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Article

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Does emigration increase the wages of non-emigrants in sending countries

Emigration can increase the wages of non-emigrants, but may eventually lead to lower productivity and wage losses

Keywords: emigration, wages, human capital

ELEVATOR PITCH

How migration affects labor markets in receiving countries is well understood, but less is known about how migration affects labor markets in sending countries, particularly the wages of workers who do not emigrate. Most studies find that emigration increases wages in the sending country but only for non-emigrants with substitutable skills similar to those of emigrants; non-emigrants with different (complementary) skills lose. These wage reactions are short-term effects, however. If a country loses many highly educated workers, the economy can become less productive altogether, leading to lower wages for everyone in the long term.

KEY FINDINGS

Pros

- ⊕ Emigration can boost the wages of non-emigrants because the option to emigrate gives them greater bargaining power.
- ⊕ Emigration leads to labor shortages in the sending country, so the greatest wage increases are among non-emigrants with skills similar to those of emigrants.
- ⊕ The wage response to migration is larger in sending countries than in most receiving countries, in part because sending countries are on average smaller than receiving countries.
- ⊕ Emigrants transfer knowledge to their home countries, which leads to innovation and increases wages.

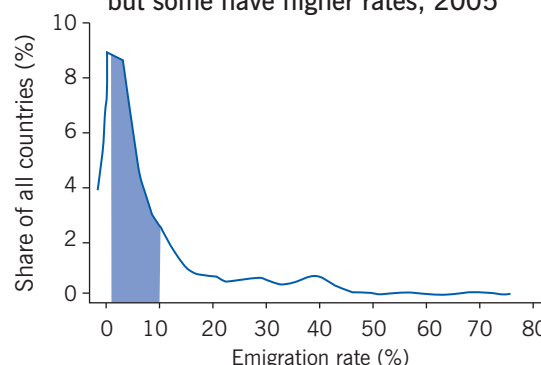
Cons

- ⊖ The positive average wage effects in sending countries are short-term effects.
- ⊖ Once capital adjusts, emigration affects mainly the wage distribution, creating winners and losers.
- ⊖ Low-skilled non-emigrants face wage decreases if emigration is of the high-skilled, as their skills complement those of the emigrants.
- ⊖ In the long term, a country that loses many educated workers can become less productive, lowering wages for everyone.

AUTHOR'S MAIN MESSAGE

Emigration can change the wage level and distribution in sending countries. These effects are larger than the effects of immigration in receiving countries. In the short term, emigration leads to labor shortages that increase the wages of non-emigrants with skills similar to those of emigrants (generally high-skilled workers), while lowering the wages of workers with different skills (often low-skilled workers). In the long term, however, the wage effects can be negative. Since low-skilled workers in sending countries generally lose from emigration, policy should focus on helping workers adapt, so they can fill the gaps left by high-skilled emigrants.

Most countries have emigration rates of 1–10%, but some have higher rates, 2005



Source: Author's own calculations based on data from the Database on Immigrants in OECD Countries (DIOC) 2005/06. Online at: <https://www.oecd.org/els/mig/dioc.htm>

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MOTIVATION

Every immigrant is also an emigrant. As simple as this may sound, it is surprising that research on the economic impacts of migration in receiving countries is well advanced, while the impacts in sending countries have received far less attention. Similarly, public concern seems to be focused far more on the economic consequences of immigration than of emigration. A Google search of the keywords “immigration wages” returned more than 40 million results, while “emigration wages” returned fewer than ten million. The popular notion of the economic consequences of emigration is associated with the term “brain drain”: the best and brightest leave, making non-emigrants worse off. But emigration can also benefit workers who do not emigrate, leading to a win-win situation. Emigrants win because they get higher paid jobs abroad, and non-emigrants win because they face less competition in the labor market and can ask for higher wages. Which of these explanations prevails depends on how many people emigrate, and how the skills of emigrants compare with those of non-emigrants.

DISCUSSION OF PROS AND CONS

Some generalized facts about emigration and sending countries

First, nearly all countries in the world are sending countries, including such traditional receiving countries as Australia, Germany, and the US. The majority of countries have emigration rates between 1% and 10%, but a substantial number have emigration rates way above 10%, some even more than 50%.

