

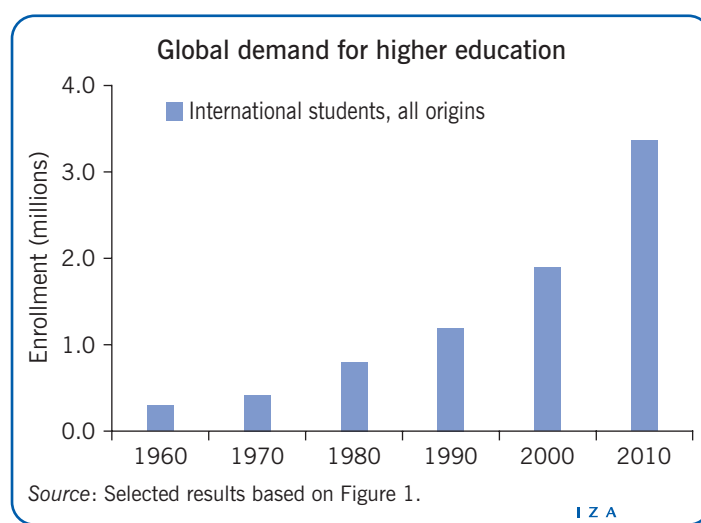
## How to attract foreign students

International student mobility can be good for migrating students, their home country, the host country, and those remaining at home

Keywords: higher education, migration, study abroad

### ELEVATOR PITCH

To expand the skilled workforce, countries need to attract skilled migrants. One way of doing this is by attracting and retaining international students. Empirical evidence suggests that concerns about brain drain—that is, the emigration of highly qualified workers—are overblown and that student migration can positively affect economic growth in both sending and receiving countries. However, migrants themselves reap most of the gains, through higher earnings. So that in the end, international student mobility can be beneficial for all participants: migrating students and those who remain at home, as well as home and host societies.



### KEY FINDINGS

#### Pros

- ⊕ International student migration can foster economic growth in both home and host countries.
- ⊕ International student migration results in higher wages for the migrants.
- ⊕ Visa restrictions reduce 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 student migration.
- ⊖ Sending countries incur fiscal costs because of the (temporary) absence of a skilled workforce.
- ⊖ Host countries face some fiscal costs by subsidizing international students, especially in countries where education is paid out of general taxation.

### 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 programs taught in English, provide large returns to skills, and have strong economic growth and open labor markets. Policies that harmonize qualifications and improve the job market for skilled graduates can also increase student migration. A large fraction of students return home, however—especially when the home economy is booming, returns to skills are high, and wages are based on individual productivity.

## MOTIVATION

Economic models predict that a more educated workforce improves an economy's growth rate. In most Western countries, rates of participation in higher education are high. Increasing human capital further involves attracting skilled migrants, especially for countries with a shrinking working-age population. One solution is to attract foreign students and retain them after graduation.

The early literature focused on brain drain, which was seen as condemning the sending countries to low economic growth as their brightest citizens moved out. More recent studies suggest that this concern may be overblown, for at least three reasons: The possibility of migrating, by increasing returns to education, strengthens incentives to acquire an education; remittances and network effects may stimulate growth in the home country; and most migrant students return home.

Student migration may thus generate gains for both host and home countries—although there can also be negative consequences. 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

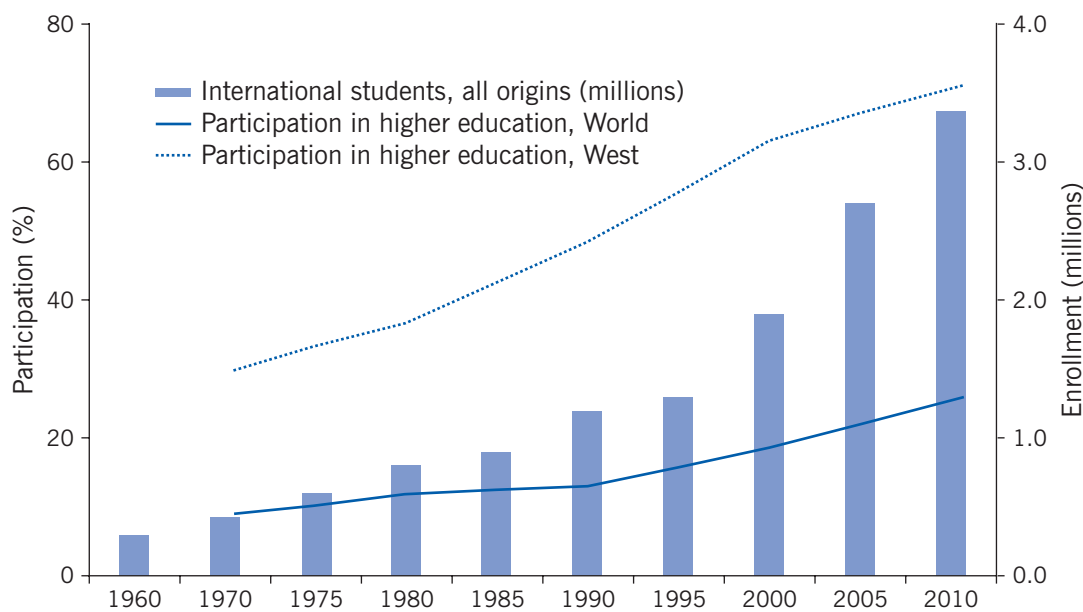
By 2012, some 4.1 million people worldwide were studying at colleges or universities outside their home country. Most student migrants come from poorer countries, where the demand for higher education outstrips its supply. China and India, the world's largest developing countries, are also the largest sources of international students (15.8% and 5.6% respectively). But Germany, by any definition a mature economy, is the fourth largest.

