Migration transitions

a theoretical and empirical inquiry into the developmental drivers of international migration
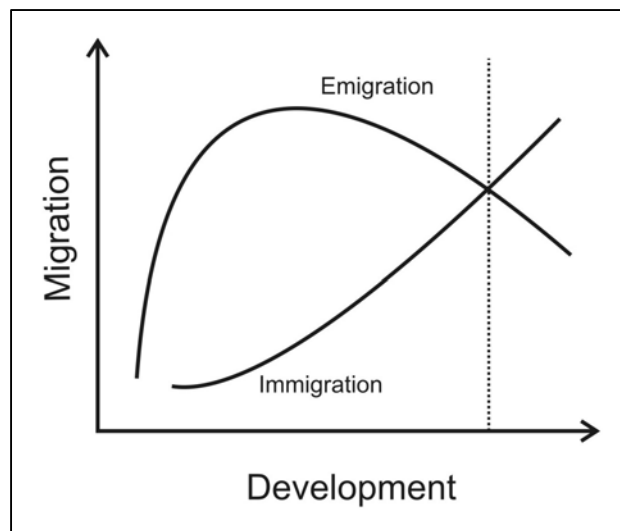
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Abstract

This paper aims to advance a conceptual framework on the developmental drivers of international migration processes and to provide an empirical test drawing on the global migrant origin database. Conventional ideas that development in origin countries will reduce international migration are ultimately based on "push-pull" and other equilibrium models which assume an inversely proportional, linear relationship between absolute levels and relative differences of wealth and migration. The paper identifies another group of theoretical concepts such as the 'mobility transition' and the 'migration hump', which implicitly question equilibrium assumptions by conceptualising migration as an intrinsic part of broader development processes. They postulate that (1) development leads to generally *increased* levels of migration and that (2) societies typically go through migration transitions characterised by an inverted U-shaped pattern of emigration.

The paper traces as yet unobserved conceptual parallels and differences between separately evolved 'transition' theories and their deeper intellectual roots in modernisation theory. It synthesises and amends prior theories based on criticism of their evolutionary character, sedentary bias, an inclination towards demographic determinism, their limited conceptualisation of structure and agency as well as the causal mechanisms underlying the correlations they describe. The paper applies Sen's capabilities approach to migration to create analytical room to analyse almost all forms of migration within a single perspective. Structure and agency are subsequently incorporated by conceptualising migration as a function of people's (1) capabilities, (2) aspirations and, on a macro-level, (3) opportunity rather than income differentials. From this, the paper argues that human development fuels migration mainly by (1) increasing capabilities and loosening constraints, (2) increasing aspirations, and (3) increasing occupational specialisation; and that human development is typically associated to a sequence of internal and international migration transitions.

Because of the contested nature of migration transition theory and the lack of adequate empirical test, this paper provides an empirical test. Drawing on the World Bank / University of Sussex global migrant origin database, it estimates the effect of various theoretically relevant development indicators on immigrant, emigrant, net immigrant and total migrant stocks. The results largely confirm transition theory. They suggest that higher levels of economic and human development are associated to higher overall levels of migration, and have the predicted U-curve effect on emigration and net migration and have an overall positive, although not entirely linear effect on immigration. Past fertility has no direct effect on emigrant stocks, indicating that demographic factors are unlikely to affect migration directly. Although several empirical puzzles remain, particularly with regards to the effect of education and political freedoms, the results strongly suggest that take-off development in the least developed countries is likely to lead to take-off emigration. More generally, this exemplifies the need to conceptualise migration as an integral part of broader development processes rather than a problem to be "solved".

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1. Introduction[1]

Conventional wisdom says that international migration is mainly driven by differences in economic wealth and overall levels of human development between poorer and richer societies. Subsequently, the reduction of such differences by boosting development in poor countries is often seen as the most effective way to reduce international migration. While the latter proposition is problematic in its own right because of its implicit *a priori* assumption that migration reduction is desirable, the first proposition is a truism rather than a theoretical statement. After all, few would disagree that most people migrate in the (generally realistic) expectation to find better livelihoods elsewhere and to improve their long-term wellbeing.

The central tenet of this paper is to show why this is more problematic to single out that basic proposition to build entire migration theories, which are subsequently unable to explain the intrinsically complex and often counter-intuitive nature of real-life migration patterns. The persistent popularity of "push-pull" models shows that this is still rather common practice. For instance, on the basis of push-pull models we would expect most migration to occur from the countries with the lowest to the highest levels of human and economic development. They predict a more or less linear, inversely proportional relationship between spatial development differentials between countries and volumes of migration. The idea that migration and development are *substitutes* also leads to the hypothesis that developed societies will have lower overall levels of migration than underdeveloped societies.

A quick glance at global migration patterns seems to defy both hypotheses. Most migrants do not move from the poorest to wealthiest countries. In addition, highly developed societies tend to experience not only high immigration, but also substantial emigration and internal movement. However, migration scholars have unfortunately been much more skilful in rejecting push-pull and neo-classical migration theory than in formulating alternative, empirically verifiable theoretical perspectives which could lead to an improved ability to explain the complexities of real-life migration partners. Although migration economists are almost routinely accused by other social scientists of reducing migration to rational cost-benefit calculations, economists should be praised for having at least attempted to advance migration theory (cf. Borjas 1989, Epstein 2008, Stark 1991), whereas scholars from other social sciences have largely ignored their intellectual call of duty. Migration studies is a case in point to illustrate that what has been dubbed as 'economic imperialism' (Lazear 2000) probably reflects the theoretical weakness of non-economic social sciences rather than any kind of intrinsic superiority of economics.

It is particularly the study of migration *processes* that has remained undertheorized. While there is a relative wealth of theoretical literature on migration-*related* topics such as immigrant integration, transnationalism and remittances, surprisingly few attempts have been made to theorise on the nature and drivers of *migration processes* themselves. Faced with the daunting complexity and diversity of real-world

migration, migration scholars have often argued no general, all-encompassing theory of migration will ever arise (Castles and Miller 2009, Salt 1987, Van Amersfoort 1998). Unfortunately, this apparently sensible observation has coincided with a strong tendency to abandon attempts at theorising migration altogether.

Only few studies have aimed at theory building and refinement through systematic hypotheses testing. Most empirical work is descriptive and strongly empiricist, and if theory is used at all, its use has generally been haphazard and post-hoc. This is unsatisfactory. As Bakewell (2008) recently argued, we tend to choose the theory that fits the context, but we can only know what fits once we have done the empirical research and if we do put forward any predictions, when it fails to work it can be blamed on the wider context. So, the theory remains untarnished by failure and we develop another theory to cope with the next dataset. Arango (2000) succinctly summarised the poor state-of-the-art of migration theory formation:

> Rather than fulfilling the function of guiding empirical research and providing testable hypotheses that can be contrasted with the facts, existing migration theories are mainly useful for providing explanations *ex-post*. The starting point is usually one or more common-sense, empirical observations, which are then dresses in more or less formal and abstract terms with the fitting explanations, drawn at times from the general reservoir of the social sciences. In so doing, theories of conceptual frameworks play the function of upgrading the formal status of empirical observations (Arango 2000: 294).

This state-of-the-art is unfortunate, because notwithstanding the complexity, diversity and numerous exceptions to the rule, there are strong regularities in patterns and trends of global migration patterns. Perhaps deterred by a post-modern taboo on 'grand' theory, and with a some notable exceptions (cf. Faist 2000, Hatton and Williamson 1998, Skeldon 1997), there has been an unfortunate lack of systematic attempts to discern regularities underlying the complexity of migration processes through the identification of (spatial) patterns and (inter-temporal) trends.

Migration is a complex process and it is therefore unrealistic that a once-size-fits-all theory will arise which can explain and predict *all* migration events. But this does not mean that migration is a chaotic or totally unpredictable process in which no meaningful regularities can be identified. More generally, all social phenomena are intrinsically complex, and, hence, all-encompassingness is not where modern social theory has been or should be about. Theories trying to explain all forms of migration at all places at all times are likely to revert to truisms – such as 'most people move out of desire to improve their wellbeing' – that are so universal that they become quite meaningless, that do not contribute to a better understanding of real-world migration processes.

To argue that an all-encompassing and all-explaining meta-theory on migration will never arise, as migration scholars have done wearingly, is therefore setting up a deceptive straw man, because it creates the illusion of having refuted a misinterpreted proposition of where social theory formation is about. Social theory formation is precisely about striking a delicate balance between reduction and explanation, between stating the obvious and relativist exceptionalism, between truism and relativism, or between the desire to acknowledge the intricate complexities and the

richness of social life and the scientific need to discern underlying regularities, patterns and trends.

It goes without saying that no general theory explaining all forms of migration at all times will ever arise. In fact, a good migration theory will never be able to explain all single migration events. After all, theory formation is exactly about *generalising* to an appropriate level, and generalising is a reductionist process by definition, where the exception may well prove the rule. To further illustrate this, it is useful to make an analytical distinction between the *unique* and the *singular*. The unique can be defined as something which is peculiar, because there is no other instance of it, but whose peculiarity can be accounted for by a particular combination of general processes embodying structure and individual responses embodying agency. The singular is something that is entirely remarkable, because no general statements can be made in reference to it (Johnston 1984). Within this perspective, the fact that single migration events are unique does not mean that no patterns can be discerned and generalizations can be made about an aggregate ('cross-section') or evolution ('time series') of migration events of a spatio-temporal combination thereof ('panel'). The crucial issue for constructive successful migration theory formation on migration (as for almost any social phenomenon) is to find the right, 'medium' level of generalisation, that is able to deal with the complexity and diversity of specific aspects of real-world migration processes without going down a sterile path of relativism and exceptionalism (Skeldon 1997, Tilly 1984).

Although it would thus be naïve to assume that an all-encompassing and all-explaining meta-theory on migration will ever arise, there is undoubtedly more room for theorizing on processes and how they connect to broader processes of change. Attempts at theorisation have remained rather scattered across various disciplines, and no coherent body of theory has emerged yet. Although there have been some excellent *reviews* of migration theories (notably Massey et al. 1993), to our best knowledge no attempts have been made to synthesise these insights from different theories into more coherent conceptual frameworks.

This paper attempts to fill part of this gap by showing how theory can help us to better understand the fundamentally non-linear interrelationship between migration and broader development processes. By synthesising and amending earlier theoretical work, which has remained largely isolated and scattered across the various social science disciplines, and by introducing the capabilities approach to human development to migration theory, this paper advances a spatio-temporal and dynamic theoretical framework on 'migration transitions' which can explain why (1) human and economic development is generally associated to *higher* overall levels of migration and mobility and why (2) relation between levels of development and levels of migration is fundamentally *non-linear* and why societies typically go through migration transitions – a rather universal sequence of macro-level migration events – as they develop.

The fundamental assumption of this paper is that in order to advance our understanding of migration processes, it is essential to conceptualise migration as an intrinsic part of broader social[2] change or 'development' rather than a more or less

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[2] 'Social' here includes all aspects of human life, including economic dimensions.

exogenous factor affecting or affected by such processes. It is only possible to reach a more fundamental understanding of migration processes if we connect them to broader processes of social and economic transformation –usually embodied in the concept of 'development' – of which they are part. This also creates intellectual room for establish a firmer connection between the rather empirically oriented and descriptive field of migration studies and more general social and development theory. By doing so, the paper hopes to provide reasons to challenge postmodernist ideas that migration scholars should give up the ambition to formulate grand migration theories.

The first aim of this paper is therefore to review, synthesise and amend earlier theoretical work to advance a spatio-temporal theory on migration transitions, which puts forward a set of hypotheses on the fundamentally non-linear links between broader development processes and relative levels of migration. This conceptual framework will be made more comprehensive, realistic and agentic inclusive by incorporating a broader, capabilities-based development concept to the study of migration. The second aim of this paper is to provide a first empirical test of migration transition by estimating the effect of various theoretically derived indicators of country-level human and economic development on immigration and emigration by drawing on the global migrant origin database developed by the World Bank / University of Sussex.

The first section will review the strengths and weaknesses of conventional migration theories which are based on the familiar push-pull, equilibrium assumption introduced above. The second section will review several 'spatio-temporal' theories which have arisen from different disciplines which are generally better able to discern patterns and trends in real-life migration processes, but are less strong at theorizing the causal mechanisms underlying these spatio-temporal regularities. The third section incorporates this critique by synthesizing and amending these migration theories and by conceptualizing migration at the micro-level as a function of aspirations and capabilities. This will lead the formulation of a set of hypotheses on the interrelations between levels of economic development and the occurrence and relative importance of particular forms of migration. The fourth and the fifth section will provide a first empirical test based on newly available global migration data. The conclusion will summarise the findings and identify useful lines of future empirical inquiry which will hopefully increase our understanding about the drivers of migration processes.

2. Equilibrium theories: 'push-pull' and neoclassical perspectives

Common views that development and migration are substitutes are ultimately based on place utility theories which assume an inversely proportional, linear relationship between income and more general opportunity differentials on the one hand and migration rates on the other. This perspective, in which people are expected to move from low income to high income areas, and from densely to sparsely populated areas and the underlying notion that socio-economic forces such as migration tend towards a spatial-economic equilibrium, has remained dominant in migration studies since the

nineteenth century geographer Ravenstein (1885, 1889) formulated his laws of migration. The equilibrium notion forms the cornerstone assumption of so-called 'push-pull' models which have gained enormous popularity in the migration research and still underlie migration policy making. Although 'push-pull' models may appear outdated to many migration scholars, they still dominate much commonsensical and non-specialist academic thinking about migration and are ubiquitous in secondary and university education. Lee (1966), who revised Ravenstein's nineteenth century migration laws on migration, stated that migration decisions are determined by 'plus' and 'minus' factors in areas of origin and destination; intervening obstacles (such as distance, physical barriers, immigration laws, and so on); and personal factors. Although Lee did apparently not invent or use the term himself[3], his analytical framework is commonly referred to as the 'push-pull' model (Passaris 1989).

