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## Abstract

Are migration and development connected? Migration is as old as humanity whilst economic development is relatively recent. Early theories interpreted the movements of people across locations as aspects of a unique phenomenon – the modernization of the economy – while modern empirical studies search for their causal relationships. Among the later, the impact of development in low-income countries on migration to rich economies has taken center stage in the recent public and academic debate, and bears particularly important policy implications. Investigating the links going in the opposite direction, from migration to aspects of the economy connected to development, has produced diverse and in some cases robust findings. This chapter reviews the evolution through time of the search of the links between migration and development and the central points of the current debate.

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# Introduction

While people have always migrated, economic development is relatively recent. Are the two phenomena connected? Would industrialization, mass production or the technological revolution have been possible without vast movements of people across the globe? Or, conversely, would the mass migration of the nineteenth century have taken place without industrialization? With various degrees of emphasis, these topics have always been at the heart of the economic enquiry, but in recent decades they have gained center stage in the academic and public debate on immigration in rich economies.

Very generally, migration indicates that people move away from their place of usual residence, within or between countries, temporarily or permanently and for a variety of reasons, while development indicates a permanent improvement of living conditions. Early economists interpreted migration and industrialization as two sides of a unique process of economic development; as the economy went through processes of modernization, people changed their ways and places of living, and in doing so boosted progress. In the second half of the nineteenth century, while rapid technological progress, deep economic changes and unprecedented migrations were taking place worldwide, economists began to search for the existence of regularities and laws in the movements of people. In their initial formulations, the 'laws of migration' stated that people moved towards the places they expected to be the most prosperous, the 'great centers of commerce and industry' (Ravenstein, 1885). Individuals based their choices on expectations on future living conditions in different locations and faced genuine uncertainty on identifying these centers; the wealth of nations was shifting from old to new locations, and sometimes it happened in unpredictable ways. The laws also entailed a reverse effect: by moving, people helped economies to transition from traditional to modern conditions. Lack of movement was the antithesis of development: '[m]igration means life and progress; a sedentary population stagnation' Ravenstein (1885).

Later, during the twentieth century, except for general equilibrium models representing reciprocal interactions between variables, migration and development were increasingly seen as distinct phenomena that could be researched separately, in each case taking the other as given. In neoclassical thinking, development was interpreted as a gradual convergence of low-income countries to the condition of Western rich economies, while migration was the result of utility-maximizing individuals who formed expectations on wage or income differentials between

countries and were constrained by the costs of moving. In international trade and factor movements models, migration reinforced the processes of incomes' convergence of origin and destination countries. The conceptual separation of migration and development into separate phenomena also allowed the nexuses of causality between them to be tested empirically. In recent decades, this has been greatly facilitated by a substantial increase in the availability of standardized data on countries' economic, institutional, political and social indicators.

Among the several channels potentially linking migration and development, a special attention has been dedicated in recent decades to the one between development in low-income countries and migration to rich economies. This relationship is often tested by using the average income of countries as a proxy of development. Neoclassical models predict that migration falls as the income differential between countries decreases, but several empirical studies find a hump-shaped pattern of emigration when it is plotted against the average income of origin countries (Clemens, 2014). Despite this pattern does not appear to be robust to different specifications and samples, it is often interpreted as a stylized fact or even a causal relationship that goes from income growth in poor countries to immigration into rich countries. This bears sensitive implications on the restrictiveness of immigration measures, international aid policies and, more generally, the importance assigned to development in low-income economies.

At the same time, several lines of research focus on effects going in the opposite direction, from migration to various factors – such as trade, investments, remittances, norms and institutions – that can be connected to development in origin and destination countries. This chapter reviews the evolution of the economic research on the links between international migration and development, from the early economic analyses to the modern research, and in so doing necessarily omits important lines of investigation – including those on internal migrations, refugee movements or micro-data – that are not directly related to these nexuses. The first section reviews early studies that investigate the causes of the wealth of nations and consider the movements of people across different locations. It then portrays the analyses on migration and development, first during the era of mass migration and then during that of mass production. In the following sections, it presents the changes in the interpretation of development and migration that occurred with the recent technological revolution. The last sections are dedicated to empirical studies on the links between migration and development

# 1. Early studies

While studying for the nature and causes of the wealth of nations, early economists interpreted migration as an inextricable component of their processes of modernization and development. A crucial determinant of progress was the division of labor, which in turn crucially depended upon capital and labor being able to move freely to the most productive locations. Adam Smith made it clear that thriving nations were those where the means of production were not monopolized and their use was not restricted and, more generally, those where the rules on the use and ownership of new lands were wisely designed. In this respect, the superior institutions of the British colonies had made them to flourish more than the colonies of Spain and Portugal, but such superiority was only able to endure if supported by the domestic and international free movements of workers, capital and technological knowledge (Acemoglu and Robinson, 2010).

David Ricardo shared the notion of free movements of factors as the best allocation mechanism but, more than Smith, associated the wealth of nations with their technological level; the most prosperous nations were those with the more advanced productive knowledge. Free international trade produced gains for all countries but, since knowledge was a non-tradable good and did not spread spontaneously, trade alone did not guarantee incomes' convergence. Even peoples' movements could not guarantee convergence, unless migrants carried with them useful knowledge. After several decades during which free competition was though to guarantee incomes' convergence, some elements of this view resurfaced in modern interpretations of development.

Both economists lived in a world where, except for short distances, only a minority of people could freely choose to migrate. At the end of the eighteenth and start of the nineteenth century, slavery and the slave trade were gradually being replaced by international recruitments of foreign workers, but the movements of individuals from one country to another or even within countries were still often restricted, taxed, or entirely impeded. The symmetrical and opposite situation, regarding the forced emigration of ethnic, political or religious minorities, was seen by early economists as just another manifestation of the generalized lack of freedom in peoples' movements.

