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## **Economic links between education and migration: An overview**

Handler, Heinz

Policy Crossover Center Vienna - Europe, Austrian Institute of Economic Research (WIFO), Vienna University of Technology

May 2018

Online at <https://mpra.ub.uni-muenchen.de/87246/>

MPRA Paper No. 87246, posted 09 Aug 2018 15:54 UTC

## **Economic Links between Education and Migration: An Overview**

**Heinz Handler**

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### **Abstract (English)**

Among the many factors governing migration, education plays a major role, though more in the long run than for short-term floods particularly of irregular migration. Concerning the long run effects, the direction of causation and the slope of the connection are debated in theory. Education not only determines the mobility of people, it also is positively correlated with rising incomes. Empirical evidence shows that for people in developing countries, who are at the low end of the income distribution, more education and rising income levels are push factors for emigration. However, beyond a certain threshold further rising incomes tend to retard migration. As a result, education exhibits an inverted-U shaped relationship with migration. Another remarkable fact is that, on average, people who migrate are better educated than non-migrants back home as well as indigenous people in the host country.

### **Abstract (deutsch)**

Unter den vielen Faktoren, die auf die Migration wirken, spielt die Bildung eine wichtige Rolle, wenn auch eher langfristig als für kurzfristig ausgelöste Wanderungsschübe, insbesondere bei irregulärer Migration. Der langfristige Zusammenhang ist aber theoretisch weder hinsichtlich der Kausalitätsrichtung noch auch der Neigung eindeutig. Ein Mehr an Bildung erhöht nicht nur die Mobilität der Bevölkerung, es lässt auch höhere Einkommen erwarten. Empirische Untersuchungen an Personen in Entwicklungsländern, die sich am unteren Ende der Einkommensverteilung befinden, zeigen, dass Bildung und Einkommen als Push-Faktoren auf die Emigration wirken. Wird jedoch eine bestimmte Einkommensschwelle überschritten, hemmen noch mehr Einkommen die Emigration, woraus sich ein Gesamtzusammenhang in Form eines umgedrehten U ergibt. Bemerkenswert ist ferner, dass Migranten im Durchschnitt nicht nur besser ausgebildet sind als ihre zurückbleibenden Landsleute, sondern auch im Vergleich zur angestammten Bevölkerung im Zielland.

## **1. Introduction**

The following overview will link the phenomenon of migration waves to differences in living conditions in source and target countries, covering existing income and wealth gaps as well as grossly differing conditions of political stability and environmental security, the latter resulting in forced ("irregular") migration. Political instability may take the form of all-embracing civil wars or just be limited to tribal or personal repression. Substantial income differences can result from diverse endowments with natural resources and other factors of production and/or the efficiency of their use. The efficiency itself can be linked to domestic and imported technologies as well as to the education and training systems. Thus, the amount and structure of migration depend, among many other factors, upon education. However, there is still some debate on the slope (positive or negative) of the relation, and even on the direction of causation. In neoclassical models with long run results, more education (and rising incomes) in the country of origin are usually seen as retarding

emigration, while in less restrictive models and for shorter periods (of a decade or so) more education may empower people to leave their country temporarily or permanently.

The subsequent chapters are devoted to, in turn, the possible sources of mass migration including international income differences, the impact of education on living standards and migration, and the effects of migration on source countries and host countries.

## 2. Origins of migration waves

“Migrants are essentially escaping from countries with dysfunctional social models” which may be defined as “the combination of institutions, rules, norms, and organizations” (Collier 2013: 33f). The basic preconditions for migration are labour mobility and diverse economic and social developments within and between countries. As a global trend emigration from developing countries has been propelled particularly by educated people, resulting in “brain drain” for these areas and corresponding “brain gain” for the receiving industrialized countries (Barrientos 2007). More generally, there are processes of economic development and social transformation which further the capabilities and aspirations of people to migrate from low-income countries to the more developed world, assisted by reduced transport and communication costs (Flahaux – de Haas 2016). The general empirical observation that desired migration from poor countries is much higher than from rich countries has been complemented by Pelham – Torres (2008) who conclude from a Gallup Poll that at each income level it is generally the richer individuals who are more inclined to migrate.

In the receiving countries, the driver of temporary migration (disregarding refugees) is the existence of dual labor markets and the differing working attitudes of natives and immigrants (Piore 1986, 2013). Natives resist to work in the low-paid secondary market, also because of its menial social status and considerable employment instability. In contrast, for temporary immigrants wages in that market are usually high compared with income choices back home, and they also care less about their social status as this is anyway defined in their home country. Piore explores the development from temporary migration (which satisfies the labor market requirements of the sending as well as the receiving country) to permanent settlement which creates a number of follow-up problems, again in either country. In particular, as soon as the secondary jobs become permanent, the immigrants and their kids demand incomes and social status equivalent to their native neighbors.

More generally, Schmid (2018) lists possible differences in life chances and their associated pull and push factors that are responsible for migration (see Table 1).

We are not talking here primarily about sporadic migration or scattered refugees, but rather about systematic exodus from countries characterized by extremely low income per capita levels.<sup>1</sup> And we are also not directly concerned here with political disruption resulting from war, poverty, underemployment and environmental disasters, as their causes and their effects on refugees and emigrants are well beyond pure economic reasoning. The impact of political turmoil differs from case to case in a way that precludes general conclusions and policy lessons. We will focus on migration resulting from international income differences and on education as a source of such differences.

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<sup>1</sup> Sporadic migration is often confined to movement of persons within countries, the analytics of which are covered by various theories, including the concepts of costs and returns (Rabianski 1971).