The global demand for higher education is expanding (see Figure 1). In developed countries, educational institutions look to international students, who are often charged higher tuition fees, to ease budgetary constraints following negative demographic trends and financial disengagement from the state.

In developing countries, rising incomes are driving the demand for higher education. But a lack of supply and concerns about quality have pushed locals to look abroad for educational opportunities. As a result, the number of international students grew by one-third between 2005 and 2010, with China accounting for a large share of that growth. There is still considerable scope for more still: Participation in higher education worldwide is only 26% of the relevant age cohort, compared with 71% in the West (see Figure 1).

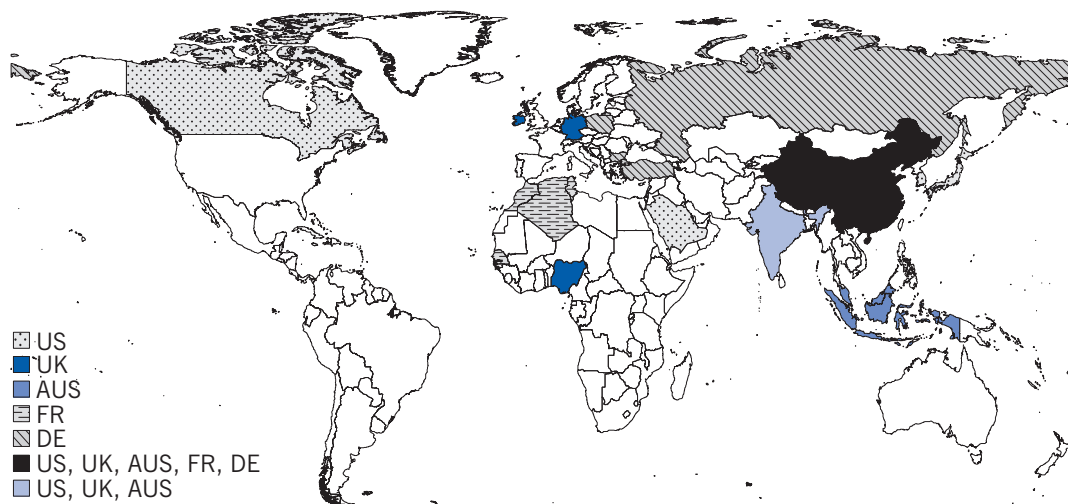
Just a few countries have established themselves as the primary providers of international higher education (see Figure 2). The US is the destination of choice for 21% of international students, although its market share has declined. With the exception of the US and the UK, the major providers of international higher education attract mainly students from specific regions. Australia caters for southeast Asia, France for north and west Africa, Germany for eastern Europe and Turkey. One important reason for studying abroad is to enhance language proficiency, especially in English, which has high returns even in non-English-speaking countries. This explains why English-speaking countries attract the largest share of international students. Similarly, countries that offer programs taught in English attract more international students.

Figure 1. The global demand for higher education is expanding



Source: Goodwin, C. *International Investment in Human Capital*. Overseas Education for Development Research Report No. 24. New York: Institute of International Education, 1993 [1]; UNESCO (<http://stats.uis.unesco.org/unesco>; <http://www.unesco.org/iiep/en/publications/pubs.htm>).

Figure 2. Main source countries to main providers of higher education (2010)



Source: UNESCO. Online at: <http://www.uis.unesco.org/Education/Pages/international-student-flow-viz.aspx>.

### A simple model of student migration

According to standard economic models, individuals invest in education to increase future income. They choose to invest if the income increase 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 [2]. Theoretically, individuals first choose where to live and work based on where their net incomes 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.

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 qualifications highly sought in the host country;
- by improving the labor market outcomes of those who return to their home countries to work after studying abroad and gaining relevant work experience.

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.

