Graduates migration in the UK: an exploration of gender dynamics and employment patterns

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<cn>11.<em><ct>Graduates migration in the UK: an exploration of gender dynamics and employment patterns

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<a>11.1<em>INTRODUCTION

Research on women's employment performance and gender gaps in the workplace has received great attention from a variety of disciplines, ranging from management (Maxwell and Broadbridge, 2014) to regional science (Faggian et al., 2007) to psychology (de Araujo and Lagos, 2013). In addition to differences across sectors such as media studies (Ross and Carter, 2011) and technology graduates (Gottlieb and Joseph, 2006), research also examines the time-based dynamics of the gender gap across all levels of employment, from entry-level (Weinberger, 1998) to leadership at higher-level positions (Ryan and Haslam, 2005). In the field of graduates studies and careers, there is strong evidence that later career patterns are highly dependent on the early outcomes of job search, employment and mobility soon after graduation (Elias et al., 1999). Garcia et al. (2001), for instance, show that a salary disadvantage of female workers, so often acknowledged in the news, starts as soon as female graduates enter the labour market. Manning and Swaffield (2008), using British Household Panel Survey data, find that despite an initial gender pay gap of approximately zero when entering the labour market, this gap increases over a ten-year period to as much as 25 per cent.

The scope of this chapter is to analyse the relationship between the gender pay gap and migration behaviour of graduates. Does migration help female graduates reduce the initial gap or is migration actually more beneficial (for example, in terms of salary) to male workers as found in some studies such as Del Bono and Vuri (2011) for the case of Italy? We know

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from the literature (Faggian and McCann, 2006; 2009; Jewell and Faggian, 2014) that highly educated individuals are more mobile and, following the 'human capital migration theory' *à la* Sjaastad (1962), that the reason behind that is that migration allows them to get higher returns on their human capital investment (Becker, 1964; Sabot, 1987). Several empirical studies have tried to estimate the salary premium of migration (Coniglio and Prota, 2008; Faggian et al., 2014; Fratesi, 2014; Jewell and Faggian, 2014), but is there a gender discrepancy in how effective mobility is in increasing salaries?

Although the relationship between graduate migration and gender has been studied in contributions such as Faggian et al. (2007), the issue of how migration might influence graduate salaries differently according to gender – and in turn reduce or decrease the gender pay gap – has not been addressed by previous studies. In addressing this, not only do we look at the general effect of migration on salaries by gender, we also classify graduates according to their sequential migration behaviour (from original domicile to university and then from university to job location) and look specifically at the effect of each migration strategy on final salaries. Moreover, we expand the data used in the Faggian et al. (2007) study, by combining data from the Destinations of Leavers from Higher Education (DHLE) survey, which follows students six months after graduation, with new data from the Longitudinal Destinations of Leavers from Higher Education (LDHLE) survey, which follows up students three and a half years after graduation to have a better sense of the longer-term career prospects of graduates.

The chapter is organized as follows. Section 11.2 discusses the interconnections between human capital, gender and migration identified in the literature, with a specific focus on the case of university graduates. Section 11.3 describes the data and methodology used, while Section 11.4 presents the results starting from some general descriptive statistics on patterns

of employment and migration by gender to then look at the impact of migration on salaries by gender. The final section (11.5) draws some preliminary conclusions, suggests some possible policy implications of our results and highlights new directions for further research.

<a>11.2<em>GRADUATES MIGRATION RESEARCH: GENDER AND MOBILITY

Past decades have seen a sharp increase in women's educational attainments, especially in higher education, not only across Europe and North America, but also in other countries (UNESCO, 2012). In the United Kingdom (UK), it was announced in 2014 that women were a third more likely to enter higher education than men (Garner, 2014). While access to higher education for women is no longer a problem, there still seems to be a substantial gender pay gap in the returns to schooling when entering the labour market (Ball, 2005; Jacobs, 1996).

Past research focusing on the UK case showed that, even though the return to a university degree (compared to A-levels) is higher for women than men, male graduates still earn on average more than female graduates (O'Leary and Sloane, 2005). The lower salaries are in spite of women, on average, outperforming men in higher education (McNabb et al., 2002; Smith and Naylor, 2001). Several studies (Naylor et al., 2002; Purcell, 2002; Purcell et al., 2013; Elias and Purcell, 2004; McKnight et al., 2007) have confirmed that a gender wage gap exists for UK graduates, even after controlling for industry, occupation and degree subject (Machin and Puhani, 2003).