Table 1: Migration potential due to regional differences in life chances

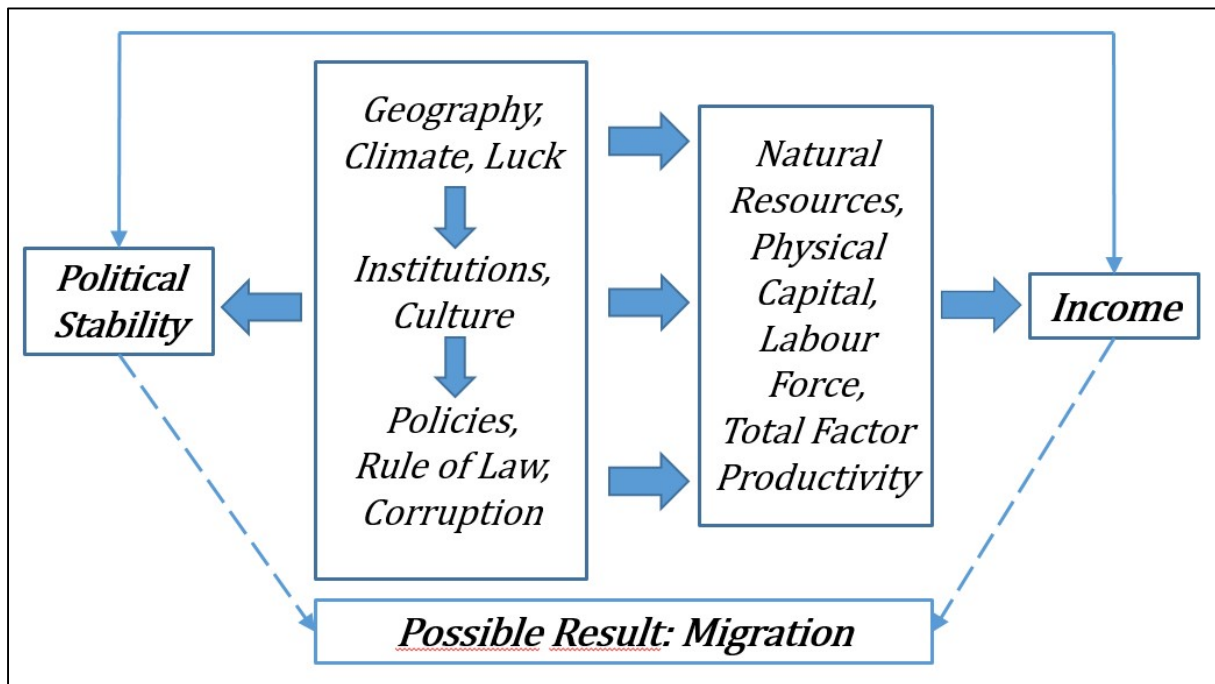
Push-factors Countries of origin	→	Migrants	←	Pull-factors Countries of destination
↓	<b>Structure of differences in life chances</b>			↓
Population growth, young age structure Inadequate educational institutions, medicare and social security	←	1. Demographic factors and social infrastructure	→	Stable population, population decline, demographic ageing Welfare state benefits, educational institutions, medicare, social security
Unemployment, low wages Poverty, low consumption and living standard	←	2. Economic factors	→	Labour demand, high wages Welfare, high consumption and living standard
Dictatorships, shadow democracy, bad governance, political upheaval Conflict, (civil)war, terrorism, human rights violation, oppression of minorities	←	3. Political factors	→	Democracy, rule of law, pluralism, political stability Peace, security, protection of human and civil rights, protection of minorities
Ecologic disaster, desertification, lack of natural resources, water shortage, soil erosion, lack of environmental policy	←	4. Ecological factors	→	Better environment, environmental policy, protection of natural resources and environmental protection
↓	<b>Migrant networks</b>			↓
Decisions of the family or the clan Information flows, media, transferred picture of country of origin Possibilities of (ir)regular immigration, routes of trafficking	←	5. Migrant flows and migrant stocks	→	Diaspora, ethnic community Information flows, media, transferred picture of destination country Possibilities of (ir)regular immigration (right of residence)

Source: Schmid (2018)

Over much of the 19<sup>th</sup> century, global income inequalities (measured with the Theil entropy index) were driven by differences within countries according to social classes. This has dramatically changed, as currently some 70-80% can be explained by differences among countries (Milanovic, 2016: 128f). Following Collier (2013), the income gap between the developing and developed world is likely to remain wide enough for several decades to carry a strong incentive for continuing migration fluxes. Just to give an idea of the numbers involved, Myers (2005) estimates that up to 2050 as many as 200 million people may flee their residence just as a consequence of environmental disasters (e.g. droughts, rising sea level, tidal waves).

The basic causal relationships governing the incentives for migration have nicely been summarized by Hsieh – Klenow (2010) as depicted in Figure 1: Given the sheer possibility to change residence (information, costs), current and prospective political (in)stability and international income differences provide the essential channels for an individual's decision to move abroad.

Figure 1: Stylized sources of migration



Source: Based on Hsieh – Klenow (2010)

Early theoretical arguments concerning the influence of living standards on the migration rate have concentrated on neoclassical models which generally arrive at the conclusion that with increasing income levels at home the propensity to migrate should fall. The reason for such a negative relationship is that migration is considered a costly move to improve one's living conditions, a form of investment in human capital. More recent theories have extended this model to include a number of additional explanatory factors, resulting in the inverted U-shaped form of "mobility transition" (Zelinsky 1971) which suggests that emigration from poor countries first increases before decreasing with economic development. Clemens (2014) has presented a list of possible extensions to the narrow neoclassical model:

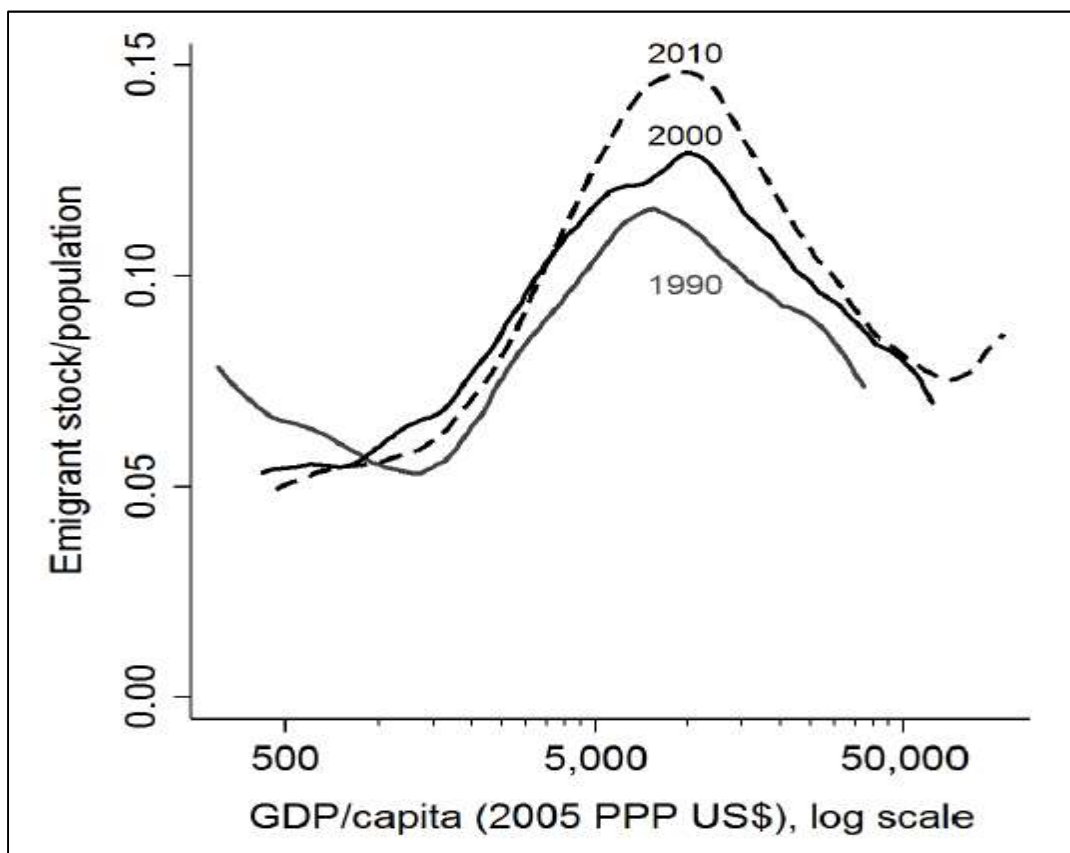
- Demographic transition: Rising incomes can induce demographic changes (less child mortality at given fertility rates causing unemployment to rise) that favor emigration.
- Credit constraints: Rising incomes help potential migrants finance the costs of mobility.
- Information asymmetry: Emigrated people provide information to potential new migrants.
- Structural change and worker dislocation: In the course of economic development new sectors rise and old sectors decline, thus spurring geographic mobility.
- Inequality: Economic development can be associated with changes in income distribution that affect the demand for migration.
- Immigration barriers abroad: Destination countries usually have visa classes that are more easily available to high-income workers.

In his empirical investigation of the relationship between income per capita and emigration from developing countries, Clemens (2014) finds that macro studies (aggregate flows out of some broad geographic area such as a nation, province, or state) based on cross-sectional data generally reveal either a positive or an inverted-U relationship, while time-series studies do not display any consistent correlation. The latter result may be due to the rather limited time span of time series studies ("only" some 15 to 25 years) and the countervailing effects of

a positive association in the long run and negative effects in the short run when people in a temporary crisis massively flee their region. Studies at the micro level (workers, households, villages) also find positive and inverted U-shaped relationships, but the results are heterogeneous depending on additional explanatory variables such as credit and information constraints. The empirical visibility of the inverted-U when migration stocks (measured as total number of people born in a specific country, but residing outside that country, divided by that country's population) are seen as a function of real income per capita (at Purchasing Power Parity). Employing data collected by the World Bank (1960-2000) and the UN (1990-2010), the relationship is positive for the range of income per capita from roughly \$600 (e.g. Afghanistan) to \$7,500 (e.g. Morocco), i.e. rising income levels go hand in hand with rising emigration stocks. At higher income levels, labeled by the World Bank as "upper-middle-income countries" or "high income countries" (with an income per capita of more than some \$7,500), the relationship turns clearly negative (Figure 2).

Clemens (2014) then undertakes the important exercise to project the time span required for a developing country to reach a certain income level, given a reasonable estimate of the average rate of economic growth. Assuming an optimistic annual rate of growth of 3%, the path from an income per capita level<sup>2</sup> of \$500 (e.g. Ethiopia) to \$7,000 (e.g. South Africa) would take 89 years, starting from \$2,000 (e.g. Moldova) it would still be 42 years. A general conclusion of these observations would be that "the migration transition is a process of generations" (p.9).

Figure 2: Emigrant stocks in cross section, UN data



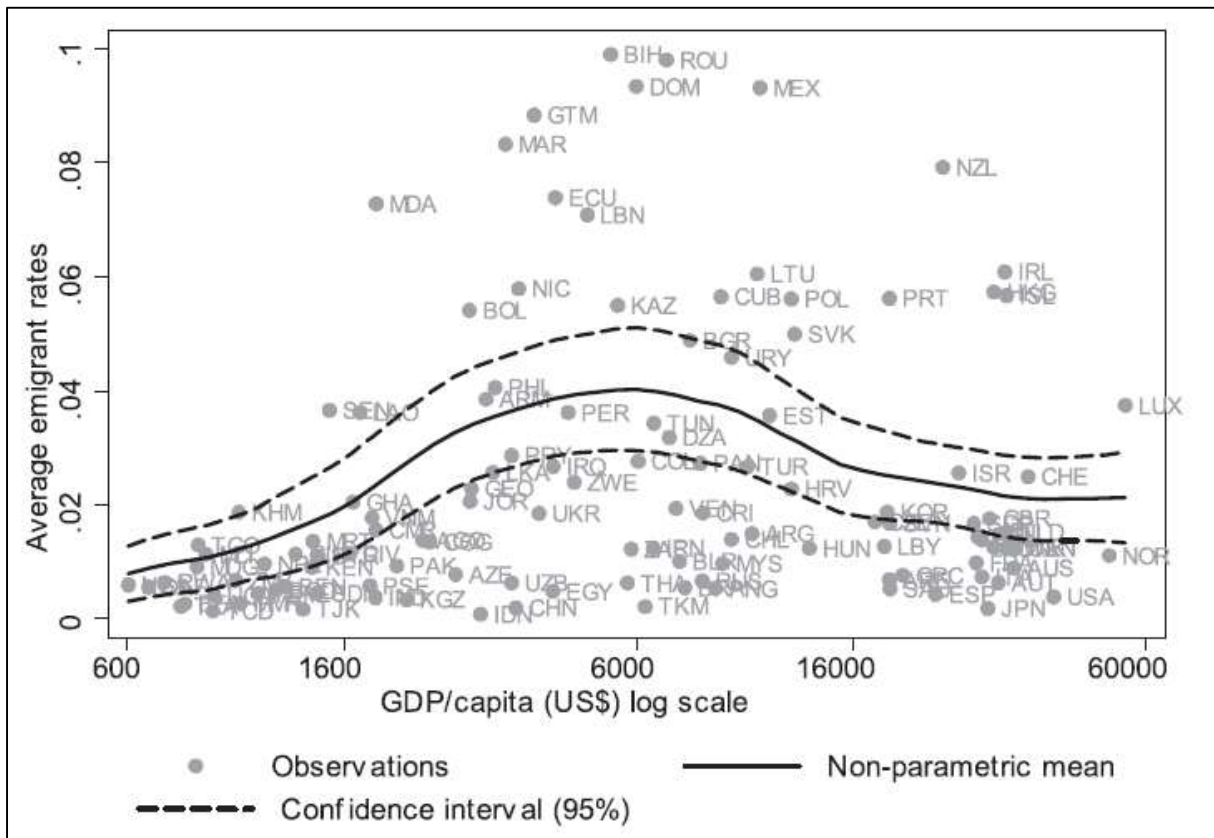
Source: Clemens (2014)

