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An empirical inquiry

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Publication date
2018

Document Version
Final published version

Link to publication

Citation for published version (APA):
de Haas, H., & Fransen, S. (2018). *Social transformation and migration: An empirical inquiry*. (IMI[n] working papers; No. 141), (MADE project paper; No. 1). International Migration Institute Network. https://www.imi-n.org/publications/social-transformation-and-migration-an-empirical-inquiry

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Working Papers

Paper 141, January 2018

Social Transformation and Migration:

An empirical inquiry

Hein de Haas and Sonja Fransen

MADE project paper 1

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Abstract

Drawing on global migration data covering the 1990-2010 period, this paper investigates the relation between processes of development and migration patterns. We do so by conducting bivariate and multivariate analyses which estimate how several economic, technological, political, demographic, and cultural dimensions of social transformation shape patterns of emigration and immigration in complex yet systematic ways, and generate a series of hypothesizes for future empirical analysis. The findings corroborate the idea that there is an inverted U-shaped relation between processes of development and emigration. This challenges push-pull models and confirms 'transition theories,' which hypothesize that development and social transformation initially tend to boost emigration. While the incidence of warfare increases emigration, there is no significant effect of the level of political freedom on emigration levels, while the level of authoritarianism affect immigration levels positively. The absence of an effect of the 'youth bulge' (estimated by the share of 15-35 year olds) on emigration and its positive effect on immigration defy push-pull models and Malthusian explanations of migration, and show that demographic factors only play an indirect role in migration processes. The analyses also yield a robustly negative effect of urbanization levels and urban growth on emigration, suggesting that rural-to-urban migration can be a substitute for international migration in fast growing urban economies. Overall, the findings suggest that different social mechanisms are at play in explaining emigration and immigration, and thus, these need to be analysed simultaneously, yet separately. In general, the paper highlights the usefulness of adopting a broader social transformation perspective when analysing the relations between human development and migration.

Keywords: *Social transformation, development, international migration, migration theory*
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The research leading to these results is part of the MADE (Migration as Development) Consolidator Grant project and has received funding from the European Research Council under the European Community's Horizon 2020 Programme (H2020/2015-2020)/ERC Grant Agreement 648496.

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Introduction

The relation between human development and human mobility is highly contested and subject of academic controversy. Conventional wisdom holds that international migration is mainly driven by geographical differences in levels of wealth and development. This view is echoed in policy and the media, where underdevelopment and related problems of poverty and conflict are generally seen as important if not the main causes of migration from poor to wealthy countries, as well as rural-to-urban migration within developing countries. Subsequently, the reduction of such differences by boosting economic development in poor countries is often seen as the most effective way to reduce or provide a 'cure' to international migration (Böhning and Schloeter-Paredes 1994; de Haas 2007). These views align with 'push-pull' and neo-classical migration theories that – implicitly or explicitly – presume an inversely proportional relationship between income gaps and volumes of migration. This assumption would lead us to expect that most migration will occur between the poorest and wealthiest places and countries, once we control for other relevant factors affecting migration costs such as distance and immigration restrictions.

However, these ideas are challenged by historical and contemporary evidence suggesting that development actually increases migration, and that the relationship between levels of development and emigration may be non-linear. This idea was pioneered by Zelinsky (1971), who linked the several phases of the demographic transition (from high- to low-fertility and mortality) and concomitant development processes (which he called the 'vital transition') to distinctive phases in a 'mobility transition'. Zelinsky (1971) argued that there has been a *general* expansion of individual mobility in modernizing societies, and that the specific character of migration processes changes over the course of this transition. While pre-modern societies would be characterized by limited circular migration, Zelinsky (1971) /claimed that all forms of internal and international mobility would increase in early transitional societies as a consequence of population growth, a decline in rural employment, and rapid urban-based economic and technological development. In late transitional societies, international emigration would decrease with industrialization, declining population growth and rising wages, and falling rural-to-urban migration. In 'advanced societies' with low population growth, residential mobility, urban-to-urban migration and circular movements would increase, and countries would transform into net immigration countries. Skeldon (1990; 1997) elaborated on Zelinsky's seminal work to explain actual patterns of migration at the global level. He argued that high levels of economic development and state formation boost the evolution of integrated migration systems consisting of global and local movements. Skeldon hypothesized that where levels of economic development and

state formation are low; migration systems would not be integrated in global systems and would mainly operate on a local or regional level (cf. Skeldon, 1997:52). [1]

Historical and contemporary studies support the idea that countries go through migration transitions as an intrinsic part of broader development processes. For instance, in their seminal study on European migration to North America between 1850 and 1913, Hatton and Williamson (1998) found support for the idea that development initially boosts emigration. The relatively wealthy and technologically advanced north-western European nations initially dominated migration to North America, with lesser developed Eastern and Southern European nations following suit later, as processes of industrialization, economic restructuring and demographic transitions took hold later. Such patterns also seem to exist for contemporary global migration. For instance, high-emigration states such as Mexico, Morocco and Turkey typically belong to the middle-income groups, while the poorest countries generally have comparatively low emigration rates, such as is the case for many parts of sub-Saharan Africa.

In a first study that systematically estimated the effect of theoretically relevant development indicators on long-term migration patterns on a comprehensive, global scale, de Haas (2010a) analyzed the relationship between development variables such as GDP per capita, literacy and the Human Development Index (HDI) on the one hand, and levels of immigration and emigration on the other hand. His analysis showed that higher levels of economic and human development are associated with higher overall levels of migration, and that they had the predicted inverted U-curve effect on emigration[2]. Similarly, Clemens (2014) estimated the relationship between income per capita and emigrant stocks using the extended version of the Global Migrant Origin database (Özden et al. 2011), which also included data for later years. These results confirmed the inverted U-shaped association between income and emigration, suggesting that economic development leads to more emigration at first instance, but that emigration decreases again after a certain tipping point of economic prosperity.

Notwithstanding their significant merits, previous studies had their methodological and theoretical limitations, either by focusing on one particular year (as in the case of de Haas 2010) or by being

[1] It is important to emphasize that the concept of migration transitions should not be conflated with the theory of the *migration hump* pioneered by Martin, Philip L. 1993. *Trade and Migration: NAFTA and Agriculture*. Washington D.C.: Institute for International Economics. and Martin, Philip L., and J. Edward Taylor. 1996. "The anatomy of a migration hump." Pp. 43-62 in *Development strategy, employment, and migration: Insights from models*, edited by J. Edward (ed.) Taylor. Paris: OECD, Development Centre., which predicts *short to medium-term* hikes in emigration in the wake of trade reforms and other economic shocks, which may boost unemployment and emigration by undermining peasant livelihoods and other economic sectors. Migration transition theory as pioneered by Zelinsky and extended by Skeldon is about the structural, *long-term* association between development processes and migration, which usually span several generations. Such long-term relations are the focus of this paper.

[2] De Haas used the World Bank/University of Sussex global migrant origin database (see Parsons et al. 2005). for the year 2000.

biased towards economic development indicators (as in the case of Clemens (2014) and Özden et al. (2011)). Previous empirical studies have also tended to neglect theoretically relevant non-economic migration drivers such as demographic shifts, political transitions, educational expansion or technological advancements, although the relevance of such factors was already mentioned by Zelinsky (1971) and Skeldon (1990; 1997). De Haas' (2010a) prior analysis highlighted the value of looking beyond economic and demographic indicators. For example, the results showed that a high degree of political oppression was related to larger immigrant populations and lower emigrant stocks. These perhaps surprising and counterintuitive findings present us with theoretical and empirical puzzles, and show the need to deepen our systematic insights into the relationship between processes of 'development' and social change, and levels and patterns of international migration.

This paper aims to fill this gap by providing a further conceptual and empirical exploration of the relation between development and social change on the one hand, and levels of immigration and emigration on the other. We apply a social transformation perspective to examine how processes of social, economic, technological, political, demographic and cultural change shape international migration trends and patterns. Our analysis will be based on a broader social transformation perspective, which allows us to shift away from the generally more narrow, evolutionary and economistic concept of development. It also reflects the theoretical need to rethink migration as an intrinsic part of broader processes of broader societal change. Partly drawing on work by Polanyi (1944 [2001]) and Castles (2010), we define social transformation as a *fundamental change in the way that societies are organized and resources are distributed that goes beyond the continual, incremental processes of social change that are always at work*. We draw on a forthcoming conceptual paper (cf. de Haas et al. forthcoming) and distinguish five key dimensions of social transformation: economic, technological, political, demographic, and cultural transformation. Based on this conceptualization, the paper will operationalize a set of variables that try to capture the different dimensions of social transformation as well as possible, and as far as data availability currently allows.

Empirically, we analyze the newly available United Nations Global Migration Database (UNGMD) (UN DESA, 2015) to investigate the relation between processes of social transformation and international migration. These data are unique because they contain bilateral migrant stock data for *all* countries and several overseas territories in the world. The data are measured in five-year intervals between 1990 and 2015. We focus on the 1990 to 2010 period data for reasons of data quality. To measure the dimensions of social transformation we selected data that can be seen as 'proxies' for the five theoretical dimensions of social transformation, and rely on secondary data gathered from various sources such as the World Bank indicators, the PRIO armed conflict database and the Freedom House database on political and civil rights. We use both bivariate and multivariate analyses to assess and

visualize the associations between the various dimensions of social transformation and international migration in a comprehensive way.

The following section will conceptualize the drivers of migration and highlight the limitation of transition theories to explain the social mechanisms that enable and motivate people to migrate as part of broader processes of development and social transformation. We argue that the capability-aspirations framework (Carling 2002; de Haas 2003; de Haas 2014) provides a useful framework to understand how macro-level processes of social change affect individual tendencies to migrate. We will then introduce the social transformation perspective and its various sub-dimensions, as well as discuss its usefulness in studying the drivers of international migration. The following sections will introduce the data and operationalization of hypothetically important migration drivers, as well as the result of descriptive and multivariate empirical analyses.