While there is an acknowledgement in the labour and regional economics literature that migration – particularly of highly skilled individuals – has an influence on their employment opportunities and economic returns (Faggian et al., 2014; Fratesi, 2014; di Cintio and Grassi, 2013; Détang-Dessendre, 1999; Jewell and Faggian, 2014), the gender dynamics underpinning the relationship between migration and salaries are often overlooked. Faggian et al. (2007), for instance, while integrating gender, human capital and mobility within a

coherent framework, do not tackle the issue of how mobility affects gender gaps. Contradicting previous studies that found that men are more geographically mobile than women, they find some evidence of the opposite, concluding that *'although women are more likely to be non migrants than men, for those students and graduates who do exhibit mobility, the results are very different. For this latter group, after controlling for human capital acquisition, previous migration behaviour, and the different types of sequential migration behaviour possible, once we incorporate both individual characteristics and the characteristics of the regions, then U.K. female university graduates are clearly more migratory than men'* (ibid., p. 537). They suggest that, in support of Ravenstein's (1885) early insights, women might use migration as a way to compensate for the gender differences experienced when entering the labour market. Alternatively, it could be that women's jobs are more scattered in space than men's, hence requiring them to move more to reduce the spatial mismatch between university and job location.

There is a wide array of studies that have focused on the relation between gender and migration within the 'family migration' framework (Boyle et al., 1999). They tend to consider how, in employment-motivated family migration, the (female) partner's employment status is affected by migration. They find that *'women's employment status suffers after family migration in both GB and the US, even when the female has more occupational power than their partner suffers as a result of such a family move'* (ibid., p. 123). The conclusions of these kinds of studies seem to suggest that human-capital theory cannot fully explain migration and employability decisions when family ties are taken into consideration. While this is true, our study, by looking specifically at gendered migration patterns of young adults (aged 25 or below) soon after graduation, helps shed light on gender differences minimizing the bias due to well-established family ties (such as marriage or

children).[1] Our analysis also provides a powerful framework in *'relating labour market efficiency to female dropout from the labour market and the various causes of the "glass ceiling"'* (ibid., p. 124) without having to consider the role of family migration decisions.

<a>11.3<em>DATA AND METHODOLOGY

Our analysis is based on data from the UK Higher Education Statistical Agency's (HESA) Longitudinal Destinations of Leavers from Higher Education (LDHLE) survey for the cohort of students who graduated in 2006/07. We match these data with the 'Students in Higher Education' and the DLHE data, also collected by HESA. The Students in Higher Education data contain individual student record data, for all students enrolled in higher education, with information on: personal characteristics (such as gender, age and ethnicity), subject of study (Joint Academic Coding System (JACS) code), mode (full-time vs part-time), degree results and institution attended. The DLHE survey provides information on graduates' employment activity six months after graduation and is predominantly aimed at British domiciled students,[2] with all students graduating eligible to take part. The DLHE survey, in particular, includes information on the graduate's employment, such as: salary level, employer sector (standard industrial classification – SIC code), occupational code (standard occupational classification – SOC code) and location of employment. Of the 453,880 leavers eligible to take part in the 2006/07 DLHE survey, 332,110 (73.2 per cent) responded to the survey. A sub-sample of the DLHE respondents was then selected for the longitudinal survey. A total of 49,065 responses were received for the LDLHE survey, with some groups deliberately over-sampled (ethnic minorities, individuals with disabilities, graduates living in Wales, Scotland

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[1] Although tied moving cannot be completely ruled out even for this young cohort of graduates, we believe that, by restricting to graduates 25 and below, the bias is relatively small.

[2] HESA has a target response rate of 80 per cent for full-time home-domiciled graduates, 70 per cent for part-time home-domiciled graduates and 50 per cent for EU graduates.

and Northern Ireland and those who reported being unemployed or self-employed at the DLHE stage). Weights are provided to allow comparability between the DLHE and LDLHE surveys. As our main focus is migration, we restricted our sample to British-domiciled first degree graduates, who studied full-time and, following Chevalier (2011; 2012), who were 25 years of age or under at graduation. Given these restrictions, our final sample consisted of 23,156 valid observations. Part-time students (10 per cent of the sample) were removed from the sample because 48 per cent had been in their job before graduation – suggesting a high proportion were undertaking their degree as part of their employment so were less likely to migrate for work. Second, part-time students are typically older and hence more likely to have family ties and other responsibilities, which might affect their migration propensity. Older full-time graduates (above 25) were excluded for similar reasons.

The LDLHE survey contains information on employment activity 3.5 years after graduation, similar to that of the DLHE survey, although the LDLHE is more detailed than the DLHE survey. In particular, the LDLHE survey includes information on employment activity, employment since graduation, job characteristics, occupation, industry, location of employment and salary 3.5 years after graduation.