## 2. Industrialization and mass migration

The invention of the steam engine in the mid-nineteenth century and the technological revolution that followed changed the world dramatically. More so than before, prosperity and the division of labor were facilitated by the faster and cheaper transportation of goods, capital and people between distant areas of the world. Large-scale productions and rapidly increasing productivity in manufacturing emerged in some locations, the European 'centers of modernity', but the lack of comparative advantage in other sectors, especially in agriculture and mining, also became evident. Hence, while British and European cities produced and exported raising amounts of manufactured goods, vast areas of European crops were substituted by imports, and peasants in those areas became unemployed.

At the same time, modernization and improved living conditions were raising birth rates and decreasing mortality, which, together with the declining agricultural crops in parts of Europe, pushed growing numbers of unemployed people to move to towns, cities and foreign destinations. In this process, people found that they were not only freer to migrate than their predecessors, but that their services were in high demand in faraway locations, especially those where goods to be exported to the rest of the world were produced. While some people made autonomous decisions on the location to which to migrate, most followed international recruiters who matched supply and demand for labor from different countries. Hence, mass emigration originated especially from Europe, but emigration occurred also from parts of the world that were distant from the industrial revolution engines but that were experiencing the effects of cheaper transport and new trade patterns. People left some of these regions, particularly in Asia, due to famine and wars, and moved to the British and European colonies, and to North America.

These huge changes led economists to think that peoples' movements could not solely be explained by market forces. Migrants could not be assimilated to 'atoms' simply governed by opposing forces of attraction: they were real individuals, making decisions and choices about whether, when and where to migrate. Hence, migration was a phenomenon that needed to be studied autonomously, although consistently with the very general principles of the economic discipline. The first laws of migration, published in 1885 by Ravenstein, stated that people move from rural areas to towns, then to cities, and in some cases to foreign destinations; in general, they move towards 'the great centers of commerce and industry'. Ravenstein (1985) maintained that the factors determining migration were mainly economic, but it was also clear that migration

choices were more complex and uncertain than other, more common, economic choices made by individuals. The migration decision implied that they had to consider different possible destinations, form expectations on the potential economic prosperity of each of them and at home, while evaluating, at the same time, the costs of moving, the probabilities of success abroad and the chances of being able to return, either because of failure or choice. It was therefore a complex, uncertain and risky decision, the more so the farther and less known the potential destinations. For Ravenstein, like his predecessors, workers made their decisions in an intertemporal setting where differences in expected prosperities were more important than current wage differentials. This theoretical thinking was rooted in real world circumstances: during the second half of the nineteenth century, income inequalities between countries were substantially smaller and more unstable than in recent decades, the relative prosperities of countries or locations could change in relatively short periods of time, even during the migrants' lifetime.

Later on, the European mass migration and its drivers and effects have been studied and reconsidered from different viewpoints, but a central and recurring question is whether it has led to convergence in wages and incomes between origins and destinations. The question, more specifically, is whether migration contributed to the incomes' convergence that took place between Europe and the New World from the mid-nineteenth to the mid-twentieth century (Baines, 1994; Hatton and Williamson, 1994). In the neoclassical approach, peoples' movements can determine a convergence in wages through changes in marginal productivities of labor at origin and destination. As is well-known, this interpretation is based on short-run trade models where labor moves while others factors are fixed, technologies are equal between countries and technological change is absent. However, during the era of mass migration technologies differed substantially between countries, technological change was rapid and, differently from modern times, advanced technologies were located in Europe, the origin of the huge migration flows. Moreover, unlike the predictions of the short-run neoclassical model, several empirical studies find that international trade does not appear to have substituted migration. The likely reason is that labor migrated to locations – such as the United States, the Caribbean islands, vast areas of South America, Australia and British and European colonies – that produced goods that were exported to the countries of origin of migrants. Several studies find that, at that time and at least until the second world war (WWII), trade and migration moved in parallel (Felbermayr et al., 2015), and that convergence

between Europe and the New World has been driven by a rapid growth of total factors' productivity in European countries.

One characteristic of migration common to different historical times is the formation of transnational migrant networks. Whatever the initial cause of migration, the existence of migration 'corridors' between countries is extensively researched in relation to modern migration, but existed also in historical times and started to be noticed by early economists. Cumulatively, these corridors gradually deepen of the initial trail, which then leads to 'chain migration' and the formation of communities and networks of migrants in specific destinations. Another aspect of networks, related with development at home and in the destination countries, concerns the influence of migration on the composition of the labor force, production structure, international specialization, and development perspectives of countries. Migrants with specific skills from Germany, Italy, Ireland, India, China, Armenia and other countries contributed to the productive specializations of destination areas in South and North America, Eastern Europe, Africa and Eurasia (Sowell, 1996).

Regarding the countries of origin, positive feedbacks were generally stronger and ties were more robust when migration was voluntary, determined by labor reasons, and people could freely return to the country of origin. One example is that of Italian emigrants to South America, who returned home yearly for the harvest season, and positively influenced the home country's development through their improved knowledge and skills, and with their remittances (Foerster, 1919). On the other and, forced emigration, such as that from Ireland during the first half of the nineteenth century, which was determined by famine or, even earlier, that of Jews and Moors from Spain in the fifteenth century, contributed to the development of the destination areas, but not to that of the origin countries because, in those cases, the transnational network ties were weak or nonexistent.

Early migrant networks could also affect the bilateral trade between origin and destination economies. Thanks to their knowledge of the peoples and markets of home and destination countries, they lowered the invisible costs of trade that are typically determined by dissimilarities between countries. Greif (1993) found that during the twelfth century, the robust international social ties of Maghribi traders boosted trade across the Muslim Mediterranean, which at that time included parts of modern Spain and Portugal. Those historical migration movements evidence that who migrates and where can cumulatively carve the comparative advantage, international economic exchanges and chances of development of the places of origin and destination. The

effects of transnational migrant links have also been studied in relation in relation to modern diasporas, and will be reviewed below.

