Introduction to the UNESCO Institute for Statistics
## UN-System Components

<table>
<thead>
<tr>
<th>Secretariat</th>
<th>Programmes &amp; Funds</th>
<th>Specialized Agencies</th>
<th>Other Entities</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSG - Office of the Secretary General</td>
<td>UNDP - Development Programme</td>
<td>ILO - International Labour</td>
<td>OHCHR - High Commissioner for Human Rights</td>
</tr>
<tr>
<td>OIOS - Internal Oversight Services</td>
<td>UNICEF - Children’s Fund</td>
<td>FAO - Food and Agriculture</td>
<td>UNOPS - Office for Project Services</td>
</tr>
<tr>
<td>OLA - Legal Affairs</td>
<td>UNFPA - Population Fund</td>
<td>UNESCO - Educational, Scientific &amp; Cultural</td>
<td>UNU - University</td>
</tr>
<tr>
<td>DPA - Political Affairs</td>
<td>WFP - World Food Programme</td>
<td>WHO - World Health</td>
<td>UNSSC - Staff College</td>
</tr>
<tr>
<td>DDA - Disarmament Affairs</td>
<td>UNCTAD - Conference on Trade &amp; Development</td>
<td>ICAO - International Civil Aviation</td>
<td>UNAI DS - Programme on HIV/AIDS</td>
</tr>
<tr>
<td>OCHA - Coordination of Humanitarian Affairs</td>
<td>UNHABITAT - Human Settlements Programme (UNHSP)</td>
<td>IMO - International Maritime</td>
<td>UNHCR - High Commissioner for Refugees</td>
</tr>
<tr>
<td>DESA - Economic and Social Affairs</td>
<td>UNIFEM - Funds for Women</td>
<td>ITU - International Telecommunications Union</td>
<td></td>
</tr>
<tr>
<td>DSS - Security Coordinator</td>
<td></td>
<td>UPU - Universal Postal Union</td>
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<tr>
<td></td>
<td></td>
<td>WMO - World Meteorological</td>
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<td></td>
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<td>WIPO - World Intellectual Property</td>
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<td></td>
<td></td>
<td>IFAD - International Fund for Agricultural Development</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>UNIDO - Industrial Development</td>
<td></td>
</tr>
<tr>
<td>Other Offices dealing with Public Information, Mgt., Drugs and Crimes etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
UNESCO – who are we?

“Since wars begin in the minds of men..., it is in the minds of men that the defences of peace must be constructed.”

From the preamble of UNESCO's Constitution
UNESCO – where are we?

- Headquarters in Paris
- More than 50 field offices around the world
- 8 UNESCO Education Institute and Centres
- 2 UNESCO Science Institutes and Centres
- 1 UNESCO Institute for statistics (in Montreal)

www.unesco.org
UNESCO Institute for Statistics

- Founded in 1999 in Paris
- Relocated to Montreal in 2001
- Located on the campus of Université de Montréal
- Has grown from 8 to 100 employees
- Mandated to maintain international databases for:
  - Education
  - Science, technology and innovation
  - Culture
  - Communication and information

www.uis.unesco.org
UIS mandate

- Collection and dissemination of cross-nationally comparable data
- Analysis of comparative data
- Development of international classifications/frameworks
- Technical capacity building within countries
- Advocacy for statistics in relation to UNESCO’s areas of interest
Field Presence

Regional teams in: Bangkok, Dakar, Santiago
Cluster advisors in: Doha, Harare, Nairobi, New Delhi, Yaoundé
Products

UIS publications

- Thematic reports
- Factsheets
- Information notes
- Technical papers

UIS on-line data centre

Over 1,000 indicators and raw data on education, literacy, science and technology, culture and communication from more than 200 Member States and international organizations

Other international high-profile publications
ISCED for Comparing Education Systems across Countries

Chiao-Ling Chien

Tokyo
January 29, 2016
How can we compare one country’s data with another country’s?

Different countries, different structures of education systems.