Conceptualizing the drivers of migration

The debate on the relation between processes of development and migration shows the need for improved theoretical models to understand the complex relation between processes of development and changing migration patterns, both on the national and international level. While recent empirical evidence seems to provide growing support for transition theories, these theories and studies have been less convincing in providing a comprehensive account of the social mechanisms that explain why development initially tends to lead to *more* migration – at least not beyond the well-known argument that increasing incomes removes material constraints on mobility. To explain how macro-level development processes impinge on migration, it is important to shift away from one-sided utilitarian-pecuniary visions that see migration as resulting from individual cost-benefit calculations aiming at income or utility maximization, or, at the macro-level, as a function of geographical gaps in wages and other economic opportunities. This is not only because of the importance of non-economic factors in shaping migration processes, but also because the relation between levels of economic development and migration is anything but linear, as standard push-pull models predict.

In order to reach a better understanding of how macro-level development processes affect individual migration decisions, it is useful to conceptualize individual migration as a function of *capabilities* and *aspirations* to move (Carling 2002; de Haas 2003; de Haas 2014). Within this context, *migration aspirations* can be conceptualized as a function of geographical opportunity (instead of only income) gaps and people's life aspirations. The crux is that aspirations are not constant, but typically change alongside broader development processes and because of factors such as education, media and the exposure to different ideas about the 'good life' (see also Mabogunje 1970). *Migration capabilities* can be conceptualized as a function of negative and positive freedoms (de Haas 2014). The latter

draws on the classic distinction by Berlin (1969) between positive ('freedom to') and negative ('freedom from') liberties (see de Haas 2014). Although Berlin elaborated this distinction as a broader philosophical argument, we can usefully apply it to migration, as Berlin's distinction allows us to disaggregate the different ways in which various macro-level change processes affect migrants' agency. In this, negative freedoms refer to coercion and power, and are therefore useful to conceptualize the role of migration restrictions imposed by governments, or oppression and exploitation by landlords, bosses, employers, recruiters, and other brokers. Positive migration freedoms refer to the extent to which people have access to resources in order to realize their life goals. This primarily depends on people's access to economic, social and cultural resources (or 'capitals') that give them a real choice to migrate if they harbor the aspirations to do so. So, people need a minimum of negative and positive freedoms to realize their possible migratory aspirations or, in other words, have the capability to migrate. Amartya Sen defined *human capability* as the ability of human beings to lead lives they have reason to value, and to enhance the substantive choices (or 'freedoms') they have (Sen 1999). In this sense, we should conceptualize migration as a fundamental human freedom in its own right.

The effects of macro-level processes on aspirations and capabilities can lead to complex, and often non-linear, migration outcomes (de Haas 2014). For instance, government restrictions can decrease people's 'negative freedoms' (cf. Berlin 1969), and poverty (lack of access to resources) may decrease people's 'positive freedoms' to move. This can create situations of 'involuntary immobility' (cf. Carling 2002) amongst those wishing to move. Authoritarianism may increase people's aspirations to leave while decreasing their capability to move, which yields theoretically uncertain empirical outcomes in terms of their effect on people's migration decision at the individual level, and on volumes and patterns of migration on the aggregate level. In the same vein, increases in wealth can increase people's capabilities but can decrease their aspirations to migrate. Depending on which effect is stronger, income increases can therefore either increase or decrease migration levels.

The explanatory crux between the 'agentic' capabilities-aspiration framework and macro-level transition models is that in low-income societies, income growth, improved education, access to information as well as improved communication and transport links tend to increase people's access to material resources ('economic capital'), to a wider net of personal connections ('social capital') and to knowledge ('cultural capital'). This typically increases people's *capabilities* to migrate over increasingly large distances, often across borders. Many of the same factors, and particularly increasing education and access to information, are also likely to increase awareness about, and desire for, urban lifestyles and opportunities elsewhere. Particularly among young people, this typically increases *aspirations* to migrate – as long as growth in local opportunities cannot match fast-rising personal life aspirations (cf. de Haas 2014).

With development, *capabilities* and *aspirations* to migrate often increase simultaneously, partly explaining the paradox of development-driven emigration booms. While migration *capabilities* will further increase with development, we can expect that migration *aspirations* are likely to decrease beyond a certain level or 'tipping point' of development, particularly when opportunity gaps with destination countries decrease and local opportunities increase, convincing more people to stay home.

A social transformation perspective

In order to overcome the limitations and the economic focus of the concept of 'development', we adopt a social transformation perspective to achieve a more comprehensive analysis of migration drivers. First, the concept of 'development' and its conventional application to migration analyses tends to be biased towards income and demographic factors, thereby neglecting the role of other factors in shaping migration processes, such as the role of the state, inequality, education, demography, political freedoms, violence and technological change. Second, the underlying assumptions conceiving of development as a linear, universal process consisting of successive stages (cf. Rostow 1960) are based on a teleological worldview according to which history has a set direction and purpose. Such 'developmental' views are problematic because of their related inability to explain divergences from the supposedly 'predetermined' pattern. The inherent danger of transition theories is their built-in assumption that development and demographic change *automatically* lead to certain migration outcomes, or that migration transitions are *inevitable* or *irreversible*. For instance, whether countries will transform from emigration into immigration countries depends on many factors such as the nature and course of economic development and the level of political stability, as well as the position of countries in the global political economy.[3] To some extent, migration transitions may also be reversed. For instance, over the second half of the twentieth century many South American countries have transformed from net immigration into net emigration countries. However, it is more difficult to imagine a reversal of migration transitions on a more fundamental level, for instance through reversing rural-to-urban transitions, which seem so deeply embedded into broader processes of development and social transformations, that they can perhaps be slowed down or stagnate, but not be reversed in the sense of a transition from urban to rural societies and economies. We also see very different levels and patterns of out-migration in countries that have roughly similar income levels, which may, for instance, be attributed to varying levels of social security and inequality (Kureková 2013; Mahendra forthcoming).

[3] For instance, higher productivity and economics of scale in wealthy countries alongside unequal terms of trade may harm the competitiveness of peasants and other producers in poorer countries. This can lead to further concentration of economic activities in wealthy countries along with sustained migration of workers to support them. This may result in a 'migration plateau' of sustained out-migration (Martin and Taylor, 1996).

To overcome these limitations, we apply a social transformation perspective to examine how international migration is shaped by wider processes of economic, technological, political, demographic and cultural change. This allows us to assess their relation to migration processes independently and in their complex, mutual interactions. Drawing on work by Polanyi (1944 [2001]) and Castles (2010), we define social transformation as a *fundamental change in the way that societies are organized and resources are distributed that goes beyond the continual, incremental processes of social change that are always at work*. However, this definition is still too general and needs further specification to make it more concrete and suitable for empirical measurement. In order to achieve such 'operationalization', and drawing on a forthcoming conceptual paper (cf. de Haas et al forthcoming), we distinguish five key dimensions of social transformation:

1. Economic (the accumulation and use of land, labour and capital in the production, distribution and consumption of goods and services);
2. Technological (the application of knowledge through the deployment of procedures, skills and techniques);
3. Political (the organized control over people);
4. Demographic (the structure and spatial distribution of populations); and
5. Cultural (beliefs, values, norms, and customs shared by groups of people)

Following this division, we can argue that in the 'modern' era, these are the fundamental social transformations that have affected societies around the world. Key transformations include the growth and spread of industrial capitalism (economic transitions), the mechanization, standardization and automation of techniques and procedures of production and service provision (technological change), national state formation (political change), demographic change and urbanization (demographic transitions), and rationalisation and individualisation (cultural change). Although their specific historical and localized manifestations differ considerably, these transformation processes are universal as they have been affecting all societies in the world in fundamentally similar, albeit highly varying, ways, alongside the emergence of the modern world system facilitated by European imperialism (cf. Wallerstein 1980), the formation of modern national states (cf. Tilly 1992), as well as the fundamental cultural and economic changes set in motion by the industrial revolution and concomitant urbanization processes.

While these processes are universal in their fundamental nature, their concrete historical and geographical manifestation differs widely. In order to increase insights into such variations and how they simultaneously affect levels of emigration and immigration, this paper will make an empirical assessment of how cross-national differences in these different transformation processes are associated with levels of immigration and emigration. As we have argued, several of these processes have

theoretically ambiguous effects on migration, which also corroborates the need for our empirical exercise. For instance, economic inequality may increase relative deprivation and, hence, migration aspirations, but may also deprive poor people from capabilities to migrate. Increasing education is likely to affect cultural change by increasing material aspirations and changing notions of the 'good life' in terms of (non-farm) jobs and (urban) lifestyles, although the extent to which and how this translates in migration aspirations depends on local opportunities to meet these rising aspirations. Income growth can simultaneously increase capabilities but decrease aspirations to migrate, potentially resulting in complex trade-offs and non-linear impacts on aggregate migration patterns. Welfare and social security can decrease migration aspirations (Kureková 2013; Mahendra forthcoming), particularly among relatively poor people who often use migration as a livelihood and risk diversification strategy – according to the new economics of labor migration (cf. Stark 1991). As previously mentioned, political factors such as conflict, violence and state oppression can affect capabilities and aspirations in opposite and uncertain ways. Finally, infrastructure and technological change can simultaneously potentially facilitate migration-decreasing out-sourcing of production, distance-working, trade and non-migratory mobility such as commuting. The empirical analyses in this paper, therefore, aim to increase our insights into the complex interactions between the different dimensions of social transformation and levels of international immigration and emigration in countries around the world.