<sup>2</sup> In 2016, at constant 2010 US\$, see <https://data.worldbank.org/indicator/NY.GDP.PCAP.KD>

Dao et al. (2018) confirm the general (short to medium term) perception that migration increases with development, underpinning it with the increasing proportion of college graduates in the native population which is the group that has the highest propensity to emigrate abroad. (Figure 3).

To summarize, migration waves result from political, social and economic gaps within as well as between countries. Of utmost importance are unpromising developments in living conditions. The combined push and pull factors generate migration flows of educated and mobile people from lower income to higher income countries, and the flows are likely to continue well into the future. Empirical studies for developing countries have shown that the relationship between income per capita and emigration is either positive or of an inverted-U form: Migration increases with income up to a certain threshold, but decreases thereafter.

Figure 3: Non-parametric regressions of emigration rates on income per capita



Note: The sample includes 123 countries with populations above 2.5 million. Average migration rates are calculated as the difference between migrant stocks in 2000 and 2010, normalized by the population at origin.

Source: Dao et al. (2018).

### 3. The role of human capital in international income differences

The inputs into the income-generating production process and their development may be linked to a number of background factors, such as the geographical location, climate changes, the history of political institutions and the rule of law, culture and religion, and the role of corruption. These in turn are often – and independent of the income situation –

responsible for the political stability of a country. But there exists a feedback loop between income (the level, growth and distribution of income) and political stability. Political turmoil may exert a lasting negative impact on income developments, and a lack of fair income and wealth distribution may provoke civil wars.

When it comes to quantitative evaluation of international income differences, one has to start from the process of generating national income which depends (i) on production factor endowments, such as natural resources (e.g. oil, gold, diamonds etc.), physical capital and investments to increase the capital stock, and the labour force; and (ii) on the efficiency which the production factors are used with (also called total factor productivity, TFP, or "Solow residual"); TFP is an outgrowth particularly of technological progress via research and innovation as well as education and training (see e.g. Weyerstraß 2018).

For investigating international income differences, a method often relied upon is Development Accounting (DA) which measures the relative contribution of physical capital, human capital, and TFP in accounting for cross-country income differences (Jones 2015, Hendricks – Schoellman 2017). More concretely, DA can be employed to estimate, for a given point in time, the percentage contributions of explanatory variables to international differences of income per capita in various countries. In the words of Caselli (2005), DA "does for the cross-section what growth accounting does in the time series".<sup>3</sup> For exercises employing DA, factors resembling the production factors are usually known, while the residual TFP as "some sort of measure of our ignorance" (Abramovitz 1956) is unknown. This is a pity, as observed differences in the factors employed in production (capital, labor) account only for a small fraction of international income differences (Cuñat – Zymek 2017a,b). Therefore, much of the literature on DA is concerned with exploring ways to reduce the importance of the residual, e.g. by experimenting with functional forms or improving the definition and measurement of incomes and production factors, in particular with respect to human capital as the combination of employed persons (or hours) and qualities attached (such as years of education). The functional forms employed in their simplest form imply that technology differences across countries are skill-neutral, and workers with different skills are perfect substitutes.

Human capital may be defined as the number of persons employed or as working hours provided or as the weighted labor force according to the level of schooling and training attained. In each case, the residual TFP will be of different value. If known quality aspects (such as weighted average schooling) are encompassed in the labour term of the production function (productivity-adjusted labour or "human capital" (Cuñat – Zymek, 2017a), the residual TFP will not be bloated by this element of education.

Hsieh – Klenow (2010) report the following average contributions to international income differences: human capital accounting for some 10-30%, physical capital for about 20% and the residual TFP for some 50-70%. However, in their own analysis the authors point at the shortcomings of this method, in particular stemming from the definition of capital and labour

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<sup>3</sup> Either case may conveniently be derived from some form of a Cobb-Douglas production function which in log-terms has the form  $\ln Y = \ln A + \alpha \ln K + (1-\alpha) \ln L$ , where  $Y$  is total real output,  $K$  is the capital stock,  $L$  is the labour force, and the residual  $A$  is total factor productivity.  $\alpha$  is the production elasticity of capital, which (based on empirical labour shares) is often assumed at about one third (Caselli, 2005). For international comparison,  $Y$ ,  $K$  and  $L$  are typically expressed in per capita terms. Caselli (2005) experiments with CES production functions to relax the implicit assumption of the Cobb-Douglas function that TFP elasticity is neutral with respect to labour and capital. Other models are discussed, e.g., in Hsieh – Klenow (2010).



and the likely interdependences between changes of physical and human capital on the one hand and TFP on the other.

