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The Use of Census Data: Cross-National of Internal Migration in Africa

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Why Cross-National Study on Migration

The study starts from the simple observation that, compared with fertility and mortality, comparatively little attention has been given to the way in which *internal migration* varies between countries around the world, including in Africa. Often viewed as a country-specific analysis.

Many African countries have generally experienced in declining fertility and mortality rates. As a result, migration may eventually take its turn in determining the growth of population.

DEMOGRAPHIC DATA AND ESTIMATES FOR THE COUNTRIES AND REGIONS OF THE WORLD											
	Population mid-2008 (millions)	Births per 1,000 Population	Deaths per 1,000 Population	Rate of Natural Increase (%)	Net Migration Rate per 1,000 Population	Projected Population (millions)		Projected Population Change 2008–2050 (%)	Infant Mortality Rate ^a	A Woman's Lifetime Risk of Dying From Maternal Causes, 1 in:	Total Fertility Rate ^b
						mid-2025	mid-2050				
WORLD	6,705	21	8	1.2	—	8,000	9,352	39	49	92	2.6
MORE DEVELOPED	1,227	12	10	0.2	3	1,269	1,294	5	6	6,000	1.6
LESS DEVELOPED	5,479	23	8	1.5	-1	6,731	8,058	47	54	75	2.8
LESS DEVELOPED (Excl. China)	4,154	26	9	1.8	-1	5,255	6,621	59	59	55	3.2
LEAST DEVELOPED	797	36	13	2.4	-0	1,139	1,664	109	85	22	4.7
AFRICA	967	37	14	2.4	-1	1,358	1,932	100	82	26	4.9
SUB-SAHARAN AFRICA	809	40	15	2.5	-0	1,161	1,698	110	88	22	5.4
NORTHERN AFRICA	197	26	7	1.9	-1	251	307	56	45	145	3.0
Algeria	34.7	22	4	1.8	-1	43.3	50.1	44	27	220	2.3

Source: Population Reference Bureau, http://www.prb.org/pdf08/08WPDS_Eng.pdf

Challenges to Comparisons

1. Lack of access to data → Will IPUMS be the answer?
2. Disparities in the way internal migration is captured
 - Type of data (event or transition)
 - Interval period: 1 year, 5 years, 10 years, lifetime, variable
3. Disparities in spatial framework used to record a move
 - Countries differ widely in size, shape and zonal systems (statistical geography). Benin has 12 Départements and subdivided into 77 communes, while Zimbabwe has 8 Provinces and 59 districts.
 - MAUP (Modifiable Areal Unit Problem) due to scale (number of unit) and zona (boundaries) dimensions.
4. The absence of commonly agreed statistical indicators.

This Paper

Context

Using the available census data from IPUMS for exploring the differences in internal migration indicators across African countries.

Aims

- To determine differences in 3 dimensions of migration intensities across 26 African counties by using the methods proposed by Bell et al. (2002) on standard measures for internal migration comparisons.
- To examine their linkage to geographic differences across different patterns of national development.

Why Africa

- Unique geographical settling
- Differences in socio-economic conditions and histories
- Differentiated patterns of development

Key Data Items:

- Total migrants/migrations
- Age (and sex) of migrants
- Flow matrix(ces)
- Populations at risk

African Data

No.	Country	2000s/2010s	1990s	1980s	1970s/60s
1.	Benin	2013 & 2002	1992		1979
2.	Botswana	2011 & 2001	1991	1981	
3.	Burkina Faso	2006	1996	1985	
4.	Cameroon	2005	1987		1976
5.	Egypt	2006	1996	1986	



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PROJECT

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RESEARCH DATA ENCLAVE

HARMONIZED INTERNATIONAL CENSUS DATA FOR SOCIAL SCIENCE AND HEALTH RESEARCH

IPUMS-International is dedicated to collecting and distributing census data from around the world. The project goals are to collect and preserve data and documentation, harmonize data, and disseminate the harmonized data free of charge.