Methods and data

We draw on the United Nations Global Migration Database (UNGMD) (UN DESA, 2015) that includes bilateral migrant stock data covering the 1990 to 2015 period. The UNGMD is unique because it contains bilateral country-to-country estimates of migrant stocks for *all* countries and several overseas territories in the world. Because the 2015 data was recently published and contains estimates, we restrict our main analyses to the 1990 to 2010 period. This database is compiled using migrant stock instead of flow data, which makes it particularly useful for cross-sectional analyses of the relation between social transformations and migration, as migrant stocks can be used as a proxy for past migration flows. Rather than making bold causal claims, the aim of this paper is to show *associations* between social transformation and migration. To do so, we will use bivariate and multivariate analyses to assess the associations between social transformation dimensions and emigration and immigration.

For each country and five-year period, we calculated emigrant and immigrant rates. These rates signify the proportion of the population that is an immigrant and the proportion of the population that resides abroad, respectively. The rates were calculated using the emigrant and immigrant stocks per country that were derived from the UNGMD. The emigrant and immigrant stocks were divided by the

World Bank indicators population data. Table 1 depicts the average emigration and immigration rates of all countries in the database per five-year period. These descriptive statistics suggest that these rates have been rather stable across countries over time, ranging between averages of 10 and 12 percent.

Table 1: Descriptive statistics of all variables – 1990 to 2015

Theme	1990		1995		2000		2005		2010	
	M	n	M	n	M	n	M	n	M	n
Migration variables										
Emigration rate	0.10	207	0.11	207	0.11	208	0.12	208	0.12	208
Immigration rate	0.10	205	0.10	205	0.10	206	0.11	206	0.11	208
Economic dimension										
GDP per capita	5010.73	159	6514.16	182	8254.91	190	9116.93	193	14410.77	193
GDP per capita growth (%)	1.36	161	2.17	178	2.82	189	3.56	190	2.67	184
Infant mortality	53.40	185	47.83	187	43.09	187	37.07	187	31.15	187
Technological dimension										
Access to electricity (%)	73.35	178	69.70	205	72.65	196	73.04	207	77.86	205
Demographic dimension										
Young population (%)	33.59	188	33.27	189	32.95	189	33.00	189	33.20	189
Urban population (%)	51.14	207	52.96	208	54.26	208	55.62	208	57.06	208
Urban population growth (%)	3.10	206	2.49	207	2.19	208	2.12	208	2.15	208
Political dimension										
Wars (1 = yes)	0.08	208	0.10	208	0.05	208	0.07	208	0.04	208
Political rights	3.98	139	4.34	162	4.55	162	4.66	162	4.68	164
Cultural dimension										
Primary net enrolment rate	79.99	99	81.21	102	83.48	138	86.30	143	88.41	157
Control variables										
Population total (in millions)	24.90	207	26.90	207	28.70	208	30.60	208	32.50	208
Land area (in sq. km)	635278.5	200	619704.1	205	614022.7	207	613994.3	207	613897.2	207

Notes. *** p<0.01, ** p<0.05, * p<0.1. All values are averages of the previous five years, except for emigration rate, immigration rate and population total. Based on the United Nations Global Migration Database (UNGMD) (UN DESA, 2015).

Measuring social transformation

To construct social transformation indicators, we selected data that can be seen as 'proxies' for the various dimensions of social transformation. The limited availability of country-level social transformation indicators over extended time periods, as well as doubts about the quality and validity of several variables constrained our eventual choice. We tried to choose 1-3 variables per dimension that combined the three selection criteria of (1) their validity in the sense that they are plausible numerical 'proxies' or indicators for the analytical dimensions under scrutiny (2) the quality of the data and (3) their availability across countries and years. In some cases, this implied that we had to drop theoretically important variables because of their limited availability and quality. We could only select a limited number of independent variables, not only to avoid statistical 'multicollinearity', but also to construct a theoretically comprehensive yet empirically parsimonious model, in which the variables are analytically sufficiently distinct in terms of the dimensions they measure, as well as in their interpretation. While we used the best available data and took a lot of care in specifying our empirical models, this shows the inherent limitations of our approach, and the necessity to elaborate improved data and quantitative and qualitative methods to analyse the role of these social transformation dimensions in future research.

Because migration stocks reflect long-term migration trends, with stocks being a 'residue' of past net migration, we also used five-year averages (of the previous decade) of the independent variables. For example, we used averages of the 1990-1995 period for the independent variables for the analysis of the determinants of migrant rates in 1995. We performed sensitivity checks using five-year lagged variables, which do not show significantly different results from those reported in this paper (results are available upon request).

For the ***economic*** dimension, we derived income measurements from the World Bank development indicators and included the natural logarithm of GDP per capita as the key indicator for levels of economic development[4], as well its squared term, to test the hypothesis that the relation between levels of economic development and emigration is inverted U-shaped. We also included annual GDP per capita growth based on the theoretical assumption that migration aspirations are also driven by the extent to which a society is "growing fast and offering hope and opportunity", which Martin and Taylor (1996: 58) hypothesized as an important factor in convincing people to stay. For example, a poor but fast growing country with low unemployment may be better to 'retain' its citizens than an on average much wealthier country that offers little prospects, and experiences high unemployment.[5]

[4] We did not include GDP per capita corrected for purchasing parity, because such data was not available for earlier years.

[5] On the other hand, from a theoretical perspective, fast growth may also indicate fact economic transitions, which can go along with economic dislocations alongside fast growth. The so-called 'Green Revolution'

Because we wished to assess the role of ***economic redistribution*** and social policies in affecting migration, we explored several income inequality statistics. However, because of limited coverage in terms of numbers of countries and periods we were not able to include this in the analysis.

We used infant mortality (per 1,000 births), derived from the World Bank indicators as a highly imperfect, but best available proxy measure of welfare distribution. Firstly, infant mortality data is more widely available than data on, for example, government health expenditures or inequality. Secondly, to a significant extent, this variable reflects the quality of public health care and welfare infrastructure in countries, and the extent to which governments are able to deliver concrete outcomes not only in terms of (maternal and infant) health care provisions, but also in terms of hygiene, drinking water, nutrition, and housing. Because structural factors that affect the health of entire populations – such as the quality of public health care – also have an impact on the mortality rate of infants, epidemiological studies (cf. Reidpath and Allotey 2003) argue that infant mortality rates are suitable indicators of health for entire populations. There is also empirical evidence that societies with unequal income distributions have higher infant mortality than countries with similar per capita income levels but with more equal income contributions (Flegg 1982; Rodgers 1979; Waldmann 1992). Other research has found a positive relation between democratization and infant mortality in Africa (Kudamatsu 2012). A study of 152 countries drawing on World Development Indicators 2003 showed that, besides income and family literacy, income equality as measured by the Gini index was an important determinant of infant mortality in middle-income countries (Schell et al. 2007). This suggests that child mortality can be a valid proxy for social welfare and the overall level of effective redistribution of resources and access to public services, once we control for variables such as income and literacy.

It was difficult to find a useful proxy for ***technological*** development and that was also available for most countries over longer time periods. The share of the population that has access to electricity proved to be the most useful and widely available variable, which were therefore used for our analyses. We derived these data from the World Bank development indicators. Both Zelinsky (1971) and Skeldon (1997) –who developed the initial ideas for the migration transition hypothesis – attribute an important weight to **demographic** factors, with transition models predicting that countries in full demographic transition tend to show the highest emigration rates. These are countries where birth rates are falling sharply, but where past high fertility is resulting in a 'youth bulge'. On the one hand, such

provides an example of an aggregate economic growth boosting process that, at the same time, may drive many peasants out of business and agricultural labourers into unemployment because of rapid mechanization (e.g. tractors and other agricultural machinery). Such agricultural development may also lead to the privatization of communal lands, the concentration of landownership and the commodification of labour (Castles, de Haas and. Miller 2014; Polanyi 1944 [2001]).

countries also tend to simultaneously experience increasing education and incomes, and other aspirations and capabilities-increasing factors, which may mean that the correlation between demographic factors and migration is potentially spurious. On the other hand, we know from numerous surveys that young adults are generally the most migration-prone, which is why we could still expect an effect of demographic factors once we control for other relevant factors.

To test these (partly competing) hypotheses, we included the share of young population, aged 15 to 35, on the total population as a proxy for the 'youth bulge'. We also included the percentage of people living in urban areas, and the rate of growth of urban populations (over the preceding 5 years) as proxies of the relative size and growth of urban populations. Additionally, we included the speed of economic modernization, as well as the extent to which urban economies provide economic opportunities. This is based on the assumption that urban areas grow faster if more urban jobs are created, and vice versa (cf. Potts 2009). As urban growth is partly a derivative of rural-to-urban migration (besides natural growth of urban populations, (cf. Annez and Buckley 2009)) this indicator could also provide a first assessment of whether internal migration is a substitute of, or rather a complement to, international emigration at different stages of 'mobility transitions'. It also provides an alternative – and perhaps a more empirically grounded (compared to GDP per capita growth) – way of assessing whether societies that are growing fast and provide 'hope and opportunity' tend to contain more migration and mobility within their borders.

To capture the ***political*** dimension of social transformation, we used two distinct factors that are likely to have an effect on aspirations and capabilities to migrate: the level of political rights on the one hand, and the occurrence of conflict on the other. The Freedom House Index is a global dataset that includes 195 countries for the 1973 to 2016 period. The data includes information on political rights on a scale from zero to seven, with zero referring to the highest level of political freedoms, and seven to the highest level of political oppression. To facilitate a more intuitive interpretation of the results, we reversed the coding to create a 'political rights' variable with a scale running from 0 (low political freedoms, high authoritarianism) to 7 (high political freedoms, associated with democratic governments). Data on conflict was drawn from the PRIO Armed conflict database, which includes information on small conflicts and wars for all countries in the world in the 1946 to 2007 period. Conflict is defined as: "a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths." A country received a '1' if it experienced a conflict following the definition in a specific five-year period.