<a>11.4<em>RESULTS

<b>**11.4.1**<em>**Gender and Employment Dynamics**

As HESA data suggest, an increasing number of graduates are female.[3] In our sample 57 per cent of graduates are female. Table 11.1 reports the main activity of graduates as recorded by

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[3] HESA data show that there has been an increase in the proportion of graduates (qualifiers) who are female, from 51 per cent for the 1994/95 graduating cohort to 57 per cent for the 2013/14 cohort – this refers to British-domiciled first degree graduates. For the 2006/07 cohort it was 57 per cent as per our sample. (Statistics obtained from the HESA's free online statistics – see https://www.hesa.ac.uk/content/view/1973/239/.)

both the DLHE and LDLHE surveys. For those in combined work and study, we classified those in full-time employment with study as being in full-time employment (70 per cent of whom obtained a professional or other diploma qualification) and those in part-time work with study as further study (with the majority, 71 per cent, obtaining an academic qualification). Since we are interested in migration, it is important to distinguish between those who are likely to have moved for work at either 6 months or 3.5 years from those who are more likely to have moved for further study.

    <INSERT TABLE 11.1 ABOUT HERE>

As expected, the number of individuals in full-time employment and self-employment (as compared to those in part-time employment, further study and unemployment) has increased in the three-year period between the DLHE and LDLHE surveys. Six months is often too short a period to judge an individual's assimilation into the labour market, while 3.5 years is likely to give a more accurate picture of the graduate labour market. Men are more likely to be in full-time and self-employment than women, but also more likely to be unemployed. In contrast, part-time employment and further study is more frequent for female graduates. Overall, in the three-year period between surveys, unemployment and part-time work decreased more significantly for men than women, implying that, even if there are common challenges across genders in entering or getting established in the labour market, men are more successful in facing these challenges.

<b>11.4.2<em>Gender and Migration Behaviour

Following the contribution by Faggian (2005) and Faggian et al. (2007), we classify graduates into five different migration categories based on their migration behaviour from original domicile to university, and later from university to first job location (Figure 11.1).

<INSERT FIGURE 11.1 ABOUT HERE>

As we require information on the locations of domicile, study and work to create our migration categories, the number of valid observations in our sample decreases. While only 47 per cent of the records in the DLHE survey have all the required information, this information is available for 88 per cent of the LDLHE respondents. For this reason, we focus more on the LDHLE survey with data collected 3.5 years after graduation. However, when appropriate we supplement and compare the longitudinal data with the DHLE data collected six months after graduation to get a more dynamic picture of migration patterns by gender over time.

At both points in time the distribution by gender is significantly different. At six months from graduation, women are significantly more likely to be return migrants and less likely to be repeat migrants than men. By 3.5 years, women are significantly less likely to be repeat migrants and more likely to be late migrants than men. It seems that the proportion of non-migrants, return migrants university stayers have fallen between the DLHE and LDLHE, whilst the proportion of late migrants and repeat migrants has increased. This could reflect that six months, as mentioned earlier, is not enough time to really reflect assimilation into the labour market.

Table 11.2 examines the five categories of migration behaviour by gender.

<INSERT TABLE 11.2 ABOUT HERE>

It is interesting to compare the migration categories by type of employment (excluding those again who are in study and not full-time (FT) employment) as provided in Table 11.3.

<INSERT TABLE 11.3 ABOUT HERE>

Part-time (PT) and self-employed graduates are more likely to belong to the non-migrants and return-migrants categories than the others, especially repeat migrants (the lowest). Although we are focusing on younger students, this result might be linked to family

responsibilities (unfortunately, we have no information on whether the individuals are married or have children). 67 per cent of PT workers after 3.5 years (when graduates should be better integrated into the labour market) are women. At 3.5 years, almost half of FT employed individuals are repeat migrants, 35 per cent of PT students are return migrants, and 20 per cent are non-migrants.

Table 11.4 helps highlight some of the geography of the migration patterns between region of study and region of employment. It is interesting that, even if London is equally attractive to male and female students as a region of study, a slightly higher proportion of male graduates work there. The opposite is true for the northeast, Yorkshire and the Humble, and the West Midlands, where, although women are less numerous than men as students, they outnumber men in the labour market. Given that London provides better wages for recent graduates (Faggian et al., 2013), this geographical composition could further exacerbate the gender salary gap problem.

<INSERT TABLE 11.4 ABOUT HERE>

<b>11.4.3<em>**Salary and Migration Patterns**

Table 11.5 reports average salaries for FT employed individuals by gender.[4] Following HESA's approach, only FT employed individuals were included, as PT and self-employed individuals' salaries are less reliable (PT students do not always report pro-rata salaries and the response rate is lower for part-timers).[5] Men, on average, earn more than women and this is true across all migration categories. As expected, repeat migrants earn the most, followed

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[4] Salaries were only included if they were greater than or equal to the amount that would be earned at the minimum wage rate and less than £100,000 (with high values potentially being the result of an error or being outliers).