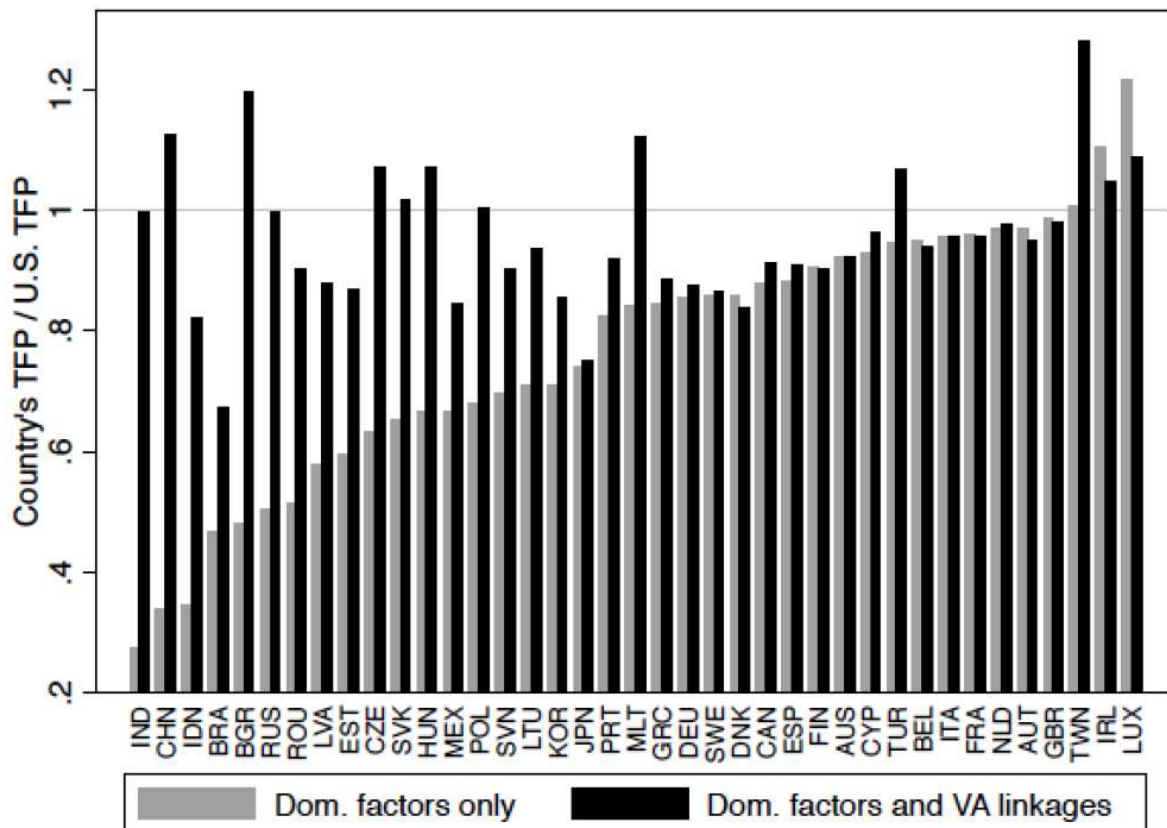
Empirical assessments of the contribution of human capital to international income differences are rather diverse, ranging from one-fifth (Hall – Jones 1999) to four-fifth (Jones 2014). Hendricks – Schoellman (2017) derive their estimates from the wage gains of US immigrants before and after migration. Accounting for elasticities of substitution between skilled and unskilled labor, they estimate the share of human capital at some 60%. Using foreign trade statistics to distinguish between skilled and unskilled labor, Malmberg (2017) estimates a human capital share of 65%. However, he also discusses the grey zone between the quality of human capital and factor-augmenting technologies, as they have the same implications for quantity and price data in foreign trade. "Intuitively, price and quantity data alone cannot tell whether a worker is good at hammering, or has a good hammer."

Large contributions of TFP could also be the result of omitting other known influences on the development of international income differences, such as trade links with other countries (Cuñat – Zymek 2017a, b). By introducing relative factor costs, the contribution of TFP to explain per-capita income differences could almost be halved. Figure 4 provides an impression of the impact on TFP (measured as national TFP relative to US TFP) of switching from using only domestic production factors to explain countries' incomes (grey bars) to an open-economy model (black bars). The implied differences of relative TFP between countries are considerably smaller in the latter case. E.g. the relatively high per-worker GDP in Luxembourg can partly be attributed to high factor costs, and the relatively low per-worker GDP in Bulgaria to relatively low factor costs. Without the relative-factor-cost term, Luxembourg's TFP would be overstated and Bulgaria's understated.

Apart from income differences between nations, migration can also be influenced by income distribution. As average incomes rise in developing countries, for some relatively deprived groups the tension may increase to search somewhere else for better living conditions. Empirical investigations of inequality in the context of migration show a positive association between the origin-country Gini coefficient and emigration. This means that countries with higher income inequality are likely to generate a larger share of international migrants (Adams – Page 2003). However, in the current context it is also worth mentioning that the positive association between globalization and inequality appears to get smaller the more countries spend on education (Lang – Mendes Tavares 2018).

In summary, Development Accounting has been employed to measure the relative contribution of human capital to international income differences. Empirical results vary according to the type of production function employed, the specific definition of human capital and assumptions about the substitutability of skilled and unskilled labor.

Figure 4: Implications of international value-added linkages for measured TFP



Source: Cuñat – Zymek (2017b).

#### 4. Impact of education on human capital and migration

In the environment of the Solow growth model, the contribution of education to TFP can best be identified by extending the Cobb-Douglas production function to include “human capital” as an additional explanatory variable.<sup>4</sup> Mankiw et al. (1992) introduced this “augmented Solow model” which says “that differences in tax policies, education policies, tastes for children, and political stability will end up among the ultimate determinants of cross-country differences” in income per capita (p.433). However, variables taken to be exogenous in this model vary much from country to country.