Although it is difficult to capture ***cultural*** factors through quantitative measurements, this cannot be a reason to ignore this crucial social transformation dimension in our analysis. We eventually included the primary net enrolment rate (from the World Bank development indicators database) as a central

variable. This was chosen because education seems to be one of the best proxy variables to capture the idea that social transformation sets in motion processes of cultural change in the form of increasing material aspirations and changing notions of the 'good life', which are also likely to increase aspirations to migrate. This aspirations-increasing effect of education should be seen separately from the idea that education tends to correlate with concomitant increases in migration-boosting divisions of labor, occupational specialization and structural complexity of labor markets (see above), an effect which we assume will already be largely captured by the GDP per capita and urban growth variables. Therefore, in a multivariate setting, the education variable is assumed to partly capture the hypothesized aspirations-increasing effect of migration.

Finally, we included a number of **control variables** in the multivariate analyses. We included year dummies to control for generic global changes over the years, such as an increase in world income, education levels and declining infant mortality rates (see Table 1), and to, thus, avoid erroneously interpreting longitudinal global change as cross-sectional variation between countries. We also included the (natural logarithm of) population size of the country and land surface as control variables. There are theoretical arguments to include values of population and land surface as independent variables. Immigration and, particularly, emigration often reaches exceptionally high values on small islands and in small countries. For instance, an international move from the Netherlands to Flanders (Belgium) involves crossing smaller distances, lower costs, and smaller cultural and economic differences than, say, internal migration from Xinjiang Uyghur Autonomous Region to Shanghai on the Chinese east coast. In addition, countries with small population sizes are less likely to have urban agglomerations where particularly skilled workers tend to find employment, increasing the likelihood that rural-to-urban migration will involve the crossing of borders (cf. de Haas 2010a). In other words, countries with larger populations have a higher probability of absorbing rural-to-urban and other population mobility within their borders. Because the effect of population size on the percentage of *international* migrants is likely to be gradual, and because population size is a rather stable, slow-changing variable, we used the actual values of the population each year instead of a lagged variable. We also included land surface because it is reasonable to assume that from geographically large countries, the crossing of borders will, on average, involve higher costs.

Results

Social transformation and migration: descriptive statistics

The analyses consist of descriptive and regression analyses, which will be presented in a step-wise manner to verify consistency of the results. Table 2 shows bivariate correlations between social transformation variables on the one hand, and emigrant and immigrant rates on the other. These results show rather consistent patterns for the various census rounds included in the analysis. An important

observation is the strong and consistent correlation between GDP per capita and immigrant rates, which confirms the intuitive idea that countries with high levels of economic development tend to attract more immigrants. The same GDP variable has inconsistent correlations with emigrant rates. While the correlations are low and mostly insignificant for the 1990-2000 period, they are weakly positive for the 2005-2015 period.

Interestingly, infant mortality has a rather consistently negative and significant correlation with both immigrant and emigrant rates. Access to electricity, our indicator for the technological dimension, is significantly and positively related to both emigrant and immigrant rates, although the association to immigrant rates is stronger. With regards to the demographic variables, we see that the share of young population is positively correlated to immigrant and emigrant rates for the 1990 data. The correlation then turns insignificant for immigrant rates from 2005 onwards, and *negative* for emigrant rates. This seems to cast some doubt upon popular ideas that there is a direct relation between 'population pressures' and emigration levels, although this has to be explored in a multivariate setting before drawing any conclusions about possible causal links.

Urbanization (as measured by the share of population living in urban areas) has a strong positive correlation with immigrant rates, which largely repeats the strong correlations between GDP and immigration, but shows *no* significant correlation with emigrant rates. Interestingly, a high level of urban population growth shows a highly *negativ*e correlation with emigrant rates, which may indeed confirm our hypothesis that rural-to-urban migration partly substitutes international emigration. We might also interpret urban growth figures as proxies of effective domestic employment creation (and perhaps more reliably so than GDP growth figures, which do not take into account to what extent growth translates in large-scale employment creation, or rather reflects income increases of the wealthiest sections of populations), and the extent to which (particularly skilled) migrants can find (urban) employment opportunities in their own countries without the need to move abroad. However, all these hypotheses need to be further scrutinized in a multivariate setting.

Table 2: Bivariate correlations between all variables – 1990 to 2015

Theme	1990		1995		2000		2005		2010	
	Emigrant rate	Immigrant rate	Emigrant rate	Immigrant rate	Emigrant rate	Immigrant rate	Emigrant rate	Immigrant rate	Emigrant rate	Immigrant rate
Migration variables										
Emigration rate	1.00		1.00		1.00		1.00		1.00	
Immigration rate	0.07	1.00	0.06	1.00	0.03	1.00	0.10	1.00	0.12*	1.00
Economic dimension										
GDP per capita (LN)	0.15*	0.54***	0.07	0.52***	0.10	0.56***	0.16**	0.58***	0.17**	0.60***
GDP per capita growth (%)	-0.02	0.07	0.11	-0.10	0.13*	0.09	0.06	-0.19***	-0.23***	-0.08
Infant mortality	-0.13*	-0.30***	-0.16**	-0.32***	-0.23***	-0.35***	-0.25***	-0.37***	-0.23***	-0.37***
Technological dimension										
Access to electricity (%)	0.21***	0.35***	0.18**	0.27***	0.21***	0.38***	0.24***	0.31***	0.26***	0.38***
Demographic dimension										
Young population (%)	0.08	0.52***	0.01	0.51***	0.00	0.50***	0.03	0.51***	0.02	0.50***
Urban population (%)	-0.32***	0.01	-0.34***	-0.05	-0.33***	-0.05	-0.35***	-0.07	-0.34***	0.17**
Urban population growth (%)	0.22***	0.28***	0.09	0.18**	-0.07	0.03	-0.13*	-0.04	-0.15**	0.01
Political dimension										
Wars (1 = yes)	-0.02	-0.18**	0.01	-0.18**	-0.05	-0.13*	-0.12*	-0.15**	-0.07	-0.13*
Political rights	0.10	0.05	0.10	0.02	0.15*	0.01	0.20**	0.03	0.20**	0.04
Cultural dimension										
Primary net enrolment rate	0.18*	0.12	0.20**	0.06	0.19**	0.20**	0.19**	0.17**	0.12	0.13*
Control variables										
Population (in millions) (LN)	-0.44**	-0.45***	-0.50***	-0.46***	-0.52***	-0.46***	-0.53***	-0.46***	-0.52***	-0.44***
Land area (in sq. km)	-0.16**	-0.08	-0.19***	-0.08	-0.18***	-0.08	-0.18**	-0.08	-0.18**	-0.08

Notes. *** p<0.01, ** p<0.05, * p<0.1. All values are averages of the previous five years, except for emigration rate, immigration rate and population total. Based on the United Nations Global Migration Database (UNGMD) (UN DESA, 2015).

The incidence of wars is either not or *negatively* correlated to emigrant and immigrant rates. The negative sign of the correlation coefficient for emigrant rates may appear counterintuitive, but can potentially be explained by the capabilities-aspirations model as conflict may decrease people's capabilities to migrate even if they wish to flee. Similar mechanisms may explain the perhaps surprising positive correlation between political rights and emigrant rates – with authoritarian states putting more obstacles in the way for people who wish to leave, but this may also be explained by the general tendency of high-income societies to have higher degrees of political rights. There is no significant correlation between political rights and immigrant rates, which might suggest that economic factors dominate in determining immigration patterns. The correlations between primary school net enrolment rate and emigrant and immigrant rates is significantly positive for 2000 and 2005, but insignificant for other years, which also points to the need to analyze this relation further.[6]

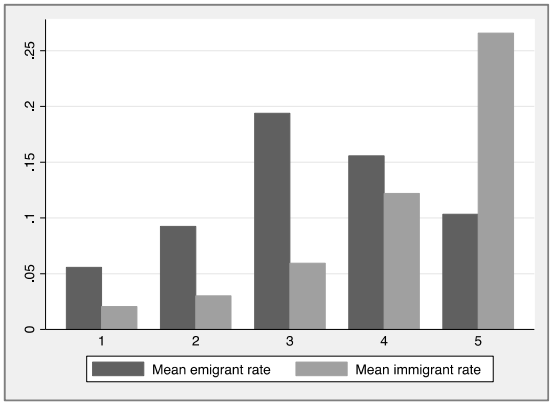
With regards to the control variables, the analysis shows a clearly negative correlation between absolute size of the population and migrant rates, which is consistent with the idea that large, populous countries absorb most mobility within their borders, and confirms the validity of its inclusion as a control variable for the multivariate analyses. Land area is consistently negatively correlated with emigrant rates, which seems to confirm the hypothesis that the crossing of borders of large countries involves higher costs. The correlations between land area and immigration rates are not significant, which is logical given the fact that migrants tend to be attracted by concrete social, cultural and economic opportunities rather than the 'size' of a country.

