

## Under-employment and Migration (\*)

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**Abstract:** This paper examines empirically the relationship between under-employment and migration amongst graduates of Scottish higher education institutions with micro-data collected by the *Higher Education Statistical Agency*. The analysis suggests that there is a positive relationship between migration and graduate-job employment. This relationship is particularly strong for Scotland-domiciled graduates who studied in Scotland. This positive relationship is consistent with the view that there is an over-education/under-employment problem in Scotland. However, other explanations are possible.

**JEL Classification:** I23, J24, J61, R23

**Keywords:** graduates, over-education, under-employment, migration

## **(1) Introduction**

In a paper published in *THIS JOURNAL*, Mosca and Wright (2010a) presented empirical evidence in support of the hypothesis that there is a significant amount of under-employment amongst graduates of Scottish higher education institutions. It was argued that the extent of under-employment can be measured as the proportion of graduates who are employed in so-called “non-graduate jobs”. Such jobs do not require the skills obtained through higher education in order to carry out the required work.

In their analysis, micro-data for five cohorts of graduates, covering the years 2002/03 to 2006/07, collected by the *Higher Education Statistical Agency* (HESA, 2007, 2010a,b) was used. A definition of what constitutes a “non-graduate job”, developed by Elias and Purcell (2004), was adopted. With this definition and data, rates of employment in non-graduate jobs six months after graduation were calculated. It was found that for individuals who graduated with an under-graduate qualification (mainly first degrees), around one-third of those in employment six months after graduation were working in non-graduate jobs. For the 2002/03 graduate cohort, it was also possible to examine the employment situation 3½ years later (i.e. 42 months after graduation). It was found that about 20% of those employed were still in non-graduate jobs, suggesting that the rate of non-graduate employment is still quite high well into the employment life-cycle.

One interpretation of high rates of non-graduate-job employment amongst Scottish “under-graduate graduates” is that there is an “over-education” problem, with the higher education sector generating too many graduates for the economy to absorb. That is, there is disequilibrium in the labour market, with the supply of graduate labour exceeding the demand for graduate labour by a considerable margin. If this interpretation is correct, one would expect to find that Scottish graduates who migrate to other regions of the UK or abroad

have (on average) lower rates of non-graduate employment compared to those who remain in Scotland.

With this background in mind, this paper examines empirically the relationship between under-employment and migration amongst graduates of Scottish higher education institutions with micro-data collected by the *Higher Education Statistical Agency*. The analysis suggests that there is a positive relationship between migration and graduate-job employment. This relationship is particularly strong for Scotland-domiciled graduates who studied in Scotland. This positive relationship is consistent with the view that there is an over-education/under-employment problem in Scotland. However, there are other reasons for why such a positive relationship might exist.

## **(2) Data**

The analysis is based on micro-data collected by *Higher Education Statistical Agency*, which is the same data used by Mosca and Wright (2010a). Information is merged from two data-sets for five cohorts of graduates from higher education institutions, covering the academic years 2002/03 to 2006/07. The first data-set is the *Students in Higher Education Institutions*. This primarily consists of information provided by the institution the graduate attended. The second data-set is the *Destinations of Leavers from Higher Education Institutions* (DLHE). This data is collected through a questionnaire administered approximately six months after the student has graduated, with detailed information about employment being collected.

In this merged data-set, there are three post codes of interest. The first is the post code corresponding to the individual's so-called "place of domicile". This is the postcode of the student's permanent or home address prior to entry to the programme of study. Although imperfect, for the vast majority of graduates this will also be the place where they completed

at least some of their secondary schooling. The second post code is “place of study”. This is simply the address of the institution attended. The third is the post code that corresponds to “place of employment six months after graduation”.

With these three post codes it is possible to identify if individuals have moved from their place of domicile to their place of study and from their place of study to their place of employment. For those in employment six months after graduation it is possible to calculate migration rates once the level of geographic aggregation has been decided. The DLHE survey also interviews graduates who have moved abroad. Therefore, it is not only possible to identify graduates who have migrated to other parts of the UK but also graduates who have emigrated abroad (for a description of these migration flows see Faggian, Li and Wright, 2009; and Mosca and Wright, 2010b).

As mentioned above, the definition of what constitutes a non-graduate job is from Elias and Purcell (2004, p.4). This definition is: “occupations for which a graduate level education is inappropriate (e.g. school secretaries and bar staff).” It must be stressed that this is a strict definition since there is no doubt that these occupations do not require the skills obtained through higher education and are “dead end” in terms of career prospects. Mosca and Wright (2010a) show that the rate of non-graduate job employment is much lower for graduates with post-graduate qualifications (“post-graduate graduates”), compared to graduates with under-graduate qualifications (“under-graduate graduates”). Therefore the analysis carried out below is restricted to under-graduate graduates. Restricting the analysis in this manner still leaves a sample of over one million observations. Finally the DLHE survey is only administered to so-called “UK-domiciled graduates”, who are basically graduates who completed their secondary education in the UK. Therefore, all estimates presented below exclude European Union or overseas graduates even if they stayed in the UK to work after graduation.