Primary education:
- 6 years

Basic education:
- 9 years
  - Primary
  - Lower secondary

5 years
4 years
What is it?

• FRAMEWORK to facilitate comparisons of education indicators across countries

• METHODOLOGY for translating national educational programmes into an internationally comparable set of categories

• TOOL to benchmark progress on international education goals.

• Developed, maintained and updated by the UIS

What is not?

• A means of measuring the quality of an education programme

• An ideal model for reporting national statistics on education

http://www.uis.unesco.org/
Quick Historical Facts

1958  UNESCO recommendation on classifying educational programmes

1976  ISCED classification introduced

1997  ISCED revised

2011  ISCED review and revision
The Key Elements of ISCED 2011

△ Units of classification- Education Programmes

△ Scope of education in ISCED

△ ISCED levels

△ Cross-classification variables
  - Levels and fields
  - Under levels: programme orientation, completion of the ISCED level, access to higher ISCED levels, and positions in the national degree and qualification structure

http://www.uis.unesco.org/
# ISCED levels

<table>
<thead>
<tr>
<th>ISCED 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Early childhood education</td>
</tr>
<tr>
<td>01 Early childhood educational development</td>
</tr>
<tr>
<td>(designed for children aged under 3 years)</td>
</tr>
<tr>
<td>02 Pre-primary</td>
</tr>
<tr>
<td>(designed for children aged 3 years and above)</td>
</tr>
<tr>
<td>1 Primary</td>
</tr>
<tr>
<td>2 Lower secondary</td>
</tr>
<tr>
<td>3 Upper secondary</td>
</tr>
<tr>
<td>4 Post-secondary non-tertiary</td>
</tr>
<tr>
<td>5 Short cycle tertiary</td>
</tr>
<tr>
<td>6 Bachelor’s or equivalent level</td>
</tr>
<tr>
<td>7 Master’s or equivalent level</td>
</tr>
<tr>
<td>8 Doctoral or equivalent level</td>
</tr>
</tbody>
</table>
Short cycle tertiary (5)

Bachelor or equivalent first degree (665)

Bachelor long first degree (666)

Second degree (667)

Doctoral or equivalent (8)

Master or equivalent long first degree (766)

second degree (767)

second degree (768)

Exit from education system / Labour market entry

ISCED 3 or 4 completion with direct access to first tertiary programmes at ISCED 5, 6 or 7

http://www.uis.unesco.org/
What is ISCED Mapping?

In simple words:

A visual presentation of the structure of national education programmes, with a breakdown by ISCED level

ISCED mappings
http://www.uis.unesco.org/Education/ISCEDMappings/Pages/default.aspx
## ISCED Mapping