## 3. Mass production and the international demand and supply for labor

The quality of institutions and the economic prosperity of the New World main destinations made them attractive to immigrants (Bertocchi and Strozzi, 2008), but from the beginning of the twentieth century also contributed to make their immigration policies more selective. In particular, the more advanced level of industrialization of the United States was associated with a higher demand for workers that, unlike the pre-industrialization period when specific competences were unimportant, favored people able to work in big factories and mechanized production processes. Most of these workers were low-skilled, but they were nonetheless required to master some very basic levels of literacy and numeracy, especially if they were arriving from abroad. One consequence of these policies was that the illiterate and unskilled migrants who could not meet these requirements increasingly migrated to other New World destinations, where entry policies were less restrictive.

### 3.1. Post-war development and migration

The end of WWII was accompanied by global geopolitical changes that influenced peoples' migration patterns. Mass migration from northern Europe to the Americas had already greatly subsided before the war, while that from southern Europe gradually came to an end thereafter. During the same decades, people from the colonies, former colonies and the less developed areas of southern Europe moved to fill the vacancies in the manufacturing, agricultural and mining sectors of North America, northern Europe and Australia. These movements occurred while the adoption of mechanized and standardized methods of production in the destination countries paralleled the already mentioned increased selectivity of the demand for foreign workers. More selective immigration policies aimed at filling the demand for labor in the manufacturing sector, while an increase in temporary immigration was used to fulfill vacancies in agriculture and the mining industries. In the immediate decades after the war, agreements on temporary migration were signed between southern and northern European economies, and were later substituted by agreements with other, less developed Mediterranean countries.

The expansion of mass production processes and the related contraction of the demand for low-skilled foreign workers in rich destinations occurred at the same time as the forces for out-migration from low-income countries were becoming stronger. One of these was decolonization. With former colonial possessions, especially in Africa, becoming separate and independent nations, the flows of people migrating within Africa and out of the continent increased. Part of the rise in numbers derived artificially from the separation of countries that formerly were part of a unique colony, but most of it was real. Another, and even more important, push factor was a generalized lack of economic convergence from developing to developed countries. Except for very few south-east Asian economies, most developing countries did not take the path of industrialization and growth that developed ones had taken before them. In this framework, the oil shocks of the 1970s and early 1980s only accelerated the processes of substitution of labor with capital in rich countries, and further restricted their demand for foreign workers. The widening differences between prosperity in developing and developed countries increased the also gap between the numbers of people who were eager to emigrate from the former and the demand for their labor services in the latter.

The end of WWII also witnessed a shift in the focus of policy makers and scholars from the concept of emigration to that of immigration. This coincided with the creation of international institutions that had the purpose of monitoring and providing standardized statistics on the internal and international movements of people and on countries' labor markets. These institutions, which still exist, are the International Organization for Migration (IOM), the International Labor Organization (ILO) and the United Nations High Commissioner for Refugees (UNHCR). The allocation of tasks between them broadly replicates the distinction between general, labor and refugee movements of modern migration. The later, in particular, gained importance during the Cold War years, when both the United States and the Soviet Union encouraged the inflows of people from the opposing block.

### 3.2. Stages of development: migration and convergence

During the initial decades after the WWII migration and development studies mostly took an optimistic view of the two phenomena. Neoclassical economists maintained that large-scale migration could contribute, through the convergence of wages and the relocation of workers, to economic growth both in the destination economy and in the origin country (Kindleberger, 1965).

Development was conceived as a sequence of stages of structural change – consisting in production and employment gradually shifting from the primary to the industrial and then to the service sector (Rostow, 1959) – that every country, sooner or later and in the same order would follow to eventually reach the state of maturity and wealth of rich Western economies. It was thought that the takeoff of the industrialization process depended on initial amounts of extra resources and savings that originated from surpluses in agriculture and were employed the manufacturing sector. Manufacturing, crucially, was the 'engine of growth' for the whole economy. In line with this view, economies where the takeoff did not occur spontaneously should be protected from international competition at least until, through economies of scale, they reached the productivity levels needed to compete in the open markets. This 'infant industry' theory helped to justify protectionist measures in the United States in the early twentieth century, and later, in the decades following WWII, import-substitution policies in South American, Asian and African countries. In those same years, workers from these countries emigrated to seek employment in the growing manufacturing sectors of the more developed economies.

Lewis (1954) explained migration as factor movements between or within countries that were determined by labor supply and demand, likewise those of capital, while Lee (1966) revised the Ravenstein laws of migration to describe the movements of people as being driven by push and pull forces, and impeded by obstacles or costs. People decided whether to migrate by taking into account the expected economic conditions at home and in the potential destinations, and the intervening impediments. He stated that 'the balance in favor of the move must be enough to overcome the natural inertia which always exists' (Lee, 1966, pg. 51) and, in contrast with Ravenstein, defined immobility as the natural human state and migration as the exception, but agreed that '[m]igration means life and progress; a sedentary population, stagnation' (Lee, 1966, pg. 54). He stated that the volume of migration increased with the diversity between areas; since industrialization introduced differentiation, it created new opportunities for immigrants while, in turn, migration was a cause and effect of diversity between people. Following Roy (1951), he observed that migration tends to occur along well-defined streams and is selective: migrants responding to plus factors at the destination (who do not need to migrate) tend to be positively selected (they are more frequently educated people), while those responding to negative factors at home tend to be negatively selected; the latter can include people pushed out by famine or political conflict. Lee states that he would like his hypotheses to be testable with empirical data, but says

that migration is a complex phenomenon and 'the often necessary simplifying condition – all other things being equal – is impossible to realize' (Lee, 1966, pg. 57). A few years later, Harris and Todaro (1970) reconsidered push and pull factors at origin and destination and maintained that migration decisions were based not only on expected wages, but on wages weighted by the probability of being employed (Todaro, 1971). While these migration models differed between them in the specification of individuals' expected utility or the obstacles to migration, their policy implications were similar, and were also analogous to those of earlier theories: impediments to peoples' movements within or between countries must be reduced and migrants must be free to follow industrialization (Lucas, 1997).