As a next step, we explore associations between social transformation indicators and average immigrant and emigrant rates for each quintile or quartile of the social transformation indicators, partly with the aim to explore non-linear relationships that can inform the model specification of our regression analyses. For the sake of brevity, Graph 2 shows the results for 2010, but, in general, associations between social transformation and migration varibles have similar shapes for other years.[7]

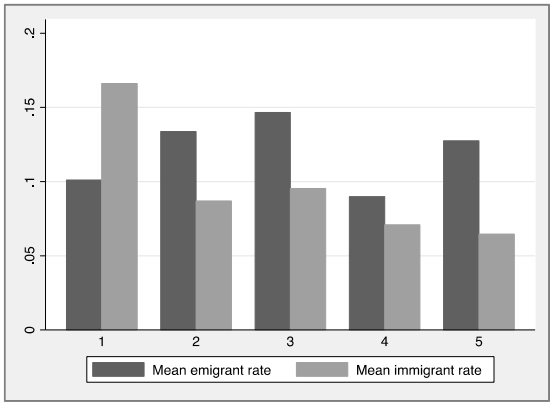
[6] We also conducted the analyses using literacy rate instead of primary school enrolment rates. The results are similar in the sense that literacy rate is also positively related to both emigration and immigration rates. The correlations with migration are higher and more significant in some years, particularly in later years. However, the literacy rate variable has fewer observations, particularly before 2005, which makes the results less robust.
[7] Results are available upon request.

Graph 2: Migration and social transformation indicators: graphs (based on 2010 data)

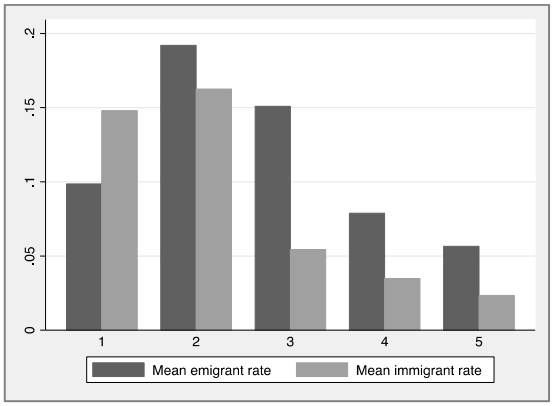
Graph 2.1: GDP per capita (LN) and migration



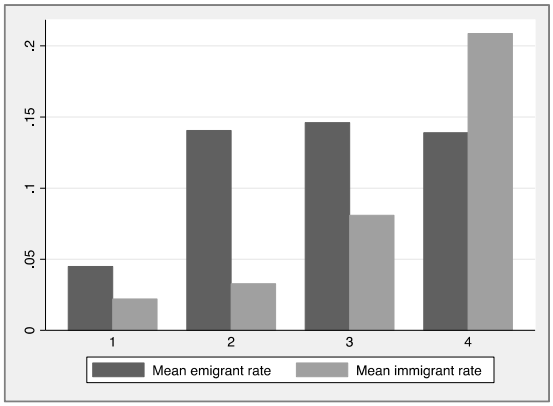
Graph 2.2: GDP per cap. growth (%) and migration



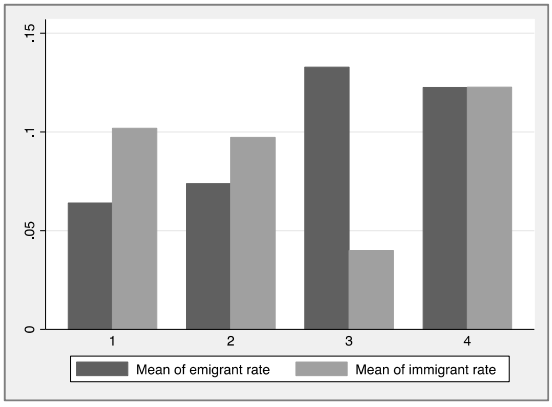
Graph 2.3: Infant mortality and migration



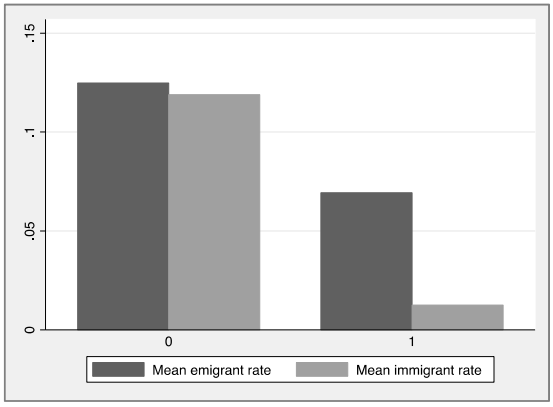
Graph 2.4: Access to electrcity (%) and migration



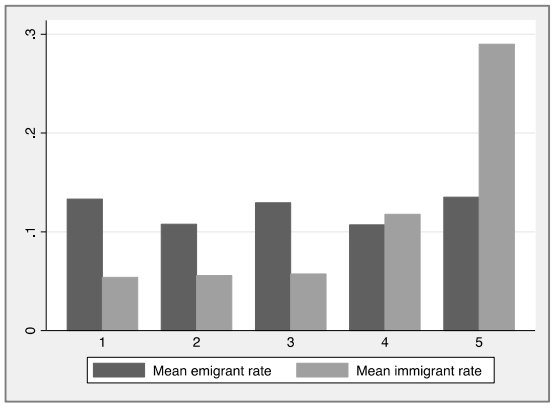
Graph 2.5: Political rights and migration



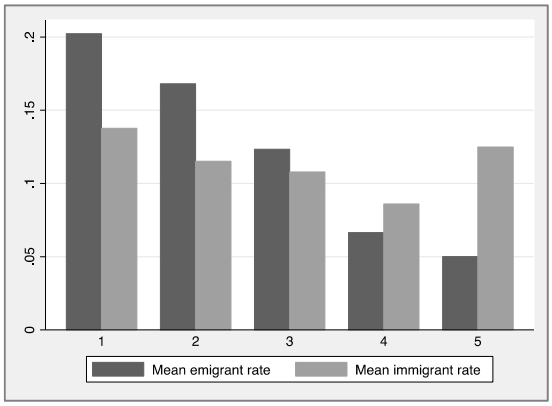
Graph 2.6: Wars and migration



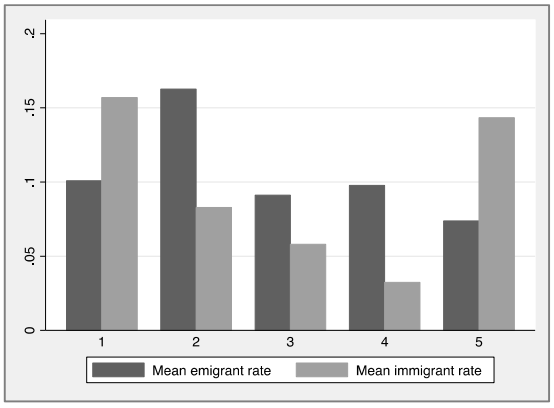
Graph 2.7: Urban population (%) and migration



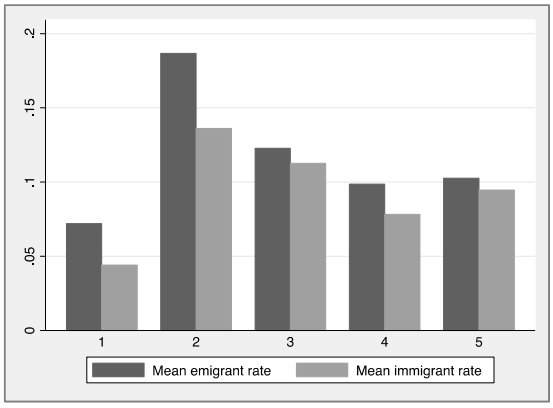
Graph 2.8: Urban pop. growth (%) and migration



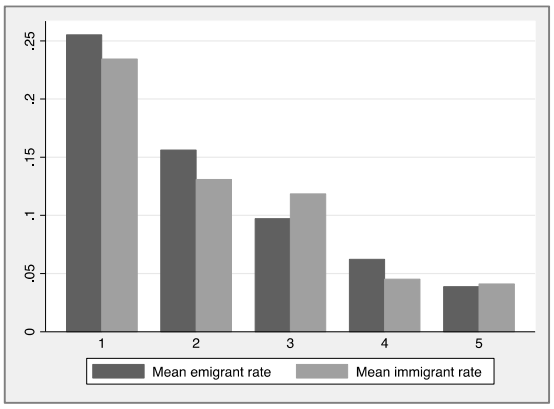
Graph 2.9: Young pop. (%) and migration



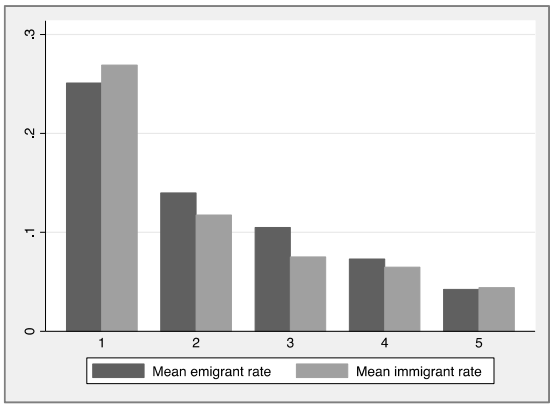
Graph 2.10: Prim. school enrolm. and migration



Graph 2.11: Population (LN) and migration



Graph 2.12: Land area (in sq. km) (LN) and migration



Note. Based on the United Nations Global Migration Database (UNGMD) (UN DESA, 2015), year 2010.

First, the results for GDP per capita confirm the predictions of transition models and confirm earlier empirical work (de Haas 2010; Clemens 2014) .The middle inome group tends to have the highest emigrant rates in a relation that resembles an inverted U-curve, while the relation between GDP per capita and immigration is positive and linear. In general, infant mortality is positively associated with immigrant and emigrant rates. This might suggest that, on average, countries with better public health care provisions may generate less emigration and immigration. Second, access to electricity, our technological dimension indicator, shows a similar relation with immigrant rates as GDP per capita, but a slighly different pattern for emigrant rates. For countries with low access to electricity, emigrant rates are low. However, for countries with medium and high average access to electricity, emigrant rates are high and rather stable. Third, a high level of political liberties seems to be associated to higher emigrant rates, while the relation with immigrant rates is ambiguous. On average, we can clearly see that the occurrence of wars is *negatively* associated to imigrant and emigrant rates, but this may also reflect that wars occur more often in poor countries.