The push-pull literature usually identifies economic, environmental, demographic, and economic factors which are assumed to push migrants out of places and countries of origin and luring them into destination places and countries. For several reasons, the analytical value of push-pull model is limited. First, it is a static model which does not specify how migration reciprocally affects the initial structural conditions under which migration took place. Second, it is an essentially descriptive, post-hoc device to explain migration, in which various factors assumed to play some role in migration processes and decisions at various levels of aggregation tend to be lumped together in a relative arbitrary manner. Third, push and pull factors are generally mirrored in each other. For instance, while high wages in the destination are often assumed to be important pull factors, low wages are assumed to be a dominant push factor. It is therefore rather arbitrary and open to subjective judgment to establish whether the push or the pull is dominant. In fact, the differences in the relative scarcity of labour can be aptly expressed in one single variable, such as wage differentials. Push and pull factors often turn out to be two sides of the same coin. Together they provide the perception of difference between 'here' and 'there', and therefore have limited heuristic value (McDowell and de Haan 1997, Wittmann 1975) (de Haas 2007). In a classical ecological fallacy, push-pull models also have the tendency to single out macro-level variables (e.g., population growth, environmental degradation) as causal 'migration determinants' and to confound them with individual migration motives.

Although there is no room here to further elaborate the critique on push-pull models, it is crucial to observe that they are deeply rooted in functionalist social theory, according to which social processes, including migration, are expected to tend towards equilibrium. The logical inference is that most migration is expected to occur between the poorest and wealthiest places and countries, although distance is expected to play an intervening role.[4] While more sophisticated, neo-classical migration theory is also based on functionalist equilibrium assumptions. Neo-classical migration theory was pioneered by Todaro (1969) and Harris and Todaro (1970) to explain rural-urban

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[3] The push-pull polarity has commonly, but undeservedly, been attributed to Lee (1966). For instance, Petersen (1958) already used the push-pull terminology, without however specifying its origins, which probably go back to the early twentieth century.
[4] Newton's laws of gravity states that two bodies attract each another with a force that is proportional to the product of their masses and inversely proportional to the square of the distance between them. This equation is the cornerstone underlying gravity models of migration as they are applies to migration.

migration in developing countries but has later also been applied to international migration (cf. Borjas 1989, Todaro and Maruszko 1987).

Neo-classical economic theory sees migration primarily as a function of geographical differences in the relatively scarcity (determined by supply and demand) of labour as opposed to capital. The resulting wage differentials cause workers to move from low-wage, labour-surplus regions to high-wage, labour-scarce regions. Sophistications of this model incorporate costs and risks of migration, and interpreted migration as an investment in human capital in order to explain migration selectivity (Bauer and Zimmermann 1998, Sjaastad 1962). Within this perspective, individual migration decisions are made by rational actors who are guided by comparing present discounted value of lifetime earnings in alternative geographic locations, with migration occurring when there is a good chance of recouping human capital investments. This points to the importance of looking at labour markets structure and skill and income distributions in both sending and receiving societies in explaining the selectivity of migration.

Neo-classical theory is dynamic in the sense that it analyses and predicts how migration affects the initial general conditions under which it occurred, although this analysis is narrowly focused on wage differentials. Neo-classical theory views migration as a process contributing to a more optimal allocation of production factors – with free migration leading to more efficient aggregate outcomes. *Ceteris paribus*, migration will cause labour to become less scarce at the destination and scarcer at the sending end. Capital is expected to move in the opposite direction. In a perfectly neo-classical world, this process of 'factor price equalization' (also known as the Heckscher-Ohlin theorem) will result in growing convergence between wages at the sending and receiving end (Harris and Todaro 1970, Lewis 1954, Ranis and Fei 1961, Schiff 1994, Todaro and Maruszko 1987). In the long run, factor price equalization will lead to wage convergence, and migration will cease once wage differentials equal the (social, economic and psychological) costs of migration.

Thus, the assumption that the relation between migration is primarily a linear and inversely proportional function of wage and other opportunity differentials and that, hence, migration will large cease or at least significantly decrease under equilibrium conditions is the intellectual cornerstone of both push-pull and neo-classical models. This also underpins the widespread assumption that boosting development in poor countries is the most effective strategy to reduce migration. However, as Stark (1991) already observed, real-world migration does typically not resemble the flow of water, and this poses a formidable challenge to dominant gravity - equilibrium models.

Although empirical tests routinely confirm that opportunity differentials opportunity differentials (and distance) are correlated to migration, this is more or less stating the obvious. The point is that gravity-based theories cannot explain real-world migration patterns, because they see migration as the aggregate outcome of migration decisions made by individuals having full access to information and operating under perfect market conditions. This reveals a very limited notion of structure and agency. As far as they attribute *any* role to structure, neo-classical and push-pull theories see it as the simple aggregate structure as the outcome or aggregate of individual behaviours instead of a *pattern* of social relations which tend to severely constrain the individuals' action. However, these theories also fail to incorporate any meaningful

notion agency – the ability of social actors to make independent choices and to impose those on the world (cf. Emirbayer and Mische 1998) – as they reduce individuals to atoms passively reacting to macro-level push and pull forces. Hence, their inability to explain transformations (i.e,. fundamental linear shifts beyond incremental, linear change (cf. Castles 2008)) in established migration patterns.

Migration is a strongly *patterned* process because people's individual choices are constrained by structural factors such as social stratification, market access, political structure and cultural repertoires affecting preferences. This exemplifies that any viable migration theory needs to incorporate meaningful notions of agency and structure. The new economics of labour migration (NELM) pioneered by Stark (1991) provides a prime example how such effort can contribute to superior theory formation. NELM, which was a critical response to conventional neo-classical migration theory, argued that much migration taken place in developing countries can only be realistically understood if migration is seen as a household rather than individual decision aimed at income *diversification* rather than maximisation in a conscious attempt to *overcome* (=agency) failing (insurance, credit) markets and socio-economic inequalities (=structure) prevailing in many developing countries through remitting money (Stark 1985, Stark and Levhari 1982, Taylor 1999).

Despite its many virtues, NELM is a micro-level theory applied to particular forms of migration which is not able and does also not aim to explain long-term global migration patterns and trends and how these are connected to broader transformation processes embodied in the term 'development'. In the past decades, some migration scholars have proposed theoretical frameworks which attempt to establish such connections, and these will be explored in the following section.

3. Spatio-temporal 'transition' migration theories

Over the past four decades, several migration scholars have proposed a number of theoretical frameworks which attempt to grasp the complex relation between migration and broader development processes through space and/or over time. Notwithstanding their differences, these 'spatio-temporal' migration theories have in common that they conceptualise migration as a constituent part of broader development processes associated with the parallel processes of modernisation, capitalist economic development, urbanisation and parallel demographic transitions. In general, these theories argue that such development processes tend to coincide with generally *increased* levels of migration and overall mobility, and that as they develop societies typically go through migration transitions, characterised by a pattern of initially increasing and subsequently decreasing emigration and their gradual transformation from net emigration net immigration countries. This section will review these theories and attempt to synthesise them by analysing their conceptual links and differences and deriving hypotheses on the correlation between economic and demographic transition and mobility and migration patterns.

3.1. The temporal dimension: mobility transitions

In his seminal article, Zelinsky's (1971) linked what he coined as the 'vital transition' to the 'mobility transition'. He proposed a *spatio-temporal* model because it integrated demographic transition theory with the notion of the spatial diffusion of innovations. He argued that it was surprising how little effort had been made to treat the demographic transition as a process diffusing outward through space and time. He also went beyond the usual focus on demographic factors in migration theory by advancing the concept of the *vital transition*, by means of which he broadened the concept of demographic transition by causally linking it to mode general processes of modernization and economic growth. In many respects, this *vital transition* embodies what is usually referred to as 'development' or 'modernization'. Zelinsky argued that through scientific progress, 'modern man' had extended control over his own physiology in the form of death and birth control, resulting in the demographic transition. The core of his argument was that

> there are definite, patterned regularities in the growth of personal mobility through space-time during recent history, and these regularities comprise an essential component of the modernization trend (Zelinsky 1971: 220-222).

He distinguished five phases of the vital transition: (a) The pre-modern traditional society (high fertility and mortality, little natural increase if any); (b) The early transitional society (rapid decline in mortality, major population growth); (c) The late transitional society (major decline in fertility, significant but decelerating natural increase); (d) The advanced society (fertility and mortality stabilised at low levels, slight population increase if any); and (e) A future "superadvanced" society (continuing low fertility and mortality). The core of Zelinsky's argument was that each of these phases was linked to distinct forms of mobility, in a process that Zelinsky coined as the mobility transition.

Zelinsky (1971:230-1) argued that there has not only been a *general* and spectacular expansion of individual mobility in modernizing societies, but also that the specific character of migration processes tends to change over the course of this vital transition. The left hand side of table 1 depicts these different stages of the vital and mobility transitions and link them to the stages of the classical demographic transition model. While pre-modern societies are mainly characterised mainly by limited circular migration, all forms of internal and international mobility increase in early transitional societies. In late transitional societies, international migration decreases rapidly, rural-to-urban internal migration slackens, but remains at high levels and circular movements further increase and grow in structural complexity. At the end of this phase, the *rural exodus* (large-scale rural-to-urban migration) significantly decreases, when the number of those employed in agricultural production approaches the minimum level associated with optimum economic return.

Zelinsky hypothesized that in advanced societies, rural-to-urban migration continues though at a more reduced scale, while residential mobility, urban-to-urban migration and circular movements increase significantly. Moreover, in this phase countries transform themselves from being net labour-exporting to labour-importing countries, as there is a significant net immigration of unskilled and semi-skilled workers from developing countries next to limited emigration and circulation of skilled and

professional workers. In 'superadvanced' societies, Zelinsky predicted that most internal migration will be urban-urban, residential and circular mobility decreases due to better communication technology, while immigration of unskilled labour will continue. The innovation of Zelinsky's approach is that tried to understand the occurrence of various forms of mobility and migration within a broader spatio-temporal development perspective. It is also a diffusionist model, which assumes that the migration experience tends to spread progressively from relatively developed zones to less developed zones.

3.2. The spatial dimension: shifting migration frontiers

The geographer Skeldon (1990, 1997) has further elaborated and amended Zelinsky's seminal work. By interpreting the complex and apparently chaotic real-world migration patterns through the lens of Zelinsky's original stages model, he argued that it is possible to discern certain underlying trends and regularities in migration processes. Skeldon (1997:52) argued that

> there is a relationship between the level of economic development, state formation and the patterns of population mobility. Very generally, we can say that where these are high, an integrated migration system exists consisting of global and local movements, whereas where they are low the migration systems are not integrated and mainly local.

While the argument that development is generally associated to higher levels of mobility is similar to Zelinsky's original hypothesis, Skeldon introduced the vital role of state formation in forging inter-spatial social, economic and political connections which tend to boost migration. This introduces *structure* into a hitherto rather sterile focus on demographic and economic transitions. After all, it is difficult to understand current global migration patterns without taking into account the process of nation state formation in Europe and elsewhere, in which processes of colonisation and decolonisation played a preponderant role in forging cultural and linguistic links as well as structural interdependencies and inequalities which have strongly encouraged migration along particular, highly specialised spatial pathways. The Francophone / Anglophone divide of African migration to Europe is a case in point.

Inspired by Zelinsky's original categorisation, Skeldon (1997) proposed a global regionalization of migratory movements, in which he distinguished five 'development tiers': the (1) old and (2) new core countries (e.g., Western Europe, North America, Japan) characterized by immigration and internal decentralization; (3) the 'expanding core' (e.g., eastern China, southern Africa, eastern Europe), where we find both immigration and emigration and internal centralization (i.e., urbanization and rural-to-urban migration); (4) the 'labour frontier' (e.g., Morocco, Egypt, Turkey, Mexico, the Philippines, and, until recently, Spain and Italy), which are dominated by emigration and internal centralization; and the (5) 'resource niche' (e.g., many sub-Saharan countries, parts of central Asia and Middle America), with variable, often weaker forms of migration.