[5] 81 per cent of FT individuals at 3.5 years provided a sensible salary level, in comparison only 43 per cent of self-employed individuals provided a sensible salary, and 48 per cent of PT employed individuals (reflecting that they may have not been reporting a pro-rata salary rate).

by late migrants and university stayers. Return migrants earn less than non-migrants, which is also consistent with Faggian (2005).

    <INSERT TABLE 11.5 ABOUT HERE>

To better understand the relationship between migration behaviour and salaries, we ran Mincer-type wage equations (split by gender) including migration categories as additional explanatory variables beyond the ones traditionally used in the literature, such as age, ethnicity, subject studied, institution type, pre-university qualifications (A-level tariff points) as a proxy for ability, degree class and any additional qualifications they have gained since graduation. We also included regional fixed effects for the region of employment (although we do not report them in the table of results). The models were run with and without job characteristics. Job characteristics include: firm size, industry and occupation, and contract type (temporary, fixed term, permanent), and time in current job (job tenure: before graduation, since graduation, 2–3 years, 1–2 years, less than a year). Including job characteristics in the model does reduce the magnitude of the coefficients, but leaves their significance and sign unaltered.

The results on the main control variables were in line with what has been found previously in the literature: better degree classification holders earn more on average, as do students with higher ability measured by A-level points. There is a salary premium associated with having earned a degree from more prestigious universities, and older graduates earn more (age being a proxy for experience). However, there are differences between genders in the magnitudes of the coefficients on these control variables, for example men's premium for having a first-class degree is higher (in fact more than double when controlling also for job characteristics), attending a more prestigious university (Russell group or other old university) is also more beneficial for male graduates with a salary premium of 8.1 per cent vis-à-vis 5.6 per cent for

female graduates after controlling for job characteristics. In the pooled model with a control for gender, women earn on average about 7.6 per cent less than men, with this reducing to 5.7 per cent when we include job characteristics. One point of interest is the effect of migration behaviour on salaries, which has some variation between genders. For instance, staying in the university's area to work after graduation (university stayers) gives a significant salary premium (around 2.5 per cent) only to female graduates once the characteristics of the job are included. Late migration and repeat migration both carry a significant wage premium, but while the former is more beneficial to women (6.3 per cent vs 5.9 per cent), the latter is a better migration strategy for men (7.8 per cent vs 4.4 per cent) .

<INSERT TABLE 11.6 ABOUT HERE>

<a>11.5<em>CONCLUSIONS

Our findings confirm that migration is a powerful tool used by highly educated individuals to seek better economic rewards for their human capital (Becker, 1964; Sjaastad, 1962; Sabot, 1987). Confirming earlier findings of Faggian et al. (2007), we find that repeat migrants earn the most, followed by late migrants and university stayers. However, differences exist in the returns to migration by gender. Late migration has the greatest premium, and higher for women than men. The importance of late migration for women could be linked to the importance of establishing a stronger career profile – due for instance to the weaker salary negotiation position usually experienced by women (Gelfant and Stayn, 2013) – before making a migration decision. As reported, when we include job characteristics the salary premium associated with the different migration categories is lower. However, when we run a regression interacting gender and migration, the only significant difference between genders is related to repeat migration with a significantly lower premium for women. This again

seems to confirm the argument that continuously renegotiating jobs and salaries seems to be more difficult for women. Being a university stayer is also significant only for women, which might also support the idea that women need local networks and university connections to strengthen their initial access to the labour market and build their career. The higher wage premium of repeat migration for men might be linked to the lower negotiating power of women when entering the labour market (Babcock and Laschever, 2003; Kulik and Oleakalns, 2012), but this requires further and more detailed research to be confirmed. Alternatively, women might be more sensitive to the costs (including psychological costs) associated with repeat migration.

The findings have implications for women and the migration strategy they might want to adopt to maximize their wages and career advancements. However, they might also have implications for policy, especially for organizations interested in supporting gender equality and women's career progressions. For women thinking strategically about their career, migrating only when there is a real career progression offer might be a more selective strategy than moving for smaller incremental opportunities. However, for organizations interested in attracting women to specific, higher career positions, a better understanding of what would facilitate migration in the later stages of their career might be necessary. It is especially important to have the awareness that later migration might have a stronger impact on women's overall future career advancements than earlier movements.

Therefore, this initial analysis highlights the role that migration patterns can play in providing a gender-based response to the pay gap and finding better rewards for recent female graduates. However, it also suggests that migration strategies are not entirely gender-neutral and that repeat migration – although appealing economically in principle – might create barriers as it poses an advantage for individuals who are able to negotiate continuous increases in wages for their repeat migration and the literature in management and

psychology seems to suggest that these individuals tend to be men. The role of job characteristics is a crucial issue that we would like to explore in more depth in the future; it would be interesting, for instance, to look at the role of different sectors and their geographical distribution (and concentration). Although Comunian and Faggian (2014) address the importance of London and the southeast labour markets, their analysis is restricted only to creative and cultural industries.