Fourth, with regards to demographic variables, the analyses show a positive correlation between the level of urbanization and immigration, but no clear association with emigrant rates. Urban population growth has a clear, linear relation with emigration level, This substantiates the earlier findings and the hypothesis that urban growth (internal migration) and international emigration might be substitutes. Middle-income, fast growing economies are usually able to retain a larger share of their population, while middle-income, stagnating economies offer little opportunity for the young and ambitious. The relation between urban population growth and immigration is ambiguous, which may also reflect that, besides natural increase, urban population growth is mainly fueled by domestic migration than immigration. The association between the share of youth and emigrant rates is not clear and is rather negative than positive, while correlations with immigrant rates seem rather U-shaped. This does not lend support to the hypothesis that a 'youth bulge' leads to more migration, although we will have to assess how this variable performs when controlling for the role of other social transformation indicators.

Finally, levels of immigration and emigration seem lower in societies with the lowest level of school enrolment, to reach their highest level in the second quintile group, after which they decrease. This suggests that the relation between educational variables and migration is different than the association with GDP per income. Education levels affect migration levels independently from these and other social transformation indicators, for instance because of their migration aspirations-increasing role. The strong and unambiguously negative relation between population size and migrant rates justifies its inclusion as a control variable in the regression analyses. However, the role of each of these social transformation indicators need to be measured in a multivariate setting to achieve an accurate

assessment of their association with migration patterns once we take simultaneous account of the role of all the other theoretically relevant indicators.

Social transformation and migration: regression results

Tables 3 and 4 present the results of the regression analyses which assess how social transformation indicators variables relate to emigrant and immigrant rates, respectively covering the 1990, 1995, 2000, 2005, and 2010 data. The model specifications in Table 3 confirm that there is a robust curvilinear relation between GDP per capita and emigrant rates. The results become insignificant after the inclusion of other variables, particularly infant mortality and access to electricity. This indicates that these variables are highly correlated, and measure the more latent variable of 'social transformation' (see Table A.2 in the Appendix for an overview of the correlations between all variables). For instance, access to electricity is significantly higher in countries with higher GDP and infant mortality tends to be lower in countries with a higher GDP. These 'multicollinearities' show the limitations of regression analyses to 'measure' social transformation.

Nevertheless, the analyses yield some other interesting findings, which warrant further scrutiny. First, emigration rates are higher in countries where a larger share of the population has access to electricity. This may point to the importance of technological advancements in providing people with access to information, networks and resources, which can subsequently boost emigration. Second, the occurrence of wars is positively correlated to emigration. However, when controlling for other factors, the incidence of wars has no significant effect on emigration. This suggests that the bivariate negative correlation between the incidence of wars and migration was indeed a spurious one. The level of political rights has no significant effect on emigrant levels.

Third, the analyses confirm the robustly negative effect of the share of urban population, as well as urban population growth on emigrant rates, further substantiating the hypothesis that domestic migration may be partly a substitute for international emigration in fast growing economies. In light of the importance that migration theorists have traditionally attributed to demographic variables, one of the most striking findings is that the relative size of the population aged 15-35 does not have a significant effect on emigrant rates, which confirms the bivariate analysis and the general idea that demographic factors are unlikely to have a *direct* relation to emigration. Fourth, the bivariate association between primary enrolment and emigration disappears in these regression models, although significance levels may suffer from the lower sample sizes. Finally, the negative effects of population size and, to some extent, geographical surface of countries are highly robust and consistent.

Table 3: Social transformation and emigrant rates: Regression analyses

	1	2	3	4	5	6	7
GDP cap. LN	-0.00	0.14***	0.04				0.04
	(0.00)	(0.03)	(0.04)				(0.04)
GDP cap. LN sq.		-0.01***	-0.00*				-0.00
		(0.00)	(0.00)				(0.00)
GDP growth (%)	0.00	0.00	0.00				0.00
	(0.00)	(0.00)	(0.00)				(0.00)
Infant mortality			-0.00***				-0.00
			(0.00)				(0.00)
Access to electr. (%)				0.00***			0.00***
				(0.00)			(0.00)
Political rights					0.00		0.00
					(0.00)		(0.00)
Wars					0.05***		0.01
					(0.02)		(0.01)
Urban pop. (%)						-0.00***	-0.00***
						(0.00)	(0.00)
Urban pop. growth (%)						-0.02***	-0.01***
						(0.00)	(0.00)
Young pop. (%)						0.00	-0.00
						(0.00)	(0.00)
Primary school net enrolment rate							-0.00
							(0.00)
Population total LN	-0.02***	-0.02***	-0.02***	-0.02***	-0.02**	-0.02***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Country size LN	-0.01***	-0.02***	-0.01**	-0.01**	-0.01	-0.01*	-0.00
	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
Year	0.00**	0.00**	0.00**	0.00**	0.00***	0.00*	0.00**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	-1.83**	-2.33**	-1.25*	-1.32	-1.77***	-0.52	-1.19
	(0.89)	(0.94)	(0.72)	(0.86)	(0.67)	(0.57)	(0.75)
Observations	882	882	843	978	785	933	523
R-squared	0.34	0.37	0.41	0.31	0.28	0.38	0.53

Notes. Based on the United Nations Global Migration Database (UNGMD) (UN DESA, 2015), years 1990-2010. *** p<0.01, ** p<0.05, * p<0.1. Standard errors are clustered at the country level. All independent variables signify five-year averages of the preceding years, except for population total and country size.

The analyses on emigration in Table 3 confirm the idea that the relation between social transformation indicators and emigration is complex and nonlinear in sometimes rather counterintuitive ways (particularly because of the absence of a negative relation between GDP and emigration, which would be the expected on the ground of push-pull models). However, the relations between our main social transformation indicators and levels of immigration reported in Table 4 are much more clear-cut and intuitive. First of all, there is a very clear and highly significant association between GDP per capita and immigrant rates. This relation also proves to be nonlinear, yet reverse from the one between GDP and emigrant levels. The poorest countries have, on average, slightly higher immigrant rates, after which the relation becomes positive. This confirms the idea that societies with high levels of aggregate wealth attract more migrants. Interestingly, GDP growth rates initially have a negative effect on immigrant rates. While it is difficult to explain, this might be related to the fact that countries with relatively high GDP growth rates are generally lower- and middle-income countries which are not yet very attractive for immigrants – although such countries may indeed be able to retain more migration within their borders. Most likely, immigrant rates will increase after GDP growth translates into significantly higher GDP per capita, but this might be a longer-term effect that we cannot capture with the data.

Access to electricity is significantly positively related to immigrant rates, meaning that countries in which a larger share of the population has access to electricity experience more immigration. As described earlier, electricity and economic indicators such as GDP per capita are highly correlated, and the effect of the electricity variable -- or technological advancements in general--seems to suggest that prosperous and highly 'developed' countries tend to attract more immigrants. As expected, the incidence of war affects immigrant rates negatively. Paradoxically, the level of political rights also affects immigrant levels negatively, which is more difficult to explain – although it may reflect the fact that authoritarian states (such as the Gulf states) have a higher ability to ignore popular demands for immigration restrictions as well as to exclude migrants from various post-entry rights (cf. de Haas 2010).

Table 4: Social transformation and immigration rates: Regression analyses

	1	2	3	4	5	6	7
GDP cap. LN	0.04***	-0.16***	-0.14***				-0.22***
	(0.01)	(0.04)	(0.05)				(0.05)
GDP cap. LN sq.		0.01***	0.01***				0.02***
		(0.00)	(0.00)				(0.00)
GDP growth (%)	-0.00***	-0.00***	-0.00***				-0.00
	(0.00)	(0.00)	(0.00)				(0.00)
Infant mortality			0.00				-0.00
			(0.00)				(0.00)
Access to electr. (%)				0.00***			0.00
				(0.00)			(0.00)
Political rights					-0.00		-0.01***
					(0.01)		(0.00)
Wars					-0.04***		-0.04*
					(0.02)		(0.02)
Urban pop. (%)						0.00***	0.00***
						(0.00)	(0.00)
Urban pop. growth (%)						0.02***	0.02***
						(0.00)	(0.00)
Young pop. (%)						0.00	0.01***
						(0.00)	(0.00)
Primary school net enrolment rate							-0.00***
							(0.00)
Population total LN	0.00	-0.00	-0.01	-0.01	-0.00	-0.00	-0.01*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)
Country size LN	-0.01**	-0.01**	-0.01	-0.02***	-0.01*	-0.02***	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
Year	-0.00***	-0.00***	-0.00	0.00	0.00***	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	2.52***	3.25***	1.63*	-0.49	-1.42***	-0.28	-0.19
	(0.72)	(0.75)	(0.87)	(0.54)	(0.85)	(0.53)	(0.94)
Observations	881	881	842	970	785	925	523
R-squared	0.37	0.44	0.38	0.30	0.12	0.46	0.62

Notes. Based on the United Nations Global Migration Database (UNGMD) (UN DESA, 2015), years 1990-2010. *** p<0.01, ** p<0.05, * p<0.1. Standard errors are clustered at the country level. All independent variables signify ten-year averages of the decade preceding 2000, except for population total.