98 COUNTRIES 443 CENSUSES AND SURVEYS OVER 1 BILLION PERSON RECORDS

SOURCE DATA FOR IPUMS INTERNATIONAL ARE GENEROUSLY PROVIDED BY PARTICIPATING NATIONAL STATISTICAL OFFICES

Internal Migration: Data Types

Interval over which migration is measured:

- Transition: Place of previous residence 1 year ago / 5 years ago
- Place of birth (for lifetime migration) → *the most common in Asia*

Region	1-Yr	5-Yr	Other	Lifetime	Last Move	Duration	Total no. countries in region
Africa	9	8	8	29	13	17	32
Asia	1	13	8	26	18	24	34
Europe	14	4	12	26	10	13	32
Latin America	2	16	2	28	12	13	28
North America	1	3	0	3	0	0	3
Oceania	2	8	2	10	2	5	13
Total	29	52	32	122	55	71	142

Source: IMAGE Inventory of Internal Migration data (**for 2000 Censuses**)

Differences in Spatial Framework

Region	Country	Census Year	Major Geo-Zones	
North	Egypt	2006	27	Governorate
North	Morocco	2004	12	Region
North	Sudan	2008	8	Province
Central	Cameroon	2005	7	Province
Central	Rwanda	2012	5	Province
East	Ethiopia	2007	9	States
East	Kenya	2009	8	Province
East	Malawi	2008	28	Districts
East	Mozambique	2007	10	Province
West	Benin	2013	12	Department
West	Burkina Faso	2006	13	Region
West	Ghana	2010	16	Region
West	Liberia	2008	15	Counties
Southern	Botswana	2011	17	Districts
Southern	Lesotho	2006	10	Districts
Southern	South Africa	2011	9	Provinces

Modifiable Areal Unit Problem

- Differences in number of zones.
- Differences in shape and size of zones





IPUMS Microdata

Integrated (harmonized) and Unharmonized variables

- It gives us an opportunity to do cross-national comparisons (of variables) and to do cross-check with the original data (harmonized vs unharmonized).
- **Harmonized data:** Has the same codes and labels across all countries. It is generally useful for cross-national comparisons.
- **Unharmonized:** Corresponds to the original variables in the data. These often are not consistent across samples.

Internal migration information

- Differences in time (interval): 1yr, 5yr, 10yr, lifetime
- Differences in space covered: between nations vs within the same nation.

Harmonized Var for Status of Migration (1 Year)

1. NIU (not in universe)
2. Same major administrative unit
3. Different major administrative unit
4. Abroad
5. Unknown/missing

Harmonized Var for Status of Migration (5 Year)

1. NIU (not in universe)
2. Same major administrative unit
- 3a. Different major, same minor
- 3b. Different major, diff-minor
4. Abroad
5. Unknown/missing

IPUMS Microdata

However....

- IPUMS microdata are samples, not the full-count data → Sample error.
- Sample bias in estimating statistics for individuals (shared by households members: ethnicity, religion, birthplace).

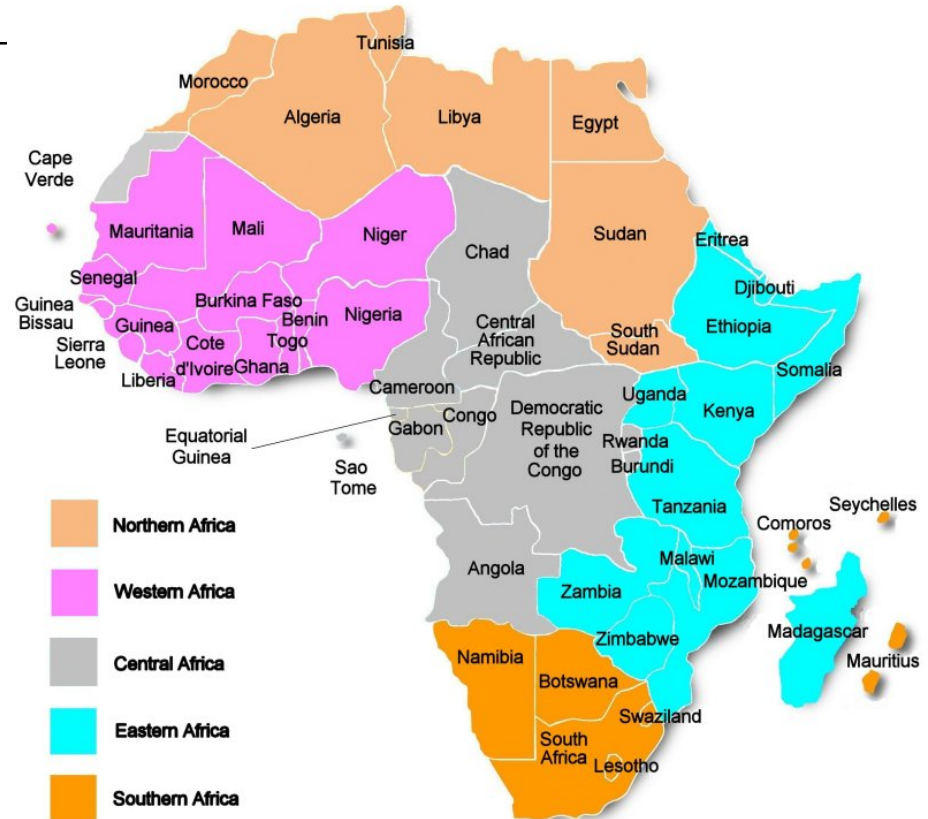
Migration analysis requires data in the format of *origin-destination*, it is preferable to have the data available at the smallest geographical level, then it could be build into the higher level. Yet, data issues appeared due to:

- Some cases, only migration status variable is available (can't have matrix O-D)
- Some regions are combined (aggregated)
- Variation in the number of origin vs destination

Regional Diversity in Africa

Africa is home to around one fifth of the total world population, and still highly growing.

Many countries in Africa have regional differences. Diversity of ethnic and cultural groups as well as languages. Differences in history, economic development, political structure, demography and patterns of human settlements.





Regional Diversity in Africa

Classement 2018 des IDH africains

■ Elevé ■ Moyen ■ Faible
■ Non disponible

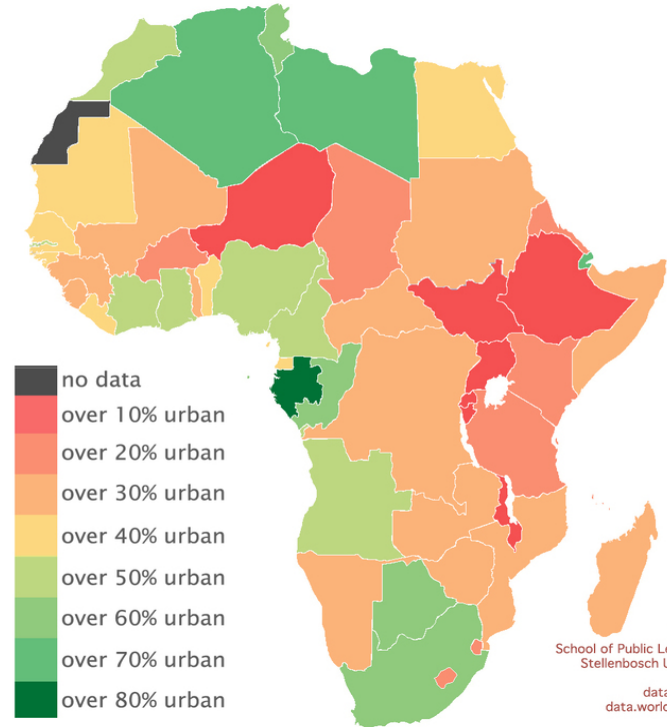
- 1 Seychelles
- 2 Maurice
- 3 Algérie
- 4 Tunisie
- 5 Botswana
- 6 Libye
- 7 Gabon

- 8 Afrique du Sud
- 9 Egypte
- 10 Maroc
- 11 Cap-Vert
- 12 Namibie
- 13 Congo
- 14 Ghana
- 15 Guinée Equatoriale
- 16 Kenya
- 17 Sao-Tomé et Principe
- 18 eSwatini
- 18 Zambie
- 20 Angola
- 21 Cameroun



- 22 Tanzanie
- 23 Zimbabwe
- 24 Nigeria
- 25 Rwanda
- 26 Lesotho
- 26 Mauritanie
- 28 Madagascar
- 29 Ouganda
- 30 Benin
- 31 Sénégal
- 32 Comores
- 32 Togo
- 34 Soudan
- 35 Côte d'Ivoire
- 36 Malawi
- 37 Djibouti
- 38 Ethiopie
- 39 Gambie
- 40 Guinée
- 41 RDC
- 42 Guinée-Bissau
- 43 Erythrée
- 44 Mozambique
- 45 Libéria
- 46 Mali
- 47 Burkina Faso
- 48 Sierra Leone
- 49 Burundi
- 50 Tchad
- 51 Sud Soudan
- 52 Rép. centrafricaine
- 53 Niger

