Bilateral Migration Model and Data Base

Terrie L. Walmsley
Aims of Research

• Numerous problems with current data on numbers of migrants:
  – Opaque data collection, Regional focus, Non-separation of alternative definitions, Incomplete

• Other missing data: bilateral remittances and labor force by skill

• Create a global matrix of bilateral labor migration

• Create a Global Data Base and Model with bilateral labor migration and remittances

• Improve our ability to capture key relationships between countries and hence the distributional impact of Migration policies.

• Collaborate with DRC on Migration, Globalisation and Poverty
Bilateral Labour Migration Data Base

- **226*226 Matrix of immigrant stocks**
- **5 versions – incrementally filled**
  - Two matrices for the first four versions - foreign born and nationality
  - Fifth version decided on foreign born data
    - UN definition that a migrant is “any person who changes his or her country of usual residence”
- **Sources: Censuses, Registers, Permits, Surveys**
  - All record slightly different data
  - Predominantly used Censuses and Population Registers if Census was unavailable
  - Latest round 1995-2004
Bilateral Labour Migration Data Base

Data now available:

Documentation:
Parsons, Christopher, Ronald Skeldon, Terrie Walmsley and Alan Winters, "Quantifying the international bilateral movements of migrants", DRC Working Paper No WP-T13, Sussex University, United Kingdom, 2005
Migrant Population Stocks by Home Country (226 Labor Exporters)
Data Summary

Top ten countries with highest percentage foreign population:

- United Arab Emirates
- Kuwait
- Palestinian Territories
- Hong Kong
- Jordan
- Israel
- Oman
- Latvia
- Democratic Republic of Cong
- Saudi Arabia

Percentage of total population
# Data Summary

## Host Region

<table>
<thead>
<tr>
<th>Sending Region</th>
<th>Oceania</th>
<th>Asia</th>
<th>North America</th>
<th>South America</th>
<th>Europe</th>
<th>Africa</th>
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## Host Region

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<tr>
<th>Sending Region</th>
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<th>Asia</th>
<th>North America</th>
<th>South America</th>
<th>Europe</th>
<th>Africa</th>
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GMig2 Data Base

• Based on GTAP 6 Data Base
  – 2001 base year
  – 87 countries/regions and 57 commodities
  – Input-Output tables, Trade, Protection, Taxes and Tariffs

• Plus
  – Bilateral Migration data by skill
  – Bilateral Wages
  – Bilateral Remittances
GMig2 Data Base

• Bilateral Migration data
  – Parsons, Skeldon, Walmsley and Winters - populations
  – Population to Labour Force
    • assume that participation rates are the same as their home region, hence migrants came with their families.
  – Skill splits
    • Used splits provided by Docquier from World Bank.

• Wages
  – Wages of migrants depends on home wage plus proportion of difference between wages in the host and home regions. E.g. if labor earns $5 at home and $10 abroad, then a migrant will earn $8.75 ($5 + 0.75 \times (10-5)) abroad

• Remittances
  – Total ‘remittances in’ obtained from Ratha (World Bank). Equal to ‘remittances in’ plus worker’s compensation from IMF.
  – Bilateralized remittances using constant remittances to wage ratio Remittances rates: 7% (China) to 65% (India).
Remittance Rates

[Bar chart showing remittance rates for various regions such as Mexico, Eastern Europe, Former Soviet Union, China, Rest of East Asia, South East Asia, India, Rest of South Asia, Brazil, Rest of Latin America, Middle East and Northern Africa, South Africa, and Rest of World.]
Real Wages (US$)
Key Features of GMig2 Model

• Based on GTAP Model
  – Comparative static applied general equilibrium model
  – Regional household allocates income across Consumption, Government and Saving
  – Perfect competition
  – Trade and Armington specification
  – Transport margins and global bank
  – Welfare and welfare decomposition

• Labor force is made up of domestic and foreign workers.
• Foreign workers have different wages and productivities to domestic workers
• Remittances constant share of income add to income of home region
Research

https://www.gtap.agecon.purdue.edu/models/labor_migration.asp

• "Measuring the Impact of the Movement of Labour Using a Model of Bilateral Migration Flows"
  – Walmsley, Terrie, Alan Winters, Syud Amer Ahmed and Christopher Parsons

• "The Impact of Liberalizing Labor Mobility in the Pacific Region“
  – Walmsley, Terrie, Syud Amer Ahmed and Christopher Parsons

• “The Liberalization of Temporary Migration: India’s Story”
  – Syud Amer Ahmed and Walmsley, Terrie
"Measuring the Impact of the Movement ofLabour
Using a Model of Bilateral Migration Flows"

- Increase in quotas of 3% of the labour
  force (skilled and unskilled) of developed
  economies, supplied by developing
  economies according to shares in data base
Welfare changes of permanent residents per worker ($US)
Changes in real income of new Migrants per migrant ($US) (net of remittances)

<table>
<thead>
<tr>
<th></th>
<th>USA</th>
<th></th>
<th>UK</th>
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<tbody>
<tr>
<td></td>
<td>Skilled</td>
<td>Unskilled</td>
<td>Skilled</td>
<td>Unskilled</td>
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<td>China</td>
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<td>17,820</td>
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<tr>
<td>Rest of East Asia</td>
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<td>-9,778</td>
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<tr>
<td>South Africa</td>
<td>15,207</td>
<td>14,870</td>
<td>7,587</td>
<td>11,544</td>
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</table>
“The Liberalization of Temporary Migration: India’s Story”

• Increase movement of Labor from India to labor importing regions

• Include return Migration

• Examine impact of Brain drain, remittances and Brain Gain
“The Liberalization of Temporary Migration: India’s Story”

<table>
<thead>
<tr>
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<th>10% Return Migration</th>
<th>20% Return Migration</th>
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<td>Remittances</td>
<td>87,356.18</td>
<td>87,356.18</td>
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<tr>
<td>Brain Drain</td>
<td>-9,272.20</td>
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<tr>
<td>Brain Gain</td>
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<tr>
<td>(Non-Movers)</td>
<td>138.09</td>
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<tr>
<td>(Return Migrants)</td>
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<tr>
<td>(Total)</td>
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