<a>NOTES

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<Place all remaining footnotes here, as a list of endnotes, using full-size note numbers followed by full stop, starting from '1.' >

<a>REFERENCES

Araujo, P. de and Lagos, S. (2013), Self-esteem, education, and wages revisited, *Journal of Economic Psychology*, 34, 120–132.

Babcock, L. and Laschever, S. (2003), *Women Don't Ask: Negotiation and the Gender Divide*, Princeton, NJ: Princeton University Press.

Ball, S.J. (2005), *Degrees of Choice: Class, Race, Gender and Higher Education*, Trentham Books.

Becker, G.S. (1964), *Human Capital: A Theoretical and Empirical Analysis*, with Special Reference to Education Chicago, Chicago: University of Chicago Press.

Chevalier, A. (2011), Subject choice and earnings of UK graduates, *Economics of Education Review*, 30, 1187–1201.

Chevalier, A. (2012), To be or not to be ... a scientist? IZA DP No 6353.

Cintio, M. di and Grassi, E. (2013), Internal migration and wages of Italian university graduates, *Papers in Regional Science*, 92, 119–140.

Coniglio, N.D. and Prota, F. (2008), Human capital accumulation and migration in a peripheral EU region: the case of Basilicata, *Papers in Regional Science*, 87, 77–95.

Davanzo, J. (1976), Differences between return and non-return migration: an econometric analysis, *International Migration Review*, 10, 13–27.

Détang-Dessendre, C. (1999), Reciprocal link between exit from unemployment and geographical mobility, *Environment and Planning A*, 31, 1417–1431.

Elias, P. and Purcell, K. (2004), Is mass higher education working? Evidence from the labour market experiences of recent graduates, *National Institute Economic Review*, 190, 60–74.

Elias, P., McKnight, A., Purcell, K. and Pitcher, J. (eds) (1999), Moving on: graduate careers three years after graduation, Manchester: CSU/DfEE.

Faggian, A. (2005), *Human Capital, Migration and Local Labour Markets: The Role of the Higher Education System in Great Britain*, University of Reading.

Faggian, A. and McCann, P. (2006), Human capital flows and regional knowledge assets: a simultaneous equation approach, *Oxford Economic Papers*, 58, 475–500.

Faggian, A. and McCann, P. (2009), Human capital, graduate migration and innovation in British regions, *Cambridge Journal of Economics*, 33, 317–333.

Faggian, A., McCann, P. and Sheppard, S. (2007), Some evidence that women are more mobile than men: gender differences in U.K. graduate migration behavior, *Journal of Regional Science*, 47, 517–539.

Faggian, A., Comunian, R., Jewell, S. and Kelly, U. (2013), Bohemian graduates in the UK: disciplines and location determinants of creative careers, *Regional Studies*, 47(2), 183–200.

Faggian, A., Comunian, R. and Li, Q.C. (2014), Interregional migration of human creative capital: the case of 'bohemian graduates', *Geoforum*, 55, 33–42.

Fratesi, U. (2014), Editorial: the mobility of high-skilled workers – causes and consequences, *Regional Studies*, 48, 1587–1591.

Garcia, J., Hernández, P.J. and Lopez-Nicolas, A. (2001), How wide is the gap? An investigation of gender wage differences using quantile regression, *Empirical Economics*, 26, 149–167.

Garner, R. (2014), Women are now a third more likely than men to opt to go to university, according to UCAS application figures, *The Guardian*, 31 January.

Gelfand, M. and Stayn, H. (2013), Gender differences in the propensity to initiate negotiations, *Social Psychology and Economics*, 239.

Gottlieb, P.D. and Joseph, G. (2006), College-to-work migration of technology graduates and holders of doctorates within the United States, *Journal of Regional Science*, 46, 627–659.

Jacobs, J.A. (1996), Gender inequality and higher education, *Annual Review of Sociology*, 22, 153–185.

Jewell, S. and Faggian, A. (2014), Interregional migration wage premia: the case of creative and STEM graduates in the UK, in Kourtit, K., Nijkamp, P. and Stimson, R. (eds), *Applied Modeling of Regional Growth and Innovation Systems*, Springer.

Kulik, C.T. and Olekalns, M. (2012), Negotiating the gender divide: lessons from the negotiation and organizational behavior literatures, *Journal of Management*, 38(4), 1387–1415.

Machin, S. and Puhani, P.A. (2003), Subject of degree and the gender wage differential: evidence from the UK and Germany, *Economics Letters*, 79, 393–400.

Manning, A. and Swaffield, J. (2008), The gender gap in early-career wage growth, *The Economic Journal*, 118, 983–1024.