Zelinsky (1971) conjugated the economic laws of migration of Ravenstein (1884), Lewis (1954), Lee (1966), and Harris and Todaro (1970) with a theory of a 'demographic transition', by which modernization initially boosted population growth by lowering mortality without decreasing birth rates, until the number of births also started to decrease. The initial population expansion generated an excess supply of workers who migrated to places where there was a surplus demand for labor. In this way, Zelinsky introduced non-linearity into the relationship between modernization and migration: population and peoples' movements initially increased and later, when the process of industrialization reached more mature stages, fell. Hence, unlike the prediction of traditional models that emigration decreased with development, the association of migration with modernization followed a bell-shaped pattern.

These migration theories have gradually been incorporated into formal economic models of expected utility subject to constraints where specific assumptions on preferences and costs allow predictions to be tested either with data on countries or regions (on the evolution of migration models, see Borjas, 1987; Bauer and Zimmermann, 1998; Massey et al., 1993; Hatton and Williamson 2005; de Haas, 2010) or, in recent strands of the literature, with microeconomic data on individuals or households. Most of these models assume that individuals maximize their expected utilities with adaptive expectations on countries' incomes or wages; i.e. by looking at present and past values. This may seem a strong shift from earlier theories, where migrants were highly uncertain as to the future prosperity of alternative locations and could not base their expectations confidently on existing income or wage differentials. However, during the mass migration era inequalities between countries were relatively small compared to those faced by modern migrants, and were also more subject to change. From the second half of the twentieth

century, income inequalities between countries have become larger and more stable, which makes present and future countries belonging to each income and prosperity group easily identifiable. Milanovic (2011) points out that differences between mean country incomes accounted for only 15 Gini points around 1820, but more recently number over 50 Gini points. Hence, the simplifying assumptions of neoclassical models of adaptive expectations can be considered realistic when concerning movements from developing to developed economies, while more fundamental uncertainty can still apply to movements between countries at similar levels of development.

In parallel with neoclassical models of migration and development, but in contrast with their positive views on growth and convergence, pessimistic theories on movements of people from the South to the North of the world described migration as being purely functional to the enrichment of developed economies. From this perspective, emigration did not have any positive effect on sending countries, did not guarantee convergence, and could even produce negative consequences. Consistently with this view, a theory of immiserizing growth developed by Bhagwati (1958) and of immiserizing investments from abroad by Singer (1950) and Prebisch (1959) claimed that low-income countries specialized in the production of primary products, became poorer as their production increased because their terms of trade were destined to decline over time. This in turn generated an excess supply of impoverished workers who migrated to rich countries and, by doing so, guaranteed the existence of a constant international supply of cheap labor. Despite empirical studies evidenced that the terms of trade of primary products did not decline over time, the sectoral specialization of developed and developing countries was generally seen as a mechanism that perpetuated and deepened inequalities. Piore (1979) argued that, with an international dual labor market, migration stemmed from the intrinsic labor demands of modern industrial societies.

After experiencing the failure of import-substitution and infant-industry protection measures, several development countries turned to exports-promotion policies. In the view of development theorists and policy makers, a foreign demand stimulus could be better suited to boost growth and, at the same time, curb the outflows of workers seeking for jobs in foreign countries (Rodríguez and Rodrik, 2000). This second part of the thesis was consistent with neoclassical models of international trade where the exchanges of goods and the movements of factors substitute for each other. However, some events worked against the success of these policies. One was that exports from developing countries were mainly composed by primary products, and since

the mid-1960s, rich destination markets had erected high trade barriers to their own primary sectors; another was that, as seen above, after the oil shocks of the 1970s and 1980s, the selectivity of their demand for foreign workers had increased significantly. Hence, many developing economies found that not only the foreign absorption of their exports but also of their emigrant workers fell well below the volumes initially expected, and that incomes' differentials with the rich countries were steadily increasing. These inequalities further raised the willingness of people to migrate from South to North, but they faced increasingly restrictive immigration policies at destination and, in some cases, even physical fences that were built to deter their passage (Vernon and Zimmermann, 2020).

## 4. The technological revolution: Human capital and migrant skills

At the end of the last century, with the technological revolution of the information and communication technologies (ICT), the fall of the Berlin Wall and the liberalization of economic exchanges between vast areas of the world, rich countries gradually but extensively transferred standardized productions abroad, and further decreased the demand for low- and especially middle-skilled immigrants (Peri, 2016). At the same time, other parts of the world, especially Asian and Eastern European countries where most manufacturing production processes were outsourced, experienced higher wages and lower emigration until, later in time, turned into magnets of immigration.

While these real world transformations were taking place, the concept of development in economists' interpretations also changed significantly. Rather than a predetermined and unique set of fixed stages that all countries followed in their way to maturity, it began to be seen as an array of dynamic paths, where those related to higher development levels were also those associated with more advanced technologies and higher stocks of human capital (Lucas, 1988). Human capital and knowledge could grow endogenously and did not depend on either initial surpluses in agriculture (one example was provided by the south-east Asian 'four tigers') or industrial policies of import-substitution or export-promotion. Their growth could be supported by measures that enhanced education and innovation, but for these measures to be effective certain conditions and circumstances had to apply.

Non-unique and non-deterministic development trajectories meant that developed economies had, in the past, not necessarily been equal to current low- or middle-income countries.

For example, rapidly growing south-east Asian countries were not going through the same stages undertaken in the past by mature economies. Moreover, human capital accumulation was path-dependent: it could start by chance, proceed endogenously, and be affected by external circumstances, casual events, and human behavior (Romer, 1994). Unlike previous neoclassical optimistic theories, wealth and maturity could be achieved by some countries but not necessarily also by all the others; convergence in income levels was not guaranteed by the pure working of market forces or, as mentioned above, by policies aiming to boost structural change. In this perspective, which bears some similarity to the Ricardian view, the wealth of nations was associated with their levels of knowledge and innovative capacity, which were not goods that could bought in the market and could not be obtained by developing countries simply in exchange for their exports. However, these countries could try to enhance their own technological performance with policies specifically aimed at improving education and at attracting human capital from abroad (Nomaler et al., 2020). Of course, in this framework, migration and more generally factors' movements would not mechanically reduce income's inequalities between countries. What is more, in some circumstances, for example with the migration of skilled individuals from developing to developed economies, they could even contribute to widen them.