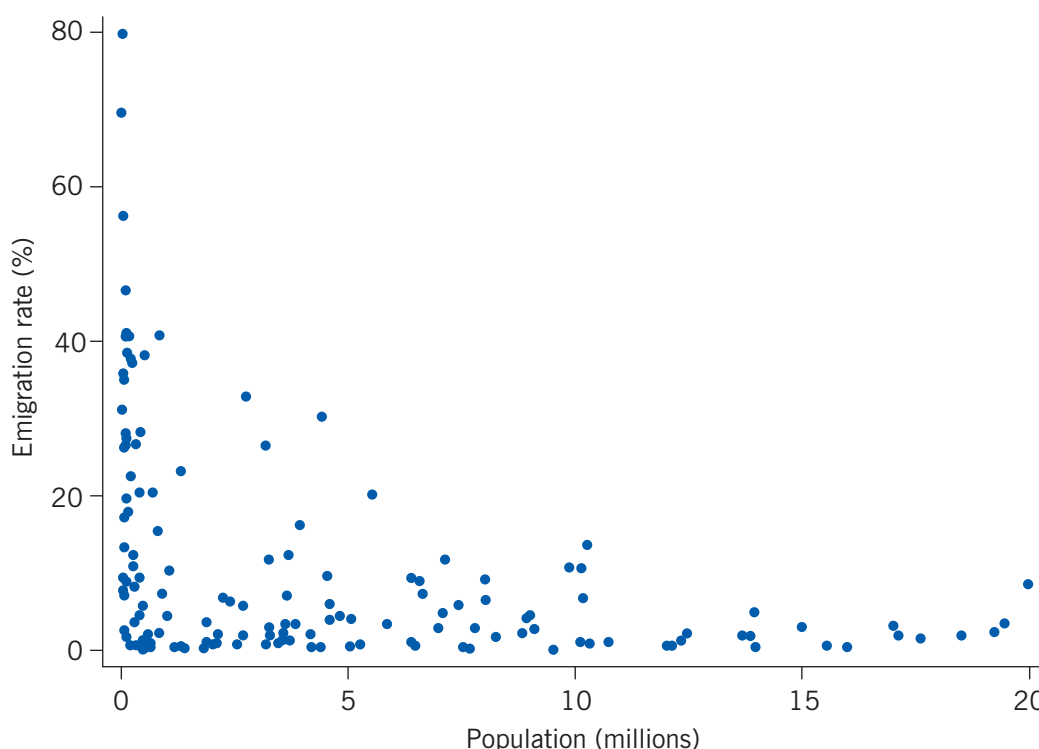
Second, high emigration rates are generally concentrated among small states, while large states typically have low emigration rates (Figure 1). Since most receiving countries are large (exceptions like Luxembourg and the United Arab Emirates aside), this means that the same emigration wave translates into a larger labor supply shock in the (small) sending countries than in the (large) receiving countries. For example, ten million Mexican migrants account for about 4% of the US population but about 10% of the Mexican population. Even if labor markets function the same way in both Mexico and the US, the effect in Mexico should be stronger because the emigrants account for a larger change in population.

Finally, for most countries, high-skilled workers are a higher share of emigrants than of the population, often many times higher. Figure 2 illustrates the skill selection of emigrants—to what extent workers with higher education are over-represented among emigrants. The example of Vietnam (VNM) illustrates the importance of selection for understanding emigration: the country has an emigration rate of around 5%, but among the emigrants the share of high-skilled workers is four times the share among all Vietnamese workers [1].

Why would emigration affect the wages of non-migrants?

When thinking about the impact of migration on wages, the general public often has a simple labor market model in mind. More workers mean lower wages, and fewer workers mean higher wages. Emigration of some workers means that fewer workers compete for the same number of jobs in the sending country, which increases the wages of workers who stay behind. While providing a useful starting point, this model is perhaps too simplistic to provide meaningful insights without some important extensions, as will be discussed below.

Figure 1. Smaller countries have higher emigration rates than larger countries, 2005



Note: Only countries with fewer than 20 million inhabitants are shown.

Source: Author's own calculations based on data from the Database on Immigrants in OECD Countries (DIOC) 2005/06.