Maxwell, G. and Broadbridge, A. (2014), Generation Y graduates and career transition: perspectives by gender, *European Management Journal*, 32, 547–553.

McKnight, A., Naylor, R.A. and Smith, J. (2007), Sheer class? Returns to educational performance: evidence from UK graduates first destination labour market outcomes, University of Warwick, Department of Economics.

McNabb, R., Pal, S. and Sloane, P. (2002), Gender differences in educational attainment: the case of university students in England and Wales, *Economica*, 69, 481–503.

Naylor, R., Smith, J. and McKnight, A. (2002), Why is there a graduate earnings premium for students from independent schools? *Bulletin of Economic Research*, 54, 315–339.

Purcell, K. (2002), Qualifications and careers: equal opportunities and earnings among graduates, Equal Opportunities Commission London.

Purcell, K., Elias, P., Atfield, G., Behle, H., Ellison, R. and Luchinskaya, D. (2013), Transitions into employment, further study and other outcomes: the Futuretrack Stage 4 Report.

Ross, K. and Carter, C. (2011), Women and news: a long and winding road, *Media, Culture and Society*, 33, 1148–1165.

Ryan, M.K. and Haslam, S.A. (2005), The glass cliff: evidence that women are over-represented in precarious leadership positions, *British Journal of Management*, 16, 81–90.

Sabot, R.H. (1987), Internal migration and education, in G., P. (ed.), *Economics of Education Research and Studies*, Oxford: Pergamon Press.

Sjaastad, L.A. (1962), The costs and returns of human migration, *The Journal of Political Economy*, 70, 80–93.

Smith, J. and Naylor, R. (2001), Determinants of degree performance in UK universities: a statistical analysis of the 1993 student cohort, *Oxford Bulletin of Economics and Statistics*, 63, 29–60.

UNESCO (2012), World Atlas of Gender Equality in Education Montreal and Paris: UNESCO Institute for Statistics' Education Indicators and Data Analysis Team, available at: http://www.uis.unesco.org/Education/Documents/unesco-world-atlas-gender-education-2012.pdf (accessed 8 April 2015).

Weinberger, C.J. (1998), Race and gender wage gaps in the market for recent college graduates, *Industrial Relations: A Journal of Economy and Society*, 37, 67–84.

Table 11.1 Destinations in the DLHE and LDLHE Surveys

	DLHE		LDLHE	
	Base obs.	Weighted %	Base obs.	Weighted %
All				
Full-time employment[a]	13,435	59.62	17,167	74.98
Self-employed/freelance	589	1.80	917	3.80
Part-time/unpaid employment	1,724	7.81	1,342	5.89
Further study[b]	4,560	19.22	2,463	9.84
Unemployed	1,789	6.22	840	3.62
Other	1,059	5.32	427	1.87
Total	23,156	100	23,156	100
Women				
Full-time employment[a]	7,594	59.52	9,626	74.31
Self-employed/freelance	253	1.33	426	3.19
Part-time/unpaid employment	1,078	8.5	907	7.02
Further study[b]	2,708	20.16	1,440	10.15
Unemployed	847	5.09	396	3.04
Other	611	5.4	296	2.29
Total	13,091	100	13,091	100
Men				
Full-time employment[a]	5,841	59.77	7,541	75.86
Self-employed/freelance	336	2.4	491	4.6
Part-time/unpaid employment	646	6.93	435	4.43
Further study[b]	1,852	18.01	1,023	9.43
Unemployed	942	7.69	444	4.36
Other	448	5.21	131	1.31
Total	10,065	100	10,065	100

Notes:
a. Includes those who work FT with study
b. Includes those who combine study with non FT work

Table 11.2 Migration categories by gender

	DLHE		LDLHE	
	Men	Women	Men	Women
Non-migrant	13.22	13.99	10.17	11.94
Late migrant	5.34	5.48	6.27	5.78
University stayer	18.45	19.64	13.48	13.69
Return migrant	26.26	27.18	22.46	24.48
Repeat migrant	36.73	33.7	47.63	44.11
Base observations	3,271	4,133	7,424	9,715
Chi-squared gender difference test		*13.6403*		*33.1767*
Chi-squared p value		*0.009*		*0.000*

Table 11.3 Migration category and employment type, column percentages

	DLHE			LDLHE		
	Full-time	Self-employed	Part-time	Full-time	Self-employed	Part-time
Non-migrant	12.43	16.02	21.43	10.36	13.92	20.22
Late migrant	5.81	3.26	3.2	6.2	4.02	4.54
University stayer	19.48	16.35	17.2	13.51	15.75	13.33
Return migrant	24.68	33.46	39.49	22.46	28.78	35.46
Repeat migrant	37.6	30.91	18.69	47.48	37.51	26.45
Total	100	100	100	100	100	100