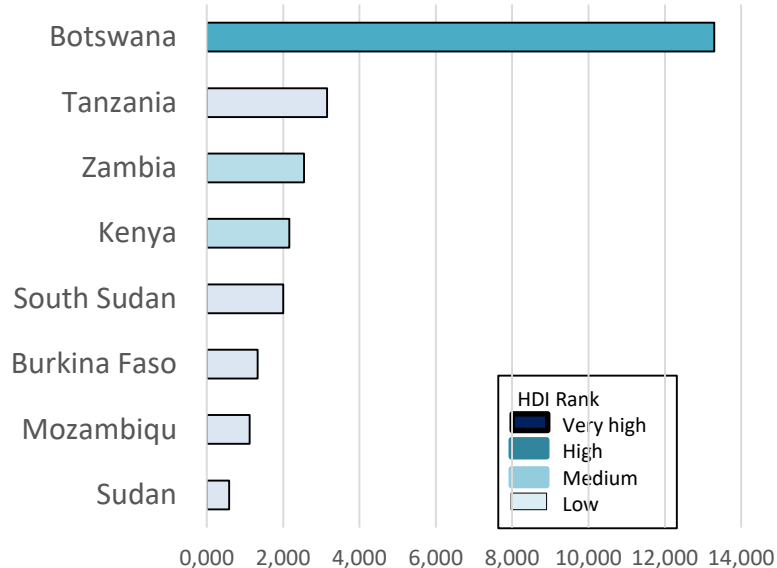
Level of Urbanisation of African Nations 2010



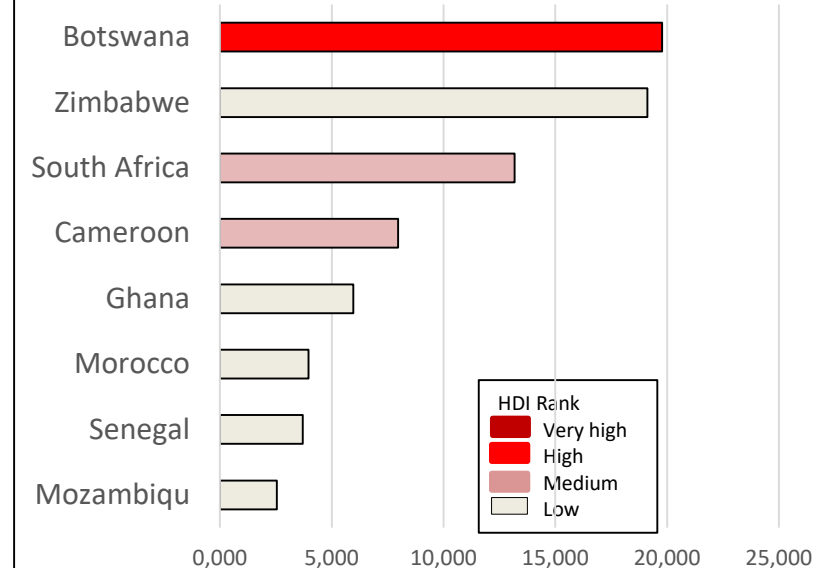


Result: Estimated Crude Migration Intensities

Migration Intensities (1 Year)