The share of population in urban areas and urban population growth have a positive effect on immigrant levels, which lends support to the idea that dynamic and growing economies attract more immigrants, irrespective of absolute wealth levels as measured by GDP per capita levels. The share of 15-35 year olds has a significantly positive effect on immigration levels, which actually goes against push-pull concepts about 'population pressure', although inclusion of this variable does not add much explained variance. The analyses suggest a negative association between primary enrolment levels and immigrant rates, which is difficult to explain. In terms of the control variables, we can see that while population size had a strongly negative effect on emigrant rates, it has a generally non-significant effect on immigrant rates. This conforms to the idea that while populous countries tend to contain more migration within their borders (resulting in lower emigration rates), population size does not affect immigrant rates, suggesting that the relative number of immigrants is proportionally increasing with the size of the population. Such findings exemplify that quite different social mechanisms are at play in explaining immigration and emigration, and that these therefore need to be analysed simultaneously yet separately.

Exploring stages of social transformation

In order to further scrutinize Zelinsky's (1971) original hypotheses about the fundamentally non-linear linear relation between the 'vital transition' and mobility and migration patterns from a different analytical angle, we divided all country-year cases in three equally-sized fertility groups to study the relation between the variables within each group. Here, we use fertility as a proxy variable for the degree of modern-capitalist social transformation of countries, within which we assess associations between variables in an attempt to further understand the complex non-linear relationships we have explored so far. We ran the analyses separately within the three groups of countries with low-, medium- and high-fertility.

In general, the regression analyses reported in table 5 confirm the curvilinear association between GDP per capita and emigrant levels for the medium-level fertility group. However, we did not find similar, clear relations between GDP per capita in the low- and high-fertility groups. Interestingly, GDP per capita growth rate in the medium fertility group is negatively associated to emigration. This means that in countries with medium fertility levels, higher GDP growth is associated with lower emigration rates, which confirms the hypothesis that fast growing countries offer prospects for its citizens, which may therefore reduce emigration (Martin and Taylor, 1996). Another interesting finding is that access to electricity is associated with higher emigration in the low- and medium-fertility countries. This might lend support to the idea that access to resources, information and social networks, which are likely to be positively associated to access to electricity, increase aspirations and capabilities to migrate in low- and middle-income countries.

Countries with larger urban populations and higher growth of urban populations experience lower emigration rates. These findings confirm those presented in Table 3, but show that the relationships in high- and medium-fertility countries drive the results. Interestingly, our findings seem to indicate that internal migration may be a substitute for international migration. In low-fertility countries, the relationship between urbanization and emigration is insignificant, which may indicate that at a certain point, internal migration spills over into emigration in these countries. Again, the share of young people is not significantly associated to emigrant rates, which corroborates the consistent finding that there is no direct relation between this demographic factor and emigration.

In general, the analytical outcomes in Table 5 suggest that social transformation processes in high- and medium-fertility countries primarily drive the relationships between the sub dimensions of social transformation and emigration as they were presented in Table 3. According to Zelinsky (1971), high- and medium-fertility countries are in the early and middle phases of their demographic transition. Based on the aspirations-capabilities framework (de Haas 2014), we could argue that the rapid changes that such transitional societies are experiencing, such as increasing education, and revolutionary improvements in technology and infrastructure, simultaneously tend to boost people's aspirations and capabilities to emigrate. Yet, our findings show that these changes do not have a uniform impact on emigration, as the actual level and nature of emigration is affected by other factors, such as urbanization rates, GDP growth, and levels of authoritarianism. While we have robust evidence that social transformation and 'development' initially boost emigration, this impact seems to be mitigated (although not reversed) by the extent to which societies offer opportunity and prospect for their own populations

Table 5: Social transformation and emigration rates within fertility groups

	High-fertility		Medium-fertility		Low-fertility	
	1	2	3	4	5	6
GDP cap. LN	0.02	0.04	0.17**	-0.00	0.07	0.11
	(0.05)	(0.06)	(0.07)	(0.10)	(0.07)	(0.09)
GDP cap. LN sq.	-0.00	-0.00	-0.01***	0.00	-0.01	-0.01
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)
GDP growth (%)	0.00	0.00	-0.00	-0.00*	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Infant mortality		-0.00		0.00		0.00
		(0.00)		(0.00)		(0.00)
Access to electr. (%)		0.00**		0.00***		-0.00
		(0.00)		(0.00)		(0.00)
Political rights		-0.00		0.01		0.00
		(0.01)		(0.01)		(0.01)
Wars		0.01		0.00		-0.03
		(0.01)		(0.02)		(0.02)
Urban pop. (%)		-0.00***		-0.00***		-0.00
		(0.00)		(0.00)		(0.00)
Urban pop. growth (%)		-0.01*		-0.02**		0.00
		(0.00)		(0.01)		(0.01)
Young pop. (%)		-0.00		-0.00		-0.00
		(0.00)		(0.00)		(0.00)
Primary net enrolm. rate		-0.00		-0.00		-0.00
		(0.00)		(0.00)		(0.00)
Population total LN	-0.01	-0.02*	-0.03***	-0.03**	-0.03***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
Country size LN	-0.02***	-0.01	-0.01	-0.00	-0.01	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
Year	-0.00	0.00	0.00	-0.00	0.00**	0.00*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	0.43	-1.37	-1.44	1.73	-3.04**	-2.22
	(1.19)	(1.39)	(2.44)	(1.85)	(1.42)	(1.51)
Observations	311	178	285	168	271	177
R-squared	0.36	0.65	0.42	0.54	0.46	0.58

Notes. Based on the United Nations Global Migration Database (UNGMD) (UN DESA, 2015), years 1990-2010. *** p<0.01, ** p<0.05, * p<0.1. Standard errors are clustered at the country level. All independent variables signify five-year averages preceding 2010, except for population total and country size.

The relations between our social transformation indicators and immigration levels are more constant across the high-, medium- and low-fertility countries than is the case for emigration levels (see Table 6).

The U-shaped relationship between GDP and immigrant rates that was found in Table 4 is visible for countries with different fertility levels, which indicates that a higher GDP is initially associated with lower immigration, after which immigration increases as GDP increases. Interestingly, immigrant rates are lower in countries with higher GDP growth, which seems to makes sense, although this is only the case in high- and medium fertility countries.

Unsurprisingly, wars are negatively associated with immigration in high-fertility countries, but there is a positive significant effect of the occurrence of wars on immigration in low-fertility countries, which is more difficult to interpret. The share of the population in urban areas and urban population growth have a positive effect on immigrant levels across all fertility groups, which suggests that dynamic and growing economies attract more immigrants, partly irrespective of their stage of demographic transition. The share of young population has a significantly positive effect on immigration levels in countries with high-, and particularly medium-fertility levels. Finally, in countries with high- and low-fertility, primary school enrolment rates are negatively related to immigrant rates. This means that, for these countries, immigrant rates are lower when primary school enrolment rates are higher. These findings are difficult to explain within the scope of this analysis, and show the need for future investigation using better and more detailed data, for instance on inequality, which was not available at the time this analysis was conducted.

Table 6: Social transformation and immigration rates by fertility rate

	High-fertility		Medium-fertility		Low-fertility	
	1	2	3	4	5	6
GDP cap. LN	-0.24**	-0.27**	-0.48***	-0.42***	-0.27***	-0.12
	(0.11)	(0.13)	(0.13)	(0.12)	(0.09)	(0.09)
GDP cap. LN sq.	0.02**	0.02**	0.03***	0.03***	0.02***	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
GDP growth (%)	-0.00***	-0.00**	-0.00***	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Infant mortality		-0.00		-0.00		-0.00
		(0.00)		(0.00)		(0.00)
Access to electr. (%)		-0.00		-0.00		0.00
		(0.00)		(0.00)		(0.00)
Political rights		-0.00		-0.01**		0.00
		(0.00)		(0.01)		(0.01)
Wars		-0.07***		0.01		0.06*
		(0.02)		(0.03)		(0.03)
Urban pop. (%)		0.00***		0.00*		0.00*
		(0.00)		(0.00)		(0.00)
Urban pop. growth (%)		0.01***		0.01**		0.03**
		(0.00)		(0.01)		(0.01)
Young pop. (%)		0.01*		0.01***		0.00
		(0.00)		(0.00)		(0.00)
Primary net enrolm. rate		-0.00**		-0.00		-0.01***
		(0.00)		(0.00)		(0.00)
Population total LN	-0.00	0.00	0.01	-0.00	0.00	-0.02*
	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Country size LN	-0.00	-0.01**	-0.02**	-0.01	-0.02	0.01
	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Year	-0.00**	-0.00	-0.00	-0.00	-0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	3.22***	2.37	2.67	1.86	1.79	-1.09
	(0.94)	(1.62)	(1.92)	(2.92)	(1.80)	(2.21)
Observations	311	178	285	168	270	177
R-squared	0.41	0.57	0.58	0.78	0.40	0.60

Notes. Based on the United Nations Global Migration Database (UNGMD) (UN DESA, 2015), years 1990-2010. *** p<0.01, ** p<0.05, * p<0.1. Standard errors are clustered at the country level. All independent variables signify five-year averages preceding 2010, except for population total and country size.

Conclusion

This paper provided a theoretical and empirical exploration of the relation between development processes and migration patterns. While economic development in poor countries and areas is often seen as an effective way to reduce migration, recent migration scholarship has suggested that development can actually increase migration. However, evidence has remained partial so far because of theoretical and methodological limitations. This paper elaborates a broader 'social transformation' concept of development to explore how economic, technological, political, demographic, and cultural change shape patterns of immigration and emigration in complex — and sometimes counterintuitive -- ways.

Drawing on global migration data, this paper developed estimates of how different dimensions of social transformation correlate with levels of emigration and immigration between 1990 and 2010. Bivariate and multivariate analyses showed that there is an inverted-U shaped association between GDP and levels of emigration. This seems to confirm 'transition theories' as well as the idea that development initially tends to boost emigration because it increases people's capabilities and aspirations to move. Development can lead to more internal and international migration because of the economic dislocations caused by the shift from rural to urban economies, infrastructure development, income growth, increasing levels and specialization of education, and the concomitant growing structural complexity, segmentation and geographical reach of labor markets. The analysis confirmed that the relation between GDP and immigration levels is robustly positive, but that this relation is also slightly convex (as opposed to the concave relation between income and emigration levels). This implies that countries with the lowest GDP have, on average, higher immigrant levels than countries with slightly higher GDP levels.