Table 11.4 Region of institution and employment by gender

	Region of institute			Region of employment		
	All	Men	Women	All	Men	Women
Northeast	5.25	5.34	5.19	2.62	2.39	<u>2.8</u>
Northwest	10.28	9.7	10.73	8.25	8.03	<u>8.42</u>
Yorkshire and the Hum	11.17	11.44	10.96	6.8	6.57	<u>6.97</u>
East Midlands	9.64	10.53	8.95	5.64	5.68	5.61
West Midlands	8.19	8.49	7.96	6.42	6.35	<u>6.47</u>
East of England	5.27	5.4	5.17	6.1	6.24	5.99
London	10.85	10.81	10.88	27.76	<u>28.84</u>	26.94
Southeast	11.55	11.49	11.6	12.07	12.85	11.48
Southwest	8.95	9.77	8.32	6.72	7.18	6.37
Wales	5.8	5.08	6.36	5.38	4.71	5.88
Scotland	9.97	9.18	10.59	8.34	7.63	8.87
Northern Ireland	3.08	2.76	3.32	3.91	3.53	4.21
Chi-squared gender difference test			*96.33*			*43.49*
Chi-squared p value			*0.000*			*0.000*

Table 11.5 Mean salary levels by gender – 3.5 years

	All	Men	Women
All	24,964	26,679	23,650
Migration category			
Non-migrant	22,681	23,434	22,192
Late migrant	25,554	26,959	24,354
University stayer	24,708	26,283	23,508
Return migrant	22,495	23,638	21,723
Repeat migrant	26,522	28,524	24,867

Table 11.6 Mincer equations at 3.5 years (dependent variable: log of salaries)

	All		Men		Women	
	Without job chars	With job chars	Without job chars	With job chars	Without job chars	With job chars
Female	-0.076***	-0.057***				
	[0.008]	[0.005]				
Subject (reference: business)						
Medicine related	0.151***	0.124***	0.155***	0.142***	0.153***	0.120***
	[0.034]	[0.025]	[0.046]	[0.040]	[0.035]	[0.025]
Science	-0.065***	-0.064***	-0.067***	-0.062***	-0.061***	-0.066***
	[0.011]	[0.009]	[0.013]	[0.010]	[0.012]	[0.010]
Mathematics and computer sciences	0.071***	0.034	0.061**	0.033	0.077***	0.033**
	[0.017]	[0.021]	[0.023]	[0.022]	[0.016]	[0.014]
Engineering, technology and architecture	0.035	-0.014*	0.027	-0.022	0.012	-0.021
	[0.021]	[0.008]	[0.021]	[0.016]	[0.022]	[0.020]
Social studies	-0.009	-0.002	-0.016	-0.003	-0.004	-0.004
	[0.014]	[0.014]	[0.024]	[0.017]	[0.010]	[0.015]
Law	-0.108***	-0.090**	-0.093	-0.068	-0.113***	-0.098***
	[0.031]	[0.029]	[0.052]	[0.054]	[0.023]	[0.021]
Humanities	-0.111***	-0.079***	-0.152***	-0.103***	-0.087***	-0.065***
	[0.011]	[0.011]	[0.016]	[0.011]	[0.012]	[0.015]
Creative arts	-0.135***	-0.090***	-0.144***	-0.089***	-0.129***	-0.094***
	[0.010]	[0.009]	[0.019]	[0.018]	[0.008]	[0.011]
Education	0.040*	0.029	0.019	0.015	0.042	0.022
	[0.022]	[0.025]	[0.051]	[0.040]	[0.027]	[0.026]
Degree classification (ref: upper second)						
First class	0.061***	0.047***	0.079***	0.073***	0.047***	0.030***
	[0.008]	[0.008]	[0.015]	[0.016]	[0.008]	[0.007]
Lower second	-0.057***	-0.043***	-0.068***	-0.051***	-0.051***	-0.039***
	[0.003]	[0.004]	[0.009]	[0.010]	[0.008]	[0.005]
Third/pass	-0.135***	-0.090***	-0.147***	-0.089***	-0.124***	-0.092***
	[0.013]	[0.017]	[0.021]	[0.024]	[0.015]	[0.015]
Unclassified	0.084*	0.083**	0.056	0.059	0.106**	0.102**
	[0.041]	[0.038]	[0.041]	[0.044]	[0.044]	[0.036]
Age	0.037***	0.030***	0.038***	0.031***	0.036***	0.030***
	[0.004]	[0.003]	[0.004]	[0.004]	[0.005]	[0.004]
Ethnicity (ref: white)						
Asian	-0.045***	-0.027***	-0.053***	-0.03	-0.038**	-0.026*
	[0.007]	[0.009]	[0.013]	[0.019]	[0.016]	[0.014]
Black	-0.041***	-0.036***	-0.037*	-0.018	-0.043**	-0.046**
	[0.008]	[0.009]	[0.018]	[0.015]	[0.017]	[0.019]
Other	-0.02	-0.01	-0.012	0.008	-0.029	-0.026
	[0.012]	[0.010]	[0.009]	[0.012]	[0.017]	[0.016]
Unknown	-0.048**	-0.062**	-0.097**	-0.111***	0.016	-0.003
	[0.022]	[0.021]	[0.032]	[0.025]	[0.035]	[0.034]