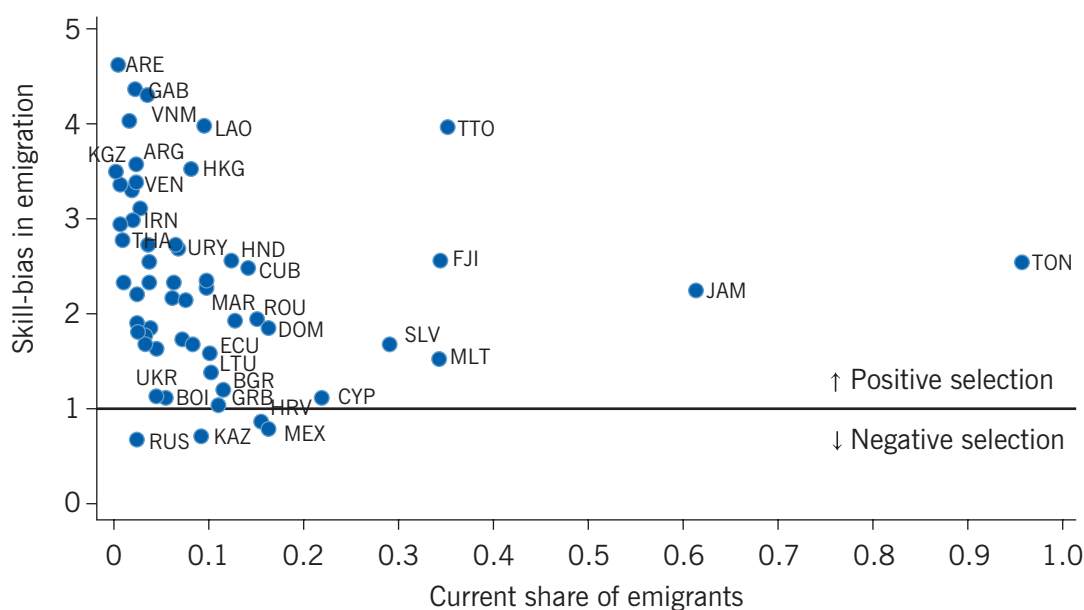
Online at: <https://www.oecd.org/els/mig/dioc.htm>

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If workers have different skills, and these skills are complementary, then a large emigration of one group reduces the demand for the other group and thus lowers their wages. On the other hand, if skills are similar, then emigration can increase demand and raise wages for this other group. Take as an example doctors and nurses. If many doctors emigrate, then the wages of the remaining doctors (“substitutes”) rise. But if there are fewer doctors, there is less demand for nurses (“complements”), whose wages decline.

Wage changes are only one of many reactions of an economy to an outflow of workers. Other important adjustment channels are capital flows, trade patterns, production inputs, internal migration, and remittances. Emigration can trigger an outflow of capital, because there are fewer workers to operate machinery. Alternatively, the lack of suitable workers may induce firms to switch from labor-intensive to capital-intensive production. If some regions have more emigrants than others, non-emigrants may move internally to fill the gaps left by emigrants. Emigrants may also affect innovation in the home country: this can have a positive effect if domestic firms benefit from the emigrants’ knowledge, or negative if emigration drains a country of its most talented innovators. Emigrants often send home remittances, which may affect labor supply and reservation wages (the wage at which someone is willing to work). Finally, many countries experience emigration and immigration at the same time. For example, many Polish workers left Poland after 2004, and a few years later Poland saw an increase in immigration from Ukraine. All these adjustments have a feedback effect on wages and may change the level of wages as well as their distribution.

Figure 2. Most emigrants have a higher education than non-emigrants



Note: The skill bias in emigration is the share of high-skilled among emigrants relative to the share of high-skilled in the total population of a sending country. A value greater than one means that high-skilled workers are over-represented among emigrants.

Source: Biavaschi, C., M. Burzynski, B. Elsner, and J. Machado. "Taking the skill bias out of global migration." *Journal of Development Economics* 142:C (2020) [1].

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If a country experiences a brain drain, losing its high-skilled workers, the entire economy may become less productive, which lowers the wages for all workers. On the other hand, the possibility of emigration gives people an incentive to invest in their human capital, which may increase productivity [2].

In the simplest model of a labor market, labor supply equals labor demand, labor supply does not depend on wages, and there is no unemployment. In such a world, emigration would affect only wages. In a world with unemployment, emigration can still affect wages, but the effect is smaller.

In theory, as well as in empirical practice, uncovering these effects is challenging because immigrants often work in jobs for which they seem over-qualified. Hence it is unclear which native workers immigrants compete with in the labor market in the receiving country and which native workers in the receiving country will be affected when immigrants return to their countries of origin.

