

Graduates in non-graduate occupations

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Executive summary

1. This report considers graduates employed in non-graduate occupations. Using survey data from Futuretrack and Moving On, it compares the early career paths of two graduate cohorts. Those who graduated in 1999 ('the class of 1999') are contrasted with those who applied for higher education in 2006 and subsequently graduated in 2009 from a three-year course and in 2010 from a four year course ('classes of 2009 and 2010'). It analyses graduates' time spent in non-graduate jobs from a longitudinal process-orientated perspective; from a cross-sectional perspective; and in a content analysis.
2. Importantly, the report highlights that the concept of 'non-graduate occupations' is contested and that a plethora of different definitions and different ways to measure the amount of graduates in non-graduate occupations exists. This report utilises the definition of non-graduate occupations proposed by Elias and Purcell, (2004) which states that a non-graduate job is one for which a 'graduate level education is inappropriate'. The classification used in the report is based on aggregated occupational information from the Labour Force Survey (LFS) validated using empirical graduate data (Elias and Purcell, 2004).
3. While non-graduate positions may function as stepping stones into graduate jobs during recession, this research observes that many graduates who were first employed in non-graduate jobs remain in those jobs and lose contact with potential graduate employers and, therefore, the potential for graduate employment. This effect is compounded for certain groups such as those from lower socio-economic groups and those who graduated from lower tariff higher education institutions (HEIs), where employment in non-graduate jobs is usually more concentrated.
4. The research further found differences in the patterns of employment between the cohorts with regards to gender, mobility, and work experience. It highlights that subject, choice of HEI, degree classification and type of work experience all had an impact on the length of time that graduates from both cohorts spent in non-graduate roles following graduation.
5. It also provides insight into what graduates think about their employment situations at the time the final field work was conducted. Overall, the report shows that, while some graduates managed to progress from non-graduate roles to roles more appropriate to their degrees and accumulated experience, others who were still in non-graduate employment expressed deep frustration about their lack of progression.

6. Finally, the report suggests a number of areas for further research including: how graduates can enhance their employability while working in non-graduate roles; the role that further study plays in improving long term employment outcomes; and the link between work experience and employment outcomes.

Introduction

7. This report considers graduates employed in non-graduate jobs. It uses the definition proposed by Elias and Purcell (2004) as jobs for which a graduate level education is inappropriate and addresses occupations for which employers typically do not require the post holder 'to possess a degree given the nature of the tasks performed' (ibid.).
8. It should be acknowledged that the concept of a 'non-graduate occupation' is considerably contested. Thus, many different definitions and concepts exist which can limit the extent to which outcomes of empirical findings can be compared. This report uses a classification of occupations based on data from the Labour Force Survey (LFS) together with additional information, including the level of qualification workers typically held in these specific occupations. Using two different survey data – Futuretrack and Moving On - it compares two cohorts of graduates' who were working in non-graduate jobs when they finished their degree.
9. More than 15 years ago, Dolton and Vignoles (2000) predicted that in future an increasing number of young people will be expected to hold a higher education degree to enter a 'good' job while, at the same time, many of them might be unable to secure graduate-level jobs and earn the expected high incomes. This prediction has become a reality for many young people as 'getting a degree is a gamble' (Brynin, 2013, p. 291). Today school-leavers need to decide whether to invest in higher education and, if they do so, to carefully select the course and higher education institution (HEI) to maximise their return. Applicants to higher education have already reacted to the changed parameters, and a recent reassessment of the employment outcomes of higher education noted that over the last 10 years, young people have become more instrumental about their career choices, and fewer study because of 'hedonistic' reasons such as enjoyment of the subject or course (Behle et al., 2015).
10. This report takes stock and compares the early career paths of two graduate cohorts. Those who graduated in 1999 ('the class of 1999') will be contrasted with those who applied for higher education in 2006 and subsequently graduated in 2009 from a three year course and in 2010 from a four year course ('classes of 2009 and 2010'). This exercise, however, cannot be used to rate an HEI's capacity to increase the employability of its graduates and it is important to note that the economic climate changed considerably over the last decade so that the later cohort entered the labour market during a global recession.