### Example: Germany

<table>
<thead>
<tr>
<th>Name of the programme in national language</th>
<th>Name of the programme in English</th>
<th>Formal education programme (Yes/No)</th>
<th>Minimum entry requirements (ISCED 2011 level at 3-digits level, and qualification name if possible)</th>
<th>Theoretical starting age</th>
<th>Theoretical duration of the programme</th>
<th>Theoretical cumulative years of education at the end of the programme, since the start of ISCED 1</th>
<th>Programme orientation (G-general, V-vocational)</th>
<th>Position in national degree structure (ISCED-2011 levels 6 and 7 only)</th>
<th>Direct access to higher educational level (ISCED 2011 level, otherwise 'No')</th>
<th>Full-time or part-time programme (FT/PT)</th>
<th>ISCED-97 level, with destination for ISCED levels 2-5</th>
<th>ISCED-2011 level (ISCED-P, 3-digits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verwaltungsfachhochschulen (Diplom)</td>
<td>Colleges of public administration (Diploma)</td>
<td>yes</td>
<td>344</td>
<td>19-20</td>
<td>3</td>
<td>15</td>
<td>A</td>
<td>1st degree</td>
<td>74</td>
<td>FT</td>
<td>58</td>
<td>645</td>
</tr>
<tr>
<td>Verwaltungsfachhochschulen (zweites Diplom)</td>
<td>Colleges of public administration (second Diploma)</td>
<td>yes</td>
<td>645</td>
<td>22-23</td>
<td>3</td>
<td>19</td>
<td>A</td>
<td>2nd degree (second degree after a diploma)</td>
<td>74</td>
<td>FT</td>
<td>58</td>
<td>647</td>
</tr>
<tr>
<td>Verwaltungsfachhochschulen (Bachelor)</td>
<td>Colleges of public administration (Bachelor)</td>
<td>yes</td>
<td>344</td>
<td>19-20</td>
<td>3</td>
<td>15</td>
<td>A</td>
<td>1st degree</td>
<td>74</td>
<td>FT</td>
<td>58</td>
<td>645</td>
</tr>
<tr>
<td>Verwaltungsfachhochschulen (zweiter Bachelor)</td>
<td>Colleges of public administration (second Bachelor)</td>
<td>yes</td>
<td>645</td>
<td>22-23</td>
<td>3</td>
<td>19</td>
<td>A</td>
<td>2nd degree (second degree after a Bachelor's)</td>
<td>74</td>
<td>FT</td>
<td>58</td>
<td>647</td>
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<tr>
<td>Verwaltungsfachhochschulen (Master)</td>
<td>Colleges of public administration (Master)</td>
<td>yes</td>
<td>645</td>
<td>22-23</td>
<td>2</td>
<td>18</td>
<td>A</td>
<td>2nd degree (second degree after a Bachelor's)</td>
<td>84</td>
<td>FT</td>
<td>58</td>
<td>747</td>
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</tbody>
</table>
## ISCED Fields of Education and Training 2013

<table>
<thead>
<tr>
<th>00 Generic programmes and qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>001 Basic programmes and qualifications</td>
</tr>
<tr>
<td>002 Literacy and numeracy</td>
</tr>
<tr>
<td>003 Personal skills and development</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>01 Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>011 Education</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>02 Arts and humanities</th>
</tr>
</thead>
<tbody>
<tr>
<td>021 Arts</td>
</tr>
<tr>
<td>022 Humanities (except languages)</td>
</tr>
<tr>
<td>023 Languages</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>03 Social sciences, journalism and information</th>
</tr>
</thead>
<tbody>
<tr>
<td>031 Social and behavioural sciences</td>
</tr>
<tr>
<td>032 Journalism and information</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>04 Business, administration and law</th>
</tr>
</thead>
<tbody>
<tr>
<td>041 Business and administration</td>
</tr>
<tr>
<td>042 Law</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>05 Natural sciences, mathematics and statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>051 Biological and related sciences</td>
</tr>
<tr>
<td>052 Environment</td>
</tr>
</tbody>
</table>

| 053 Physical sciences                      |
| 054 Mathematics and statistics             |

<table>
<thead>
<tr>
<th>06 Information and Communication Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>061 Information and Communication Technologies</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>07 Engineering, manufacturing and construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>071 Engineering and engineering trades</td>
</tr>
</tbody>
</table>

| 072 Manufacturing and processing             |
| 073 Architecture and construction           |

<table>
<thead>
<tr>
<th>08 Agriculture, forestry, fisheries and veterinary</th>
</tr>
</thead>
<tbody>
<tr>
<td>081 Agriculture</td>
</tr>
<tr>
<td>082 Forestry</td>
</tr>
<tr>
<td>083 Fisheries</td>
</tr>
<tr>
<td>084 Veterinary</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>09 Health and welfare</th>
</tr>
</thead>
<tbody>
<tr>
<td>091 Health</td>
</tr>
<tr>
<td>092 Welfare</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10 Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 Personal services</td>
</tr>
<tr>
<td>102 Hygiene and occupational health services</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>103 Security services</th>
</tr>
</thead>
<tbody>
<tr>
<td>104 Transport services</td>
</tr>
</tbody>
</table>
Useful resources about ISCED 2011 and countries’ ISCED mappings

• Documents
  - ISCED 2011
    - Annex VI Glossary
    - ISCED 2011 Operational Manual (Guidelines)
    - ISCED Fields of Education and Training 2013

• ISCED mappings
  - UIS
  http://www.uis.unesco.org/Education/ISCEDMappings/Pages/default.aspx

• ISCED Frequently Asked Questions
  http://www.uis.unesco.org/Education/Pages/FAQ.aspx#theme4

• Inquiries: uis.datarequests@unesco.org

http://www.uis.unesco.org/
How does the UIS collect education data from countries around the world?