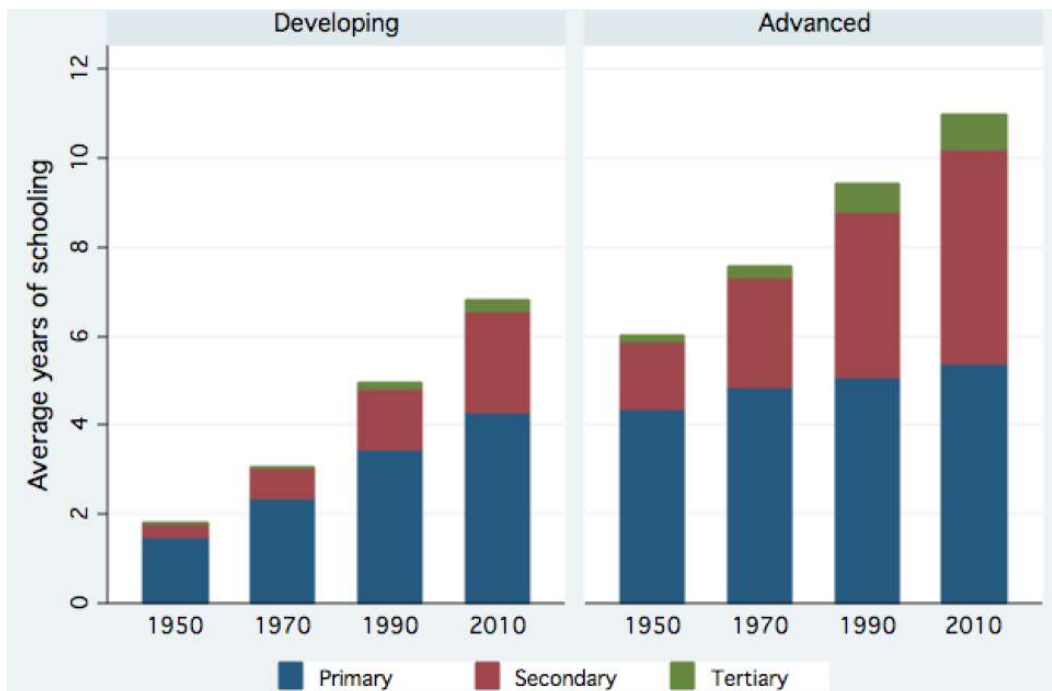
In empirical models, the human capital variable can be approximated by data for the quantity and quality of schooling, but also by information on the health status of the labor force (Caselli 2005). Earlier DA studies have come to the conclusion that differences in the quantity of schooling contribute only a relatively small fraction to the output gap between developing and rich countries. Thus, most of the human capital effect would accrue to the quality of schooling which obviously differs from country to country (e.g. Erosa et al. 2010).

Using data on the development of the educational attainment of the population aged 15 and above, Barro – Lee (2010) found that in the world as a whole the average time of schooling increased from 3.2 years in 1950 to 7.8 years in 2010. For the developing world, the respective figures are 2.1 and 7.1 years, for advanced countries 6.2 and 11.0 years. Although

<sup>4</sup> The resulting function in log-form would be:  $\ln Y = \ln A + \alpha \ln K + \beta \ln H + (1-\alpha-\beta) \ln L$ , where H is the stock of human capital.

developing countries have dramatically increased educational attainment, they are still far behind the high-income economies, just reaching their level of the 1960s (Figure 5). Parallel to these achievements, the illiteracy rates in developing countries have successfully been reduced, from 64.9% in 1950 to 20.1% in 2010. For younger persons aged 15-24 years, the decline was even more dramatic, from 47.1% to 7.1%.

Figure 5: Average years of schooling, by educational level: Total population over age 15



Note: Note: Advanced countries = Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, USA, United Kingdom.

Source: Barro – Lee (2010).

Barro – Lee also investigated the relationship between education and income, relating the cross-country differences in output per worker to the differences in schooling years. The results of regression estimates suggest that *ceteris paribus* the output of the world economy would increase by some 2% for every additional years of schooling. Montenegro – Patrinos (2014) estimate the private returns to another year of schooling which are 9.7% for the global average (at 10.4 years of schooling), 12.4% for Sub-Saharan Africa (at 8 years of schooling), and 7.4% for Europe and Central Asia (at 12.4 years of schooling).

According to Schwartz (1976), migrants on average move from lower-income regions to higher-income regions, and migration flows (controlling for population base) increase with education and diminish with age and the distance to overcome. He also showed that the ratio of net to gross migration declines with education (Schwartz 1971).

Education may exert different, partly opposing, effects on migration. Following Fargues (2017), there is a complex two-way relationship between education and migration with consequences on both migrants and non-migrants in the origin as well as the destination countries (Table 3):

- The causal impact of education on migration in the country of origin becomes visible when people acquire sufficient skills and mobility to grasp the possibilities of changing their residence. For the immobile population left behind, the result could be an undesirable brain drain. In the country of destination, native workers tend to see immigrants as competitors for good jobs, pushing migrants often aside to inferior occupations resulting in brain waste.
- An opposite impact of migration on education may be felt in the country of origin resulting from new economic contacts with more advanced countries, from emigrants returning back home, and from emigrants' remittances, which help improve the living conditions including better education for family members (brain gain).

Table 3: The web of mutual causation between education and migration

Concerned population		Education → Migration	Migration → Education
<b>Origin country</b>	<b>Migrants</b>	Education, a driver of migration	Education gained abroad, then brought back home by return migrants ("circular migration")
	<b>Non-Migrants</b>	Development consequences of highly-educated migration: "brain drain" vs. international remittances	Migrant remittances' impact on education in the homeland; parent's absence impact on education; prospect of emigration, an incentive to acquire more education ("brain gain")
<b>Destination country</b>	<b>Migrants</b>	Over-qualification of migrants ("brain waste")	School performances of migrants' kids; student (and teachers') migration
	<b>Non-Migrants</b>	Competition and emulation between natives and migrants	Diversity of origins in the classroom and the quality of education; enrollment of locals in foreign schools and the building of human capital

Source: Based on Fargues (2017)