11. Still, in the mass higher education system, over-education is a useful indicator of the extent of macro-economic disequilibrium in the graduate labour market (Green and Henseke, 2016), and it will be useful to identify which groups of graduates work mostly in non-graduate jobs, and how this has changed over the last decade.
12. This report analyses graduates' work in non-graduate jobs from a longitudinal process-orientated perspective; from a cross-sectional perspective; and in a content analysis. The analysis of employment after graduation needs to be seen as a 'slow transition with many experiencing several years of turbulence' (Pearson, 2006, p. 76). The process-orientated analysis will be enriched by an analysis of graduates' labour market activities after a specific period of time. While previous research has focussed on the different wages graduates earn during a recession (Oreopoulos et al., 2012), this report focusses on the different types of occupations employed graduates hold during a recession.
13. The aims of this report are:
 - a) To compare the transition from higher education to employment during the first fifteen months after graduation for the two cohorts of graduates: the class of 1999 and the classes of 2009 and 2010;
 - b) To identify whether the personal and HE-related characteristics of graduates more likely to remain in non-graduate jobs have changed over the decade between the two cohorts;
 - c) To identify the personal, higher education-related and employment-related characteristics of graduates more likely to work in non-graduate employment at the time of the last survey (between three and four years after graduation for the class of 1999 and two years after graduation for the classes of 2009 and 2010); and
 - d) To find out how graduates perceive their work in non-graduate roles.
14. The project report addresses three target audiences: HE policy makers; labour market experts, and further researchers. There is some indication (Scurry and Blenkinsopp, 2014) that many HEIs and higher education experts do not want to acknowledge the growing problem of under-employment and instead focus on the demands of short-term performance indicators. It is the aim of this report to shed light on the situation of graduates and improve the understanding that a long-term perspective is necessary to effectively measure the transferability of graduates' skills and knowledge to the workplace.
15. The report first discusses the theoretical implications of the phenomenon of graduates working in non-graduate jobs, followed by some methodological implications. The databases and the analysis are then explained, and analysed from a longitudinal, a cross-sectional, and in a content analytical

perspective over the subsequent chapters. Finally the conclusions of working in non-graduate jobs are elaborated upon before the need for further research is discussed.

Rationale of the analysis and research questions

16. School-leavers are facing important decisions with significant lifelong consequences. They need to decide whether to invest in higher education - and, if so, in which course and at which HEI - or whether to find different ways to enter the labour market - for example through an apprenticeship. These decisions need to be taken at the same time as other relevant life-changing events occur, for example puberty, peer-pressure and finding an identity. However, many do not take the decision whether or not to enter higher education lightly, and information, advice and guidance services such as the National Careers Service exist to help them (Bimrose et al., 2014). The risk young people take has far-reaching implications for family formation, housing and lifelong earnings. Also, increasingly, mature students return to education to up-skill or retrain in order to improve their career.
17. In these contexts, the expected skills and knowledge students acquire during their time spent in higher education, and their potential transferability to the labour market, play a crucial role. From a macro perspective, employment of graduates in jobs for lower qualified workers 'represents not only a waste of individuals' talent but also potentially a missed opportunity for employers to increase performance and productivity, improve job satisfaction and employee well-being, and stimulate investment, enterprise and innovation' (UKCES, 2015, p. 77).
18. In previous research, relatively few figures existed to analyse how many graduates work in non-graduate jobs and, due to methodological implications (see next chapter), they are rarely comparable. Some examples of the outcomes of different approaches in analysing how many graduates are working in non-graduate jobs are provided below.
19. In their analysis of graduates in the 1980s, Dolton and Vignoles (2000) found that 38 per cent of graduates were over-educated for their first job and, six years later, in 1986, 30 per cent remained in non-graduate jobs. Based on the LFS, Alpin et al. (1998) estimated that between 27 and 38 per cent of all graduates worked in non-graduate jobs, depending on different methods of analysis. There is some indication that graduate over-education became more prevalent in Britain between 1992 and 2006 (Green, 2013), and figures from Universities UK (UUK) (2015) and the Office for National Statistics (ONS) indicate that between 30 and 47 per cent of recent graduates are currently employed in non-graduate jobs (Scurry and Blenkinsopp, 2014). A recent HEFCE study (HEFCE, 2016) found that the proportion of graduates in professional employment between six and 40 months after graduation rose

substantially for both the 2008-09 and 2010-11 graduate cohorts. All of these studies use a different definition to the one applied in this report.

20. Using the same methods as used in this report to identify graduates in non-graduate jobs, Elias and Purcell (2004) compared the early pathways of graduates working in non-graduate jobs and indicated a movement out of non-graduate jobs. While approximately half of the sample of employed graduates entered non-graduate jobs directly after their graduation, this figure declined significantly over the following months. The authors found that the experience of the 1995 graduates was similar to those who gained their first degrees in 1992, despite the fact that the period separating these two cohorts was one of rapid expansion of higher education (*ibid.*, p. 63).
21. Economic theory suggests that in the long term existing imbalances between the supply of graduates and the demand for graduate jobs will result in young people modifying their education and training plans and, thus, the returns on higher education will change (Green and Henske, 2016, Alpin et al., 1998). From this perspective, based on human capital theory, 'education-job mismatches among graduates are largely temporary, or else no more than an artificial conceit, masking skill gaps between the matched and mismatched' (*ibid.*, p.4). However, human capital theory is not suitable to describe the persistent skills mismatch many graduates currently experience.
22. Work in non-graduate occupations can act as a stepping-stone into graduate jobs (Verhaest et al., 2015), or, in other words, as a 'temporary transitional period for acquiring additional skills and experience, (...) a "stop gap" before career decisions are made' (Scurry and Blenkinsopp, 2011, p.646). Graduates can continue to search for other jobs while enjoying the security of a stable income and, potentially, gain some kind of skills or work experience. In some cases, their employment might open doors to internal vacancies, and they might be able to move to graduate jobs within their current setting. Another option is that graduates in non-graduate positions use their higher level of skills and knowledge and, thus, actively transfer from the role they originally hold (Tholen, et al., 2015). However, the opportunities to do this were found to be limited (Mason 2002) and Green and Henseke (2016) conclude in their review of existing research that in most cases a lower status entry position to the labour market at the start of a career generally slows down the transition into a graduate job, compared to a longer initial search period.
23. It is unclear if the results of the various studies outlined above are transferable to graduates entering the UK labour market during a recession, and which group of graduates is more affected by the conditions. In times of high unemployment and shortage of jobs, employment in non-graduate jobs can