An introduction to the UIS and UOE Questionnaires

Chiao-Ling Chien

Tokyo
January 29 2016
How does the UIS collect data from countries?
Education Survey

- UNESCO/OECD/Eurostat (UOE) survey
  - High and middle income countries
  - Relatively detailed data
  - Data processing work split between organizations
  - Around 50 countries

- UIS Formal Education Survey
  - All countries not participating in the UOE
  - A subset of UOE survey
  - Data processed by the UIS
  - Around 150 countries
Welcome to the new questionnaires page, which provides access to current surveys for education and literacy; science, technology and innovation; culture; communication and information. To access the questionnaires that your country has been requested to complete, select your country name and download the relevant questionnaire. To report any issues regarding the data collection or for additional support, please do not hesitate to contact us at uis.survey@unesco.org

**2014 UOE SURVEY OF FORMAL EDUCATION**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Download</th>
</tr>
</thead>
<tbody>
<tr>
<td>UOE/ENRL</td>
<td>Students Enrolled</td>
<td><a href="#">DOWNLOAD</a></td>
</tr>
<tr>
<td>UOE/ENTR</td>
<td>New Entrants</td>
<td><a href="#">DOWNLOAD</a></td>
</tr>
<tr>
<td>UOE/GRAD</td>
<td>Graduates and First-time Graduates</td>
<td><a href="#">DOWNLOAD</a></td>
</tr>
<tr>
<td>UOE/PERS</td>
<td>Educational Personnel</td>
<td><a href="#">DOWNLOAD</a></td>
</tr>
<tr>
<td>UOE/CLASS</td>
<td>Class Size</td>
<td><a href="#">DOWNLOAD</a></td>
</tr>
<tr>
<td>UOE/FIN</td>
<td>Expenditure</td>
<td><a href="#">DOWNLOAD</a></td>
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<tr>
<td>UIS/ED/D</td>
<td>Intended Instructional Time</td>
<td><a href="#">DOWNLOAD</a></td>
</tr>
<tr>
<td>UIS/ED/ISC11</td>
<td>National Education Systems</td>
<td><a href="#">DOWNLOAD</a></td>
</tr>
</tbody>
</table>

Supporting documents:
- Manual on Concepts: Definitions and Classifications
- International Standard Classification of Education 2011

**2014 RESEARCH AND EXPERIMENTAL DEVELOPMENT SURVEY**
Useful resources

- UIS and UOE questionnaires and associated instruction manuals
  [http://www.uis.unesco.org/UISQuestionnaires/Pages/Education.aspx](http://www.uis.unesco.org/UISQuestionnaires/Pages/Education.aspx)

- Countries and the questionnaires to which they respond
  [http://www.uis.unesco.org/UISQuestionnaires/Pages/country.aspx](http://www.uis.unesco.org/UISQuestionnaires/Pages/country.aspx)
What You Need to Know About Data on International Students?

Chiao-Ling Chien
Tokyo
January 29 2016
Overview

- Definitions
- Methodology
- Where to get the data
- Issues and challenges
Definition: Present

- *Internationally mobile students* are individuals who have physically crossed an international border between two countries with the objective to participate in educational activities in the country of destination, where the country of destination of a given student is different from their country of origin.
How does the UOE define “country of origin”? 

The **country of origin** of a tertiary student is the country in which they gained their upper secondary qualifications.