Table 1. The conceptual links between temporal and spatial migration models

THE TEMPORAL DIMENSION DEMOGRAPHIC AND VITAL TRANSITONS			THE SPATIAL DIMENSION REGIONALISATION	
Stages of the demographic transition model	*Vital transition (Zelinsky)*	*Mobility transition (Zelinsky)*	*World systems theory*	*Development tiers (Skeldon)*
High stationary (high fertility and mortality, roughly in balance, little natural increase if any.	**Pre-modern traditional society** (pre-industrial)	Mobility mainly limited to circular migration	**External areas** (e.g., many sub-Saharan African countries, parts of central Asia and Latin America)	**Resource niche**, with variable, often weaker forms of migration.
Early expanding (Rapid decline in mortality due to improvements in food supply, sanitation and health care and education; but no corresponding fall in birth rates leading to major population growth)	**Early transitional society** (urbanising / industrialising developing country)	All forms of mobility (circular, rural colonisation frontiers, internal rural-urban, international) increase	**Periphery** (e.g., Morocco, Egypt, Mexico)	**Labour frontier**, dominated by emigration and internal centralisation
Late expanding (major decline in fertility due to access to contraception, economic growth, wage increases, urbanization, increase in the status and education of women, increases in investment in childrens' education, value change and other social changes → Population growth begins to level off, significant but decelerating natural increase	**Late transitional society** (mature industrial country)	International migration decreases, rural-to-urban internal migration stagnates but remains at high levels, circular movements increase and grow in structural complexity, towards the end of phase the 'rural exodus' decreases	**Semi-periphery** (e.g., eastern China, South-Africa, eastern Europe, Turkey)	**Expanding core**, co-existence of immigration and emigration and internal centralisation (i.e., urbanisation and rural-to-urban migration);
Low stationary (fertility and mortality stabilised at low levels, slight population increase if any)	**Advanced society** (post-industrial society)	Residential mobility, urban-to-urban and circular migration increase, transformation from emigration to net immigration countries immigration of unskilled and semi-skilled workers .	**Core areas** (e.g., Western Europe, North America, Japan, NICs)	**Old and new core countries** characterised by immigration and internal decentralisation;
Declining? (continuing low fertility and mortality; birth rates may drop below replacement level leading to shrinking population)	A future **"superadvanced" society**	Most internal migration is urban-urban and residential, immigration of labourers continues.	**? (Core)**	**Old/Declining core (?)**

Table 1 shows the strong conceptual links between the spatio-temporal migration models elaborated by Zelinsky and Skeldon, and how these models are rooted in more general transition, modernization and world systems theory. Skeldon's *spatial* development tiers correspond rather neatly with Zelinsky's *intertemporal* stages of the mobility transition. Skeldon's regionalisation points to the functional, migratory relations between geographically adjacent development tiers. For instance, the predominant origin countries of labour migrants in core countries (e.g., US and EU) tend not to the very poor, relatively isolated 'resource niche' countries – as neoclassical or push-pull models would predict – but rather the moderately developed 'labour frontier' countries (e.g., Mexico and Morocco). The rapid economic and demographic transitions such are countries tend to experience are typically lead to a surplus of young, unemployed or underemployed young adults who are prone to migrate. In addition, such countries are better connected to core countries in terms of infrastructure and flows of information, capital, goods and tourists. The combination of functional economic and demographic complementarities and high levels of connectivity are likely to lead to the formation of migration systems.

The Nigerian geographer Mabogunje (1970), the founder of migration systems theory, already theorised how the migration processes *itself* tends to strengthen these initial structural interdependencies through various feedback mechanisms. He defined a migration system as a set of places linked by flows and counterflows of people, goods, services, and information, which tend to facilitate further exchange, including migration, between the places. While Mabogunje focused his analysis on rural-urban migration within Africa, *international* migration systems can be seen as sets of countries—or rather regions or places within different countries—that exchange relatively large numbers of migrants, and in which the movement of people is functionally connected to and reinforced by concomitant flows of goods, capital (remittances), ideas, and information through migrant networks (cf. Massey et al. 1998). This results in a rather neat geographical structuring and clustering of migration flows, which is far from a random state (Mabogunje 1970).

Cumulative causation theory as originally proposed by Myrdal (1957) and further elaborated by Massey (1990) hypotheses that migration increases spatial inequalities in development levels because out-migration of talented populations and internal and external economies of scale sustain the vicious cycle of increased poverty and underdevelopment in the periphery and the accelerated growth of the core region. Through these various feedback mechanisms, migration between particular places is known to gain its own momentum once a critical number of migrants have settled at the destination.

At first sight, Skeldon's regionalisation seems a migration-specific application of centre-periphery models in general and world system theory in particular, which are all rooted in structuralist social and neo-Marxist development theory which counter criticize the functionalist paradigm according to which social and economic forces tend towards equilibrium. Wallerstein's (1974, 1980) world-systems theory analyses the structural, historically grown interdependencies between developed and less developed regions. Wallerstein distinguished between the capitalist 'core' nations, followed by the 'semi-peripheral', 'peripheral', and isolated nations in the 'external' area, which were not (yet) included in the capitalist system. In this perspective, the

incorporation of the peripheries through the process of global capitalist expansion is associated with increasing migration to core countries. According to this theoretical framework, growth of the core is a function of the further marginalisation and impoverishment and structural dependency of the peripheral areas. However, such centre-periphery theories has been challenged, particularly under the influence of the economic rise of several countries despite (or rather thanks to) their firm connection to global capitalism (Sen 1999). For several southern European and Asian countries, the incorporation into global capitalism and, possibly, high labor migration have apparently worked out well, despite gloomy predictions some decades ago (Almeida 1973, Papademetriou 1985).

This also points to the main difference between world systems theory and transition theories as proposed by Zelinsky and Skeldon. While it is inherent to world systems theory that peripheral states can never reach core status because they are structurally disadvantaged and because the wealth of the core countries is a function of the poverty of the exploited periphery, migration transition theories are more akin to Rostowian modernization theory in assuming that all societies can potentially evolve towards high development levels. Ultimately, transition theories also views migration as the consequences of spatial imbalances in the supply and demand for labour, which reveals a relatively underdeveloped underpinning of the argument that more development is associated to higher *overall* migration and mobility.

3.3. The migration hump

There is a rather unfortunate tendency in the literature to use the concept of migration transitions interchangeably with the concept of the migration hump. However, it is important to observe that, in its original formation by Martin (1993) and Martin and Taylor (1996), the migration hump theory refers to more *short-term* increases in migration in the wake of trade reforms and policy-induced contextual changes, whereas the migration transition is a concept which rather applies for *long-term* changes in migration trends in response to more structural development trends. It seems essential to maintain this distinction between the long and short term in migration trends.

In the context of expectations in the 1990s that trade liberalisation (through NAFTA) will reduce migration (mainly from Mexico) to the US, Martin (1993) and Martin and Taylor (1996), put forward the hypothesis of the 'migration hump'. Martin and Taylor (1996) put forward several compelling arguments why trade and migration can be complements in the short to medium run beyond the argument that economic growth enables more people to migrate. Higher productivity and efficiency, technological advantages, and economics of scale in the North may harm the competitiveness of the South even in the production of labour-intensive goods (cf. Krugman 1995).

Under such circumstances, trade liberalisation can paradoxically lead to concentrations of highly productive economic activities in the North along with more immigration of labourers to support them. Furthermore, adjustment to new market and policy environments is never instantaneous. While the negative impacts of trade

liberalisation (on protected sectors) are often immediate, the expansion of production in sectors potentially favoured by trade reforms always takes time. There may be a long lag between investment and the creation of new jobs, which seems a recipe for a migration hump in the wake of trade reforms (Martin and Taylor 1996: 52). Besides trade reforms, migration hump theory can also be applied to (temporary) dislocations created by other structural changes in resource flows, such as through foreign direct investment (FDI) and aid.

4. Review of prior transition frameworks

Zelinsky's and Skeldon's transition models yield valuable insights on the structured regularities in such patterns, and are more realistic than functionalist (neo-classical and push-pull) migration models, the drawback of these models is that they are largely *post-hoc* generalisations of empirically observed regularities between demographic and economic transitions on the one hand and mobility patterns on the other. Although they hypothesise that demographic and concomitant economic transformations or transitions are *associated* to changing forms of population mobility, they are not very explicit about the underlying *causal* mechanisms which explain why certain types and levels of development tend to lead to specific levels and forms of mobility. They do not provide a coherent explanation for the observed regularities between development processes on the one hand and migration processes on the other. Only migration hump theory is more explicit about some of the economic mechanisms explaining this relationship between development and migration, but this is theory is largely limited to short to medium term migration humps in the wake of trade reforms, and does not address the structural long-term relationships between these theories.

The frequent lack of distinction between correlation and causality is evident in the importance many studies attribute to demographic factors in explaining migration, which tends to feed into discourses with strong Malthusian overtones about high population growth or ageing 'causing' emigration and immigration, respectively. While there is often a high correlation between demographic and migration transitions, from a theoretical standpoint it is rather unlikely that these two factors are causally linked. As such, high growth of young adult populations does not *lead* to more migration. People do not migrate "because of" population growth. This is only likely to happen if this goes along with sluggish economic growth and high unemployment. If high population growth coincides with high economic growth, such as in most oil-rich Gulf states, most people will not emigrate. The other way around, ageing, stagnant and even declining populations may experience high emigration under unfavourable economic or political conditions, which is the case in several East European countries. This exemplifies the dangers of demographic determinism. At best, the link between demographic change and migration is probabilistic and indirect.

Another weakness of transition models is their teleological character. This is the Hegelian idea that history has a sense of purpose and there is a single, unilinear path towards development and progress. Like conventional neo-classical migration theory, transition models are profoundly rooted in modernisation theory, which postulates that

economic development unfolds in a distinct sequence of successive stages (Rostow 1960). They see rural-urban migration as an constituent part of the industrialisation and modernisation processes, which is conditional on the internal and international transfer of surplus labour from the traditional (rural) sector to the urban industrial economy (Lewis 1954, Todaro 1969). Also neo-Marxist and centre-periphery interpretations of migration are teleological in character since they also conceptualise migration as in integral and therefore inevitable part of modernisation processes. They are only diametrically opposed neo-classical and modernization theory in terms of predicted outcomes, as they hypothesize that peripheral countries will not 'catch up' but will instead further impoverish due to capitalist penetration and exploitation and will, hence, remain impoverished reservoirs of cheap migrant labour.

These evolutionary assumptions have been challenged by evidence that the sequence of mobility change proposed by Zelinsky on the basis of the European experience does necessarily apply to contemporary developing countries (Skeldon 1992), which do not necessarily follow the Rostowian path of modernization. Also the demographic transition and associated mortality and fertility declines have shown considerable diversity in different historical and geographical settings (Hirschman 1994).

On the other hand, such differences rather seem to point at gradual rather than *fundamental* differences. Although the historical conditions under which migration within and from the developing world occurs are different from those of the nineteenth and early twentieth century, and might in that sense be unique, there seems to be little that is *singular* about these processes and they way they are connected to broader social, economic, cultural demographic and technological transformations. For instance, developing countries now tend to experience much faster demographic transitions than was the case in northern Europe (Kirk 1996:368), but the characteristics and drivers of demographic transition processes are now recognised to be universal. Much the same can be said of migration (Skeldon 1997).

Even if we reject the sedentarist assumption that traditional societies were largely immobile (see below), we can still maintain that 'modern' patterns of migration are fundamentally different from those in pre-industrial societies in geographical scope, the role of networks and perhaps also in intensity. The interrelated processes of technological, economic and demographic change embodied in the terms 'modernisation' and 'development' have fundamentally altered global migration patterns. This also sets the analytical boundaries of most migration theory and also this paper, which is largely limited to analysing the relationship between modern capitalist development and migration patterns.

Another, more fundamental problem is the "myth of the immobile peasant" (Skeldon 1997: 7-8), that is, the implicit assumption of most migration theories that pre-modern societies consisted of relatively isolated, stable, static, homogeneous peasant communities, in which migration was fairly exceptional (McDowell and de Haan 1997: 3, Skeldon 1997: 32-34). Likewise, neoclassical models and modernisation theory sees large-scale migration as the temporary by-product of *temporary* disequilibria and dislocations created by economic modernisation – which is also a central feature of migration hump theory – which will large fade once equilibrium conditions have been reached through factor prize equalization. Neo-Marxist and

centre-periphery models do not foresee a decrease in migration, because migration is seen as one of the factor deepening spatial development disequilibria.

However, although functionalist (neo-classical, push-pull) and structuralist (neo-Marxist, centre-periphery) interpretations of migration are diametrically opposed in almost terms of predicted outcomes, it is crucial to observe they share the following fundamental underlying assumptions on the drivers of migration

- more development leads to less migration, *vice versa*; and the related assumption that
- higher spatial development disequilibria lead to more migration, *vice versa*

While structuralist theory criticizes functionalist theory because of their assumption that social and economic forces tend towards equilibrium, and instead see migration not only as a natural outgrowth of the more general disruptions and dislocations that are intrinsic to the process of capitalist penetration (Massey et al. 1998: 36), but also as a factor reinforcing the disequilibria (rather than leading to factor price equalization) have caused migration in the first place, they do in fact *not* challenge the cornerstone assumptions that migration is a response to development failure and spatial differentials in development levels at all.

There is ample reason to question these sedentarist assumptions. Petersen (1958: 258) observed that the universal sedentary tendency implied in the familiar push-pull polarity has little empirical basis. Skeldon (1997: 32) pointed out that the whole idea that the Industrial Revolution uprooted peasants from their stable communities for the first time was in fact a romanticized elitist view of peasant life. Historical research on Europe and Japan and in present-day rural developing societies has shown that 'traditional' peasant societies have generally been highly mobile (Bakewell 2007, de Haan 1999, Moch 1992, Skeldon 1997).