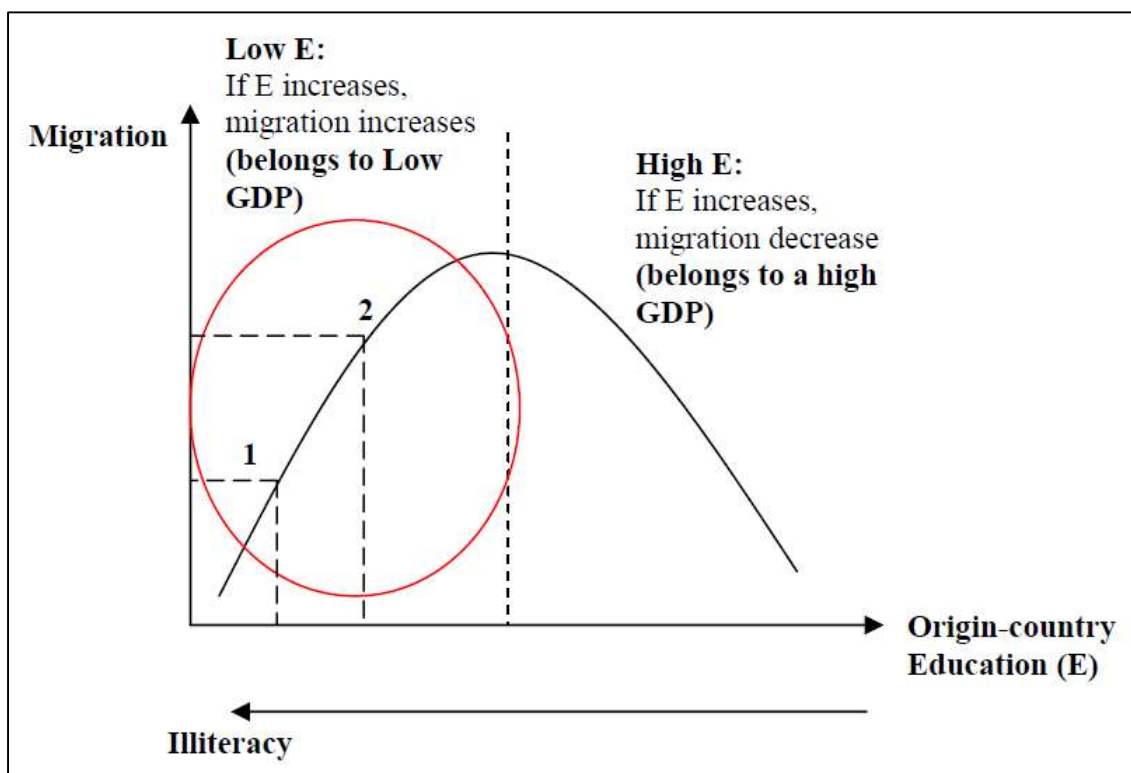
Education may thus enhance migration when education contributes to better handling adverse situations, favors those who are future-oriented and makes them better informed of regional income differences. The other side of the coin could be that education may retard migration when it improves the chances for better jobs and incomes at home. In an empirical study, Barrientos (2007) found that developing countries benefit from emigration if their migration rate is low and if they lack human capital, and countries will lose if the proportion of emigrants is too high.

If circular migration occurs, i.e. former emigrants return to their home country, the skills they obtained abroad will contribute to improving the living conditions back home. In the country of destination the costs of integration efforts have to be balanced against the advantages of diversity and the improved chances of students and teachers exchanges.<sup>5</sup>

<sup>5</sup> The interconnection between education and migration as well as international efforts to enhance education of migrants have recently been studied by Wurm – Kohlenberger (2018). The paper

The impact of education on emigration from low-income countries is sketched in Figure 6. So long as education is at rather low levels (usually when GDP per capita is also rather low), with an increase of the education level migration will also tend to rise. The reason is that low but increasing education will empower people to read and write, to overcome financial constraints, and to widen their comprehension of the world beyond their immediate region of origin. Above a certain threshold of GDP per capita (to be determined empirically), further increases of education will make it less attractive to move abroad, in particular in industrial countries. Barrientos (2007) quotes the empirical analysis by Pedersen – Pytlikova – Smith (2006) who found an inverted-U-shaped relationship between education and migration: At a high illiteracy rate (measured as share of people above 15 years who cannot read or write a short statement) migration is low, mostly confined to shift of location within one and the same country (Point 1). As illiteracy diminishes, migration would gradually increase and become international (Point 2). Beyond a certain threshold (to be determined empirically), further increases in the average education level of the country of origin would by and by diminish migration.

Figure 6: Relation between migration and education



Source: Barrientos (2007), based on Pedersen – Pytlikova – Smith (2006).

According to Collier (2013), there is “compelling evidence that migrants tend to be highly educated relative to both those left behind and natives of the countries of destination”. However, this does not hold any more when young refugees are concerned. In many instances they are cut off from access to adequate schooling, most notably in host countries that are barely able to educate their native population (Bock-Schappelwein 2018).

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includes case studies on origin countries in the aftermath of the Arab Spring and Austria as a host country.

From the point of view of the country of origin, migration can be both an advantage and a disadvantage. As migrants are rather well-educated, when they leave their home country they diminish human capital and cause a reduction of productivity. But they form a sort of bridgehead to the host country and are a source of income remittances back home. In case of circular migration, enhanced human capital flows back encouraging new business and additional educational efforts. In the host country, the immigrants are more likely to be over-educated than natives, a difference being alleviated over time.<sup>6</sup> According to the data collected by Docquier – Marfouk (2005), in the years between 1990 and 2000 the share of low-skilled migrants declined world-wide from 45% to 36% (Table 2).

*Table 2. Composition of immigrants in the world by education*

Year	Tertiary education	Secondary education	Other
1990	29.8	25.3	44.9
2000	34.6	29.0	36.4

Source: Docquier – Marfouk (2005)

Empirical data quoted by Fargues (2017) reveal that international migrants (some 3.5% of world population) are not selected randomly. At least when they move voluntarily they are overwhelmingly of above-average education, and they are also subject to the immigration priorities of the destination countries which, at least for OECD destinations, usually favor educated people.

Empirical analyses for African migrants reveal that Europe is not the dominant target of movements, but most people search for a living in another African country. For those leaving Africa, relevant destinations besides Europe are the Gulf States and the Americas (see Flahaux – de Haas, 2016, and the literature quoted there).

In their analysis of personal characteristics of migrants from Ukraine, Vakhitova - Coupé (2014) conclude that education does not have a clear and persistent effect on most of the migration decisions, although there emerges a distinct picture for the period 2005-2008 as compared with the period 2010-2012. In the former period, there is no indication that education did affect the probability to migrate. People with higher education tended to migrate to wealthier countries, but did there accept lower-level jobs. In the latter period, semi-educated people tended to migrate more than others, though with no discernable preference for destinations.

In summary, education is one of the most important factors determining living standards and economic growth. Therefore, education also impacts strongly on migration, positively in early stages of income development (through improved mobility and information about alternative living conditions) and negatively in later stages (when living conditions at home have improved beyond a certain threshold). There is much evidence that migrants are on average better educated than those remaining back home as well as the new workmates in the host country.

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<sup>6</sup> For details, see Tani (2017) and the literature quoted there.