- Note: Homecoming nationals
Foreign students

- Those who do not have citizenship in the destination (host) country
- Noted that
  - Internationally mobile students are a subgroup of foreign students by definition
  - Citizenship has nothing to do with the mobility status
Exclusion from the UIS and UOE data collection

- Exchange students
- Students without physical movement across national borders
  - Distance learning programmes
  - International branch campus
Evolutions of the operational definitions in UNESCO and UOE data collection

- The 1960s – 1997
  - foreign students
- 1998-2004
  - foreign students
- 2005-2012
  - International students (and later mobile students)
  - permanent/usual residence, prior education, or citizenship
    (*countries were asked to report data on at least two criteria)
- 2013~
  - Internationally mobile students
  - prior education (if not, permanent/ usual residence or citizenship)
    (*countries are asked to report one kind of data with metadata on the criteria used)
Methodology

- Inbound mobility is observed data
  - Host countries are reporting countries: Total internationally mobile students, by sex, country of origin, level and field.
  - A combination of data of three definitions when the preferred data are not available

- Outbound mobility is an estimate
  - The UIS sums up the number of internationally mobile students from the same country of origin in all host countries (where data are available)
Mobility Indicators

- **Inbound**
  - Number of inbound degree-seeking mobile students
  - Inbound mobility ratio

- **Outbound**
  - Number of outbound degree-seeking mobile students
  - Outbound mobility ratio
  - Gross outbound enrolment ratio

- **Net flows**

  Net = Inbound – (minus) outbound

Note: see the UIS Glossary for definitions [http://www.uis.unesco.org/Pages/Glossary.aspx](http://www.uis.unesco.org/Pages/Glossary.aspx)
Where to get the data?

- Explore the UIS Data Centre
- Global flow of tertiary students (interactive map)
- Pre-defined tables:
  http://www.uis.unesco.org/Education/Pages/tertiary-education.aspx
- Requests for UIS data: uis.datarequests@unesco.org
- Others
Things to know when you use the 2nd-hand data on international students

- The data published by the UIS, OECD, and Eurostat come from the same sources (the joint data collection programmes)
- Coverage
  - degree mobility and credit mobility (e.g. IIE Atlas v.s. UIS)
- Definition
- A country’s number of mobile students abroad is underreported
Useful Resources

• Documents
  – UOE Data Collection Manual
    (http://www.uis.unesco.org/UISQuestionnaires/Pages/Education.aspx)
  – Methodological manual on learning mobility in tertiary education (European Commission, 2015)

• Data Centre http://www.uis.unesco.org/datacentre/pages/default.aspx


• Pre-defined statistical tables
  http://www.uis.unesco.org/Education/Pages/tertiary-education.aspx

• Interactive map of global flows of degree-seeking international students
  http://www.uis.unesco.org/Education/Pages/international-student-flow-viz.aspx

• Glossary http://www.uis.unesco.org/Pages/Glossary.aspx

• Frequent Asked Questions
  http://www.uis.unesco.org/Education/Pages/FAQ.aspx#theme5
Emerging Trends in International student Mobility

Chiao-Ling Chien

Tokyo
January 20, 2016
Overview

- Emerging trends
- My responses to student mobility projections
- Driving forces and barriers
- Implications
Long-term trend in international student mobility

Figure 1. Number of global degree-seeking international students, 1980-2013


1M 1.3M 2.0M 3.7M 4.1M

M = million
To what extent that students from different regions are internationally mobile?

Figure 2. Outbound mobility ratio by region, 2000 and 2013
Top 20 source countries of international students

Figure 3. Distribution of degree-seeking international students by country of origin, 2013

- China, 18% (Outbound mobility ratio 2.1)
- India, 4% (0.6)
- Germany, 3% (4.3)
- Rep. of Korea, 3% (3.5)
- France, 2% (3.6)
- Saudi Arabia, 2% (5.4)
- US, 1% (0.3)
- Malaysia, 1%
- Viet Nam, 1% (2.4)
- Nigeria, 1%
- Russia, 1% (0.7)
- Iran, 1% (1.1)
- Kazakhstan, 1% (6.3)
- Italy, 1%
- Canada, 1%
- Turkey, 1% (0.9)
- Ukraine, 1% (1.8)
- Indonesia, 1%
- Morocco, 1%
- Pakistan, 1% (2)
- Remaining countries, 52%
Main destinations of international students

Figure 4. Distribution of internationally mobile students by main destination countries, 2013
Comparing with the picture one decade ago...
Inbound mobility rate at the graduate level

Figure 5. Inbound mobility rate at the graduate level (ISCED 7 and ISCED 8) by destination country, 2013
Where do students come from?