It has been less frequently observed that there sedentarist assumptions also apply for post-transition theory. After all, if migration is mainly a *transitory* by-product of the temporary economic and demographic disequilibria created by the process of modernization and capitalist economic development, migration will cease once the process has been completed. In fact, the very term 'transition' embodies the idea that migration is a largely temporary phenomenon and that both pre-modern and post-modern societies should be relatively immobile. A related problem is that transition models cannot explain how migration looks like and where future immigrants will come from if most countries are highly developed, modernise and complete their 'vital transitions'.

This seems to upset the functionalist assumptions of transition models, according to which medium-developed or 'labour frontier' (Skeldon 1997) countries supply labour for wealthy 'core' countries. But what will happen when more and more countries shift from the first to the second category. Where will future migrants come from? In fact, a declining number of countries can be classified as 'pre-modern' (vital transition), 'external areas' (world systems theory) or 'resource niches' (Skeldon). According to structuralist models, peripheries cannot develop into core areas because they will become increasingly marginalised through their inclusion in global capitalist systems. However, these assumptions have been fundamentally questioned by the rise of new economic core areas and immigration poles. This leaves the question: What

will happen to migration if most countries have achieved medium to high human development? Although transition models cannot really answer this question, their underlying assumptions lead to the prediction that migration will largely decrease.

Analogous to functionalist (push-pull and neo-classical) and structuralist migration theory, transition theories reveal a fundamentally limited concept of agency, in which migrants are essentially portrayed as pawns reacting passively to a set of largely exogenous, mainly economic and demographic forces that 'uproot' or pull and push them between places. This largely reduces migrants to atoms reacting to spatial economic disequilibria.

Finally, transition theory as well as functionalist and structuralist migration theory are characterised by a rather narrow focus on the demographic and economic determinants of migration. This reveals a rather narrow concept of development, and also explains why these theories are almost exclusively focused on so-called 'economic' or 'labour' migration, which is seen as largely voluntary as opposed to 'forced' migration. This is unfortunate, because this creates an artificial separation between forms of migration based on rather policy categories, which reflect the legal ticket on which people move (or the lack thereof), but often say little about individual motives and the macro-factors driving migration.

Migration is typically motivated by a mix of social, economic and sometimes political factors. For instance, family migrants might also move because of work or education opportunities and labour migrants might also move because of family motives or education opportunities. In the same vein, if they have choice, refugees are also more likely to migrate to places and countries that offer the best livelihood opportunities *overall*. Thus, if we conceive migration as a response to spatial *opportunity* rather than only economic differentials, we can reach a much more inclusive migration theory covering most forms of migration instead of contending with the current state of migration studies characterized by a compartmentalization between 'voluntary' (economic) and 'forced' migration.

This calls for a broader and more people-focused conceptualisation the concept of development which goes beyond narrow income indicators and focuses on the extent to which people are able to fulfil their aspirations within the circumstances within which they live. More comprehensive and realistic theorizing of migration also requires the elaboration of migration concept which simultaneously encompasses structure and agency. After all, rather than applying dichotomous classifications such as between forced and voluntary migration, it seems more appropriate to conceive of a continuum running from low to high constraints under which migration occurs, in which all migrants deal with structural constraints, although *to highly varying degrees*.

The fact that all migrants face constraints upsets the conventional dichotomy between forced and voluntary migration. For instance, many migrants who *primarily* move for work do so because they face severe constraints on personal fulfilment at home, and the range of migration options available to them tends to be constrained and structured by economic, political and social relations. Likewise, those who are usually characterised as forced migrants, such as refugees, exercise their agency as far as possible in the face of appalling circumstances. It is only with extreme movements

such as slavery and deportation that agency may be discounted almost completely (de Haas 2009).

However, most of the above critique does not necessarily undermine the central hypothesis of transition theory that there is a patterned relationship between levels of socio-economic development and the occurrence of specific forms of migrations, but can be used to amend and improve the transition models in two ways. First, existing models will be made more causal and *explanatory* by hypothesising more systematically how development processes are functionally linked to the occurrence of particular forms of mobility and migration. This will be based on a conceptualisation of individual migration as a function of *capabilities* and *aspirations* within a given set of structural constraints. Second, critique on the evolutionary character of existing transition models will be addressed through incorporating notions of stagnation and reversibility. The following section will further elaborate on such improvements.

5. Theoretical amendments

5.1. Incorporating structure and agency: migration as a function of capabilities and aspirations

In order to incorporate more elaborate notions of structure and agency in migration theory, it is important to go beyond essentially functionalist conceptualization of migration as the function of distance and differences in wealth or development levels, but to (1) include structural constraints which might impede people from moving and tend to severely restrict the options migrants have (e.g., through physical and political barriers, limited knowledge, limited resources), while at the same time acknowledging that, within a set of given constraints, (2) people can make independent choices according to their own knowledge, tastes and preferences – in other words, we should not assume that different people will react similarly to the same set of external stimuli.

We can incorporate notions of structure and agency in migration theory by conceptualising migration at the micro-level as a function of (1) capabilities and (2) aspirations to migrate. The divergent evolution of these two main factors over development processes explains the non-linear evolution of migration patterns. This section will further define and specify these mechanisms.

Migration *capabilities* are the social, human and material capital individuals can mobilise in order to migrate. The greater the distance and the physical, legal, social and other barriers to migration are, the more assets people need in order to migrate, and the more selective migration is likely to be. In order to achieve a broader, more comprehensive theorisation of migration processes it is useful to adopt Amartya Sen's (1999) definition of *development*: the process of expanding the substantive freedoms that people enjoy. In order to operationalize these "freedoms", Sen used the concept of *human capability*, which refers to the ability of human beings to lead lives they have reason to value and to enhance the substantive choices they have. From this, we can hypothesize that development generally coincides with increasing capabilities to migrate across larger distances and across legal barriers.

Migration *aspirations* can be identified as a second key factor in determining people's inclination to migrate. So far, aspirations have remained conspicuously absent from mainstream migration theory. This is because prior migration theories more or less assume that the utility people derive from migration is primarily defined by 'exogenous' factors such as income and employment differentials between origin and destination. This assumes that preferences are constant, and that different people will react similarly to similar external stimuli. This exemplifies the limited role these models ascribe to *agency*. However, development processes as defined above *are* likely to affect people's aspirations. In particular, education as well as improved access to information through modern mass media, the internet and (migrants) networks are likely to increase people's awareness of social, economic and political opportunities and, hence, increase their own life aspirations. We can perhaps make a distinction between the intrinsic effect of development on (1) increasing aspirations for personal development and the effect of information transferred by media and social networks on (2) perceptions of inter-spatial (within or across borders) relative deprivation.

As long as aspirations grow faster than local opportunities can offer, this is likely to increase people's aspirations to migrate. So, the *combined* effect of development on increasing capabilities and aspiration explain why development initially leads to accelerating migration because more people are *able* and *aspiring* to migrate. While migration capabilities are likely to keep on increasing with development, migration aspirations are likely to increase first through a steep development-induced rise in aspirations but to decline later when opportunity gaps with destination areas or countries decline significantly and local opportunities (development) start to outpace development-induced increases in aspirations.

The use of a capabilities-based development concept also shapes analytical room to go beyond income indicators and to conceptualise migration as a function of more general *opportunity* differentials. As has been argued above, it can be misleading to conceptualise particular macro-factors, such as high population or economic growth, as a direct 'cause' of individuals' migration because local opportunities are shaped by the interplay of a broad range of economic, demographic, political and social factors. This also exemplifies the intrinsic difficulties involved in isolating specific causes of migration and the artificial nature of conventional distinctions between (e.g., economic/voluntary vs. political/forced) migration categories.

It is important to emphasise that the idea that aspirations are affected by preferences and (constrained) access to information does not undermine the central idea that individuals make *rational* migration decisions in the expectation to optimise their personal and family's expected wellbeing or 'utility'. The idea is rather one of *bounded rationality* – the notion that people's rationality is limited by the information they have, their cognitive limitations and the finite amount of time they have for decision making, as well as the notion that 'utility' is shaped by culturally and socially determined preferences and are, hence, not externally given or constant. However, we maintain that individuals generally choose the best action (whether to migrate, and where) according to given preferences and constraints.

5.2. The non-linear relation between development and migration processes

If we transpose the individual-level migration decision making model on the collective level of regions and countries, higher levels of human development are likely to coincide with higher overall migration rates. The effect of human development on migration capabilities is likely to be positive but not linear, and hypothesised to resemble an S-curve typical for diffusion processes. Assuming that a certain threshold level of social, human and material capital is needed in order to migrate, we can hypothesise that capabilities to migrate increase exponentially during early phases of development when relatively modest increases in development enable many more people to migrate by lifting them over a hypothetical threshold level of capabilities. This migration-accelerating effect tends to be reinforced by the creation social capital in the form of migrant networks, which tend to decrease the costs and risks of migration. Under higher levels of development most people will be already capable to migrate. When such saturation occurs, the 'returns' of development on migration capacities diminish.

Figure 1 Graphic representation of migration transition theory
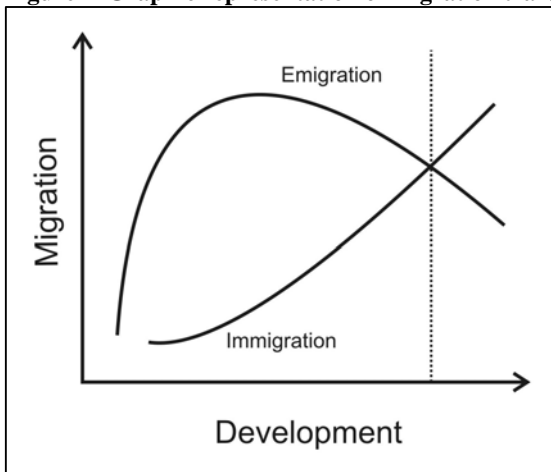
The effect of human development on migration aspirations is likely to be curvilinear: first increasing rapidly, subsequently stagnating or decreasing, but never reverting to values occurring under low development levels. Human development tends to increase people's life aspirations generally. This initially goes along with rapidly accelerating migration. Only when opportunity gaps with destination regions and countries decrease considerably, this will slow down and ultimately decrease net emigration. At the same time, as they develop regions and countries tend to become gradually more attractive for immigrants from poorer places. The relation between human development and immigration is therefore expected to be positive and linear. Adding up the effects of relative levels of human development on immigration and emigration, leads to the hypothesis that societies as they develop *tend* to go through a characteristic sequence of migration transitions, depicted in figure 1

It is possible to further specify the hypothesized sequencing of short and long distance and high and low skilled migration over development processes. It has been argued that migration transition occur first for internal migration, then for international skilled migration, and finally for migration of the unskilled. Initially, relatively small increases in human development in poor societies are likely to lead to a rapid increase of relatively short distance migration. In early phases of migration transitions, migration is therefore likely to concentrate on internal destinations or international migration to neighbouring countries.

Because of the generally higher costs and risks this involved, international migration to much wealthier and/or more distant countries will generally only gain full force in countries experiencing medium levels of development, when people have more resources and global connectivity improves through development of infrastructure and economic ties. In such societies, an increasing population of young, educated adults will have the aspirations and capabilities to afford the risks and costs to migrate internationally while the relatively well-developed infrastructure and international transport connections characterising such societies tend to further facilitate migration.

Fischer and Straubhaar (1996) argued that unskilled international migration would peak first, but that does not seem to make much sense on theoretical grounds. Because of the higher costs and risks involved, long-distance international migration will be generally easier accessible for the high skilled, and the relatively low skilled will only be able to migrate in relatively large numbers at higher overall levels of human development.

The functional interrelations between the various forms of migration form an additional explanation for the occurrence of such patterned sequences. Internal migration often functions as a precursor to international migration by allowing migrants to accumulate experience as well as social, human and financial resources to move abroad (King and Skeldon forthcoming). Migration to particular internal and international destinations also tends to become less selective for education and wealth due to threshold lowering network effects. This effect can be further reinforced by the presence of and the role models offered by successful migrants in migrant sending-communities as well as largely remittance-driven increases in inequality and relative deprivation which can reinforce migration-prone attitudes and preferences. Such internal (feedback) mechanisms tend to give migration processes their own momentum and make migration more accessible for the relatively poor and low skilled (Castles and Miller 2009, de Haas 2008, Massey 1990).

Only if opportunity gaps with destination countries decline significantly and if societies achieve relatively high levels of human development does emigration decrease. Beyond the immigration-emigration break even point emigration societies transform into net immigration societies. However, as argued above, this does not imply that emigration goes back to pre-transition levels; although highly developed countries tend to be net immigration countries, this net figure easily conceals rather high underlying levels of emigration. Highly developed societies are predicted to be more mobile *generally*.

5.3. Beyond evolutionary approaches: generic mobility increases, stagnation and reversibility

This predicted correlation between development processes and migration patterns depicted above is largely similar to the predictions of conventional transition theories. However, there are differences in the assumed underlying causal mechanisms, which compel us to reconsider certain variables to include in empirical analyses. While demographic variables are unlikely to be a direct cause of such transitions, variables like education are likely to be of more direct relevance.

Further, building upon Skeldon's (1997:52) reasoning, we predict that overall levels of mobility and immigration and emigration are higher in societies with high levels of human development. As a consequence of (1) continuous increases in capabilities and overall aspirations mainly due to increased education levels and access to information, (2) the increasingly higher levels of occupational specialisation requiring more frequent to enable a better fit between labour demand and offer; and (3) the migration-facilitating role of transport and communication infrastructure[5], overall levels of immigration, emigration and internal migration from and to developed societies are likely to remain structurally higher in wealthy as compared to poor societies.

