Graduate Migration Flows: Importing and Exporting Human Capital

by

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Higher Education—Making a Difference to Economies and Communities, Belfast, January 28, 2009
Introduction

One of our objectives is to quantify the nature of graduate labour market flows between the countries and regions of the United Kingdom

Why?

• Not a great deal is known about this.

• Regional focus: England, Scotland, Northern Ireland and Wales

• Export and import of graduates equally interesting as the export and import of goods and services

• Such Information is being fed into the CGE analysis
Policy Relevance: Scotland

• Concern with depopulation of rural and remote regions of Scotland

• Migration flows of students and graduates thought to “reinforce” migration flows of general population (north and west to the east)

• “Belief” that building HEIs in rural and remote regions will help reverse these trends

• Costs versus benefits of “free higher education”
Higher Education Statistical Agency (HESA) is the official agency for the collection, analysis and dissemination of quantitative information about higher education in the UK.

We use two datasets:

(1) Destinations of leavers from HEIs (DLHE)
(2) Students in HEIs

13 waves available from 1994/95 to 2006/2007

For current analysis, we focus on the most recent five waves which includes information on around million 1.2 graduates.
The HESA data provide three key postal addresses:

1. Place of **domicile**
2. Place of **study**
3. Place of **employment** (six months after graduation)

This allows us to identify different migration types
Stayers, Interregional Movers V.S. Leavers

Two different movements studied here:

1. **LONG DISTANCE**
   movements (inter-country within UK) – ‘brain drain’ or ‘brain gain’?

2. **MEDIUM DISTANCE**
   movements (interregional but within country) – interregional re-allocation of skilled labour

- Leavers (L)
- Interregional movers (I)
Figure 1: students per 1,000 population, by countries, 1994/95-2005/06
<table>
<thead>
<tr>
<th>Type of Student:</th>
<th>England</th>
<th>Scotland</th>
<th>Wales</th>
<th>NI</th>
<th>UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>34.8</td>
<td>25.5</td>
<td>21.4</td>
<td>38.3</td>
<td>33.1</td>
</tr>
<tr>
<td>Part-time</td>
<td>76.7</td>
<td>120.8</td>
<td>195.9</td>
<td>84.0</td>
<td>84.0</td>
</tr>
<tr>
<td>Under-graduates</td>
<td>44.7</td>
<td>40.7</td>
<td>58.2</td>
<td>58.3</td>
<td>45.4</td>
</tr>
<tr>
<td>Post-graduates</td>
<td>63.4</td>
<td>59.5</td>
<td>75.4</td>
<td>30.1</td>
<td>62.6</td>
</tr>
<tr>
<td>Foreign</td>
<td>107.8</td>
<td>91.3</td>
<td>72.7</td>
<td>22.4</td>
<td>101.6</td>
</tr>
<tr>
<td>Science</td>
<td>73.8</td>
<td>58.1</td>
<td>59.2</td>
<td>66.9</td>
<td>71.1</td>
</tr>
<tr>
<td>Non-science</td>
<td>35.0</td>
<td>35.1</td>
<td>62.5</td>
<td>39.2</td>
<td>36.5</td>
</tr>
</tbody>
</table>
### Table 2
Percentage of Graduates Whose Place of Work is the Same as Their Place of Study

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>97.3</td>
<td>97.5</td>
<td>97.5</td>
<td>97.4</td>
</tr>
<tr>
<td>Scotland</td>
<td>85.6</td>
<td>86.0</td>
<td>86.0</td>
<td>87.7</td>
</tr>
<tr>
<td>Wales</td>
<td>64.0</td>
<td>62.1</td>
<td>62.1</td>
<td>64.0</td>
</tr>
<tr>
<td>Northern Ireland</td>
<td>94.3</td>
<td>94.5</td>
<td>94.5</td>
<td>94.5</td>
</tr>
</tbody>
</table>

Source: HESA
Table 3
Percentage of Graduates From Different Regions Working in England, 2005/06

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Scotland</td>
<td>12.6</td>
<td>12.2</td>
<td>11.6</td>
<td>10.8</td>
</tr>
<tr>
<td>Wales</td>
<td>35.2</td>
<td>37.0</td>
<td>35.0</td>
<td>35.3</td>
</tr>
<tr>
<td>Northern Ireland</td>
<td>4.7</td>
<td>4.3</td>
<td>4.2</td>
<td>4.3</td>
</tr>
</tbody>
</table>

Source: HESA
### Place of Domicile/Place of Study Matrix

<table>
<thead>
<tr>
<th>Place of Domicile</th>
<th>Place of Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>Scotland</td>
</tr>
<tr>
<td>England</td>
<td><strong>100%</strong></td>
</tr>
<tr>
<td>Scotland</td>
<td></td>
</tr>
<tr>
<td>Wales</td>
<td></td>
</tr>
<tr>
<td>NI</td>
<td></td>
</tr>
<tr>
<td>Place of Study</td>
<td>Place of Employment</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>England</td>
<td>England 100%</td>
</tr>
<tr>
<td>Scotland</td>
<td>100%</td>
</tr>
<tr>
<td>Wales</td>
<td>100%</td>
</tr>
<tr>
<td>NI</td>
<td>100%</td>
</tr>
</tbody>
</table>
• What are the determinants of graduate migration flows?