Where do students go?

18,727 students from Japan studied in United States (2013)

 Internationally mobile students:

Country of origin | Destination country | Key Indicators
---|---|---
China | United States | Students abroad: Total number of mobile students abroad 32,332 (% of total mobile students) ... Outbound mobility ratio 0.9 Gross outbound enrolment ratio 0.5
Korea, Rep. | United Kingdom | Students hosted: Total number of mobile students hosted 135,803 (% of total mobile students) ... Inbound mobility rate 3.5
Viet Nam | Australia | ... | ... | ... |
Nepal | Germany | ... | ... | ... |
Malaysia | France | ... | ... | ... |
Indonesia | Korea, Rep. | ... | ... | ... |
Thailand | Canada | ... | ... | ... |
United States | New Zealand | ... | ... | ... |
Myanmar | Brazil | ... | ... | ... |
Bangladesh | Thailand | ... | ... | ... |
Mongolia | Italy | ... | ... | ... |
France | Hungary | ... | ... | ... |
Sri Lanka | Finland | ... | ... | ... |
Germany | ... | ... | ... | ... |

http://www.uis.unesco.org/Education/Pages/international-student-flow-viz.aspx
Main clusters of international student mobility

Figure 6. Main clusters of international student mobility, 2012

Increased intra-regional mobility

Figure 7. Percentage of internationally mobile students who studied in countries within their region of origin, 2007 and 2013
The type of higher education programmes that mobile students are enrolled in:

- ISCED 5 (short-cycle tertiary education): 8%
- ISCED 6 (Bachelor's or equivalent): 47%
- ISCED 7 (Master's or equivalent): 38%
- ISCED 8 (Doctoral or equivalent): 7%

Figure 8. Distribution of internationally mobile students by ISCED level.
The fields of higher education programmes that mobile students are enrolled in.

Source: Chien (2013)
What does the future of international student mobility look like?

My responses to student mobility projections
Projections on future higher education opportunities for global engagement (1)

Summary of future higher education opportunities for global engagement (2020)

<table>
<thead>
<tr>
<th>International tertiary education opportunity</th>
<th>Future opportunities¹⁴</th>
</tr>
</thead>
<tbody>
<tr>
<td>International student mobility</td>
<td></td>
</tr>
<tr>
<td>• Largest outbound mobile student flows by origin (2020): China (585k), India (296k), South Korea (134k), Germany (100k), Turkey (84k), Malaysia (82k), Nigeria (67k)</td>
<td></td>
</tr>
<tr>
<td>• Fastest growing (absolute) outbound mobile student flows (next decade): India (71k), Nigeria (30k), Malaysia (22k), Nepal (17k), Pakistan (17k), Saudi Arabia (16k), Turkey (13k)</td>
<td></td>
</tr>
<tr>
<td>• Largest inbound mobile student flows by destination (2020): US (582k), UK (331k), Australia (277k), Canada (176k), Germany (155k) – China and Malaysia are also likely to feature here</td>
<td></td>
</tr>
<tr>
<td>• Fastest growing (absolute) inbound mobile student flows (next decade): Australia (51k), UK (28k), US (27k), Canada (23k) – again China will surely feature here</td>
<td></td>
</tr>
<tr>
<td>• Major bilateral mobile student flows (2020): India to US (118k), China to US (101k), China to Australia (93k), South Korea to US (81k), China to Japan (64k), India to UK (59k) – flows to China, and possibly India also</td>
<td></td>
</tr>
<tr>
<td>• Fastest growing (absolute) bilateral mobile student flows (next decade): India to UK (20k), India to US (19k), China to Australia (17k), Nigeria to UK (14k), India to Australia (11k) – flows to China, and possibly India also</td>
<td></td>
</tr>
<tr>
<td>• Fastest declining (absolute) bilateral mobile student flows (next decade): China to Japan (-14k), Japan to US (-8k), China to US (-8k), China to UK (-7k), Kazakhstan to Russia (-5k), Greece to UK (-4k) – the impact of China’s aggressive pursuit of international students could well lead to some well-established bilateral flows declining</td>
<td></td>
</tr>
</tbody>
</table>