Disabled	-0.042***	-0.030**	-0.054***	-0.043***	-0.029**	-0.019
	[0.009]	[0.010]	[0.008]	[0.011]	[0.013]	[0.013]
Institution Type (ref: post-1992)						
Russell group	0.085***	0.067***	0.098***	0.081***	0.074***	0.056***
	[0.014]	[0.011]	[0.022]	[0.018]	[0.013]	[0.008]
Other old	0.053***	0.036***	0.059***	0.036**	0.048***	0.036***
	[0.011]	[0.008]	[0.018]	[0.014]	[0.011]	[0.007]
FE/HE college	0.014	0.019	0.004	0.017	0.021	0.018
	[0.016]	[0.012]	[0.031]	[0.015]	[0.019]	[0.018]
Further qualifications (none)						
Higher/first degree	-0.046***	-0.030***	-0.048***	-0.026*	-0.042***	-0.033***
	[0.008]	[0.009]	[0.012]	[0.013]	[0.008]	[0.008]
Post-graduate diploma	0.080***	0.052***	0.036*	0.035	0.098***	0.053***
	[0.009]	[0.010]	[0.019]	[0.020]	[0.008]	[0.012]
Professional	0.100***	0.079***	0.094***	0.080***	0.107***	0.076***
	[0.016]	[0.008]	[0.018]	[0.011]	[0.016]	[0.011]
Other	-0.026***	-0.015**	0.006	0.004	-0.049***	-0.032***
	[0.006]	[0.005]	[0.012]	[0.011]	[0.007]	[0.003]
A-level points (241–340)						
<241	-0.032***	-0.025***	-0.02	-0.02	-0.036***	-0.025**
	[0.010]	[0.007]	[0.015]	[0.011]	[0.010]	[0.011]
341–420	0.016**	0.011	0.020*	0.01	0.014*	0.013*
	[0.007]	[0.007]	[0.010]	[0.013]	[0.007]	[0.006]
>420	0.053***	0.044***	0.061***	0.044***	0.048***	0.045***
	[0.005]	[0.005]	[0.012]	[0.013]	[0.006]	[0.008]
Non-A-level qualification	-0.044***	-0.030**	-0.054***	-0.048***	-0.03	-0.011
	[0.008]	[0.012]	[0.016]	[0.015]	[0.019]	[0.023]
Migration category						
Late migrant	0.088***	0.061***	0.092***	0.059**	0.088***	0.063***
	[0.016]	[0.013]	[0.023]	[0.021]	[0.017]	[0.012]
University stay	0.036***	0.024**	0.043**	0.022	0.030**	0.025**
	[0.011]	[0.010]	[0.019]	[0.014]	[0.012]	[0.009]
Return migrant	0.001	0.004	0.007	0.014	-0.004	-0.004
	[0.010]	[0.007]	[0.015]	[0.015]	[0.015]	[0.008]
Repeat migrant	0.077***	0.060***	0.107***	0.078***	0.054***	0.044***
	[0.008]	[0.006]	[0.013]	[0.011]	[0.010]	[0.006]
Observations	12,583	11,927	5,469	5,238	7,114	6,689
R-squared	0.337	0.456	0.337	0.45	0.323	0.455

Notes: All regressions include region of employment fixed effects.

Job characteristics include: current job tenure, firm size, contract type, occupation and industry.

Robust standard errors in brackets.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 11.7 Gender interactions

	All	
	Without job chars	With job chars
Female	-0.040*	-0.032*
	[0.020]	[0.017]
Migration category		
Late migrant	0.091***	0.060**
	[0.022]	[0.019]
University stay	0.050**	0.030*
	[0.020]	[0.016]
Return migrant	0.005	0.012
	[0.016]	[0.016]
Repeat migrant	0.114***	0.084***
	[0.013]	[0.013]
Migration category female*		
Late migrant	-0.002	0.005
	[0.028]	[0.021]
University stay	-0.022	-0.009
	[0.025]	[0.020]
Return migrant	-0.008	-0.013
	[0.026]	[0.021]
Repeat migrant	-0.064**	-0.043**
	[0.021]	[0.017]
Observations	12,583	11,927
R-squared	0.339	0.456

Note: Includes same control as Table 11.6.