### (3) Findings

Table 1 reports the migration status six months after graduating for graduates of Scottish higher education institutions along with the estimate for graduates of all UK higher education institutions. The migration rate of Scottish graduates is 18.3%, which is over double the rate of 8.7% for all UK graduates. Of those Scottish graduates who migrated, about 75% (13.2% of 18.3%) moved to England, Northern Ireland or Wales and around 25% (5.1% of 18.3%) moved abroad. When UK graduates as a group are considered, the split is around 60% (5.1% of 8.7%) migrating to other countries of the UK and 40% (3.6% of 8.7%) migrating abroad. It is clear that Scottish graduates, compared to UK graduates as a group, are a much more mobile population.

Place of Study:	Scotland	UK
Stayer	81.7%	91.3%
Mover	<u>18.3%</u>	<u>8.7%</u>
Total	100%	100%
National mover	13.2%	5.1%
International mover	<u>5.1%</u>	<u>3.6%</u>
Total	18.3%	8.7%
Notes: Authors' calculations (see text)		

Table 2 shows the percentage of graduates employed in a graduate job six months after graduating. The rate for Scottish graduates is 68.3%, which is slightly higher than the rate of 65.4% for all UK graduates. Graduate-job employment is higher for those who migrated. 75.2% of Scottish graduates who migrated are in graduate-job employment compared to 66.7% for those who remained in Scotland. For all UK graduates, the difference

is much smaller—66.6% for those who migrated compared to 65.3% for those who remained in their country of study. It is also interesting to note that for Scottish graduates, the rate of graduate-job employment for those who migrated abroad is 77.1% which is higher than the rate of 74.4% for those who migrated to other countries of the UK, 74.4%. When all UK graduates are considered, those who migrated abroad have a higher rate of graduate-job employment (71.7%) compared those who stayed in the country where they studied (65.3%). However, for all UK graduates, the rate for those who migrated to other countries of the UK is lower than the rate of those who stayed (63.1% and 65.3%, respectively).

Table 2 Employed in a Graduate Job Six Months After Graduating (%) 2002/03-2006/07 HEI Under-graduate Cohorts		
Place of Study:	Scotland	UK
Stayer	66.7%	65.3%
Mover	<u>75.2%</u>	<u>66.6%</u>
Total	68.3%	65.4%
National mover	74.4%	63.1%
International mover	<u>77.1%</u>	<u>71.7%</u>
Both	75.2%	66.6%
Notes: Authors' calculations (see text)		

Table 3 reports migration status broken down by place of domicile. As was discussed above, place of domicile for the vast majority of graduates is the country where they completed their secondary schooling. What is clear from Table 3 is that the migration rate varies considerably by place of domicile. For Scotland-domiciled graduates who studied in Scotland the migration rate is 8.3%. About two-thirds (5.6% of 8.3%) of those who migrated moved to England, Northern Ireland or Wales. For rest-of-the-UK-domiciled graduates who studied in Scotland, the migration rate is 64.0%, with almost 75% being movement back to other countries of the UK. Much of this flow is most certainly students “returning home”.

Over half of the rest-of-the-UK-domiciled graduates who studied in Scotland returned to their country of domicile.

Table 3 Migration Status Six Months After Graduating by Place of Domicile (%) 2002/03-2006/07 HEI Under-graduate Cohorts				
Place of Study:	Scotland		UK	
Place of domicile:	Scotland	RUK	Own	Not-own
Stayer	91.7%	36.0%	96.1%	41.2%
Mover	<u>8.3%</u>	<u>64.0%</u>	<u>3.9%</u>	<u>58.8%</u>
Total	100%	100%	100%	100%
National Mover	5.6%	47.7%	1.5%	42.9%
International mover	<u>2.7%</u>	<u>16.3%</u>	<u>2.4%</u>	<u>15.9%</u>
Total	8.3%	64.0%	3.9%	58.8%
Notes: Authors' calculations (see text)				

Table 3 also suggests that the migration rate of “own-domiciled” graduates for the UK as a whole is much lower (3.9%) than for Scotland-domiciled graduates who studied in Scotland (8.3%). In this comparison, “own-domiciled” refers to England-domiciled graduates who studied in England; Northern Ireland-domiciled graduates who studied in Northern Ireland; Scotland-domiciled students who studied in Scotland; and Wales-domiciled graduates who studied in Wales. Likewise for “not-own-domiciled students (e.g. Scotland-domiciled students who studied in England), the migration rate is much higher, with 58.8% of graduates not staying in their country of study. It is interesting to note over 60% (2.4% of 3.9%) of “own-domiciled” graduates who migrated moved abroad.