More generally, the increase in income inequalities in recent decades within and between countries has generated an increase in the willingness of people living in low-income world areas to migrate to the rich economies that does not appear to be entirely deterred by restrictive immigration policies and physical fences. All the opposite, flows remain strong to these days, despite many irregular migrants attempting to cross the borders of rich countries know the extreme risks of the enterprise.

One frequently asked question in this regard is whether excess migration could be lowered indirectly, for example, through development in low-income economies and the reduction of economic disparities between countries. This approach, which is consistent with development models based on human capital accumulation, has been opposed by some economists on the grounds that, as in Zelinsky's (1971) theory of the demographic transition, development in low-income countries can produce more emigration.

# 5. The migration hump

Most empirical tests of the hypothesis of a bell-shaped relationship between development and migration alike to the one described in Zelinsky (1971) use income per capita as a proxy of development. In a few cases other proxies are adopted; for example, Greenwood and McDowell (1991) utilize measures of industrialization in output and employment, Hatton and Williamson (2005) employ the inverse of a poverty indicator, and Czaika and de Haas (2012) use the Human Development Index. One common empirical feature emerging from several of these studies is that emigration rates from middle-income countries tend to be higher than those from economies with either lower or higher levels of income, which produces a bell-shaped pattern when emigration is plotted on origin countries' income. This pattern is called in different ways – migration curve (Akerman, 1976), migration transition (Gould, 1979), migration hump (Martin, 1993), emigration lifecycle (Hatton and Williamson, 1997; Clemens 2020) or mobility transition (Dao, 2018) –, and sometimes is interpreted as a causal effect of income on emigration. Different explanations have been proposed on the determinants of this relationship, including Zelinsky's demographic transition (a review is found in Clemens, 2014), but the recent research has favored the idea that resource-constrained individuals living in low-income countries and planning to emigrate will do so as income increases (de Haas, 2007; Clemens and Sandefur, 2015). This interpretation is based on the hypothesis of causality, and on the assumption that income increases exert stronger effects in loosening the resource constraint and in increasing emigration than in improving the views of individuals on prosperity at home, and hence in strengthening their incentives to remain. This Section reviews the empirical research on this hypothesis and some of its implications.

Faini and Venturini (1993) produced one of the first studies proposing the resource-constraint mechanism as a possible explanation for the emigration hump. Their results derive from basic regressions run on a small data sample from a few southern European countries. Due to the scarcity of standardized statistics on international migration, most studies at the beginning of the 1990s were based on small datasets. Since the early 2000s, data on migration and the related empirical literature have increased substantially, and the empirical testing has been done with panel datasets. Some aspects of this empirical research are worthy of being considered before looking at its main findings.

One aspect concerns the choices made on the measurement of the main aggregates under investigation, migration and income. Migration is in some cases examined in terms of flows (either

annual data or computed as differences between stocks in different time periods) and in others of absolute numbers, in levels or in rates. Rates are generally calculated as emigration numbers (flows or stocks) divided by the population of either the country of origin or that of destination, during the same year or lagged in time, and in some cases they are conceived as rates of change. While each of these measures can capture the phenomenon under investigation, some may not be fully informative. For example, measuring emigration in rates may hide the effective changes in volumes in time (which do not need to be of the same sign as the variations in rates), while measurements in levels are not fully informative if the sizes of the countries under investigation (origin, destination or both) - in terms of population - are not controlled for. Moreover, the research explicitly focusing on the migration hump mainly uses data on general migration, but several empirical studies reveal that economic factors, and specifically income, are often significantly correlated also with refugee migration (Rotte et al. 1997; Neumayer, 2005; Hatton, 2016; Murat, 2020).

The specification of income in either linear or non-linear form can also influence results. Strictly speaking, the migration hump hypothesis should be tested with non-parametric or semi-parametric specifications or, alternatively, with parametric models that include income either in non-linear form or split into different levels. While these options characterize most of the studies that directly focus on the migration hump hypothesis, the wider debate on the effect of development on emigration often cites the results of more general studies on the determinants of migration that enter income into the regressions in linear form. While a coefficient on a linear income variable should not be taken into consideration for relationships that are suspected to be truly non-linear, a positive income coefficient has often been interpreted as evidence that development drives emigration (Clemens, 2014).

Studies also differ in terms of the choice of origin and destination countries. Origin countries are in some cases solely developing economies, all countries, or all countries except those with specific characteristics, such as small size or with situations of conflict or war. The choice of countries is particularly delicate. For example, studies excluding countries with some sort of conflict (Dao, 2018) automatically eliminate several low-income economies, because they are more likely than others to have experienced some sort of conflict during the period considered, but low-income economies also those of special interest for tests on the resource-constraint mechanism. Other authors restrict the choice of countries to specific world regions of particular

interest; for example, Sub-Saharan Africa, which comprises many low-income countries (Naudé, 2010; Lucas, 2006).

Moreover, datasets may concern dyadic migration movements from countries of origin to countries of destination, emigration from each country to all destinations, or migration from many countries to one destination. Among the latter, Vogler and Rotte (2000) and Telli (2014) test the non-linearity of the relationship between emigration and income with annual data on migration to just one country (Germany and the United Kingdom, respectively). In fact, the greater availability of data from OECD economies favors the use of samples with dyadic data concerning immigration into OECD economies. However, while on the one hand these datasets have the advantage of being more reliable and detailed, on the other imply a strong selection: peoples' movements to the developed economies constitute less than half of world's migration, and can have specific characteristics that make them different from the aggregate. More generally, the choices made on the countries considered and the measurement of the variables of interest are all factors that may influence results, even before a specific empirical strategy is chosen to test the relationships between migration and income.

As mentioned already, several studies find that plots of emigration on income, but also cross-country or pooled regressions tend to generate hump-shaped patterns. Some exceptions concern the use of asylum-seeker and refugee data, where the relationship between emigration and income, even in between-countries regressions, can deploy U-shaped or negative patterns (Newmayer, 2005; Hatton, 2016; Dreher et al. 2019; Murat, 2020). Another case regards emigration from specific world areas, such as Sub-Saharan Africa, where the income coefficient in cross-country tests can be negative (Lucas, 2006, 2015).