Quantifying the effect of emigration on the wages of non-emigrants

Research on the impact of emigration on the wages of non-emigrants faces several challenges. Some of the challenges are the same as those for studying immigration, while others are specific to emigration and may impose substantial hurdles for producing credible and meaningful results.

The largest emigration-specific challenge is counting emigrants. While most receiving countries keep detailed records of their immigrants through border checks or registration,

sending countries typically have no system for counting emigrants, let alone collecting information on their demographic characteristics.

A further challenge is to disentangle correlation from causation. Suppose data were available on the emigration rates of different groups of workers, as well as on the average wage of these workers, both at multiple points in time. And suppose that groups with high emigration rates had, on average, higher wage increases than groups with low emigration rates. Would it be safe to conclude that emigration causes wages to increase? Probably not. The correlation might merely reflect a mechanical effect: if within each group the workers with the lowest wages leave, then the average wage per group increases, but not because emigration changed the wages of the remaining workers.

Moreover, in long-standing sending countries, such as Mexico and the Philippines, emigration did not occur all at once. Rather, people have been emigrating and returning over decades, and so emigration is probably not the only change in the economy. Trade and foreign direct investment, for example, often have the same causes as migration and may affect wages in the sending country. It is therefore difficult to disentangle the impact of migration from the impact of other factors on the wages of non-emigrants.

Measuring emigration

Counting the number of emigrants is challenging, because sending countries typically do not keep detailed records on emigrants. Two data sources have been used to count the number of emigrants:

Data from the receiving countries. Most studies rely on emigration data compiled from censuses in receiving countries since every emigrant is also an immigrant. To the extent that immigration is measured correctly, emigrants can be measured by demographic group. This procedure works well for large migration waves with few destinations. For example, more than 90% of Mexican emigrants go to the US, enabling Mexican emigrants to be computed from US census data. If emigrants go to many destination countries, measuring their numbers through immigration records becomes very noisy.

Survey data with information on emigration. In some countries, notably Mexico and Poland, surveys collect information on emigrants from close relatives or neighbors of emigrants. These surveys usually offer very detailed individual information, but the sample sizes are limited, and they do not include entire families that emigrate.

Despite these challenges, researchers have found ways to plausibly quantify the causal effect of emigration on wages, net of other economic influences. One option is to use simulation methods. Researchers build a model economy that replicates important features of the real world and then simulate how emigration would affect wages in the sending country, while holding trade and capital flows constant.

In purely empirical studies, researchers either compare the wage changes in areas with many emigrants to those in areas with few emigrants, or they compare the wage changes of demographic groups with different emigration rates: young workers emigrate more than old workers, high-skilled more than low-skilled, and so on. Another method for understanding causal effect is natural experiments. Large and sudden emigration shocks are often the only

plausible shocks that happened to an economy at that time. Examples are the emigration wave from Central Europe after the EU enlargement in 2004 and the emigration from Honduras in the aftermath of Hurricane Mitch in 1998. While illuminating, such shocks are not common and are of limited use in studying the impact of longer emigration processes. Instead, some researchers have used instrumental variables—forces that affect wages exclusively because they affect emigration. An example of a suitable instrumental variable for emigration is wage increases in the main destination countries, which make emigration more profitable but have no direct impact on the economy of the sending country.