Table 4 shows the rates of graduate-job employment broken down by place of domicile and place of study. For Scotland-domiciled graduates who studied in Scotland, the rate of graduate-job employment for those who stayed in Scotland is 66.4% compared to 81.1% for those who migrated. This is a sizeable differential. The rate for those who migrated to other countries of the UK is 84.4%, which is higher than for those who moved abroad of

74.3%. For rest-of-the-UK-domiciled graduates who studied in Scotland, there is little difference in the rates of graduate-job employment—69.5% for those who stayed in Scotland and 71.6% for those who did not. However, for the group of graduates who did migrate, the rate of graduate-job employment is much higher for those who migrated abroad at 79.1%, compared to 69.1% for those who migrated to other countries of the UK.

Table 4 Employed in a Graduate Job Six Months After Graduating by Place of Domicile (%) 2002/03-2006/07 HEI Under-graduate Cohorts				
Place of Study:	Scotland		UK	
Place of domicile:	Scotland	RUK	Own	Not-own
Stayer	66.4%	69.5%	65.2%	67.6%
Mover	81.1%	71.6%	73.1%	62.0%
Total				
National mover	84.4%	69.1%	76.6%	58.0%
International mover	74.3%	79.1%	71.0%	72.9%
Total	81.1%	71.6%	73.1%	62.0%
Notes: Authors' calculations (see text)				

Table 4 also shows the rates of graduate-job employment for UK graduates as a group. For “own-domiciled” graduates, the rate of graduate-job employment for those who migrated is 73.1%, compared to 65.2% for those who remained in their country of study. For the group of graduates who did migrate, the rate of graduate-job employment for those who migrated to other countries of the UK is 76.6%, which is higher than the rate of 71.0% for those who migrated abroad. However, the situation is different for “not-own-domiciled” graduates. The rate of graduate job employment for those who did not study in their country of domicile and migrated is 62.0%. This rate is in fact lower than the rate of 67.6% for those who did not migrate. For this group of graduates, those who migrated abroad had a considerably higher rate of graduate-job employment, 72.9%, compared to those who migrated to other countries of the UK, 58.0%

#### **(4) Concluding Comments**

The analysis carried out for this paper suggests that graduates whom have gained undergraduate qualifications at Scottish higher education institutions have a migration rate that is double the UK average. The migration rate for Scotland-domiciled graduates who studied in Scotland is also double the UK average. Compared to the UK graduates as a whole, graduates of Scottish higher education institutions are a much more mobile population. Graduates of Scottish higher institutions also have a slighter higher rate of graduate-job employment compared to the UK average. However, the rate of graduate-job employment for graduates of Scottish higher institutions is much higher for those who migrate either to somewhere else in the UK or abroad. The rate of graduate-job employment for Scotland-domiciled graduates who studied in Scotland and migrated is even higher.

The estimates suggest that there is a sizeable positive relationship between the probability of migrating and probability of being in graduate-job employment. A positive relationship of this type is consistent with the view that over-education is a problem leading to under-employment in Scotland. However, such a “conclusion”, which has clear policy implications, is both premature and dangerous. There are other reasons why a graduate might be in non-graduate employment six months after graduation beyond the simple reason of not being able to find a graduate-job. For example, individuals who intend to study for post-graduate qualifications, often take time out before starting. For such individuals, a graduate-job with a career path may be undesirable simply because it would be short-lived. In addition, an individual who has migrated, and found graduate-job employment, may have also found graduate-job employment if they had not migrated. It may be case that such individuals migrated because they found a better job-match and/or they had a desire to work outside their country of study. The relative importance of these alternative explanations needs to be

established. However, the failure to do so will almost certainly lead to the exaggeration of the seriousness of the perceived over-education/under-employment “problem” in Scotland.

More generally, being in a non-graduate job does not necessarily mean wanting a graduate-job and being unable to find one (i.e. under-employment). Although not reported here, a series of regression equations have been estimated with the data aimed at trying to quantify what are the factors that influence the probability that a graduate migrates and the probability that a graduate is employed in a graduate-job. It was found that there are a set of mostly “human capital” variables that raise both probabilities in the same direction. For example, graduates who have “done well” (e.g. awarded a first-class science degree from a Russell Group university) have a much higher probability of both migrating and being in graduate-job employment. This points to the possibility that the observed positive correlation may be spurious—and not casual—in nature. Future research will need to focus on trying to examine the casual/non-casual nature of this relationship, which will raise some difficult econometric issues.

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