Source: The British Council (2012). The Shape of things to come: Higher education global trends and emerging opportunities
Projections on future higher education opportunities for global engagement (2)

<table>
<thead>
<tr>
<th>Size and growth of domestic tertiary education systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <strong>Largest tertiary enrolment levels (2020):</strong> China (37.4m), India (27.8m), US (20.0m), Brazil (9.2m), Indonesia (7.7m), Russia (6.3m), Japan (3.8m), Turkey (3.8m), Iran (3.8m), Nigeria (3.6m)</td>
</tr>
<tr>
<td>• <strong>Fastest growing (absolute) tertiary enrolment growth (next decade):</strong> India (7.1m), China (5.1m), Brazil (2.6m), Indonesia (2.3m), Nigeria (1.4m), Philippines (0.7m), Bangladesh (0.7m), Turkey (0.7m), Ethiopia (0.6m) – growth in certain markets could be larger still if ambitious international student recruitment targets are met</td>
</tr>
<tr>
<td>• <strong>Largest falls in outbound mobile students (next decade):</strong> Japan (-10k), Greece (-10k), Poland (-8k), Singapore (-6k), Russia (-6k), Germany (-2k) – China is one to watch here given its demographic outlook and ambitious domestic tertiary sector expansion plans</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TNE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <strong>Dual and joint degrees:</strong> China, US, France, India, Germany</td>
</tr>
<tr>
<td>• <strong>Franchising and validation:</strong> Asia, Latin America, possibly Africa (Nigeria)</td>
</tr>
<tr>
<td>• <strong>Branch campuses:</strong> Far East, possibly Middle East</td>
</tr>
<tr>
<td>• <strong>Online:</strong> Gulf countries, Asia, possibly Scandinavia</td>
</tr>
</tbody>
</table>

Projections on future higher education opportunities for global engagement (3)

### Projections on future higher education opportunities for global engagement (4)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domestic tertiary education system</th>
<th>International student mobility – outbound</th>
<th>International student mobility – inbound</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Size</td>
<td>Growth</td>
<td>Size</td>
</tr>
<tr>
<td></td>
<td>2020</td>
<td>Next decade</td>
<td>2020</td>
</tr>
<tr>
<td>1</td>
<td>China</td>
<td>India</td>
<td>China</td>
</tr>
<tr>
<td>2</td>
<td>India</td>
<td>China</td>
<td>India</td>
</tr>
<tr>
<td>3</td>
<td>US</td>
<td>Brazil</td>
<td>South Korea</td>
</tr>
<tr>
<td>4</td>
<td>Brazil</td>
<td>Indonesia</td>
<td>Germany</td>
</tr>
<tr>
<td>5</td>
<td>Indonesia</td>
<td>Nigeria</td>
<td>Turkey</td>
</tr>
<tr>
<td>6</td>
<td>Russia</td>
<td>Philippines</td>
<td>Malaysia</td>
</tr>
<tr>
<td>7</td>
<td>Japan</td>
<td>Bangladesh</td>
<td>Nigeria</td>
</tr>
<tr>
<td>8</td>
<td>Turkey</td>
<td>Turkey</td>
<td>Kazakhstan</td>
</tr>
<tr>
<td>9</td>
<td>Iran</td>
<td>Ethiopia</td>
<td>France</td>
</tr>
<tr>
<td>10</td>
<td>Nigeria</td>
<td>Mexico</td>
<td>US</td>
</tr>
</tbody>
</table>

Note: Asian countries shaded in grey

a China, Malaysia and India will be amongst the top ten host countries by 2020. Due to the data issues discussed in this report the exact position of these host countries is difficult to forecast with certainty although China has potential to be one of the top three hosts of international students.

b China, Malaysia, Singapore and India will be in the top ten fastest growing hosts of internationally mobile students.

