

Internal migration and development: Evidence from 71 countries

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Introduction

This paper reports results from the IMAGE project - Comparing Internal Migration Around the GlobE a four year international collaborative research program designed to provide a framework for systematic comparisons of internal migration. Compared with other demographic processes of fertility, mortality and international migration, statistics on internal migration are conspicuous by their absence from international collections. This lack of data has impeded empirical work on cross-national differences in internal migration, critical to advancing both knowledge and theory. Given the significance of population mobility in driving national settlement patterns, and its hypothesised links to development (UN 2009; The World Bank 2009), there is a pressing need for robust statistical indicators capturing differences between countries in the level, composition and spatial patterning of internal migration. This paper aims to contribute to this agenda by constructing the first comprehensive league table of internal migration intensities, defined to include all permanent changes of address, for countries around the globe. It also seeks to elucidate the relationship between migration and development by seeking explanation for observed cross-national variations using a range of economic, social and demographic variables suggested by migration theory.

Methodology

The only reliable basis on which to compare countries with respect to the overall level, or intensity, of migration is to utilise a measure which captures all moves. In practice, however, only a small number of countries collect these data directly; most only capture moves between zones at various levels of administrative or statistical geography. To provide estimates of overall migration intensity for these other countries, we apply the method proposed by Courgeau *et al.* (2012) which models the relationship between migration intensity and the average number of households per zone at various spatial scales. To operationalize this method, we draw on migration flow matrices from the IMAGE repository which contains datasets for more than 100 countries at various levels of spatial aggregation. For countries with matrices containing more than 200 zones, we utilise the spatial aggregation sub-system of the IMAGE studio, a bespoke software package which embodies a flexible spatial aggregation facility to combine Basic Spatial Units (BSUs) into Aggregated Spatial Regions (ASRs) at user-defined levels of geography. This enables computation of migration intensities at a sequence of spatial scales for each country, not available from published statistics. Following Courgeau *et al.* (2012) we then calculate the overall migration intensity by fitting a regression line through the mean observation at each spatial level, paired with the average number of households per ASR. The y intercept corresponds to the overall

migration intensity. For countries lacking matrices at a fine-grained level of spatial resolution, we estimate the aggregate migration intensity in the same way, but fit the regression line to just those data points derived directly from the available data. In most cases this corresponds to the number of migrants or migrations at various levels of the administrative hierarchy employed in each national statistical system (Law 1999) – e.g. regions, provinces, districts and counties. Data are needed for at least three geographic levels to implement this approach. These estimates are less reliable than those produced using the IMAGE Studio, due to the spatial bias inherent in administrative geographies, but still provide a useful basis for comparison. A league table of countries is then produced by ranking countries according to the estimated level of overall migration intensity. The IMAGE repository contains data sets which measure migration as events (over one year intervals) and as transitions, measured over a range of different intervals. For the purposes of this paper we utilise data for a total of 71 countries measured over one or five year intervals, and produce discrete league tables for each with some overlap for the small number of countries that capture movement over both time intervals. We test the association between internal migration intensity and level of development through regression analysis using a range of demographic, economic and social variables. Results provide little evidence of a straightforward link.

A league table of aggregate internal migration intensities

Table 1 reports overall migration intensities for a subset of the 71 countries. Five year intensities, calculated for 37 countries in total, range between 10.5 per cent for the Philippines to 56.2 per cent in Fiji. The median five year intensity across the sample is 22.5 per cent. The highest intensities are found in the “new world” countries of New Zealand, the United States of America, Australia and Canada, along with Fiji, South Korea, Cameroon, Chile and Switzerland. The lowest five year intensities are observed in South-East Asia (e.g. The Philippines, Indonesia and Vietnam), Africa (e.g. Mauritius) and Latin America (e.g. Mexico, Honduras, and Nicaragua). Results suggest a broad positive association between level of development and overall migration intensities, supporting earlier findings by Bell and Muhidin (2009).

Table 1: Overall national migration intensities, selected countries

Country	Region	Year	5 year transition	Estimation Method
Philippines	Asia	2000	10.5	IMAGE
Mauritius	Africa	2000	12.0	OBSERVED
Indonesia	Asia	2000	12.6	COURGEAU
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South Korea	Asia	2000	52.8	OBSERVED
New Zealand	Oceania	2006	54.7	OBSERVED
Fiji	Oceania	2007	56.2	COURGEAU
Country	Region	Year	1 year transition	Estimation Method
Slovenia	Europe	2002	2.5	COURGEAU
Cyprus	Europe	2001	3.8	OBSERVED
Burkina Faso	Africa	2006	4.2	COURGEAU
...