The empirical evidence, 1870–2019

Historical evidence

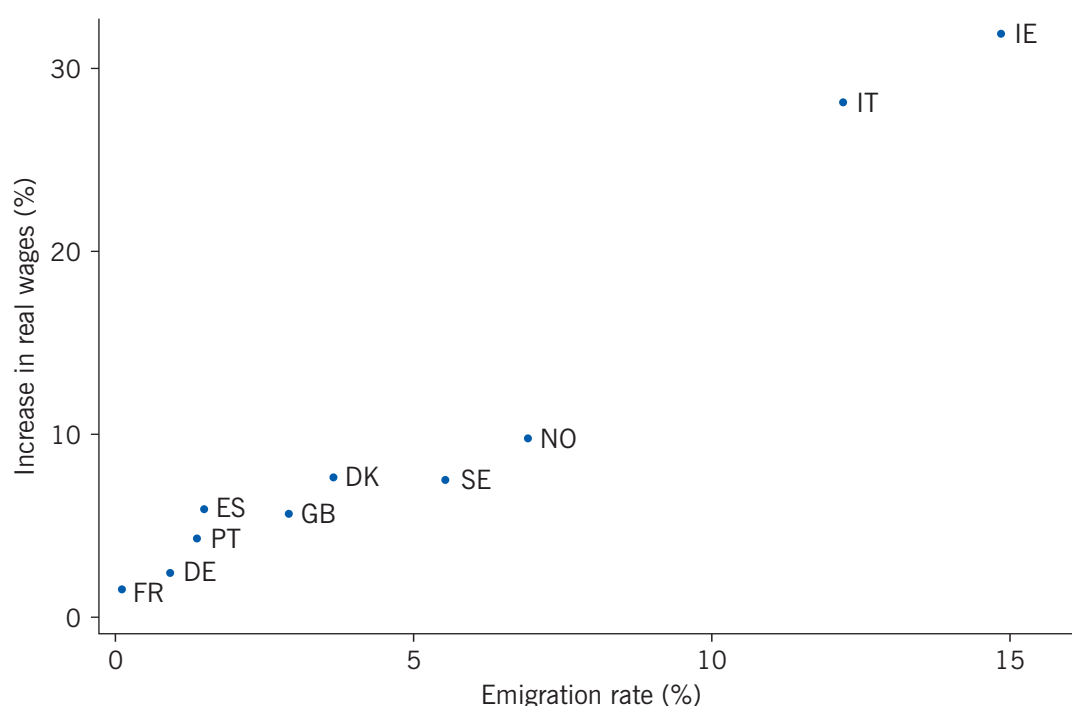
Migration is by no means a recent phenomenon. Migration data go back to the 19th and early 20th centuries, when large numbers of Europeans left for the New World. The labor-scarce economies in the Americas and Australia needed large numbers of workers, whereas many European countries had too many workers. Economic historians have collected impressive amounts of data on this migration episode, based on passenger lists and national statistical yearbooks.

Knowing whether emigration increases wages is central for understanding why living standards in Europe caught up so fast to living standards in North America. Europe was labor abundant, and most workers earned very low wages, while North America had too few workers, who were paid very high wages. Mass migration increased the wages in Europe while decreasing wages in North America. Economic historians estimated the impact of emigration on wages in the most important sending countries and quantified the role of emigration in closing the income gap between Europe and North America. As shown in Figure 3, there is a clear positive relationship between the share of emigrants and wages. The effect of emigration on European wages was substantial, especially in Ireland and Italy, which had the largest shares of emigrants.

A salient example of the importance of emigration for wage levels and, ultimately, living standards is the mass emigration from Ireland, triggered by the famine of the mid-19th century. Emigration reduced the Irish population from 8.1 million in 1841 to 4.4 million in 1914. Several economic historians have estimated that Irish wages would have been 20–40% lower without emigration. Emigration accounted for half the wage growth in Ireland in the second half of the 19th century and a third of the wage convergence between Ireland and the US. Similarly, Swedish emigration during the same period increased wages at home by around 12%, which also accounted for a third of the wage convergence between Sweden and the US [3].

The wage effects of emigration were also found in the US, when a substantial share of first- and second-generation immigrants left the country to return home in the mid-20th century. A study that compares US states with high emigration rates and states with low rates finds that a 10 percentage point increase in the share of emigrants increased wages in the US by 1.6% [4]. This effect is not as dramatic as in Ireland or Italy, but it is nevertheless large and shows that the same mechanisms hold for return migration from a traditional receiving country as for a sending country.

Figure 3. There is a clear positive relationship between emigration and wages, 1870–1910



Source: Calculations based on data from O'Rourke, K. H., and J. G. Williamson. *Globalization and History: The Evolution of a Nineteenth-Century Atlantic Economy*. Cambridge, MA: MIT Press, 1999; Table 8.1 [3].

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Average and distributional effects today: Evidence from South America

When looking at today's most important sending countries, most evidence has been gathered for Mexico, which has a history of emigration to the US dating to the 1940s. Despite severe entry restrictions, around 10% of the Mexican population currently live in the US. Several studies have examined the impact of this emigration wave on wages in Mexico. Because of the long-standing nature of the migration flow, natural experiments could not be used to tease out a causal effect, as a result, the studies relied on instrumental variables and simulations.