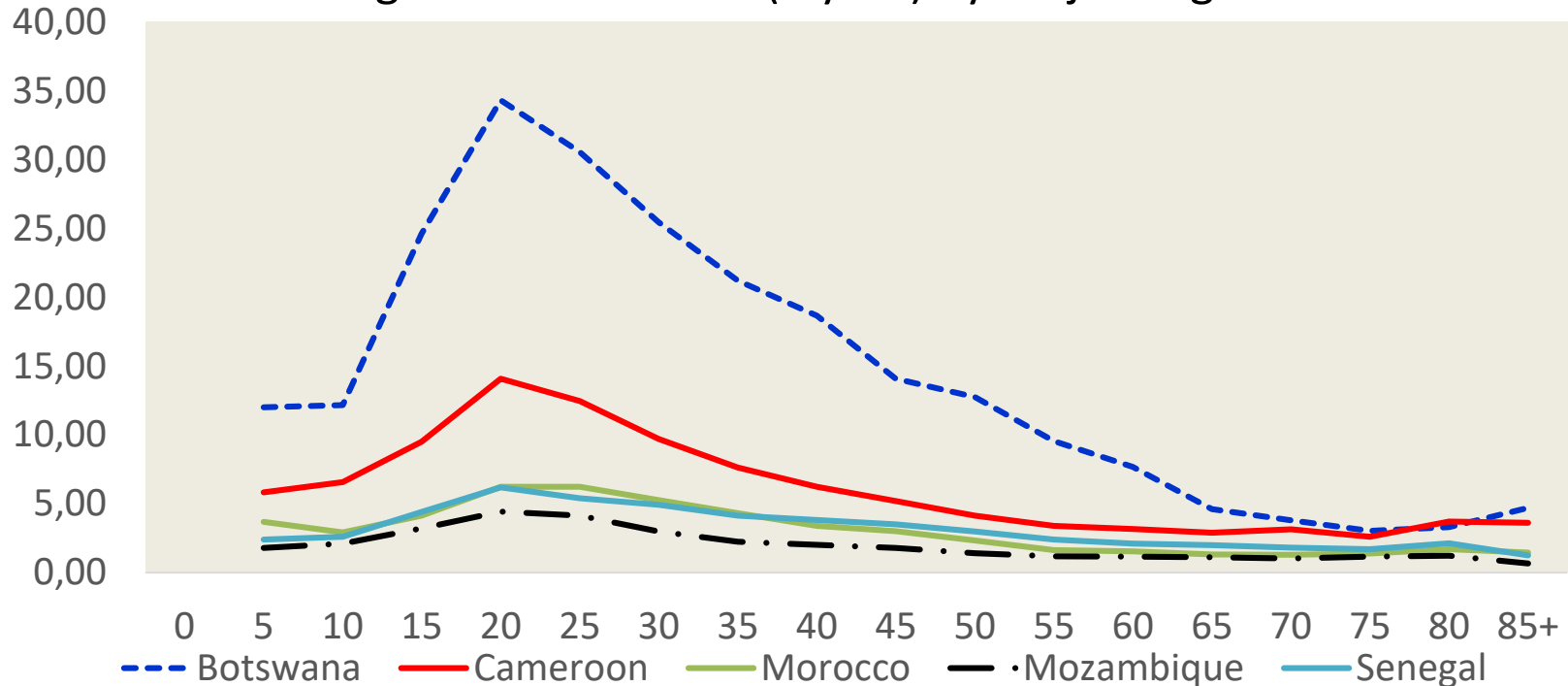


Migration Intensities (5 Years)



Results: Migration Age Patterns

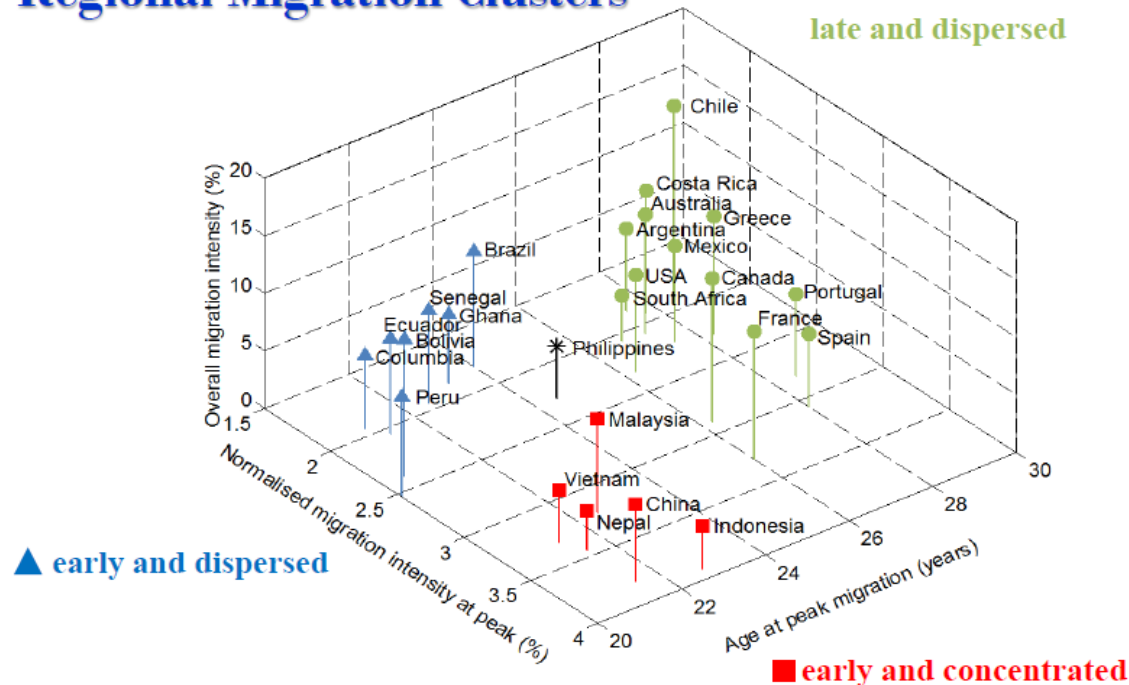
Migration Intensities (5 year) by Major Region