However, most studies where cross-country tests portray hump-shaped patterns reach different results once between-countries tests are substituted by more demanding specifications that control for countries' structural characteristics, with either fixed-effects or first differences, and include long-run countries' features. With them the initial relationship between emigration and income can fade or become significantly negative in correspondence to low-income countries or in general.

One frequently cited study on the determinants of migration is the one by Mayda (2010), which focuses on the determinants of migration by considering yearly immigrant inflows into 14 OECD economies from 79 countries of origin during 15 years, from 1980 to 1995. Among other

covariates, it includes income in linear form, controls for destination and, what matters more for this topic, origin-country fixed effects. After several specifications and robustness checks, the author does not reach conclusive results on the relation between income at home and emigration. Pedersen at al. (2008) utilize a wider dataset, comprising immigration flows into 26 OECD destinations from 129 origin economies, during just two years: 1990 and 2000. They also include income in linear form and find it to be negatively related to emigration, but in further regressions, where the average income of origin countries is split into different levels and interacted with policies in the destination economies, they find the relationship to become bell-shaped. However, differently from Mayda, none of their specifications control for origin-country fixed effects. There is evidence of a hump-shaped relationship between emigrant stocks and income in the home economy also in De Haas (2010) but, as above, the empirical analysis relies on between-country variations.

Ortega and Peri (2013) use annual bilateral migration flows into 15 OECD economies from 120 origin countries during 26 years, from 1980 to 2006. In initial pooled regressions, they find a positive linear relationship between the GDP per capita of the country of origin and emigration, but the relationship becomes negative and significant in further specifications where origin-country fixed effects are considered. Similarly, Ruyssen et al. (2014), using data on immigration in 19 OECD economies from 189 origin countries over the 1998-2007 period, find no significant impact of developing countries' income on emigration. Their dynamic panel specifications comprise origin economies fixed effects.

In a frequently cited review of the research on the emigration-income relationship, Clemens (2014) states that the above and similar empirical results may be flawed because the effects of development on emigration occur over long periods of time, going beyond those of one generation of migrants and beyond those of most commonly used datasets. He discusses the plausibility of several possible 'drivers' of the hump-shaped relationship between emigration and income and, among them, emphasizes the centrality of the resource-constraint mechanism. He does not, however, provide a full rationale for the economic behavior of individuals who wish to emigrate and are able to do so as the resource-constraint becomes less binding, but limit their actions to expected long-run values that go well beyond their lifetimes. Expectations of this kind appear to be more related to the expected utilities of individuals who take into account the future potential prosperities of countries rather than their own short-run financial constraints. This point is

reappraised in Clemens (2020), where he states that short-run and cyclical variations in income and migration can mistakenly condition results.

Part of this research distinguishes between migrants with different skills or education levels and hypothesizes that individuals with dissimilar levels of education can face different impediments to emigration and react differently to income growth at home. For example, Djajic et al. (2016) state that the resource-constraint mechanism should be more significant for the less educated as they are more likely to be resource-constrained. They test the hump-shaped relationship with a sample comprising migration flows given by the difference between 2000 and 1990 stocks from 126 developing countries to 30 OECD destinations, and split emigration into three different education levels. To control for omitted variables bias and simultaneity, they use dummies for world regions and small island countries, from which emigration tends to be stronger, and as expected, find a hump-shaped relationship for the low-skilled. However, when tests are replicated with countries of origin fixed effects, income coefficients become smaller and less significant. Instead of flows, Idu (2019) uses data on migration stocks in the same years, 1990 and 2000, into 31 destination economies from 195 origin countries. The author regresses the ratio of skilled/unskilled emigration and the two variables separately on per capita income and squared income and controls for fixed effects. In this case, findings are of hump-shaped relationships in the three sets of regressions.

Dao et al. (2018) use data on migration rates to OECD countries in the years 2000 and 2010, decompose education levels into two categories: college and non-college graduates and enter the per capita income variable into the regressions in linear and squared form. Unlike Djajic et al. (2016) and Idu (2019), they find that income has only a very limited influence on emigration of the low-skilled, and no influence on migrants with a college education. Their main finding is that a relevant fraction of the upward-sloping segment of the hump-shaped curve is explained by the population's skill composition and by what the authors' term macroeconomic drivers, which are countries' characteristics that change slowly over time and may be correlated with both migration and income

Assessing the central aspects of the debate on the relationship between emigration and development, Lucas (2019) asserts that countries tend to differ not just in average income levels, but also in other more fundamental ways that can make them not directly comparable. Countries with different levels of income per capita are not simply located at different stages of a unique

development path but can be following distinct trajectories. Hence, the migration hump should not be read as a causal relationship from income to emigration but as a mere description of rates of migration from economies with differing characteristics.

With the aim of measuring the effects of climate on migration, Wesselbaum and Aburn (2019) analyze flows from 198 origin countries to 16 OECD destinations over a period of time longer than those of previous studies, from 1980 to 2015. Their results are less directly related to the emigration-income nexus because they use total income rather than per capita GDP and do not control for population size. However, they find negative and significant coefficients on total GDP even in specifications that include either time trends or time dummies and origin-country fixed effects, which together can absorb the population size effect. Böhme et al. (2020) test the relationships between emigration intentions, measured with online search keywords, and realizations with a panel dataset of bilateral migration flows from 101 origin countries to 35 OECD destinations over 12 years, starting from 2004. Their regressions comprise the total GDP of origin countries in linear form, origin-country fixed effects and, unlike Wesselbaum and Aburn (2019), population. Also in this case, the coefficients on income are negative and significant.

More directly related to the migration hump research is the work by Benček and Schneiderheinze (2020), based on data on migration flows from 198 countries of origin to 16 OECD destinations from 1980 to 2014. After finding the well-known bell-shaped relationship between emigration and income in pooled regressions, the authors test the linear income coefficient for the subsample of countries lying in the ascending part of the path. Their main specifications include GDP and population, but further regressions are based on GDP per capita. They find the coefficients on GDP and on GDP per capita to be positive in the pooled regressions, but negative and significant in all regressions including origin-countries fixed effects. They explain these findings with the existence of time-invariant factors that characterize countries – such as geography, colonial ties or language – and affect the relationship between emigration and income. These factors are captured only in within-countries regressions.