It is essential here to distinguish the effect of development on a structural level (e.g. infrastructure, labour market specialization) shaping spatially differentiated opportunity structures from the effect of development on individual capabilities and aspirations, which rather pertain to the levels of agency people can exert. Highest levels of migration are then likely to occur when the existence of significant spatial opportunity gradients coincide with significant levels of individual development, which is typically the case in societies characterised by medium levels of development, and certainly not in the least developed countries.

Critique on the teleological character of transition models can taken aboard by discarding the notion of an inevitable sequence of successive 'stages' societies have to go to and by incorporating notions stagnation and reversibility in theorising migration transitions. This is achieved if we conceive migration as a response to relative rather than absolute development or opportunity levels. In the case of international migration, it is then the relative position of a country in the global opportunity (income and others) distribution that matters rather than absolute development levels that matters, for instance in determining whether its experiences long-term net immigration or emigration. On the other hand, because absolute development levels determine capabilities to move, we can hypothesise that higher overall development levels are likely to coincide with higher overall levels of migratory and non-migratory mobility.

This also creates analytical room for the occurrence of *reverse migration transitions*: A decreasing development level relative to other countries may cause a country to also transform an immigration country into an emigration country, as exemplified by examples of Argentina. Furthermore, completion of mobility transitions is by no means linear or inevitable. Stagnant levels of relative development can therefore

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[5] Although transport and communication technology has also enabled outsourcing of work, which is likely to have decreased certain forms of migration.

prolong certain mobility 'stages' for an indeterminate period of several decades or even centuries. The Philippines, Southern Italy, and, until recently, Ireland are examples of regions and countries which have combined structurally disadvantaged, marginal position in the global political economy with sustained large-scale out-migration. Martin and Taylor (1996:57) stressed that the right tail of their migration hump is by no means inevitable, and the same is likely to apply for more long-term migration transitions. Poor infrastructure and public services, political instability, failure of public policies to boost economic growth, and protectionism by developed countries' trading blocks may discourage investments and retard expansion of new employment. Under unfavourable conditions, a trade-induced migration hump may be extended or transformed into a semi-permanent "migration plateau" of sustained emigration.

5.4. Hypotheses

From the amended transitional framework elaborated above, we can derive the following, general hypothesis

(1)   Human development leads to *generally* higher levels of migration and mobility mainly through loosening constraints on movement, increasing aspirations and increasing occupational specialisation.

In addition, there are patterned, non-linear regularities between the absolute and relative (vis-à-vis other countries) level of human development and the occurrence and relative importance of particular forms of internal migration and international immigration and emigration. This is where transition theory is about. The following general hypotheses on timing and causality of migration transitions can be formulated:

(2)   In the least developed, relatively isolated countries and regions, most but not all migration is short distance and circular
(3)   Processes of modern human development associated to technical progress, infrastructure development, increasing education and urban-based economic growth, lead to migration transitions, characterised by initially rapidly increasing, then stagnating and finally decreasing out-migration.
(4)   These transitions occur first for internal migration, then for international skilled migration, and finally for international low skilled migration.
(5)   These transitions tend to concur with demographic transitions, but this is not necessarily the case as there is no *direct* link between demographic factors and migration.

The following more specific hypotheses on the evolution and reversibility of internal and international migration transitions can be specified:

(6)   Constraints-loosening and aspirations-increasing human development in combination with migration-facilitating network effects and 'cumulative causation' (Massey 1990, Myrdal 1957) lead to rapidly accelerating emigration in early initial phases of human development after which they

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(7)   The relation between human development and immigration levels is largely linear and positive.

(8)   Combining (6) and (7): human development has an inverted J or U curve effect on net emigration levels.

(9)   After international migration transitions have reached their peak and net emigration countries have transformed into net immigration countries, both emigration and immigration remain on a structurally higher level than in pre-transition years.

(10)   After internal (rural-to-urban) migration transitions have reached their peak, rural-urban migration within (and sometimes across[6]) borders grows in structural complexity, with increasing urban-to-urban, suburbanisation, urban-to-rural and circular (residential) mobility.

(11)   International migration transitions are not inevitable and may stagnate or reverse if *relative* levels (as compared to other place, regions or countries) of human development decrease.

(12)   However, internal migration transitions are largely irreversible as internal (rural-urban) migration is inextricably linked to processes of capitalist economic development which is universally leading to a labour force shift from agriculture and fisheries to industry and services and an increasing concentration of economic activities in urban areas.

It is important to emphasise that these hypotheses pertain to *general* and *long-term*, levels and trends of internal and international migration occurring on country level. This is a fundamentally different exercise than estimating the determinants of intern-annual fluctuation in migration flows. Transition theory does look at the relation between *long-term* trends of human development and *long-term* trend in migration. For instance, empirical work has indicated that there is a correlation between annual and cyclical fluctuation in economic growth and net migration flows to destination countries (cf. Jennissen 2003, Ortega and Peri 2009). During severe economic downturns, even wealthy countries may experience a few years of net emigration.

Such annual fluctuation has been the focus of most prior work on migration determinants. Also migration hump theory (Martin 1993, Martin and Taylor 1996) focuses on short- to medium responses of migration to events such as trade liberalisation. In order to capture such long-term relations, it seems preferable to use migrant stock rather than migration flow data. Stock data are more likely to reflect long-term trends, while flow data are likely to be much more volatile and particular migration hikes or decreases can disguise underlying, long-term trends.

States, politics and policies appear to be are strikingly absent from this theoretical framework and transition theory generally. However, implicitly they play a crucial role as states play a key role in broader development processes by moulding the macro-economic environment, taxation, the provision of social services, labour market policies and influencing the degree of individual freedoms. All of these have a huge impact on migration processes. States and migration policies and can potentially be of huge influence in migration system formation in the form of spatially clustered

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[6] The distinction between internal and international border is sometimes blurred. For instance, rural-urban migration from Mali to Côte d'Ivoire is not essentially different from 'internal' migration.

migration flows between specific places and countries. Such patterns often become self-perpetuating through networks and other feedback mechanisms. This is evident in the influence of past colonial ties and labour recruitment on current migration patterns. In comparison to such general political and institutional factors, specific migration policies are hypothesised to be of limited influence. Although specific migration policies can influence the particular itineraries and legal and illegal methods migrants use, they are hypothesised to have a limited influence on broad and long-term migration trends. For instance, there are very few highly developed countries which are no net immigration countries on the long term, despite particular years of recession or political unrest when the migration rates might temporarily become negative. So, political freedoms at large are supposed to have a more fundamental impact on migration because they affect people's fundamental capabilities to move, rather than migration policies *per se*.

6. Empirical state-of-the-art and aims

To our best knowledge, only few adequate empirical tests have been put forward to test migration transition theory for current world migration, which is either linked to the inadequate design of empirical tests and a lack of pertinent data, and often a combination thereof. Although there is a substantial body of high-quality research on migration determinants (cf. Hilderink et al. 2001, Jennissen 2003, Zoubanov 2003, Zoubanov 2004), most of these studies aim at explaining inter-annual variability of migration flows over relatively limited time spans between particular places, regions or countries rather than studying the general, long term relationship between human development and overall levels of migration to and from countries. In addition, the gravity models which as commonly employed to assess migratoin determinants tend to focus on a limited number of variables (particularly distance, population and income) and generally do not test for the non-linearity of relationships between human development and migration.[7] Moreover, most migration determinants studies usually focus on net migration, while from a theoretical point of view immigration and emigration flows are likely to be associated differently to policies and development trends.

A few studies have formally tested elements of migration transition theory for migration to and from European countries. Faini and Venturini (1994) found that migration between 1962 and 1988 from Greece, Portugal, Spain and Turkey showed a positive correlation with GDP per capita in origin countries at low income levels, but showed a negative correlation at higher income levels. Vogler and Rotte (2000) analysis of migration to Germany from 86 Asian and African countries from 1981 to 1995 also pointed at relevance of development loosing in loosening the financial restrictions on migration. Descriptive evidence on the historical experiences of many countries seem to give support for the contention that beyond a certain level of economic development, countries tend to transform from net emigration into net immigration countries (Massey 2000b). The more recent experiences of southern

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[7] For instance, this is evidenced by the frequent omission of quadratic terms for income variables in regression analysis and the common absence of non-parametric statistical tests.

European countries such as Spain and Italy and several southeast Asian countries such as Malaysia, Taiwan, and South Korea seem to further illustrate this point

Perhaps the most comprehensive quantitative, longitudinal analysis of migration transitions so far is the seminal work by Hatton and Williamson (1998) on European migration to North America between 1850 and 1913. Their analysis indicated that emigration usually *increased* as wage rates in source and destination countries *converged*, because declining wage differentials were outweighed by the mass arrival of cohorts of young workers on the labour market, increasing income and, to a lesser extent, a structural shift of the labour out of agriculture, while networks reduced the costs of migration, giving migration partially its own momentum (Hatton and Williamson 1998, see also Massey 2000a).

However, there is a lack of adequate empirical studies which test this theory with data for a wider range of countries. There seems general agreement on the right hand side of migration transitions – the hypothesis that beyond some level of development societies tend to transform from net emigration to immigration societies. However, there is still disagreement on the other hypothesised relationships, and in particular on the following two:

- development in the least developed countries leads to take-off emigration.
- at higher levels of development, beyond a certain turning point emigration start to drop but does not decrease to initial levels and remains at a structurally higher level because human development leads to an increase in *overall* mobility (immigration + emigration).

For instance, Lucas (2004) has recently contested the hypothesis that development in the least developed countries leads to take-off emigration. Analysing bivariate correlations between UN migration data and levels of economic development, Lucas found that net out migration declines significantly as levels of income per capita rise across countries. Lucas (2004: 32) argued that "Although the notion of a migration hump[8] is now often depicted as conventional wisdom, empirical support for the existence of such a pattern may readily be questioned." He therefore concluded that most evidence indicates that economic development in origin countries *diminishes* emigration and that "if there is any indication of a lower arm to a migration hump, whereby development accelerates departures, it is apparently confined to very low-income countries" (Lucas 2005).

Taking into consideration the largely unresolved nature of this debate, there is a clear for empirical tests to test the central hypotheses of migration transition theory in a multivariate rather than bivariate analytical setting. Fortunately, our ability to do so has increased through the recent release of improved data on global migrant stocks on country level. The remainder of this paper aims to perform such a test based on a new global database of bilateral migrant stock data.

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[8] Lucas uses the term 'migration hump' where this paper uses the 'migration transition' terminology, because the 'migration hump' as originally used by Martin and Taylor refers to short to medium-term migration responses to 'external' shocks such as trade reforms rather than the long-term relationships between human development and migration patterns. As argued above, migration humps and transitions are commonly confused in the literature.

7. Data and research design

There are basically three empirical strategies for testing migration transition theory. The first option is a longitudinal approach as elaborated by Hatton and Williamson (1998) of analysed the factors determining the evolution of migration flows over several decades between a relatively limited number of countries for which such data are available. Such approach has the advantage of allowing the inclusion sending *and* receiving country data. A second option is to perform a cross-sectional analysis of the links between levels of human development and migration levels as performed by Lucas (2004), albeit on a bivariate level. The third option is a combination of both, but this would require global panel data on bilateral (country-to-country) flow data extending over several decades, which is currently not available.

Recent improvements in data availability have drastically increased the scope for the second type of cross-sectional analyses. This empirical test draws on the Global Migrant Origin Database released by the World Bank and the University of Sussex. This database is unique because it contains bilateral country-to-country estimates of migrant stocks for *all* countries and several overseas territories in the world (cf. Parsons et al. 2005, Ratha and Shaw 2007). These bilateral migration data are derived by the World Bank from an augmented and updated bilateral migration matrix originally created by the University of Sussex (see Parsons et al. 2005)). This database uses national censuses, population registers, national statistical bureaus and a number of secondary sources (OECD, ILO, MPI, DFID, United Nations Population Division) to compile bilateral migrant stocks for 162 countries. In an expanded version used for statistical modelling, this database also estimated bilateral information for 64 additional countries for which the censuses had no information, and was updated with information on bilateral migrant stocks for 56 countries using the most recent census data (Ratha and Shaw 2007).

The last (fourth) version of the database has been used for this analysis[9]. Although data is of varying quality and that some figures have been obtained through estimation, the database should provide a generally realistic approximation of the overall magnitude of migrant stocks and global migration patterns (Parsons et al. 2005). In addition, the fact that this database is compiled using migrant stock instead of flow data makes it particularly useful for a cross-sectional analysis of the relation between levels of human development and long term migration trends, since migrant stocks can be used as a proxy for migration levels over the past few decades.

For each country, the total emigrant and immigrant stock was calculated. Data on absolute population size in 2000 drawn from the World Development Indicators was used to calculate emigrant and immigrant stocks as a proportion of the total population, as well as net migrant stocks. A 'total mobility' variable was constructed by calculating the sum of the positive values of immigration and emigration stocks data as a percentage of the total population.

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[9] The database was downloaded from http://www.migrationdrc.org/research/typesofmigration/global_migrant_origin_database.html on 3 October 2008.