International Comparisons: Age Patterns

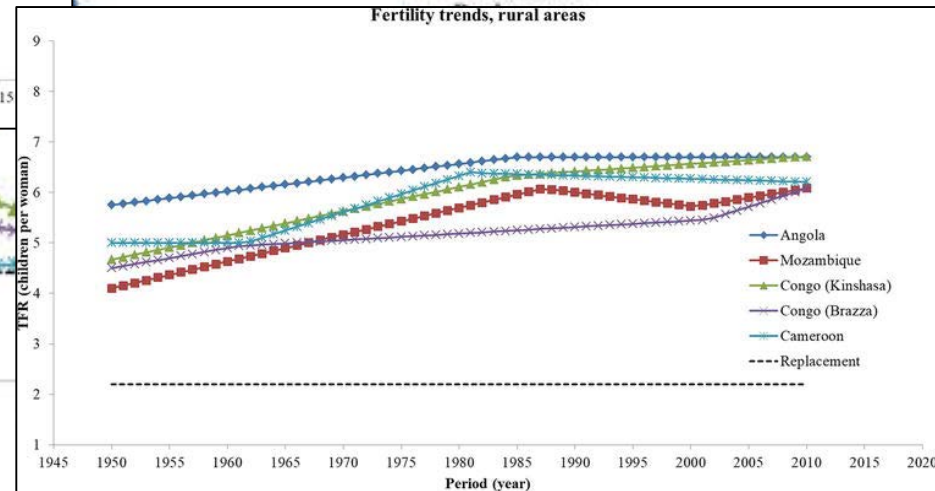
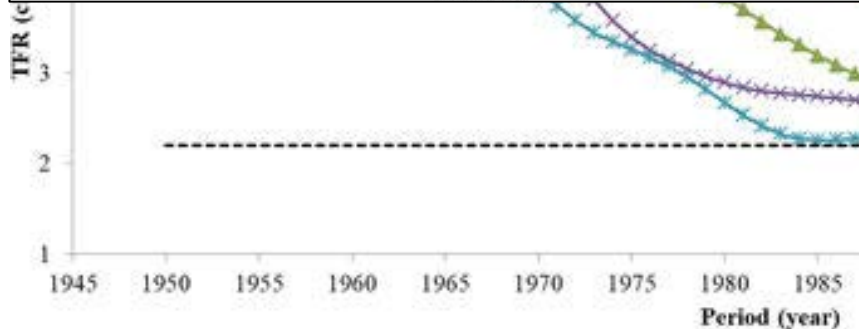
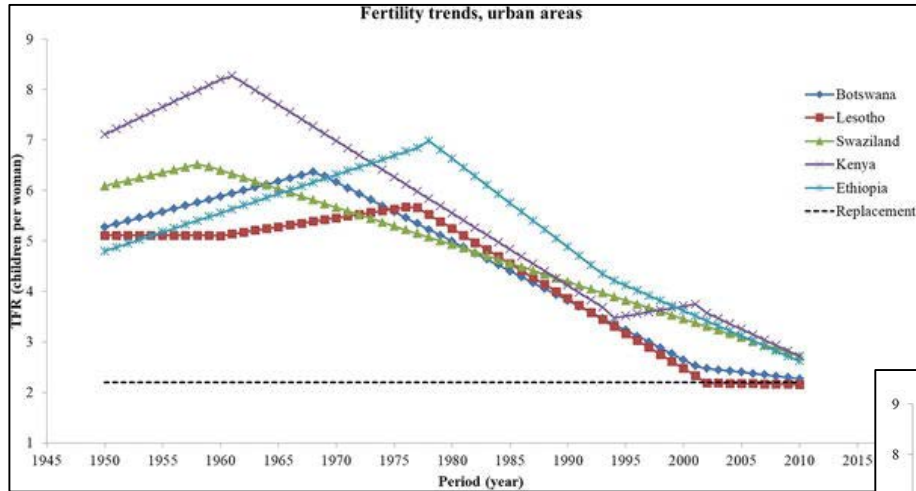
Regional Migration Clusters