My responses to student mobility projection (1)

- This BC’s report is informative (e.g. analyses not only on the total volume of international students but also on individual countries and bilateral flows). However, it has noted limitations (e.g. selected 50 countries of interest, simplified models with limited variables...)

- A shift in subject choice and demand by international students
  - Increased demand for business, science, and engineering programmes
My responses to student mobility projection (2)

- Actors in “the global higher education arena”
  - Students
  - Universities
  - Regional Organisations (EHEA, SADC, ASEAN, ENLACES...)
  - International organizations (the UN’s SDG Goal 4)
What are the drivers and barriers in student mobility?
Driving Forces and Barriers of Student Mobility: A Conceptual Framework

- **Pull Model**
  - A host country’s attractiveness to international students

- **Push Model**
  - Student demand for higher education abroad

- **Push-Pull Model**
  - The characteristics of students’ home countries related to student demand for higher education in a given country (e.g. Japan)
Pull Model

Host country’s characteristics

- The higher education system
- Science/technology intensity
- Immigration policies
- Demographic changes

A host country’s attractiveness to international STEM students

Control: higher ed. enrolment

Push-Pull Model

Home country’s characteristics

- Human capital determinant
- The higher education system
- Science/technology intensity
- Civil and political freedom
- Bilateral links with the host country

Student demand for STEM education in a given host country

Control: population

Source: Chien (2013).
## Variables examined in the Pull and Push Models

### Pull Model
- English-language instruction\(^a\)
- National students' participation rate in STEM programs
- Proportion of universities ranked in top 500 international university rankings
- Technological capability: Advanced\(^a\)
- Gross expenditure on R&D as a % of GDP
- Percentage of population aged 65 or over
- Tertiary enrollment

### Push-Pull Model
- Gross national income per capita PPP
- Emigration rate of tertiary-educated people to OECD countries
- Proportion of emigrants to OECD countries who have attained tertiary education
- National students' participation rate in STEM programs
- Unavailability of doctoral programs
- Proportion of universities ranked in top 500 international university rankings
- Technology capability
- Scientific & technical journal articles per 100,000 inhabitants
- Civil and political freedom
- Population
- Geographic link
- Linguistic link
- Colonial link
- Social link

Source: Chien (2013).
Highlights of my findings on international STEM student mobility

- Increasing concentration of international STEM students in few English-speaking and technologically advanced countries reflect global economic interests and relationships of power and hegemony.

- Change in demography (e.g. ageing population) are in play.

- Outflow of STEM students are evident in countries with high emigration rate of highly-educated citizens.

- Though colonial links continue to be influential in student mobility, linguistic and social links have become more dominant.
Extended Pull Model

Host country

- The higher education system
- Science/technology intensity
- Immigration policies
- Demographic changes
- Scholarships
- Security
- Political arrangements
- ...

A host country’s attractiveness to international students
Extended Push-Pull Model

Home country
- Human capital determinant
- The higher education system
- Science/technology intensity
- Civil and political freedom
- Bilateral links with the host country
- Scholarships
- Political arrangements with countries of interest
- ...

Student demand for higher education in a given host country
Discussion (1)

- The internationalisation of higher education has developed more quickly than ever (e.g. mobility of people and programmes, international research collaboration,...), which makes meaningful projections challenging.

- Emerging host countries are changing “the higher education market, allowing students to have more choices of overseas education.”
Discussion (2)

- Strong correlation between regional ties (i.e. nation-states’ membership in international governmental organisations) and growth in student flows (Shields, 2011)

- Assessing student demand for and host countries’ comparative advantages of higher education programmes need further analyses behind total numbers
  - The kind of programmes that students from a given country tend to study abroad
  - Understand the actors of international higher education and their initiatives