One fact that is often exploited in estimating causal effects of migration is that migration today begets migration tomorrow. Emigrants from a particular sending region who moved in the past make it easier for today's emigrants to move, because migrant networks provide knowledge about border crossings and job search. One study exploits these migration traditions by comparing today's wages in Mexican regions that had high and low shares of emigrants in 1950 [5]. The study finds that regions with a 10 percentage point higher share of emigrants than other regions in 1950 had wages that were 7–8% higher 50 years later. Other studies consider emigration and wages at the national level, comparing groups of workers with high and low emigration rates at multiple points in time [6]. Young workers, for example, were more likely to emigrate than old workers, and medium- and high-skilled workers were more likely to emigrate than low-skilled workers. Groups with a higher emigration rate had significantly larger wage increases. For a 10 percentage point increase in the emigration rate, wages increased by 4% on average.

The impact on the wage distribution is as important as the impact on wages. By no means do all non-emigrants gain as a result of emigration by others; some groups may even lose. Two channels are in operation here: first, high- and low-skilled workers are usually complements in production. Because most Mexican emigrants are medium- and high-skilled, emigration should lower the wages of low-skilled and increase the wages of high-skilled Mexicans. Second, high-skilled emigration can reduce trade, which disproportionately benefits low-skilled workers. Taken together, a recent study estimates that emigration instead increases the wages of low-skilled Mexicans by 0.6% while decreasing the wages of the highest-skilled Mexicans by 2.9% [6].

Two other South American countries illustrate the effect of emigration on the wages of non-emigrants. One is Puerto Rico, whose citizens can move freely to the US. In 2000, more than 30% of all people born in Puerto Rico lived in the US. Moreover, Puerto Rico is a small island state, making it unlikely that native workers move internally in response to emigration. This setting provides a cleaner estimate than the Mexican case. The wage response in Puerto Rico is similar to that in Mexico: a 10 percentage point increase in the share of emigrants increases the wages of non-emigrants by 4% [7].

The other country is Honduras, which experienced a large emigration wave to the US in the aftermath of Hurricane Mitch in 1998 [8]. The sudden and unexpected surge in emigration after the hurricane can be seen as a natural experiment: the wage changes in Honduras were most likely caused by the emigration wave rather than by other factors. The estimated short-term effect of emigration on the wages of non-emigrants is massive: for a 10 percentage point increase in the share of emigrants, the wages of non-emigrants increase by 10%. In the long-term, however, the effect is likely to be smaller, because trade, internal migration, and foreign aid may dampen the wage effect.

The importance of human capital: Insights from OECD countries

Often overlooked is the fact that most countries, even the most advanced, are also sending countries. After the 2008 recession, for instance, many high-skilled workers left Greece, Italy, and Spain and moved to Northern Europe. At the same time, Italy and Spain received many low-skilled immigrants. While the public seems more concerned about the impact of the immigration of low-skilled workers, a comprehensive study of OECD countries shows that the emigration of high-skilled workers can have significant negative effects on average wages at home [9]. Besides directly lowering the labor supply of high-skilled workers, the emigration of high-skilled workers drains the country of its most innovative and productive workers, which makes the entire economy less productive and decreases everyone's wages. These effects are small for most OECD countries (a 0.5% decrease in average wages over a ten-year period) but are large for small countries with high emigration rates, such as Cyprus and Ireland, where the predicted decrease in average wages is 2–3%. These average effects mask a strong distributional effect. Because the emigration is heavily skewed toward high-skilled workers, low-skilled workers lose a lot more—1% in the median country but up to 6% in some countries.

Emigration and wage inequality: Lessons from EU Enlargement

An important recent migration episode was the EU enlargement in 2004 and 2007, which, overnight, allowed citizens from ten Central European countries to move to work

in Ireland, Sweden, and the UK and subsequently in the rest of the EU. The lifting of internal EU migration restrictions triggered a large and sudden emigration wave, which provides laboratory conditions for studying the impact on labor markets.