Source: Bernard, A., Bell, M., & Charles-Edwards, E. (2014). Improved measures for the cross-national comparison of age profiles of internal migration. *Population Studies*, 68(2), 179-195.



Explaining Differences in Intensity





Regional Diversity in Africa

Classement 2018 des IDH africains

■ Elevé ■ Moyen ■ Faible
■ Non disponible

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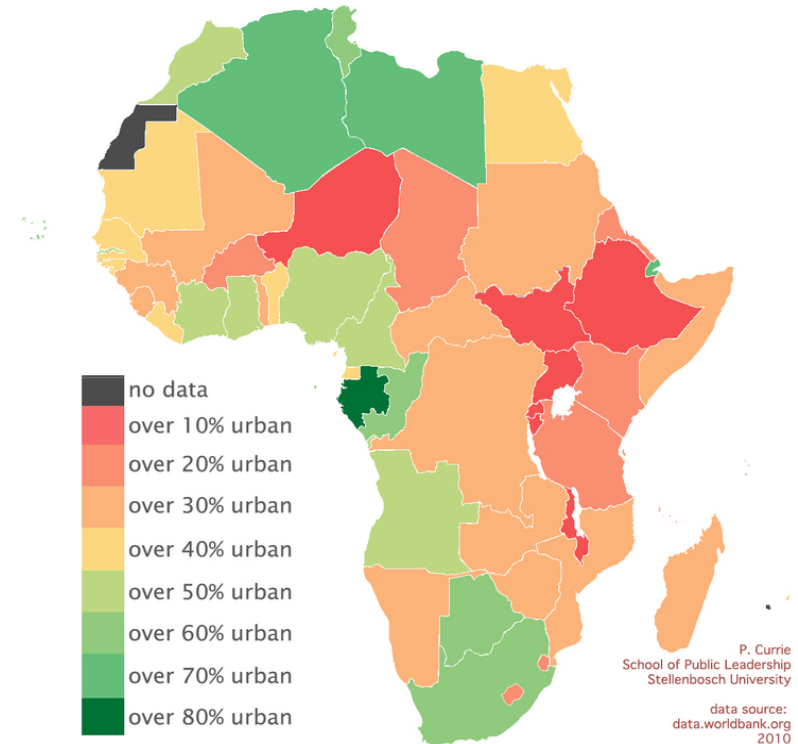