While the incidence of warfare increases emigration, we did *not* find a significant effect of the level of political freedom on emigration levels. This counterintuitive finding may be explained by the fact that authoritarianism may increase people's migration aspirations, but may simultaneously decrease their emigration capacities (cf. de Haas 2010) as authoritarian regimes may put more obstacles in the way of the emigration of their own citizens (cf. de Haas and Vezzoli 2011), and these effects may indeed counterbalance each other. Perhaps surprisingly, authoritarianism has a positive effect on levels of immigration. This may challenge the popular idea that liberal immigration regimes are a typical feature of 'liberal democracies' (FitzGerald and Cook-Martín 2014, Natter *forthcoming*). This finding might also suggest that authoritarian governments – such as the Gulf states – can more easily ignore popular demands for less immigration (cf. de Haas 2010b), or can maintain popular support for high immigration by giving few rights to migrants. This might lend support to the highly contested numbers-versus-rights hypothesis, which argues that governments are involved in a trade-off between

numbers of people that they are allowed to let in and the level of rights they are willing to grant to migrants (Ruhs 2013). However, such an association cannot be elevated to a 'law', as many liberal democracies combine high levels of immigration with a high level of rights given to immigrants.

Another striking finding is the highly robust, strongly negative effect of levels of urbanization and rates of urban growth on emigration, suggesting that in fast-growing economies rural-to-urban migration can partly be a substitute for international migration. As urban growth is partly a derivative of rural-to-urban migration, this finding also highlights the importance of analyzing internal and international migration in their mutual interaction (cf. King and Skeldon 2010). The strongly negative effect of land surface and, particularly, population size and emigration lends robust support to the idea that large, populous countries are able to absorb mobility within their own borders. This shows that the distinction between internal and international migration is partly a statistical, administrative artifact, and that both forms of migration are driven by the same processes of development and social transformation. Last but not least, the absence of any significant association between the share of young people (18-35) on the total population on emigration, and its positive effect on immigration, defies push-pull models and Malthusian explanations of migration, and corroborates the idea that demographic factors only play an indirect role in affecting migration processes.

While this paper confirms the transition theories initially developed by Zelinsky (1971) and Skeldon (1997) it offers an alternative set of explanations while refuting the demographic-determinist overtones of original transition theories. Various theorists including Skeldon have criticized Zelinsky's transition model by pointing out that pre-industrial societies were highly mobile and migratory (Lucassen and Lucassen 2009; Moch 1992), and that transition theories may buy into the 'myth of the immobile peasant' (Skeldon 1997: 7-8) – the implicit assumption that pre-modern societies consisted of relatively isolated, stable, static, homogeneous peasant communities, in which migration was fairly exceptional – just as historical-structural and neoclassical migration theories tend to do (McDowell and de Haan 1997: 3; Skeldon 1997: 32-34). This reveals a problematic, 'sedentary' assumption shared by most established migration theories, in which migration somehow becomes an aberration, or a temporary response to (supposedly temporary) development disequilibria within neo-classical thinking or, as in historical-structural thinking, the antithesis of development. However, the analyses in the paper do lend support to the overall idea that the profound social transformation processes set in motion by modern-capitalist development do coincide with an – at least temporary – increase in migration, which is most powerfully illustrated by the large-scale transfer of population from urban to rural areas, both within as well as across borders.

However, there are good reasons to question the idea that development in poor and 'underdeveloped' societies tends to increase migration *across the board*, as various aspects of development may have

different, sometimes opposing, effects on mobility and migration. We already mentioned the role of urban growth, domestic employment creation and political authoritarianism in mitigating the generally emigration-stimulating effect of increases of income and education in low- and middle-income societies. A good example may be the ambiguous role of technology. While improvements in transport infrastructure, communication technology and overall global connectivity are usually seen as migration-boosting factors, technological progress can theoretically also remove the need to migrate – such as through commuting, 'teleworking', economic outsourcing, trade, and the availability of online university degrees – which make their net effect more ambiguous. Zelinsky (1971) already acknowledged this by hypothesizing that circulation (such as commuting) and communication technology can 'absorb' migration to a certain extent (Skeldon 2012). This may, for instance, explain – amongst other factors, such as migration restrictions – why the level of international migration as a share of the world population has *not* increased over the past five decades (Czaika and de Haas 2014a).

However, there are other, structural reasons why migration and mobility in high-income societies tend to remain rather high, at least higher than in largely agrarian societies. A particularly important factor seems to be the *growing structural complexity and segmentation of labour markets* as levels of education and occupational specialization increase. The geographical size of labour markets typically increases with the level of occupational specialization. Increasing labour market segmentation and levels of specialization therefore tend to create a need for people to move in order to acquire an education, as well as to match their skills and preferences to the availability of particular jobs and business opportunities, which tend to be concentrated in very specific cities and countries. In addition, dual labour market theory as pioneered by Piore (1979) helps us to understand how the demand for both highly-skilled workers and lower-skilled manual workers to carry out production tasks (e.g. assembly line work or garment manufacture) and to staff service enterprises (catering, cleaning, care, etc.) is structurally embedded in modern capitalist economies (cf. Ambrosini 2001; Castles, de Haas and Miller 2014; Ruhs and Anderson 2010).

The growing structural complexity of labour markets and concomitant rises in levels of occupational and education specialization help us to understand why high emigration and immigration remains a structural feature of developed countries and do not decrease as much as push-pull models and neo-classical theories seem to predict. However, from a theoretical perspective, this importance of educational and occupational specialization and labour market segmentation in driving migration is partly counteracted by decreasing wage gaps between origin and destination areas, the potential migration-substituting role of transport and communication technology in facilitating commuting (i.e., non-migratory mobility), teleworking, distance learning and the outsourcing of production (e.g. towards low-wage countries or 'export processing zones' such as the Mexican maquiladoras (cf.

Delgado-Wise and Covarrubias 2007; Jones 2005) or Morocco's 'free zones' (cf. Barthel and Planel 2010)).

In general, the paper highlights the usefulness of adopting a broader social transformation perspective when analysing the relations between development and migration processes. The analyses lend support to the hypothesis that the various dimensions of social transformation have different – and sometimes countervailing – effects on migration aspirations and capabilities, and that their interplay, therefore, often leads to complex and non-linear migration and mobility outcomes. Because of data limitations, we were not able to fully explore the role of factors such as education, culture and welfare in shaping migration processes. Yet existing theory and this analysis suggest that these are important migration drivers that need to be analysed in future macro- and micro-level empirical research. In general, the analyses highlight that quite different social mechanisms are at play in explaining immigration and emigration, and that these need to be analyzed simultaneously, yet separately. The empirical insights generated by this paper will hopefully also serve as inspiration for future research into the complex ways in which social transformation and development processes affect migration.

Appendix

Table A.1: Indicators and data sources

Indicator	Source	Description
Emigrant stock	Global Bilateral Migration Database	Emigrants (% of population)
Immigrant stock	Global Bilateral Migration Database	Immigrants (% of population)
GDP per capita	World Bank Indicators	GDP per capita (current US$)
GDP per capita growth	World Bank Indicators	GDP per capita growth (annual %)
Urban population	World Bank Indicators	Urban population (% of total)
Urban pop. growth	World Bank Indicators	Urban population growth (annual %)
Youth population (%)	World Bank Indicators	People aged 15-35 (% of population)
Wars (yes/no)	PRIO armed conflict database	At least 1,000 battle-related deaths
Political rights index	Freedom House	The degree of freedom in the electoral process, political pluralism and participation, and functioning of government
Infant mortality	World Bank Indicators	Mortality rate, infant (per 1,000 live births)
Primary net enrolment rate	World Bank Indicators	Adjusted net enrolment rate, primary (% of primary school age children)
Total population	World Bank Indicators	Total number of people in a country
Land area	World Bank Indicators	Total land area in squared kilometers
Fertility rate	World Bank Indicators	Average number of births per 1,000 women

Table A.2: Correlations between all variables: based on year 2010

Indicator	1	2	3	4	5	6	7	8	9	10	11	12
1. GDP p.c. (LN)	1.00											
2. GDP p.c. growth (%)	-0.17**	1.00										
3. Infant mortality	-0.77***	0.09	1.00									
4. Access to electr. (%)	0.75***	-0.07	-0.84***	1.00								
5. Young pop. (%)	-0.45***	0.06	0.29***	-0.23***	1.00							
6. Urban pop. (%)	0.70***	0.00	-0.61***	0.64***	-0.27***	1.00						
7. Urban pop. growth (%)	-0.32***	0.05	0.42***	-0.47***	0.52***	-0.18**	1.00					
8. Wars (1 = yes)	-0.19**	0.09	0.25***	-0.16**	0.03	-0.17**	0.09	1.00				
9. Pol. rights	0.49***	-0.14*	-0.47***	0.34***	-0.55***	0.37***	-0.42***	-0.2103***	1.00			
10. Prim. net enr. rate	0.54***	-0.03	-0.73***	0.63***	-0.20***	0.35***	-0.36***	-0.0231	-0.3803***	1.00		
11. Pop. (mln.) (LN)	-0.27***	0.29***	0.14*	-0.18**	0.02	-0.15**	0.21***	0.2215***	-0.2241***	-0.0302	1.00	
12. Land area (sq. km) (LN)	-0.30***	0.22***	0.22***	-0.24***	0.10	-0.17**	0.19**	0.1964***	-0.2369***	-0.1172	0.8634***	1.00

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