Canada	Northern America	2006	13.3	OBSERVED
Australia	Oceania	2001	17.6	OBSERVED
Kenya	Africa	1999	18.4	COURGEAU

One year migration intensities were calculated for 41 countries (a sample of which are shown), with the majority located in Europe (29) and Asia (6), but only thin coverage of North America (2) Oceania (1), Africa (2), and Latin America (1). Around half of the one year intensities are based directly on observed data (19). Values for one year intensities range from 2.5 per cent in Slovenia to 19.1 per cent in Iceland. Scandinavian countries display consistently high one year intensities, ranging from 17.0 per cent in Finland to 12.2 per cent in Denmark. More generally, there is a high to low gradient in one year intensities travelling from Northern to Southern Europe, and from Western to Eastern Europe. The picture across the rest of world is more heterogeneous. The strength of these variations underlines the significance of migration as a key differential in the demographic processes that characterise countries around the world, far exceeding contemporary variability in rates of mortality or fertility.

Explaining Cross-national Variations

Explanation for differences in mobility across space and over time has been sought, *inter alia*, in a range of historical, structural, cultural and economic factors (see eg Long 1991, Zelinsky 1971). We examine the links between development and migration intensity through regression analysis using a range of demographic, economic and social variables sourced from the United Nations and The World Bank and (Table 2). Associations are calculated separately for one and five year migration intensities.

Table 2: Correlation coefficients (pearson r) between national migration intensities and selected development indicators, 67 countries

Variables		1 year aggregate migration intensity	5 year aggregate migration intensity
Economic	GDP per Capita (2005 PPP\$)	0.67	0.62
	Gini Coefficient (Income Inequality 2000,2005)	-0.03	-0.18
	Foreign Direct Investment as a proportion of GDP (2000)	0.02	-0.13
	Female Labour Force Participation (2000)	0.26	0.10
	Labour Force Participation (2000)	0.18	0.25
Social	Human development index (HDI) (2000)	0.49	0.60
	Mobile Phone Subscribers (2000)	0.65	0.62
	Literacy (2000)	0.09	-0.03
Demographic	E0 (2000-2005)	0.50	0.41
	TFR (2000-2005)	-0.02	-0.29
	Growth rate (2000-2005)	0.16	-0.28
	Median Age	0.21	0.49
	Urbanization (2000)	0.60	0.53
	Net International Migration rate (2000-2005)	0.26	0.58
	Remittances as % of GDP (2000)	-0.32	-0.44

Nb. Outliers have been removed from the analysis of one year intensities (Kenya and Kyrgyzstan) and five year intensities (Fiji and Cameroon)

Coefficients of correlation with overall migration intensities range from -0.44 to 0.67 across the one year and five year estimates. Selected demographic, social and economic variables all feature strongly and together provide persuasive evidence as to the importance of development as a key driver of human mobility. Focussing on the five year intensities, strong associations are found with GDP per capita ($r=0.62$), the HDI (0.60), the rate of mobile phone subscription (0.62), the level of urbanization (0.53) and the net international migration rate (0.58). There are also moderate positive associations with median age and with life expectancy, which are surprising since older ages are generally associated with lower mobility. Positive associations could be a product of the demographic dividend but may simply be symptomatic of other aspects of economic development. In a similar way, the strong association with urbanisation reflects an endogenous process, since internal migration is a primary driver of urban growth. The coefficients for international migration (0.58) and remittances (-0.44) are more intriguing. International migration often induces a displacement effect within host countries, with high inflows triggering outflows of domestic migrants from recipient communities. Remittances, on the other hand, may simultaneously reduce the need or incentive for internal migration but are themselves a product of international out-migration by former residents. Results for one year migration intensities show much the same picture. Multivariate analysis reveals strong collinearity among the independent variables in Table 2, which results in relatively low coefficients of explanation, but underlines the complex interactions of different facets of development across countries over time.

References

Courgeau, D, Muhidin, S & Bell, M 2012, 'Estimating changes of residence for cross-national comparison', *Population (English edition)*, vol. 67, no. 4, pp. 631-51.

Law, G 1999, *Administrative Subdivisions of Countries: A Comprehensive World Reference, 1900 through 1998*, McFarland and Company, Jefferson, North Carolina.

Long, L.H. 1991: Residential mobility differences among developed countries, *International Regional Science Review*, vol. 14, no. 2, pp. 133-47

The World Bank 2009, *World Development Report 2009: Reshaping Economic Geography*, The World Bank, Washington D.C.

United Nations 2009, *Human Development Report 2009, Overcoming barriers: Human Mobility and Development*, United Nations Development Program, Basingstoke.

Zelinsky, W 1971, 'The hypothesis of the mobility transition', *Geographical Review*, vol. 61, no. 2, pp. 219-49.

