What Really is Brain Drain?
Location of Birth, Education and Migration Dynamics of African Doctors

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The World Bank

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Ghana Physicians & Surgeons Foundation
Atlanta 2013
Introduction

- Great progress made in the last decade on skilled migration data...
  - Emigration rate among the tertiary educated is 42% in Small Island Economies

- But we never clearly define “high skilled migration”
  - Movement of human capital from location of production to employment
Available Data Sources: Stocks

- **Stocks:**
  - United Nations: Unilateral stocks (World)
  - World Bank: 1960-2000, Bilateral Global matrix
  - OECD/World Bank 2010 Bilateral Stocks to OECD+

- **Flows:**
  - UNPD, OECD, IMI: C2C global flows
A Global Assessment

- Artuç, Docquier, Ozden, Parsons (2013)
  - 190*190 matrix, 1990 and 2000, 2 skill levels
  - 1st attempt to examine truly global patterns
  - Foreign-born definition
  - Two education levels
  - Gender

- Develop 2-stage estimation procedure to impute missing data and to account for endogeneity bias
Introduction

- As a result, we are still far from answering the fundamental questions on the impact and determinants of high skilled migration or “brain drain”

  - How does this high emigration rate impact growth, poverty and critical service delivery in sending countries?

  - What does this high emigration rate imply in terms of fiscal resource constraints in education and appropriate human resource related policies?
Introduction

- Need **unified** data on **patterns of migration** in terms of location of birth, training and age of migration
  
  - Over 70% of the college educated Jamaicans in the United States emigrated before age 18
  
  - Causal data indicate another 10% were educated in other countries - United Kingdom and Canada
Motivation

Dilip Ratha
Born: India
BA: India
PhD: India
Employment: USA
Motivation

Dilip Ratha
Born: India
BA: India
PhD: India
Employment: USA

Akiko Maeda
Born: Japan
BA: USA
PhD: USA
Employment: USA
Motivation

Dilip Ratha
Born: India
BA: India
PhD: India
Employment: USA

Akiko Maeda
Born: Japan
BA: USA
PhD: USA
Employment: USA

Kaushik Basu
Born: India
BA: India
PhD: UK
Employment: USA
Question

We have some idea about location of birth, training and age of migration separately but,
NOT JOINTLY!!!

Case: Physicians in the US from Sub-Saharan and North Africa
Data

Combine two data sources:

American Medical Association (AMA):
- **complete** administrative data on **ALL** physicians in the US
- location of training, personal data and **incomplete** place of birth
Data

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American Community Survey (ACS)
- Annual census – nationally representative sample
- Personal data, place of birth, age of migration but no place of training
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Divide Africa into 13 regions + world into 6 regions
- (Egypt, Nigeria, South Africa, Ghana, Ethiopia, ...)
- (US, English speaking OECD, Europe, ...)
Data – AMA File

Born in Africa

Trained in Africa

Reported Country of birth

Did not report Country of birth

A
B
C
D
E
F
Data – Census File

Born in Africa

Trained in Africa

A’  B’  C’

D’  E’  F’
Estimation – Step 1
Determine place of birth

- First, from AMA data, determine probability of being in born in country “b” if educated in country “e” for each doctor “i”

- Use information from B + C to determine $p_i(b,e)$ for those in region E + F
Estimation - Step 2
Determine place of Training

- PROBLEM MORE SEVERE!
- Second, match ACS data with AMA data, to determine probability of being in trained in “b” if born in “e” for each doctor “i”
- Use information from A + B to determine $p^*_i(b,e)$ for those in region $A' + B' + C' + D'$

![Diagram showing intersection of Born in Africa and Trained in Africa sets for AMA and ACS data.]
Estimation - Step 3
Determine Age of Migration

- We have age of migration from ACS only for those in A’+B’+D’+E’ So drop from analysis those trained in but NOT born in Africa
- We have $p_i^*(b,e)$ for $A’ + D’$ – use age of migration directly from ACS
- We have $p_i(b,e)$ for $B + E$ – match them to ACS to determine $q(a,p,e)$ – probability of migrating at age “a” if born in “b” and educated in “e”
Egyptian Doctors in the US

- **BORN IN EGYPT**
  - ACS
  - 4,332

- **TRAINED IN EGYPT**
  - AMA
  - 4,062
Egyptian Doctors in the US

TOTAL NUMBER OF “EGYPTIAN” DOCTORS IN THE US: 4,866
Egyptian Doctors in the US

**BORN IN EGYPT**

- Trained in another African Country: 32
- Trained in the United States: 637
- Trained in the rest of the world: 133

**TOTAL:** 73% of total

**TRAINED IN EGYPT**

- Born in another African Country: 44
- Born in the United States: 125
- Born in the rest of the world: 365

**TOTAL:** 11% of total

**TOTAL:** 16% of total

**TOTAL:** 4,866
North African Doctors in the US (excluding Egyptians)

- BORN IN NORTH AFRICA
  - Trained in another African Country: 15
  - Trained in the United States: 249
  - Trained in the rest of the world: 143

- TRAINED IN NORTH AFRICA
  - Born in another African Country: 28
  - Born in the United States: 58
  - Born in the rest of the world: 48

48% of total
36% of total
16% of total

TOTAL: 841
South African Doctors in the US

BORN IN SOUTH AFRICA

- Trained in another African Country: 5
- Trained in the United States: 1,002
- Trained in the rest of the world: 290

TRAINED IN SOUTH AFRICA

- Born in another African Country: 181
- Born in the United States: 92
- Born in the rest of the world: 254

Total: 2,642

49% of total (BORN IN SOUTH AFRICA)
31% of total (TRAINED IN SOUTH AFRICA)
20% of total (TOTAL)
## Location of Birth vs. Education

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African Doctors in the US

TOTAL NUMBER OF “AFRICA” DOCTORS IN THE US (around) 20 thousand
When do doctors migrate? (Educated at home)

Ghana
When do doctors migrate?
(Educated at home)
When do doctors migrate? (Educated at home)

![Graph showing migration rates of doctors in Egypt, Ghana, and Nigeria.](image)
When do US-educated doctors migrate?
When do South African doctors migrate? (by cohort)
Why go through the trouble?

- We need to be very careful when we talk about skilled migration
  - There are 20,000 Sub-Saharan + North African doctors in the United States
  - 48% studied born and educated in Africa
  - 44% born in but studied outside Africa – 70% in the US
Why go through the trouble?

- We need to be very careful when we talk about skilled migration
  - Not every doctor trained in Egypt is actually Egyptian!!!
  - Almost 9% were born outside but were trained in Sub-Saharan + North African countries!!
Why go through the trouble?

- Global human capital markets are more complicated and integrated than we realize. The flows are not uni-directional but form a multi-dimensional network.

- Policymakers and research are BEHIND the curve!!

- Life would have been easier if AMA collected better data but I would not have much to talk about.
What is missing?

- How is education financed?
  - At home (e.g., India)
    - Private or public?
    - If public, free or tuition?
  - At location of employment (e.g., the US)
    - Private or public?
    - Which government (or source) financed it?
  - At third location (e.g., the UK)
    - Private or public?
    - What is the exact source?
Thank You !!!

contact information

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