But what does the empirical evidence say? What policies affect the decision of international migrants to study abroad and the decision to stay in the host country after graduation or to return home? How do migrants influence non-migrants in their home countries and natives in the host countries?

### **Costs and quality of higher education**

International students consider the relative costs, quality, and access to higher education when making their decisions. While questionnaire evidence suggests that the comparatively high cost of education in the US is a major obstacle to migration, behavior seems to show otherwise. In a study of the determinants of student migration from 203 countries to 13 host countries, tuition fees had no significant effect on international enrollment [3]. This result is surprising considering that the empirical evidence suggests that a \$1,000 increase in annual tuition fees reduces the participation of US-born students by 3–5 percentage points. (Estimates for European-born students tend to be smaller.)

Tuition fees may have no significant effect on the demand for higher education by international students because tuition fees represent a smaller share of the total costs than they do for native students, especially when grants and other forms of aid are available. In contrast, international students do care about the perceived quality of higher education (such as the number of institutions in the top tiers of international rankings). Indeed, they may be more sensitive than native students to information regarding the quality of institutions.

### **Returns to skills**

The student migration model predicts that international students are attracted by the higher returns to education in the host country. An empirical test of this model that looked at demand in 2003–2004 for student visas to the US concluded that “students

from low-wage countries seek schooling in high-wage countries as a means of augmenting their chances of obtaining a high-wage job in high wage countries” [2].

Migrants usually have lower earnings than natives, especially on arrival, because their home-country-acquired skills have lower returns in the host country. This is probably due to uncertainty about the quality of foreign qualifications and to migrants’ poorer language skills. This penalty is typically lower for qualifications obtained in other developed countries.

For migrating students, skills acquired in their home country matter mainly for their complementarity with skills acquired in the host country. For example, the wage gap was smaller for migrants to Israel who were subsequently educated in Israel, suggesting some complementarities in the human capital acquired at home and in the host country. However, a 9% gap in earnings persisted [4]. Another study, which looked at data from the 2003 National Survey of College Graduates for the US, reported that student migrants performed as well as native students in terms of wages and productivity, and were more likely to start a business [5].

Policies designed to harmonize qualifications among countries—such as the Bologna Declaration of the European Ministers of Education (1999)—are thus likely to have a positive effect on attracting international students. These policies, by promoting the continuation of one’s education in the host country, reduce the wage penalty for workers whose education and qualifications were acquired in their home countries.

### **The financial and non-financial costs of migration**

Migration entails both financial and non-financial costs. The direct financial costs of migration are:

- travel costs;
- tuition fees;
- living expenses; and
- various administrative costs.

While transportation costs have fallen, proximity is still important in choosing the destination. 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 [3].

While tuition fees alone have little impact on where migrants study, the relative cost of living does have an effect. A difference of \$1,000 in annual living expenses accounts for a decrease in enrollment of up to 8 percentage points [3]. Policies that help reduce or defray these costs could therefore be an effective means of attracting international students.

The costs incurred by international students are subject to two risks that are difficult for individuals to insure against and that do not affect native students—exchange rate fluctuations and home country income risks. For instance, students who finance their study with home country income could see their revenues depleted if the financial situation at home deteriorates or if the home country currency depreciates relative to the host country currency. The effect of a drop in home country GDP is a priori ambiguous, however.

It makes financing education more difficult, but depressed labor market conditions at home make working abroad more attractive. Some research has found that international students are quite responsive to exchange rate changes and to changes in home GDP. Thus, for example, higher education institutions within the eurozone are particularly attractive for students who live in a eurozone country.

Among the non-financial costs of migration are:

- visa restrictions;
- labor market integration; and
- family circumstances.

Although visa costs are 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, individuals with a degree from a US university are estimated to be 26 times more likely to obtain a legal work permit than other applicants are.

From 2004 onwards, the US reduced the number of visas set aside for highly qualified migrants (H-1B) to one-third of their previous level. This created uncertainties about whether international students would be able to remain in the US after completing their studies. One study that compared the flow of students from five countries that were not affected by the H-1B restrictions with that of affected countries estimated that the restrictions reduced not only the number of applicants to US universities, but also their quality [6]. Among higher performers, the average grade point average fell 2%. No effect was found for low performers, since they had low probabilities of staying in the country.

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 [3]. 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 [7]. Deciding to move on this basis, however, has ambiguous results: Joining such an enclave impedes the acquisition of host country skills, but it can also increase the number of job market opportunities and reduce the cost of integrating.