Clemens (2020) asserts that the study by Benček and Schneiderheinze (2020), along with most of those based on high-frequency (yearly) data, are affected by the fundamental flaw that they link emigration to short-run (cyclical) variations in income, which should not be taken into account when testing the emigration-development relationship. As in previous works, Clemens states that development is correctly captured by long-run income growth and hence with data

covering long periods of time. However, differently from previous studies, he dismisses the role of the resource-constraint mechanism as the main determinant of the hump-shaped relationship between migration and income. He asserts that, if it were really the main driver, then it should determine different emigration-income relationships in historical periods with substantially different costs of travel, such as, for example, that of the European mass emigration and the modern one, but in both cases emigration appears to be related to the income levels of origin countries with bell-shaped patterns.

Clemens' (2020) own empirical research is based on decadal data from 1960 to 2019 on emigration from developing or former developing countries to the rest of the world, and on a second smaller sample on migration from 1850 to 1914. The author's main dataset comprises only countries from which data are available since 1960, which restricts their total number to about 90, well below that of most of the studies seen above and, more importantly, selects only those that counted on functioning data collection systems already in 1960. This implies an out-selection of low-income economies where statistics were simply not collected in the 1960s, as well as of former communist economies from which data before the 1990s are not available or reliable. This can affect results because, as already mentioned, low-income countries are particularly important in testing the emigration-income nexus, and former communist economies of Eastern Europe and Asia are important because many of them grew rapidly in the last decades.

In regressions comprising countries fixed effects, Clemens (2020) finds positive and significant correlations between emigration from the low-income economies included in the dataset and GDP per capita, but in further regressions that control for education, demography and urbanization rates, the coefficients on income become negative and significant, weakening the previous results. Moreover, in composition analyses, Clemens finds that demography and education are the main covariates influencing the variation of income coefficients. Like the studies of Ortega and Peri (2013), Dao et al. (2018), and Hatton and Williamson (1994), this suggests that education and population are important drivers of the relationship between emigration and income. Hence, while Clemens initial within-countries regressions control for time-invariant factors, the second set of tests also includes macroeconomic drivers, i.e. those variables that change slowly over time and that Dao et al. (2018) find to be significantly correlated with both migration and income.

# 6. Factors related to migration and development

While the studies seen in the previous Section search for the nexus between income home country and emigration, a more general research tests the effects of the macroeconomic drivers mentioned in Dao et al. (2018), that can be correlated with both income and emigration. Among them, Dao et al. (2021) use decadal data on bilateral migration stocks, starting from 1970 from 180 origin countries to 120 destinations, to analyze the relationships between emigration and long-term factors such as demographics and education. The authors' main finding is that emigration trends are mainly driven by demographics and that income levels play a very limited role. Through some simulations, they predict future mass immigration into Europe that originates especially from Sub-Saharan Africa. However, the study's descriptive statistics show that fertility and education are strongly correlated. The authors state that 'a rise in schooling in developing countries increases the average propensity to emigrate but also reduces population growth rates; as far as migrant stocks are concerned, these effects are balancing each other' (p. 419), but do not fully explore the implications of these interactions with their simulations. Furthermore, they acknowledge that the study does not account for the issue that fertility and human capital do not only influence income but are also endogenously affected by it (p. 444).

Among the macroeconomic drivers related to migration and income, education plays a particularly important role because, as seen above, individuals with different levels of education may react differently to development in the country of origin. However, it matters also at the aggregate level, because the average education level of the country of origin can affect the opportunities and costs individuals face in migrating, for example, by influencing the international transferability of their skills (Borjas, 1989) or their likelihood of obtaining a resident permit abroad. Up to now, the empirical research on the relationship between average education and migration has produced heterogeneous findings. Hatton and Williamson (1997) find that European countries' education levels were not significantly associated with mass emigration; in Ontiveros and Verardi (2012) there is no relationship between education and overall (modern) emigration, but there are negative links between it and skilled emigration; while in Clemens (2020) the relationship between education in the origin country and emigration is positive. One possible explanation for the heterogeneity of these results can be the two-sided role of average education, partly similar to that of income: on the one hand, higher average levels of education in the home country can facilitate emigration but, on the other hand, can also be correlated with better

employment and wage opportunities at home. Moreover, as in Ontiveros and Verardi (2012), education levels at home may interact with the skill-composition of migration flows.

A related branch of the literature links the levels of education of migrants to the degree of inequality within and between countries. As seen above, in early migration models the obstacles to the movements of people contributed to the selection of migrants (Roy, 1951; Lee 1966), while in the more recent empirical research different income distributions at home and abroad can influence the level and skill composition of migration (Borjas, 1987, Grogger and Hanson, 2011). In particular, higher inequality at home than abroad can facilitate the emigration of the less-educated, while the highly skilled are more likely to emigrate when the opposite applies. At the same time, the existence and dimension of migrant networks in destination economies can affect the skills of new immigrants. Specifically, by facilitating migration, networks can lower the education levels of subsequent inflows (Beine et al., 2011; Hatton and Williamson, 1998; Nyberg Sørensen et al. 2003).

In all these cases, education interacts with migration and income, and if to these interactions are added those between education and population growth, through its links with fertility, and the potential endogeneity of human capital and fertility with respect to income mentioned in Dao et al. (2021), then the picture of the relationships between emigration and development appears to be far more complex than any association between emigration and average income can be. The growing availability of data on countries and migration is gradually making the measurement of these interactions possible.

Other branches of literature on the determinants of migration are based on samples of micro-level data. Although disposable income is one of the factors that can affect the migration decisions of individuals, most of this research does not expressly focus on the emigration-development relationship (Massey et al., 1993). In individual decisions' models of the New Economics of Migration, households diversify and minimize the risks related to income fluctuations with the emigration of some of its members (Stark and Bloom, 1985). Some studies find that individual families exhibit greater tendency to emigrate as income increases (Clemens and Mendola, 2020), while in others the income variable has no effect of (Adhikari and Gentilini, 2018).