In order to test the hypothesised added value of using a broad, capabilities-based definition of development instead of one focused on income alone, two alternative empirical models have been tested. The first uses the natural logarithm of the 2005 value of *per capita Gross Domestic Product (GDP)* in United States Dollars in Purchasing Power Parity (PPP) as main predictor variable. Other theoretically relevant variables include *average GDP per capita growth* over the 1987-2006 period to proxy the extent to which countries are "growing fast and offering hope and opportunity", which was hypothesised by Martin and Taylor (1996: 58) as an important factor in decreasing emigration. *Literacy* is included as a proxy for overall educational levels, and was calculated as the average value over the 1987-2006 period for all the years for which data was available. To test the hypothesis that demographic factors have *no* direct effect on migration, *past fertility levels* (the average total fertility rate over the 1970-1990 period) have been included in the model. We took a lagged value, as the effect of fertility on new entries in the labour market of young adults is delayed, and the mass arrival of new cohorts on the labour market has often been mentioned in the literature as a factor spurring emigration Variables measuring school enrolment and life expectancy were used in the initial descriptive analysis, but were excluded from the final regression models due to multicollinearity with literacy and fertility, respectively. The second model replaced the GDP per capita, literacy and fertility variables by the Human Development Index (HDI) value for 2005 calculated by the United Nations Development Programme (UNDP). Data was drawn from the World Development Indicators and United Nations Development Programme datasets, but supplemented with data from other sources (UNDP, UNESCO, CIA World Factbook) in cases of missing data.

Both empirical models contain some additional variables, which are captured neither by GDP or HDI. First, a variable measuring a lack of political rights based on the ranking developed by Freedom House. Most tests of migration determinants conventionally include absolute population size and, sometimes, land surface, of countries as independent variables. Such tests invariably conclude that the absolute size of population does have a strong significant effect the size of migration population or migration flows. However, one may wonder whether this is not stating the obvious – after all, it can hardly be surprising that the *absolute* emigrant and immigration population of the United States are larger than in, say, of the United Kingdom. As we are interested in the *relative* magnitude of emigration and immigration, it seems more appropriate to use migrant stocks *as a percentage of the total population* as dependent variables.

However, also in this type of analysis, there is a theoretical argument to include population and land surface as independent variables. For instance, immigration and, particularly, emigration often reaches exceptionally high values in small island and micro-states. Initially, we included an island / micro state dummy with the cut-off point put at 1.5 million inhabitants, and earlier empirical tests showed the predicted, strong effect on migration stocks. However, we found that there are no solid theoretical grounds to create a rather essentializing "exceptionalism" for island states in addition to the ambiguity involved in determining a cut off point. It was judged more appropriate to include the (natural logarithm of) population and land surface as variables to capture the hypothesized effects of population and land size on migration.

This builds into the empirical model some sort of control for the rather artificial distinction between internal and international migration. While this tests uniquely focuses on international migration, the distinction is somehow artificial as, 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 what is essentially rural-urban migration involves border crossing. The rationale for including surface is different: controlling for all other factors, we can hypothesize that there are less costs involved in leaving a small, rather than large country. Because the effects of population size and land surface on the percentage of *international* migrants are likely to be gradual, it seemed preferable to use the actual values of the population (in 2000) and land variables rather than to construct a dummy variable.[10] Finally, a dummy variable indicating oil rich, labour importing states in Middle East (see below) was include to capture the effect of their particular, highly segmented and structurally immigration-dependent labour markets.

8. Results

8.1. Bivariate analysis

In order to perform a basic bivariate exploration of the association between levels of human and economic development, countries were classified in equally sized quintiles based on HDI and GDP values. Subsequently, for each quintile, average migration values were calculated (table 2). The results seem to confirm the hypothesized, curvilinear association between HDI and GDP levels and emigrant stocks. While underdeveloped countries have the lowest emigrant stocks as a percentage of their total populations, countries with medium development levels have the highest levels. While highly developed countries have lower emigration stocks, they tend to be still larger than those of underdeveloped countries.

In line with theory, the association between HDI and GDP levels and relatively immigrant stocks is positive and largely linear. However, an intriguing finding is that the second poorest group of countries has slightly lower emigrant stocks than the poorest group of countries, indicating that the relation might not be entirely linear. As predicted, the average net migration stock ((immigrant stock – emigrant stock) / total population) is lowest for the countries with middle level incomes and is positive only in the one or two highest categories. These patterns are depicted in figure 2 and 3[11], which seem to replicate the overall patterns predicted by migration transition theory.

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[10] Distance variables, not because we assume that distance is irrelevant, but because we test the relation between human development and overall levels of emigration and immigration (irrespective of destination or origin of migrants) rather than variations in bilateral migration flows.

[11] Small and island states (< 1.5 million inhabitants) were excluded from these figures because of their extremely high migration figures. However, this does not affect the overall patterns reflecting migration transition theory (see also table 2).

Average total mobility (immigrants + emigrant stock) increases particularly fast between the second and third categories, after which stagnation occurs. This seems to corroborate that countries with high levels of economic development are characterised by generally higher levels of mobility. Specific analyses including and excluding island and microstates and using GDP or the HDI index as independent variables yield the same overall results, although analysis of variance (ANOVA) indicate that measures of association are generally stronger and more significant when using HDI and for the analyses which exclude small island and microstates.

Table 3 shows bivariate (linear) correlations between all variables which will be included in the multivariate analysis. The most remarkable result is that there is no correlation between GDP per capita and emigrant stocks, while the association between GDP per capita and immigration is strongly positive. Because the correlation coefficients only measure linear relationship (as opposed to analysis of variance) this result might conceal a curvilinear relationship. In contrast, the correlation between GDP per capita and immigrant stocks is strong and significant. Interestingly the association between HDI and emigrant stocks is positive and statistically significant, albeit to a lesser extent than immigrant stocks. Neither GDP nor HDI are significantly correlated to net immigrant stock, while the relation between GDP and, particularly, HDI and total mobility is significant and positive. With regards to demographic factors, the correlation matrix also reveals a very strong negative correlation between fertility and GDP and, particularly HDI. This corroborates that fertility is a somehow proxy of development levels, but may also question whether demographic factors can have a *direct* effect on migration.

Figure 2. Association between GDP per capita and immigrant and emigrant stocks
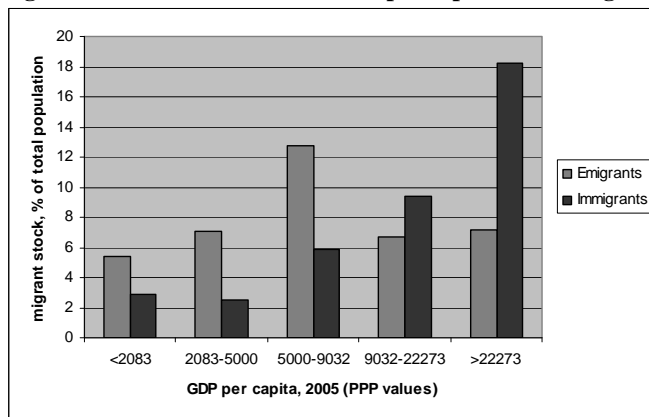
Source: analysis table 2 (appendix)

Figure 3. Association between HDI scores and immigrant/emigrant stocks
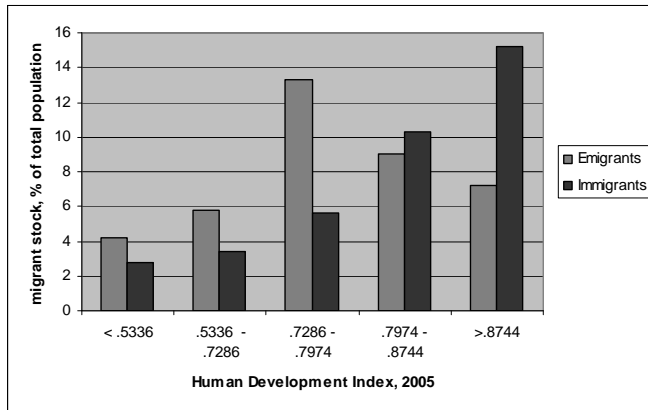
Source: analysis table 2 (appendix)

Interestingly, (lagged) fertility has a significant negative effect on immigrant and emigrant stocks. This finding seems to go against the idea that (mass) emigration is a direct response to 'demographic pressure'. Reverse causality (migration affecting fertility) might partly explain the negative association with emigration but is less likely to explain the negative association with immigration. Lack of political rights is negatively correlated to emigrant stocks. This might seem counterintuitive as one would expect more people to leave autocratically ruled countries, but can could be explained by the fact that such regimes tend to put higher constraints on people's mobility, for instance by high passport cost or exit visa requirements (cf. McKenzie 2005). This effect might counterbalance the presumed positive effect on emigration flows through refugee and asylum migration. However, these bivariate correlations do not say much about possible causal links. We will have to turn towards multivariate analysis to disentangle the effects of the different variables and to obtain a better idea of the causal links.

To further explore the hypothesized non-linear character of development-migration relations, tables 4 and 5 show correlations between key independent variables and migration variables specified for two countries with low and high levels development based on GDP and HDI scores, respectively. In line with expectations, this analysis reveal a positive and significant correlation between HDI and emigrant stocks for low developed countries, and a negative correlation for high developed countries. While similar correlations apply for GDP, they are weaker than for HDI variables and only significant in table 4. This might reflect the added value of including education variables in the HDI measure.

In contrast, correlations between GDP and immigrant sticks tend to be stronger than for HDI. The correlations are the strongest and most significant for higher developed countries. Again, this suggests that the effect of GDP on immigration is zero or small at low levels of development while it is positive at higher GDP levels. Again, correlations between fertility and emigration stocks are the opposite from what conventional theories would predict, and a lack of political rights has a negative effect on emigration in less developed countries. Interestingly, in both analyses education has a significant positive effect on emigrant stocks in the lesser developed group of countries. This seems to corroborate the idea that education plays an emigration-accelerating role in early phases of development through its capabilities and

aspirations increasing effect.

Nonparametric (Nadaraya-Watson) regressions analyses[12] were performed to further explore non-linearities of the association between between GDP, HDI and migration. The results these analyses are depicted in figures 4, 5 and 6. Largely replicating the results of the other bivariate analyses pointing to nonlinearities, they also suggest that the non-linearities are much more marked when using HDI values. The estimates show that the association between GDP and emigration does fit more an inverted U-shape than the association between HDI and emigration, which is first absent or even slightly negative after following a much steeper inverted U-shaped pattern.

Interestingly, while is no clear relation between emigration and HDI for low levels of HDI, above HDI values of 0.6, the analysis reveals detects a marked 'hump-shaped' association. While the left-hand (low-income group) associations between GDP and emigrant stocks for is more linear, it is seems weaker at low GDP values, and becomes stronger at beyond-lowest income levels. Emigrant stocks seem to reach a peak at GDP/capita levels of approximately 12,000 US$ and HDI levels of approximately 0.8, respectively, after which they start to decline slowly decline. Associations between GDP and HDI and immigrant stocks do not show an inverted U-shape at any point, although they are not entirely linear either. Again, this is particularly the case for HDI values lower than 0.6, beyond which both emigrant *and* immigrant stocks increase rapidly, albeit the former much more rapidly than the latter. For GDP, the positive effect on emigrant stocks seems to increase beyond 5,000 US$. The analysis suggests that immigrant-emigrant stock break even points are located at HDI values of about 0.89 and at GDP levels of about 20,000 US$ (or 67 percent above average world GDP) per capita.[13] It is important to emphasise that migrant stock data do reflect past rather than current migration, and that the actual tipping and break-even points for migration *rates* are likely to lie at significantly lower levels.

Figure 4. Nonparametric estimates of the association between GDP and migration

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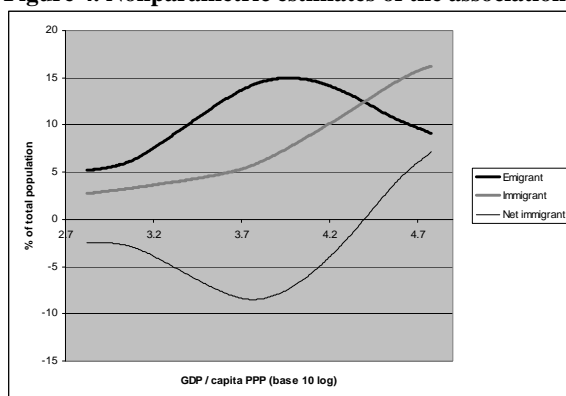
[12] These (kernel) regressions are non-parametric techniques to estimate the conditional expectation of a random variable in order to detect non-linear relations between a pair of variables. The lines represent the estimated mean over the grid points used for calculation. In order to enable direct comparison between HDI and GDP estimates, only observations were used for which GDP estimates were available.

[13] To makes this more concrete, it is useful to look at the actual GDP and HDI levels of some high-emigration countries. In 2005, GDP and HDI in Mexico were 10,751 and 0.829, in Morocco 4,555 US$ and 0.646 and in Turkey 8,407 US$ and 0.775, respectively. By comparison, for Nigeria these values were 1,128 US$ and 0.470 (HDI).