While economic models tend to focus on the wage gains associated with the migration decision, other aspects also matter. To investigate the decision more comprehensively, researchers have compiled an impressive data set that tracks top high-school students from five countries with a high rate of migration for high-skilled students (Ghana, Micronesia, New Zealand, Papua New Guinea, and Tonga) [7], [8]. The research confirms the assumption of the basic model and the empirical evidence based on macrolevel data: The decisions to pursue education and to work abroad are linked. Another key finding is that migrants increased their annual incomes 60–100% compared with their peers who did not migrate. Family wealth was not a significant factor in explaining the migration decision, at least for students from these countries.

Many factors that influence student migration are beyond the scope of policymakers, whereas policies designed to reduce the costs of migrating appear to have limited effect. Open-visa policies that allow foreign graduates to remain in the country after completing

their studies and a thriving labor market are two factors that attract more and better student migrants. In some cases, regulations that limit the exposure of students to exchange rate variations could be explored.

## Return decisions

For host countries, most of the gains from educating foreign students materialize only when the graduates remain in the country to work. What determines the decision whether to remain in the host country or to return home?

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. One US study estimated that a 10% increase in the number of foreign students led to a subsequent increase in the number of legal migrants of up to 0.9% [9]. Thus, hosting students is clearly one way to attract skilled workers from abroad.

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 [2]. When the US economy is growing strongly, international students are more likely to remain. 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, lifestyle considerations, and family wealth as to economic considerations, since returning migrants typically incur large pay cuts [7]. This suggests that policies that improve the work environment, rather than tax cuts or higher wages, may offer a more promising way to attract migrants back home. For example, home country compensation schemes that reward tenure rather than productivity have tended to impede the return of migrants [8].

## Effects on non-migrants

### *Home country effects*

Critics of international student migration are concerned that it results in a “brain drain” that depletes the home country’s pool of talented people, thus slowing overall development. However, this view misses an important positive feedback mechanism. In countries with low returns to education, people have less incentive to stay in school. Skilled migration, by increasing the expected returns to education, induces more people to invest in their education. Since not all students end up migrating, this raises the overall level of education. An empirical study estimated that 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, at least temporarily.

However, for countries with a high level of skilled migration (above 20–30% of graduates migrating) or a high share of graduates, brain drain effects 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. 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.

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 and by remittances sent home. Thus, even in countries with high levels of skilled migration, the net fiscal costs are in general quite small [7].

Finally, 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. Overall, then, student migration stimulates economic growth.

### ***Host country effects***

Little is known about the effect of international students on the performance of students in the host country. Institutions competing for international students might spend additional resources on all students, and the inflow of foreign students could encourage local students to work harder (since migrants increase the level of competition in the labor market). Alternatively, migrants might crowd locals out of education, and their weaker language skills might slow learning for all students. The overall effect is thus unclear.

Skilled migrants may affect the labor market outcomes of natives. A study of the large inflow of (mostly) educated Russians to Israel found 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 [11]. 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. In contrast to this potential wage effect, the higher likelihood that skilled migrants will engage in entrepreneurial activity can have a positive long-term effect on economic growth and generate jobs for native workers [5]. The overall effect for native workers thus appears positive, even though some people may lose out.

A potentially contentious issue in countries where higher education is funded mainly through general taxation is that the education of foreigners is effectively subsidized. To ease the concerns of local taxpayers, governments should communicate the ways host countries gain from hosting international students—from their spending while they are students to their positive effect on economic growth when they remain in the country.

## **LIMITATIONS AND GAPS**

Research on student migration is still impeded by data limitations. The gaps include a lack of causal evidence on how changes in tuition fees affect demand for international education, the determinants of return decisions, the performance of returning migrants, and how student migration affects the labor market and economic growth in the host country.

International student migration has expanded considerably as developing countries have become richer and as demand for good-quality higher education has outpaced supply. However, challenges are emerging for countries that are international education providers.



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. Depending on the quality of this additional capacity, it could affect the demand for international education.

But even if the demand for international education remains strong, technological changes may reduce the need for physical migration, especially for students who plan to return home. An example is Massive Open Online Courses (MOOCs), which allow many people to follow and participate remotely in elite education.

## SUMMARY AND POLICY ADVICE

The discussion here has been based on a model in which individuals maximize their lifetime earnings by migrating as students. International students gain financially from studying abroad and, under some conditions, both sending and receiving countries also gain.

The empirical 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.
- English-based programs are especially attractive to international students because of the positive returns to English-language skills.
- By reducing the wage penalties on foreign qualifications, policies that harmonize qualifications across countries can increase students' mobility and their decision to return.
- Restricting access to the host country labor market lessens the returns to studying abroad and reduces the number of would-be migrants, especially among the most skilled.
- Home country restrictions on mobility—both entering and leaving—lower incentives to invest in education.
- Policies that improve the job market for skilled graduates and limit tenure-based wages increase the proportion of returning students.

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## Competing interests

The IZA World of Labor project is committed to the *IZA Guiding Principles of Research Integrity*. The author declares to have observed these principles.

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