## 5. Impact of migration on countries of origin and destination

In models of international migration, the countries of origin provide a view from the supply side, while the host countries represent factors on the demand side, most importantly the rules governing immigration. In general, regular migration is seen to result in gains and costs for both the sending and the host countries. Ratha et al. (2011) argue that the collective gains from South-North migration would in the long run outperform the income gains from comprehensive trade liberalization, one-fifth of which would accrue to the host countries in the North.

Eamets (2013) summarizes the possible impact of migration on the economy of the source country: He sees positive effects from increasing mobility, enhancing human capital and receiving remittances. Emigration can also help to reduce unemployment and alleviate the negative effects of economic restructuring. On the negative side, emigration may result in a brain drain which depresses productivity, exacerbates labour shortages and thus put upward pressure on wages. Furthermore, emigration could accelerate demographic problems (ageing, low birth rate etc.) and enlarge depopulated areas, thereby deepening regional discrepancies and amplifying social problems.

One of the indispensable financial gains in source countries are the remittances of emigrants to assist their families back home. The World Bank (2017) projects worldwide remittances in 2017 at \$596 billion, of which \$450 billion accrued to low and middle income regions. These figures cover just funds sent via formal channels. According to Freund – Spatafora (2005), remittances sent through informal channels could add at least 50%, for some countries up to 250%, to the globally recorded flows. A World Bank study has concluded that a one per cent increase in the share of remittances in a country's GDP leads to a 0.4 per cent decline in poverty (Fajnzylber – Lopez 2007).

Eamets (2013) also provides an overview of the multitude of migration effects on host countries. Positive aspects are the stimulus for domestic demand, more choices for consumers from an increasing variety of goods and services, and the availability of new talents, although immigrants are often pushed into 3D (dirty, dangerous, difficult) jobs which are barely accepted by natives. The negative aspects arise primarily from failed integration and the resulting social problems, in particular high unemployment among immigrants and the agglomeration of slums in big cities. Any gains in short-run competitiveness may induce losses in long run, as cheap labor depresses wages also for natives and retards otherwise necessary improvements in working conditions.

Orefice (2011) maintains that the effect of immigration on host countries income is a function of the human capital content of immigrants. If immigration impinges negatively upon national wages, this is due to the delayed adjustment of physical capital after inflows of immigrants. The effects on wages also depend on the assumption about the degree of substitutability between immigrants and native workers. The more immigrants are perfect substitutes for natives, the more will immigration have adverse effects on host country wages. For the USA, Borjas (2003) estimated that immigrant influx between 1980 and 2000 reduced wages of average native workers by some 3.2% and wages for high school dropouts by 8.9%. For Europe, most studies find that overall reductions in wages are insignificant. This is underscored by Kerr – Kerr (2011), who see only "minor displacement effects even after very large immigrant flows." The more visible effects are concentrated on low-educated natives or the prior immigrant cohorts, which are the closest substitutes to new immigrant flows. With

respect to the fiscal impact of immigration on the host countries, most studies find that net effects are marginal and tend to be rather positive than negative.

The immediate consequences of (irregular) immigration in host countries are often countered by political emergency measures which lack any long-term strategy. Such measures are often biased by irrational social sentiment which is based on an ideological interpretation of the data (Collier 2013). One of the attempts to curb a steady flow of migrants from poor to rich countries has been to increase border controls by the latter. The recent refugee crisis in Europe has induced fierce disputes on the effectiveness of such measures in the long run and the likely secondary consequences (e.g. of human trafficking).

Another line of argument has been to reduce the incentives for migration via expanding aid and liberalizing trade with the countries of origin ("development instead of migration" policies). However, as de Haas (2007) has shown, increasing development assistance will most likely induce more offshore migration, at least in the "short run" of some two or three decades. "Trade, aid, return migration and remittances are no short-cut 'solutions' to migration, and sustained immigration seems therefore to be likely". He is particularly concerned with restrictive immigration policies which have "unintended effects by stimulating irregular migration, discouraging migrants' circular mobility and pushing them into permanent settlement."

## 6. Summary

Out of the many channels between education and migration, we have attempted an overview by selecting a few links that are dominant in the literature. The background is provided by a discussion of the origins of mass migration waves which are the consequence of either political turmoil or inadequate living conditions. The dominant migration flows have traditionally been within (large) countries, but more and more also occur across borders. A series of push factors drive people out of their previous homes and pull factors allure them to places perceived as improving their social and economic environment. Apart from issues of personal security, the prospect of improving the living conditions for one's family now and for future generations is the main driving force of emigration from low-income countries. Empirical evidence shows that the relationship between income per head and emigration is positive for the lower end of the income distribution. Beyond a certain threshold, however, more income retards emigration as the gap to the possible living conditions abroad becomes blurred. As a result, the emigration-income relationship displays the shape of an inverted U.

To establish a link with education, one may rely on the findings of Development Accounting, an instrument to separate the contribution of human capital to overall income growth. Empirical models usually approximate human capital by a combination of the extent and quality of schooling, with the larger weight on the quality. Depending on the specifics of the production function and the proxy for human capital used, the estimated contribution can vary substantially, but has recently been assessed by Malmberg (2017) at some 65%.

In this context, education plays an important role in getting people to move and to enable their integration into a new society. Since income per capita is generally a positive function of education, the relation between education and migration is just a mirror image of the positive and inverted-U shaped connection between income and migration. In another empirical strain it has been established that people who migrate are on average better



educated than non-migrants in the source country as well as in the receiving country, resulting in a brain drain in the former country and possibly a brain waste in the latter country. Migrants are on average inclined to send sizeable remittances back home which thwart any negative labour market effect of a brain drain. Receiving countries of migrants and refugees, in particular those fleeing drought and civil war are often reluctant to grant refugees the basic human rights of asylum and protection against forced return.

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### About the author

Heinz Handler is a retired staff member of the Austrian Institute of Economic Research (WIFO), now serving as Emeritus Consultant. Doctoral degree in laws and economics of the University of Vienna, postgraduate studies at the Vienna Institute of Advanced Studies (IHS), habilitation at the Vienna University of Technology (1989). Handler was a staff member of the International Monetary Fund (1973-76), Deputy Head of WIFO (1987-93), Director General with the Austrian Federal Ministry of Economics and Labour (1993-2003), member of the EU's Economic Policy Committee (1994-2004) and Chair of the Statistics Council of Statistics Austria (2010-2015). Some 200 publications on monetary, fiscal and structural policies.