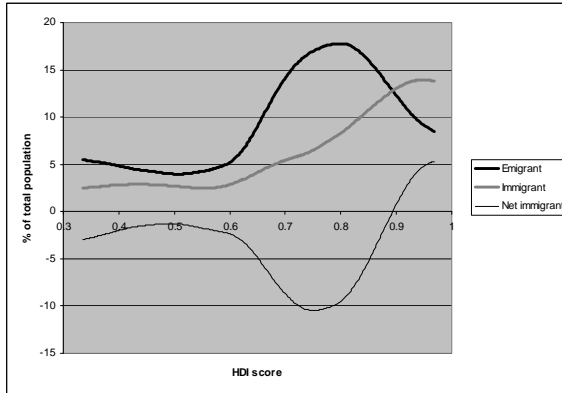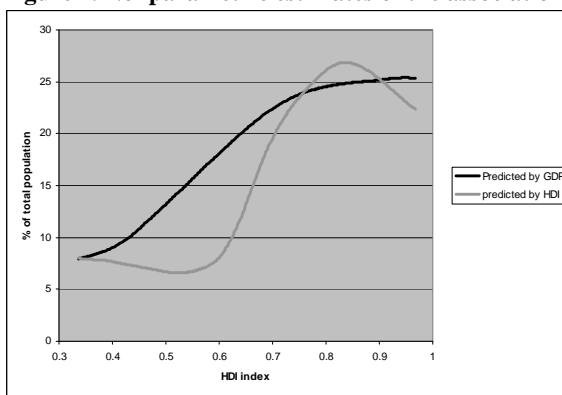**Figure x. Nonparametric estimates of the association between HDI and migration**

Figure x. Nonparametric estimates of the association between HDI and GDP on 'total mobility'

The test for the association between HDI and GDP on 'total mobility' yield an S-curve shaped pattern for HDI and a much more linear pattern for HDI. The parametric (regression) analyses below consistently field a better fit for the empirical models using GDP instead of HDI. However, these preceding bivariate tests strongly suggest that this is not so much because the associations between HDI and migration are weaker. In fact, ANOVA analysis rather suggested the contrary. It rather reflects that fact that the HDI-migration association can be expressed less well into a linear or parabolic function than the GDP-migration association.

From current theory it is difficult the initially absent or even negative relation between HDI and emigrant stocks. It might be partly explained by the fact that HDI measures include education variables, which, as the analysis below suggest, seems to have an initially, slightly negative effect on emigration. However, the underlying causal mechanisms are as yet unclear and warrant more focused theorisation and empirical research.

8.2. Multivariate analysis

Table 6 shows the results of the regression analyses with emigrant stocks as dependent variable. The first model only contains GDP per capita and the main

contextual control variables of surface, population and political rights. In line with correlation analysis, it shows no significant relationship between GDP and capita. When the squared value of GDP is introduced in the second models, the regression coefficients become significant, corroborating the idea that the relation between income and emigration levels is inversed U shaped rather than linear. Model 3 includes literacy and fertility. The significant negative effect of past fertility seems counterintuitive. This might be result of reverse causality, as most migrants are young and this is likely to adversely affect fertility. In any case, it challenges the idea that there is a direct link between demographic factors and migration.

Literacy has no significant effect. Additional regression analysis (not shown) suggested that the relation between literacy and emigration levels is non-linear. Model 4 therefore includes the squared value of literacy, which slightly improves significance. The initially negative effect of literacy is difficult to interpret, although it corroborates the potential value of disaggregating various development indicators. The effects of GDP and its quadratic term remain robust in all models. Model 5 replaces GDP and literacy by HDI, which yields highly significant coefficients for HDI and its quadratic values. This further substantiates that the relation between 'development' and emigration is curvilinear.

As expected, population size has the predicted negative and highly significant effect in all models, corroborating the idea that in populous countries relatively more migration to population centres is 'absorbed' internally. Land surface, which can be taken as a rough, although highly imperfect, proxy of travel costs, has also the predicted negative effect, although it is smaller and less significant. Surprisingly, past GDP growth has no significant effect, suggesting that current GDP levels are more important than growth achieved in the past. A lack of political rights has a negative, though insignificant effect on emigration rates. This might be surprising because more people might prefer to leave autocratic countries. However, this hypothetical positive effect might be counterbalanced by the fact that autocratic states often create administrative obstacles for emigration of their citizens.

Table 6. Regression analysis: emigrant stocks

Independent variables	Dependent variable: Emigrant stock in % of origin country population				
	1	2	3	4	5
	Beta	Beta	Beta	Beta	Beta
(Constant)	62.41***	-85.02	-17.39	-20.05	53.75***
Log GDP/cap(PPP)	1.41	81.04***	62.73**	69.43***	
Log GDP/cap(PPP)SQ		-10.69***	-9.38***	-10.26***	
GDP growth (20 years)			0.48	0.49	0.34
HDI					115.50***
HDI Squared					-94.20***
Fertility			-2.15**	-1.40	-2.11**
Literacy			0.03	-0.52*	
Literacy SQ				0.00*	
Ln Population	-2.48***	-2.22***	-3.18***	-2.94***	-3.25***
Ln Land surface	-1.42**	-1.51**	-1.23*	-1.42**	-1.09*
Lack of political rights	-0.52	-0.78	-0.67	-0.70	-0.56
N	195	195	179	179	176
R^2 adjusted	0.375	0.407	0.433	0.441	0.417

*** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

The regression results for immigrant stocks shown in table 7 suggest that the relation between GDP and immigration is more linear than emigrant stocks, as indicated by the significant positive value of GDP in model 1. However, introduction of its quadratic value significantly improves model fit and suggests that the relationship is curvilinear, first decreasing and subsequently increasing. Interestingly, model 5 suggests an equally curvilinear relationship between HDI and immigration levels. The bivariate analysis suggested that this is a convex rather than U-shaped association.

Models 3 and 4 include fertility and literacy. Unsurprisingly, literacy levels have little impact upon immigrant stocks[14]. The significant *positive* effect of fertility is more difficult to explain. Reverse causation might play a role if immigrants have a higher-than-average fertility. However, because we suspected that this might also reflect the particular situation of oil exporting states in the Middle East, which combine high fertility and high immigration (which are not causally related), we introduced a dummy for the member countries of the Gulf Cooperation Council and Libya. After introduction of that variable, the effect of fertility entirely disappears, corroborating the hypothesis that there is no direct relation between demographic factors and migration.

The positive and significant effect of a lack of political rights more difficult to explain, particularly because it remains significant after introduction of the petrol state dummy, which also partly captures the authoritarian nature of these states. While as counterintuitive as the positive effect on emigration, the positive effect of a lack of political rights on immigration is stronger and highly significant. This again points to the importance of political factors.

It is as yet unclear whether this provides evidence for any variant of "numbers vs. rights hypotheses" (Ruhs and Martin 2008), according to which there is a trade-off between the rights states attribute to migrants and the number of migrants that can be allowed in. Alternatively, it is possible that states which give fewer rights to their citizens and even less to migrants, have a higher ability to impose segmented, inherently discriminatory labour markets, to organise and recruit labour and are less sensitive to domestic political pressure for immigration reduction. The stronger effect of a lack of political rights on immigration compared to emigration might also indicate that states find it generally easier to attract than to expel migrants.

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[14] Additional bivariate and multivariate analyses confirmed that literacy has no significant effect on immigration in contrast with the positive and significant effect on emigration. This seems to corroborate the hypothesis that education increases migration inclinations through its capabilities and aspirations-enhancing effect, while the attractiveness of countries for immigrants are primarily affected by economic opportunities.

Table 7. Regression analysis: immigrant stocks

Independent variables	Dependent variable: Immigrant stock in % of receiving country population				
	1	2	3	4	5
	Beta	Beta	Beta	Beta	Beta
(Constant)	-20.60**	173.11***	66.45*	76.82**	29.71**
Log GDP/cap(PPP)	13.59***	-91.04***	-55.58***	-44.58**	
Log GDP/cap(PPP)SQ		14.05***	10.03***	7.51***	
GDP growth (20 years)			-1.13***	-0.88***	-0.75**
HDI					-93.21***
HDI Squared					92.80***
Fertility			2.32***	1.20	0.71
Literacy			0.04	-0.38*	
Literacy SQ				0.00*	
Ln Population	-1.12	-1.45**	-0.17	0.12	-0.20
Ln Land surface	-1.03*	-0.91*	-0.91*	-1.06**	-0.87**
Lack of political rights	1.90***	2.25***	1.85***	1.20***	1.20***
Petrol state				22.50***	25.04***
N	195	195	179	179	176
Adjusted R^2	0.349	0.407	0.427	0.530	0.498

*** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Table 8. Regression analysis: net immigrant stocks

Independent variables	Dependent variable: Net migrant stock in % of country population (emigrant-immigrant stock)				
	1	2	3	4	5
	Beta	Beta	Beta	Beta	Beta
(Constant)	-83.01***	258.13***	83.84	94.83	-23.41
Log GDP/cap(PPP)	12.18***	-172.08***	-118.31***	-115.02***	
Log GDP/cap(PPP)SQ		24.74***	19.41***	18.08***	
GDP growth (20 years)			-1.61***	-1.41***	-1.08**
HDI					-207.53***
HDI Squared					185.04***
Fertility			4.47***	2.87**	2.71**
Literacy			0.01	0.15	
Literacy SQ				0.00	
Ln Population	1.36	0.78	3.00***	3.04***	3.07***
Ln Land surface	0.39	0.60	0.32	0.36	0.21
Lack of political rights	2.42***	3.03***	2.51***	2.00***	1.73***
Petrol state				18.77***	26.32***
N	195	195	179	179	176
Adjusted R^2	0.138	0.258	0.450	0.473	0.421

*** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Table 8 shows the regression results with net immigrant stocks as dependent variable, which confirms the above analysis. Higher GDP and HDI have an initially negative, subsequently positive effect on net migrant stocks. These results are robust across the different models. The positive sign of population size largely reflects the negative association between this variable and emigration. Country size has no significant effects, corroborating the idea that absolute population size matters most in determining the degree to which (rural-to-urban and other) migration involves border-crossing. Arab oil countries have significantly higher net migrant stocks. The positive effect of a lack of political rights is in line with the analysis on emigrant stocks and

would require further analysis to fully understand. In contrast to the analysis on emigrant stocks, fertility has a significantly positive effect on net immigration stocks also after inclusion of the oil country dummy, which is difficult to explain from theory, and might be a spurious correlation through reverse causality and/or the effect of unmeasured variables.

Table 9 analyses 'total mobility', in which the sum of emigrant and immigrant stocks is taken as a proxy for general levels of the numbers of people crossing borders in either direction. This was the only regression for which the inclusion of the squared GDP and HDI values decreases the significance of the central predictor variables, suggesting that there is a generally positive relationship between development levels and overall levels of mobility. Reflecting the results for emigrant stocks, literacy has an initially decreasing, then increasing effect on the sum of immigrant and emigrant stocks. This U-shaped effect, which is opposite to the positive effect of HDI and GDP, is difficult to explain. Further analysis and theorisation is necessary to explore why increasing literacy is initially associated to decrease international out-migration. Population size and land surface have the hypothesized negative effect, which suggests that inclusion of this variables introduces some sort of control for the distinction between internal and international migration.

Table 9. Regression analysis: total mobility

Independent variables	Dependent variable: Total mobile population in % of country population (emigrant + immigrant stock)				
	1	2	3	4	5
	Beta	Beta	Beta	Beta	Beta
(Constant)	41.81***	88.09	40.19	56.22**	57.42***
Log GDP/cap(PPP)	15.00***	-9.99	12.08***	12.13***	
Log GDP/cap(PPP)SQ		3.36			
GDP growth (20 years)			-0.68	-0.61	-0.60
HDI					47.10***
Fertility			0.16	1.49	0.56
Literacy			0.07	-0.87**	
Literacy SQ				0.01**	
Ln Population	-3.59***	-3.67***	-3.34***	-2.97***	-3.68***
Ln Land surface	-2.45***	-2.42***	-2.14***	-2.45***	-1.85**
Lack of political rights	1.38**	1.46**	1.16*	1.14*	1.21*
N	195	195	179	179	176
Adjusted R^2	0.492	0.491	0.419	0.434	0.469

*** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

To assess the relative importance of the different explanatory variables, table 10 summarises the standard beta coefficients for models 4 and 5 for emigrant, immigrant and net immigrant stocks. They reveal the overwhelming importance power of the development proxies HDI and, particularly, GDP in explaining overall levels of migration. Literacy, which is a proxy for education levels, comes out as second most important, although the effects are only weakly, difficult to explain and therefore warrant more detailed investigation. The results also suggest that also political factors (rights, immigration policies) are important in explaining immigration, although these factors are largely outweighed by economic factors.

Table 10. Summary table standardized beta coefficients

Independent variables	Emigrant stock	Emigrant stock	Immigrant stock	Immigrant stock	Net immigrant stock	Net immigrant stock
			Standardized Beta			
Log GDP/cap(PPP)	2.42**		-2.02**		-3.36***	
Log GDP/cap(PPP)SQ	-2.68***		2.56***		3.96***	
GDP growth (20 years)	0.07	0.05	-0.17***	-0.15**	-0.18***	-0.14**
HDI		1.36***		-1.42***		-2.04***
HDI squared		-1.53***		1.93***		2.50***
Fertility	-0.19	-0.28**	0.21	0.12	0.32**	0.30**
Literacy	-0.73		-0.68*		0.17	
Literacy SQ	0.85*		0.80*		-0.19	
lnpop2000	-0.39***	-0.43***	0.02	-0.03	0.33***	0.34***
Inland	-0.23**	-0.18*	-0.22**	-0.18**	0.05	0.03**
Lack of political rights	-0.10	-0.08	0.23***	0.23***	0.25***	0.21***
Petrol state			0.39***	0.44***	0.21***	0.30***
Adjusted R^2	0.441	0.417	0.530	0.498	0.473	0.421

*** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

9. Conclusion

This paper showed how common ideas that development in origin countries will reduce international migration are ultimately based on conventional neo-classical, "push-pull" and other equilibrium theories, which assume an inversely proportional, linear relationship between income and other opportunity differentials and migration. However, the main propositions of these theories are so general that they seem to state the obvious. Consequently, these theories have a limited ability to explain real-world migration. Another group of theoretical concepts question the "no migration under equilibrium conditions" assumptions by conceptualising migration as an intrinsic part of broader development processes. While the 'migration hump' (Martin and Taylor 1996) explain short to medium term temporary increases in migration in the wake of trade reforms, transition theories as pioneered by Zelinsky (1971) describe the long-term, general and fundamentally non-linear associations between state formation, demographic transitions, economic growth and, the occurrence of particular forms of internal and international migration.