Two cases of emigration receive particular attention in the economic literature: Lithuania, from which 9% of the workforce emigrated to the UK and Ireland, and Poland, which had an emigration rate of around 5% [10], [11], [12]. Besides providing important insights into labor mobility in Europe, both cases show that emigration can substantially alter the wage distribution. In Lithuania, for example, most emigrant workers were aged 20–30, and the shares of high-skilled and low-skilled workers were similar among emigrants and non-emigrants. As predicted by a simple labor market model, this emigration wave led to wage increases for groups that had many emigrants, such as young workers, while it had a small negative effect for groups with few migrants, such as old workers. In the five years after EU enlargement, emigration led to a 5–8% wage increase among young workers with ten years of work experience or less, while it had zero or a small negative effect on the wages of older workers. For young workers, emigration accounts for about 15% of the total increase in wages over the five years. In Poland, where emigration was dominated by medium-educated workers, the pattern is similar. The wages of medium-skilled workers (workers with skills similar to those of most emigrants) rose significantly, while the wage change for high-skilled workers was close to zero, and low-skilled workers faced declining wages.

Emigration and innovation

An important channel through which emigration affects wages is innovation. This effect can be positive or negative, depending on the direction of knowledge flows. If the most talented innovators emigrate and take their knowledge with them, emigration reduces economic growth in the home country, which ultimately leads to lower wages. A recent study from Italy finds evidence for such an effect. The emigration of large numbers of entrepreneurs dampened entrepreneurial activity and wages [13]. However, the effect can also be positive if emigrants transfer their knowledge to their home country. A study of 32 European countries indeed finds positive effects of emigration on innovation in the sending countries. Through knowledge transfers, emigration can help to reduce the gap in innovation between high- and low-income countries [14].

LIMITATIONS AND GAPS

By far the largest obstacle to producing more convincing evidence is the difficulty of counting emigrants. With the available data, studies could demonstrate that emigration affects the wage level and the wage distribution in the sending countries. But this evidence is based on case studies for a handful of countries for which emigration data are available or can be easily constructed from the census data of receiving countries. Yet most countries are sending countries, and more data are needed to determine whether these conclusions are more broadly applicable.

A further conceptual issue still to be addressed is how to account for the duration of stay. Unlike the Irish emigration in the 19th century, most migration today is temporary. Yet empirical studies treat emigration as permanent and do not account for return, repeat, or circular migration. Measuring return migration would require repeated observations of migration flows in and out of a sending country.

Different systems of circular migration

Unregulated systems are established by the migrants themselves and predate current national borders. They conform to natural preferences of many migrants as can be seen from nomads, traders, and seasonal laborers. In contrast, formal or regulated systems are based on collaboration among states or employers to recruit, transport, and employ workers from abroad.

Moreover, available data sets usually contain only a few observations. With richer data, the underlying mechanisms could be explored further. Wage changes are just the end of a chain of labor market adjustments. Future research should open this black box and study how an economy adjusts to emigration. Some exciting directions for future research would look at how firms react when many workers leave. Do they adjust production inputs, do they use a different production technology, or do they go out of business? It could also examine how remaining workers change their behavior. Do they work more hours? Do workers who have not been working now find it more attractive to work because they can expect higher wages? And how does emigration affect the careers of non-emigrants over time? Are they able to switch faster to higher-paid jobs?

Finally, most official data sets do not include illegal or irregular migrants. These groups are often selected differently compared to the migrants represented in the data, which means that their labor market impact in the sending country might be different too. An important task for future research is to collect comprehensive data on illegal and irregular migrants and to evaluate their impact on employment and wages.

SUMMARY AND POLICY ADVICE

Emigration has a significant impact on the wages of non-emigrants, both directly by making some groups of workers a more scarce resource than others and indirectly by feeling the effects of changes in aggregate productivity. While the average effect on wages is positive in most sending countries, emigration often creates winners and losers. Workers with skills similar to those of emigrants gain, while workers with very different skills lose. In countries that experience substantial high-skilled emigration, wages decline for everyone, because the economy overall is less productive.

In receiving countries, policymakers can limit the effect of immigration on wages by limiting the number of migrants. In sending countries, policymakers do not have such an option, unless they use coercion. The policy focus in sending countries should thus be on education and training. Since low-skilled workers in the sending countries generally lose from emigration, it will be important to make them better able to adapt to changes in the labor market as a consequence of emigration so that workers can more easily switch jobs and fill the gaps left by high-skilled emigrants. Although some of the upskilled workers may emigrate in turn, it appears likely that many stay behind and lift the level of human capital in the sending country.

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of background references for the material presented here and has been used intensively in all major parts of this article [1], [11]. Version 2 of the article includes new or updated figures, a new section on emigration and innovation, and new “Key references” [1], [6], [13], [14].

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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