# 7. From migration to development

Several lines of empirical research focus on the effects of migration on various aspects of the economy, which can be positively related to development. Several of these links have been mentioned above in relation to historical migration movements, but prove to be relevant also when modern migration is considered.

One of them concerns the effects the flows of human capital on the capacity of innovation and economic growth of destination and origin economies. It was initially though that the migration of educated individuals could boost growth in destination economies by increasing their stock of human capital, but for the same reason they were destined to have the opposite influence on origin countries. However, several recent empirical studies show that the outflows of skilled migrants can increase the rate of accumulation of human capital also at home. Specifically, individuals who aim to earn the higher wages payed by foreign countries to skilled migrants are incentivized to prolong their years of schooling beyond those planned previously. Since only some of them will eventually emigrate, the country as a whole registers an increase in the rate of human capital accumulation and therefore, potentially, in development (Beine et al., 2008, Constant et al., 2013). At the same time, other studies find that the output of destination countries does not only benefit only from the immigration of skilled individuals but also from that of less educated immigrants, because of their complementarities with the skilled components of the labor force. Furthermore, they can also have positive effects on the home economy, because their outflows determine a higher scarcity of workers and an increased productivity of the remaining ones (Dustmann et al., 2011).

Skilled and unskilled migrants produce flows of remittances towards the countries of origin, which in recent decades have exceeded the flows of international aid. Part of the remittances are purely economic and can have a positive influence on the economy of the home country, especially when they generate investments in productive activities and education; but part of them are 'social' transfers that, through international individuals' interactions, can affect home countries' institutions and norms (Constant et al. 2013). One of the norms that can be influenced by the existence of strong diasporas is that of citizenship. Emigrants normally want to be able to return to the home country without impediments, and home countries are in turn often interested into maintaining good ties with nationals abroad. This partly explains the prevalence of citizenship norms based on the principle of *jus sanguinis* in countries of historical emigration, of *jus soli* in

countries of past immigration, and of combinations of the two in many developed economies (Bertocchi and Strozzi, 2010; Amuedo-Dorantes et al, 2020). Norms related to family customs, or political and individual rights have been found to be significantly affected by diasporas (Levitt, 1998; Beine et al., 2011; Spilimbergo, 2009; Docquier et al., 2016; Constant and Zimmermann, 2016; Tuccio and Wahba, 2020).

The effects of migrant networks on the economic exchanges between countries seen above in relation to past migrations (Greif, 1993) have also been extensively researched with regard to modern migration, with results that provide further support to the intuition that migrants possess knowledge on home and destination markets that can lower the invisible costs of bilateral trade and foreign direct investments, and that bilateral trade can be further enhanced by the preference of migrants for goods of the home country (Flisi and Murat 2011; Aleksynska and Peri, 2013). Moreover, the transnational ties of members of the diaspora can promote multilateral economic and social exchanges between their countries of residence, beyond the bilateral ones with the home country. For example, Rauch and Trindade (2002) find that the Chinese diaspora positively affects trade between the countries of residence of Chinese communities. Further effects of migration are related to the specific skills of migrants, which can contribute to carve the comparative advantage of the countries of destination in certain sectors.

Several of these potential benefits of migration on the home and residence countries are accentuated in the case of international students, who are a particular type of migrants. They accumulate their human and social capital in the country of tertiary studies but at the same time possess a deep knowledge on their home country, keep robust social ties with people in it and often return to it. After graduation, most former international students keep long-lasting international links with their university peers and their university through alumni associations, which often mix social contacts with business interactions. Whether they remain in the country of their studies, return home or move to a third destination, the economic, political and social effects of international students on the economies involved tend to be significant and stronger than those of migrants (Spilimbergo 2009, Murat, 2014). This is especially so when international students are allowed to work in the country of their studies after graduation. More generally, an often underestimated but crucial condition for the positive effects of migration seen in this section to take place is the possibility for skilled and unskilled migrants and international students to move between residence and home countries without being impeded by countries' barriers

(Zimmermann, 2017; Constant, 2020). Barriers to circulation weaken the international ties of networks and associations and the direct effects of migration, and hinder the development prospects of the economies that most directly could benefit from them.

## Summary

This chapter reviewed the main aspects of the economic research on development and migration, from early theories where they were considered two aspects of the same phenomenon of progress and industrialization to the more modern empirical search for their causal relationships. Among these, the effects of income growth in low-income countries on migration to rich economies has come to center stage in public and academic debates and bears important policy implications. This search is complemented by studies focusing on structural or slowly changing characteristics of the economy, such as geography, education or fertility, that appear to interact with both factors and affect the nexuses between them. Their results are in line with modern interpretations of development as an array of potential dynamic paths, each related to rates of human capital accumulation and other long-run features of countries.

Several lines of investigation that focus on the potential effects of migration on aspects of the economy connected to development reach interesting and in some cases robust findings. Among these are the positive effects of diasporas on the bilateral and multilateral economic exchanges between countries, of migrant networks on the comparative advantage of countries, of skilled immigrants on innovation and growth in the countries of destination and, possibly, also on the countries of origin. As in historical times, all of them turn out to be effective when the international movements of migrants are not impeded by countries' restrictive policies.

It is sometimes asserted that international aid must not be conceived as a measure to curb migration because that is not the main goal of aid transfers, but also because development in low-income countries might end up facilitating immigration. The same assertion, however, can be made for the opposite reason: the importance of development in low-income countries should not be disregarded because it is feared that it could facilitate migration. As seen in this chapter, emigration from low-income countries does not necessarily increase with income, and migration movements can have several positive effects on destination and origin countries. The positive effects of better living conditions in developing countries are more general and go beyond those purely related to migration. From the point of view of rich economies, better living conditions abroad generate the

well-known benefits of wider markets for exports and investments, of higher international political stability and also, as the experience of the recent pandemic teaches, better global and domestic health prospects.

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