This paper it identified a number yet unobserved conceptual parallels and differences between separately evolved 'transition' theories and their deeper common intellectual roots in social theory and modernisation paradigms. Going against conventional neoclassical and push-pull theories, transition theory postulates that (1) development leads to generally *increased* levels of migration and that (2) societies typically go through migration transitions characterised by an inverted U-shaped pattern of emigration. However, prior transition theories can be criticized for their evolutionary character, their sedentary bias, a tendency towards demographic determinism and a limited conceptualisation of the causal mechanisms underlying the associations they describe. Finally, the explanatory power of existing equilibrium and transition theories has been severely hampered by the striking absence of meaningful notions of structure and, particularly, agency.

By synthesising and amending existing theories, this paper has attempted to advance a conceptual framework on the developmental drivers of international migration processes. First, transition theory is amended by introducing notions of stagnation and reversibility. Second, the paper argued that by applying Amartya Sen's capabilities approach to migration, we are able to broaden conventional income-focused concepts of development in order to conceptualise migration as a response to *opportunity* rather than income differentials. Third, it proposed to firmly incorporate structure and agency in migration theory by conceptualising migration as a function of people's capabilities and aspirations. This also implies acknowledgement of the fact that, within a set of given constraints, migrants have limited but real leeway to exert agency by making choices according to their own knowledge and preferences. This enables creates analytical room to analyse virtually all forms of migration within a single perspective and to move beyond artificial categorisations such as between 'voluntary' (economic) and 'forced' (political) migration, which have generally obstructed a more comprehensive theorisation of migration.

Based on this analytical framework, we hypothesised that human development leads to *generally* higher levels of migration, mainly through (1) increasing capabilities by loosening constraints on movement, (2) increasing aspirations and (3) increasing occupational specialisation. However, at the same time, development also goes with shifting patterns of spatial opportunity differentials. This explains why the links between levels and differentials of development and migration are typically non-linear, and why human development is typically associated to a sequence of internal and international migration transitions. In view of the contested nature of transition theory and the lack of adequate empirical test, this paper also provided an empirical test. Drawing on the World Bank / University of Sussex global migrant origin database, estimates the effect of various theoretically relevant development indicators on immigrant, emigrant, net immigrant and total migrant stocks as a percentage of the total population, which are taken as proxies of overall migration levels in the recent past.

The results confirm the main hypotheses of transition theory. They suggest that higher levels of economic and human development as proxied by HDI and GDP indicators are associated to higher overall levels of migration; have the predicted U-curve effect on emigration and net migration; and have an overall positive, although not entirely linear effect on immigration. Emigrant stocks seem to reach a peak at GDP/capita levels of approximately 12,000 US$ (2005 levels) and HDI levels of approximately 0.8, respectively, after which they start to decline slowly decline. The analysis suggests that immigrant-emigrant stock break even points are located at HDI values of about 0.89 and at GDP levels of about 20,000 US$ (or 67 percent above average world GDP) per capita. Fertility has no direct effect on emigrant stocks, corroborating that demographic factors are unlikely to have a direct effect on migration. Although future test should control for reverse causality, this further questions neo-Malthusian causal models of migration.

While the analysis suggest that economic factors as proxied by GDP per capita have a higher explanatory power than other factors, the analysis also exemplified the necessity to analyse emigration and immigration separately as well as to disentangle different components of development if we wish to gain further insight in the complex, non-linear relationships between human development and migration. For

instance, from current theory it is difficult to explain the initially absent or possibly even negative relation between HDI and emigrant stocks. While for low HDI-countries there is no clear relation between emigration and HDI, above HDI values of 0.6, the analysis reveals detects a marked 'hump-shaped' association. While the associations between GDP and emigrant stocks is more linear, it is also relatively weaker at low GDP values, and becomes stronger at beyond-lowest income levels. However, the underlying causal mechanisms are as yet unclear and warrant more focused theorisation and empirical research. Also the non-linear effects of development indicators on immigrant stocks exemplify the need to further explore the complex, non-linear relations between development and migration. In addition, the relatively weak, though unexpected U-shaped effects of literacy on emigrant stocks are difficult to explain and therefore warrant more detailed investigation.

Last but not least, the surprising positive association between a low degree of political freedoms and immigrant stocks and the negative association with emigration stocks exemplify the need to further analyse the largely unresolved role of migration policies and, more generally, political and state factors. Such sophisticated would require disaggregating the various dimensions of human rights, political freedoms and governance as their effects on (different forms of) migration is unlikely to be uniform.

While the use of migant stock data enables to assess general migration tends, this methodology also has fundamental limitations. As migrant stock data do reflect past rather than current migration, the actual development tipping and break-even points for migration *rates* are likely to lie at significantly lower levels than those estimated for migration stocks in this paper. Further research using panel (bilateral migration flow) data would be necessary useful to further explore and disentangle the effect of *absolute* and *relative* (compared to other countries) development levels on migration. Theoretically, the effect should be different, as the first factor is related to constraints and capabilities to migrate as well as life aspirations, whereas the second factor are likely to affect opportunity differentials and aspirations to migrate. Such more detailed analysis of origin-destination (bilateral) panel data would also allow us to resolve some important empirical puzzles, in particular the (1) unexpected U-shaped effects of education on emigration; (2) the lon-linear effect of development proxy variables (GDP, HDI) on immigration and the (3) complex, largely unresolved role of political factors and (migration) policies.

Although this analysis generated useful new insights in the relations between human development and migration, it is important to mention the limitations of our approach. First of all, we should remain cautious in making claims on causality based on an analysis of limited, cross-sectional data. Also, correlations on the macro-level do not necessarily provide behavioural explanations at the micro-level, as evidenced in the problem of measuring aspirations through using rather crude generic proxies such as literacy. In addition, past and current patterns might not be future-proof, and fundamental uncertainties remain about global migration in a future post-transition world.

Although several theoretical and empirical puzzles remain, the results strongly suggest that capability and aspiration increasing human development is initially associated with generally higher levels of emigration and immigration. There are obviously many other factors, particularly those rooted in the particular political

economy of countries, geographical location and historical contingencies, explain that countries with roughly similar levels of development show divergent migration patterns. However, this does not necessarily undermine the hypothesis that there is a *general* patterned relationship between human development and migration, and that development tends to coincide with migration transitions.

Development levels have shown to be a reasonably adequate indicator of migration levels. The analysis shows that, contrary to received wisdom and common push-pull models, that take-off development in the least developed countries is likely to lead to take-off emigration. Finally, the achievement of high levels of development is strongly associated to high net immigration. More generally, this exemplifies the need to conceptualise migration as an integral part of broader development processes rather than a problem to be "solved".

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Appendix

Table 2. Association between GDP and HDI levels and migration indicators

Key independent variables	Values	Migrant stock indicators (average, as percentage of total population)					
		Emigrant stock	Immigrant stock	Net migrant stock	Emigrants in OECD	Mobility index	N
GDP/capita PPP	<2083	8.2	3.0	-5.3	3.7	11.2	45
	2083-5000	20.1	5.1	-15.0	12.9	25.2	44
	5000-9032	27.3	6.7	-20.7	19.9	34.0	44
	9032-22273	21.7	14.1	-7.7	15.3	35.8	45
	>22273	14.4	23.4	9.0	11.1	36.1	44
	η (ANOVA)	0.17	0.50**	0.25**	0.16	0.22*	
GDP/capita PPP (without island/ micro states)	<2083	5.4	2.9	-2.6	1.0	8.3	40
	2083-5000	7.1	2.5	-4.6	3.1	9.7	31
	5000-9032	12.7	5.9	-6.8	7.3	18.7	31
	9032-22273	6.7	9.4	2.7	3.9	16.2	26
	>22273	7.2	18.2	11.0	5.2	25.5	29
	η (ANOVA)	0.30**	0.52**	0.47**	0.33**	0.43**	
Human Development Index	< .5336	4.2	2.7	-1.5	0.9	6.9	35
	.5336 - .7286	5.9	3.3	-2.6	1.8	9.2	36
	.7286 - .7974	19.7	6.6	-13.1	11.9	26.3	35
	.7974 - .8744	16.9	9.6	-7.3	10.3	26.5	36
	>.8744	9.5	14.8	5.4	7.3	24.3	35
	η (ANOVA)	0.40**	0.40**	0.35**	0.40**	0.44**	
Human Development Index (without island/ micro states)	< .5336	4.2	2.8	-1.4	0.8	7.0	32
	.5336 - .7286	5.8	3.4	-2.4	1.5	9.2	32
	.7286 - .7974	13.3	5.6	-7.7	7.4	18.9	26
	.7974 - .8744	9.0	10.3	1.3	4.9	19.3	28
	>.8744	7.2	15.2	8.0	5.1	22.4	30
	η (ANOVA)	0.35**	0.42**	0.37**	0.37**	0.42**	

Table 3 Bivariate correlations between key variables

	Log GDP/capita (PPP)	GDP growth (20 years)	Fertility	Life expectancy	Literacy	School enrolment	HDI index	Small/Island state	Lack of political rights	Emigrant stock	Immigrant stock	Net migrant stock	Mobility index
Log GDP/capita (PPP)	1	.373**	-.784**	.808**	.724**	.779**	.934**	.201**	-.485**	.051	.457**	.121	.190**
GDP growth (20 years)		1	-.297**	.306**	.224**	.240**	.287**	.132	-.082	.208**	.035	-.163*	.163*
Fertility			1	-.739**	-.752**	-.773**	-.832**	-.087	.527**	-.228**	-.167*	.093	-.240**
Life expectancy				1	.697**	.753**	.917**	.252**	-.446**	.176**	.377**	.002	.295**
Literacy					1	.802**	.858**	.130	-.324**	.242**	.258**	-.049	.321**
School enrolment						1	.891**	.018	-.481**	.168*	.226**	.019	.257**
HDI index							1	.077	-.473**	.205**	.354**	.049	.359**
Small/Island state								1	-.232**	.408**	.321**	-.272**	.464**
Lack of political rights									1	-.254**	-.053	.176*	-.207**
Emigrant stock										1	.119	-.924**	.936**
Immigrant stock											1	.269**	.461**
Net migrant stock												1	-.730**
Mobility index													1

Notes: ** Correlation is significant at the 0.01 level (2-tailed).
              * Correlation is significant at the 0.05 level (2-tailed).

Table 4 Bivariate correlations between key variables for low and high GDP level

GDP/capita PPP	Key independent variables	Dependent variables				
		Emigrant stock	Immigrant stock	Net migrant stock	Emigrants in OECD	Mobility index
Low (below 6977 USD)	Log GDP/capita (PPP)	.183	.227*	-.143	.174	.216*
	GDP growth (20 years)	.090	-.207*	-.205*	.192	-.026
	Fertility	-.343**	-.034	.311**	-.333**	-.284**
	Literacy	.341**	.185	-.221*	.315**	.353**
	HDI index	.450**	.191	-.323**	.434**	.440**
	Lack of political rights	-.381**	-.004	.348**	-.423**	-.291**
High (above 6977 USD)	Log GDP/capita (PPP)	-.099	.376**	.347**	-.044	.100
	GDP growth (20 years)	.247*	-.010	-.219*	.156	.160
	Fertility	-.054	.181	.167	-.071	.080
	Literacy	.013	-.014	-.019	.044	-.007
	HDI index	-.173	.253*	.290**	-.090	.019
	Lack of political rights	-.090	.169	.195	-.196	.042

Table 5 Bivariate correlations between key variables for low and high HDI level

HDI Index	Key independent variables	Dependent variables				
		Emigrant stock	Immigrant stock	Net migrant stock	Emigrants in OECD	Mobility index
Low (below .7660)	Log GDP/capita (PPP)	.270*	.093	-.203	.326**	.248*
	GDP growth (20 years)	.097	-.230*	-.239*	.146	-.038
	Fertility	-.369**	-.016	.348**	-.343**	-.285**
	Literacy	.292**	.144	-.192	.245*	.289**
	HDI index	.384**	.126	-.293**	.383**	.349**
	Lack of political rights	-.229*	.101	.285**	-.309**	-.123
High (above .7660)	Log GDP/capita (PPP)	-.271**	.353**	.419**	-.204	-.009
	GDP growth (20 years)	.141	-.114	-.178	.128	.047
	Fertility	.074	.289**	.117	.057	.241*
	Literacy	-.060	-.191	-.064	-.027	-.165
	HDI index	-.307**	.198	.357**	-.222*	-.132
	Lack of political rights	-.095	.359**	.284**	-.208*	.140