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ECHO

source 2018

Level of Urbanisation of African Nations 2010

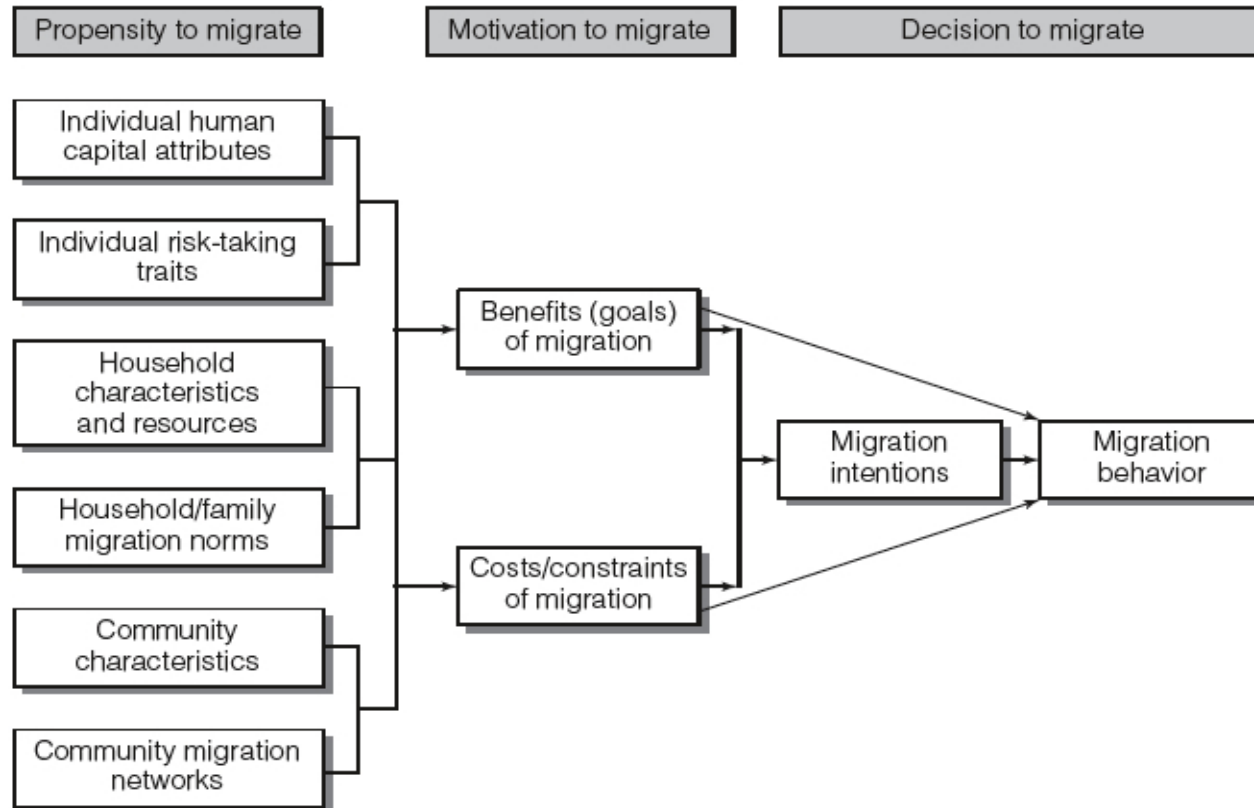


P. Currie
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data source:
data.worldbank.org
2010



Migration Decision Making





Mobility Transitions: Zelinsky (1971)

- *Phase 1: “Pre-modern Traditional Society”*
Before the onset of the urbanisation and it is very little migration.
- *Phase 2: “Early Transitional Society”*
Massive movement from countryside to cities (process of modernisation)
- *Phase 3: “Late Transitional Society”*
Urban-to-urban migration surpasses the rural-to-urban migration, and other type of migration (non-economic migration & circulation) emerges.
- *Phase 4: “Advanced Society”*
The movement from countryside to city continues reduces, movement of migrants from city to city and within individual urban agglomerations .
- *Phase 5: “Future Super-Advanced Society”*
Most the inter-urban and intra-urban movement.

Conclusions

The study has marked cross-national variations in migration intensity in Africa with wide variations in migration intensity and spatial patterns.

Economic factors do play a significant role in the migration process, yet it has not the only driving forces. The link between migration and development does not apply to the entire range of countries.

Widespread differences on all migration dimensions

- Intensity: variations are partly a product of differences in the number of zones division (used Courgeau's k , robust and powerful).
- Selectivity: variations are associated with marked differences in the age profile. African countries have peak sharply at an early age.

Some References

- The IPUMS International at the University of Minnesota (international.ipums.org/international)
- 2009: 'Cross-national comparisons of internal migration.' Human Development Research Paper 2009/30, United Nations, New York. Co-author with Martin Bell.
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- 2011: 'Comparing Internal Migration between Countries using Courgeau's K', Chapter 7 in J. Stillwell and M. Clarke (Editors) **Population dynamics and projection methods**. Springer, Co-author with Martin Bell.
- 2012: 'Estimating changes of residence for cross-national comparison.' **Population: English Version** (INED). Co-authors with Daniel Courgeau and Martin Bell.



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Merci...
Thank you...