• Fit logit regression models where the probability of migrating is related to observable characteristics

• Analysis at this stage mainly focuses on Scotland but is being extended to the UK

• Today concerned mainly with Scottish-domiciled students studying in Scotland and examine migration after graduation to other countries of the UK

• “First-degree graduates” and “post-graduate graduates” considered separately

• Fit similar models for England, Northern Ireland and Wales for comparative purposes
Variables Considered

1) Sex

2) Age at graduation

3) Ethnic group:
   1. White
   2. Black
   3. Asian
   4. Mixed-White and Black
   5. Mixed-White and Asia
   6. Mixed-Other
   7. Other or Unknown
4) Class of degree
   1. 1st
   2. 2-1
   3. 2-2
   4. 3rd & Pass
   5. Other

5) Subject area
   1. Arts and Humanities
   2. Social Science
   3. Science
   4. Joint: Arts and Humanities-led
   5. Joint: Social Science-led
   6. Joint: Science-led
   7. Unknown
6) Type of HEI
   1. Further/Higher College
   2. Post-1992 university
   3. Non-Russell group pre-1992 university
   4. Russell Group university

7) Region of domicile
   1. Strathclyde
   2. Dumfries and Galloway
   3. Borders
   4. Lothian
   5. Central
   6. Fife
   7. Tayside
   8. Grampian
   9. Highland
   10. Western Isles
8) Studied full or part-time

9) Movers (i.e. region of domicile is not region of HEI attended)
FINDINGS

Scottish-domiciled “first-degree graduates”:

Probability of migrating to England or Wales or Northern Ireland after graduation is higher for:

• Male
• Full-time
• Black ethnic background
• Graduated at age 22 (inverted U-shape)
• Science (or Science-led)
• 1st Class degree
• Russell Group university
• Moved to go to HEI
• Regional effect (higher for Strathclyde region)
• Decline between 2002-2006
Scottish-domiciled “post-graduate graduates”

Probability of migrating to England or Wales or Northern Ireland after graduation is higher for:

- Male
- Full-time
- Non-white ethnic background
- Graduated at age 26 (inverted U-shape)
- Science (or Science-led)
- Russell Group university
- Moved to go to HEI
- Regional effects of domicile less pronounced
- Little change in 2002-2006
How big are these effects?

**STEP 1:** Create an hypothetical (first degree) graduate with the “average” characteristics of Scottish graduates and use the logit model estimates to “predict” the probability of migrating. **GRADUATE “A”**

**STEP (2)** Create another hypothetical (first degree) graduate with the following characteristics:
- Male
- Full-time
- White ethnic background
- Graduated at age 22
- Science
- 1st Class degree
- Russell Group university

and use the logit model estimates to “predict” the probability of migrating. **GRADUATE “B”**

**STEP (3)** Compare the difference in the predicted probabilities
### Predicted Probability of Migrating

<table>
<thead>
<tr>
<th>Graduate</th>
<th>Scotland</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3.9%</td>
</tr>
<tr>
<td>B</td>
<td>21.5%</td>
</tr>
<tr>
<td>Region</td>
<td>Graduate A</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------</td>
</tr>
<tr>
<td>Scotland</td>
<td>3.9%</td>
</tr>
<tr>
<td>England</td>
<td>0.8%</td>
</tr>
<tr>
<td>Northern Ireland</td>
<td>8.1%</td>
</tr>
<tr>
<td>Wales</td>
<td>3.1%</td>
</tr>
</tbody>
</table>
Five Migration Patterns of Graduates:

1. Non-migrants \((A—A—A) = 54.7\%\)
2. Returning migrants \((A—B—A) = 18.5\%\)
3. Staying in university area \((A—B—B) = 10.9\%\)
4. Migrating after university \((A—A—B) = 8.2\%\)
5. Double migrants \((A—B—C) = 7.7\%\)
Relative to “non-migrants”, the probability of being “returning migrants”

- Part-time, higher probability
- Graduate younger, higher probability
- 1st Class, lower probability
- Third or pass, lower probability
- Science, lower probability
- Science-led, lower probability
- Russell group university, lower probability
- Post 1992 University, lower probability
Conclusions?

For more details on this project, see

http://ewds.strath.ac.uk/iheirei/Home.aspx

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