons for returning home is mixed. Students are more likely to return if their skills are well valued in the home country labor market [4]. When the host economy is growing strongly, international students are more likely to remain. On the other hand, when the home economy is growing strongly, students are more likely to return home. This suggests that home countries experiencing strong growth can enter a virtuous cycle, as skilled migrants return home and foster more growth that in turn induces more students to return. Democratization also increases the probability of return. However, the decision to return may be related as much to family circumstances and lifestyle considerations as to economic considerations, since returning high-skilled migrants typically incur large pay cuts. In particular, student migrants who have gained work experience abroad are negatively affected when pay in their home country is driven by tenure in the job rather than productivity [6].

Effects on non-migrants

Home country effects

Critics of international student migration are often concerned that student migration results in a brain drain that depletes the home country's pool of talented people, thus slowing overall development. This view misses an important positive feedback mechanism though. In countries with low returns to education, the possibility of migrating increases the expected returns to education, inducing more people to invest in their education [10]. Since not all students end up migrating, this raises the overall level of education. A doubling of the rate of skilled migration leads to a 5% increase in human capital formation in the home country [10]. In other words, the positive incentives to invest in education more than compensate for the small share of skilled migrants that the home country loses.

Among countries with a high level of skilled migration (above 20–30% of graduates migrating) or a high share of graduates, however, the brain drain effect may dominate. On balance, more countries lose out, but since the winners include the more populous countries and represent 80% of the global population, the overall effect of student migration is positive for developing countries [10]. The opportunity to migrate can thus lead to an increase in the stock of human capital, especially in the least-developed countries, which can contribute to more rapid economic growth.

Returning migrants and the diaspora that remains abroad can stimulate economic growth in the home country by facilitating trade, foreign direct investment, and technology diffusion; but while common, this effect might not be very large [6]. A larger contribution is made via remittances that support the consumption and investment of relatives.

Student migrants also impose a cost in lost taxes for the home country, but a large fraction of these costs are offset by reduced claims on the welfare system. The overall effects depend on the fraction of returning skilled migrants, the progressivity of the tax system, and the welfare system; but even in countries with high levels of skilled migration, the net fiscal costs are in general quite small [6].

Host country effects

Higher education is an important export for the main receivers of international students [2]. Higher education institutions also rely on a growing share of international students to cross-subsidize home students, but this leaves universities financially exposed to geopolitical risks [3]. Additionally, international students might directly affect home students' learning. Evidence suggests that international students do not crowd local students out of higher education, nor do they negatively affect their educational attainment [11]. However, they might affect choices of university subjects. International students have a relative advantage in STEM, since these topics typically require less proficient language skills. Native students become more likely to study non-STEM subjects in which they have a comparative advantage [3].

Upon graduating, international students, like any skilled migrants, may affect the labor market outcomes of natives. A study of the large inflow of (mostly) educated Russians to Israel finds a negative wage effect on natives in the short term but no effect on employment, indicating that high-skilled migrants are a close substitute for high-skilled natives [12]. To protect their wages, native workers might specialize in occupations for which they have a comparative advantage over migrants, such as occupations requiring native-language communication skills, thereby reducing the risk that skilled migrants will move into their fields.

By increasing the concentration of talent, skilled migrants also contribute to positive agglomeration effects, thus increasing the employment and wages of all. The greater entrepreneurship rate of skilled migrants also has a positive long-term effect on economic growth and generates jobs for native workers [1]. The overall effect for native workers thus appears positive, even though some people may lose out.

International students, as high-earning individuals, are net contributors over their lifetime, especially in countries where international students' education is not subsidized. The overall effect of international students on the economy is complex and multi-dimensional. Estimates of a general equilibrium model of the US economy report that skilled migration has increased the overall welfare of US natives [13].

LIMITATIONS AND GAPS

Research on student migration is still restricted by data limitations, which impede the determination of causal effects, especially outside the US. The data are often at a macro level, tracking flows of students, but very limited at the individual level, especially among pupils who decide not to migrate and remain in their home country. This lack of data makes it difficult to understand the determinants of the decision to migrate.

Little is known about the determinants of return migration and its consequences on the migrants and the country of return; a 2012 study serves as one exception, but it covers only a few unrepresentative countries [6]. Since the majority of international students do not remain in the country where they gain their higher education, more effort should be made to collect appropriate data.

The evidence on the labor market effects of international students on natives is often about skilled migrants in general, or specific groups of international students (STEM, IT, PhDs) but rarely about the effect of international students on the overall labor market.

Evaluating the overall effects of international students on the economy is complex and requires more extensive modelling. Most of the current evidence only highlights some specific effects, though one study from 2018 offers a valuable attempt at estimating their overall effect [13].

International student migration has expanded considerably as developing countries have become richer and as the demand for good-quality higher education has outpaced supply. Challenges are, however, emerging for countries that provide international education. The supply of higher education in sending countries is expanding as these countries grow richer. For example, China has doubled its supply of higher education over the last ten years and boasts two institutions in the top-50 most highly ranked universities (Shanghai Ranking 2020). China is now both a main source of and destination for international students (Figure 1).

Other factors might also affect international flows of students. Some of the largest sending countries, especially China, have a rapidly aging population. Smaller cohorts might reduce the demand for international education. Moreover, political tensions and anti-migration rhetoric could impede the flow of students. For example, one recent study reports an increase in applicants declining to enroll at US institutions due to the visa application process and the political environment [2].

Finally, the Covid-19 pandemic has largely disrupted the model of physical migration and has popularized online learning, which might have long-term effects on future demand for international higher education.

SUMMARY AND POLICY ADVICE

International students gain financially from studying abroad and, under some conditions, both sending and receiving countries also gain.

The largest gains are for migrants themselves, especially if they remain to work in the host country. Host countries gain fiscally and in terms of economic growth, especially if students remain to work. Visa policies and vibrant labor markets are crucial factors affecting the decision to study in a specific country. Sending countries can also gain, since allowing migration increases the educational attainment of a larger share of the population, and since most individuals migrating to study eventually return, bringing back skills acquired abroad. Remittances and, to a lesser extent, improvements in trade and foreign direct investment, also positively contribute to boosting economic growth in sending countries.

The evidence suggests several policy responses: At current tuition levels, students' decisions to migrate for education appear largely unrelated to modest changes in tuition fees but are much more sensitive to perceived quality of higher education. By reducing wage penalties on foreign qualifications, policies that harmonize qualifications across countries can increase students' mobility and their decision to return to their home countries. Open-visa policies that allow foreign graduates to remain in the host country after completing their studies, and a thriving labor market, are two factors that attract more students, especially the most able. Home country openness on mobility—both on exit and return—increases incentives to invest in education for all residents. More open labor markets in home countries increase the proportion of returning students.

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Competing interests

The IZA World of Labor project is committed to the IZA Code of Conduct. The author declares to have observed the principles outlined in the code.

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