act as a bridge until graduate jobs become available. However, Oreopoulos et al. (2012) show that in Canada college graduates working in non-graduate jobs during a recession lost contact to better employers. The most recent Employer Skills Survey report (UKCES, 2015) declared that the reason for the under-utilisation of skills was a lack of jobs at the desired higher level. One could argue that this results in graduates becoming stuck in non-graduate positions rather than using these positions as stepping stones.

24. Another feature that has changed graduates' transferability to the workplace refers to the massification of the higher education system. Not only do more students from disadvantaged backgrounds now enter higher education, but new (post-1992) institutions have appeared to cater for non-traditional students (Boliver, 2013) and will, according to current political plans (Department for Business, Innovation and Skills (BIS), 2016), continue to do so. This heterogeneity in the UK higher education sector has to date not been significantly reflected in the analysis of the process of post-graduate transitions. Brynin (2013) highlights that, while historically in the UK there was primarily a long-term pursuit of a general rather than vocational higher education, there has been a renewed focus, especially among the newer (post-1992) HEIs, on more vocational courses. Chillas (2010) suggested that different types of universities provided employees for different types of occupations, with graduates from lower-ranked universities finding employment in often less prestigious jobs. Due to the lower signalling power of a degree from a lower tariff HEI, graduates could have become crowded out of graduate jobs and could have been forced to take on non-graduate jobs (Chillas, 2010).

25. Both unemployment and employment in non-graduate jobs is often found to be concentrated among particular groups of graduates (Alpin et al., 1998, Verhaest et al., 2015), such as those from lower social backgrounds (Verhaest and Omey, 2010) or those from ethnic minorities (Rafferty, 2012).. One of the interests of this research is how personal characteristics interact with studying at a lower tariff HEI and/or gaining a lower class of degree. Previous research also found there were regional differences, with Greater London and Wales reporting the highest proportion of graduates working in non-graduate jobs (Alpin et al., 1998). It is not surprising, however, that work in non-graduate jobs was more prevalent amongst low earners and those working part-time (Alpin et al., 1998). In recent years, however, many HEIs have extended their efforts to increase students' employability through specific measures such as internships, volunteering or involvement in extra-curricular activities (Cranmer, 2006, Helyer and Lee, 2014, Okay-Somerville and Scholarios, 2015, Bathmaker, Ingram and Waller, 2013). By taking part in such schemes, graduates hope to distinguish themselves from other competitors for a graduate job.

26. To inform the research to be undertaken for this report, it is also necessary to identify how graduates themselves see their situation in lower-skilled positions. Using econometric modelling, Piper (2015) identified a negative association between relative over-education and life satisfaction. Scurry and Blenkinsopp (2014) suggested that the view of graduates on their position in non-graduate jobs has implications for the way they cope with their situation - if graduates see their current employment as a 'temporary' stopgap, they insulate themselves from the negative effects of their situation. 'Hope' is a very strong explanatory variable in understanding the impact of a precarious situation on mental health (Behle, 2005). However, some graduates might not be interested in taking on a graduate job - according to the Employer Skills Survey, some workers indicated that the circumstances of non-graduate occupations, especially the working hours, were better suited to them (UKCES, 2015) or their lifestyle (Elias and Purcell, 2004).
27. The literature review has identified the scope of previous research and the diversity of previous operationalisations of 'graduates working in non-graduate jobs'. Any data analysis needs to clarify precisely the methods and data used to increase the comparability of findings. The review has also shown that, in order to capture the full picture of graduates working in non-graduate jobs, it is necessary to look at graduates' early pathways both from a longitudinal as well as from a cross-sectional perspective. Additionally, an analysis of current graduates' thoughts about working in a non-graduate job enables a fuller picture.
28. Building on this previous research, the following research questions for the analysis of both graduate cohorts, those from 1999 and those from 2009-2010, were therefore formulated:
- Are there differences in the early transition from higher education to graduate jobs between the two graduate cohorts? And if there are differences, how can they be described?
 - Which group of graduates is significantly more likely to work in persistent non-graduate occupations? Are there any differences among the graduate cohorts?
 - Are there any significant differences among graduates currently working in non-graduate jobs, especially according to the subject studied and the type of HEI attended? For the classes of 2009 and 2010, are graduates from lower-tariff HEIs more likely to work in non-graduate jobs? Given increasing efforts by many HEIs to address employability of their graduates, can a difference between graduates of both cohorts be observed?
 - How do graduates working in non-graduate jobs see their own position?

Methodological considerations and implications

29. The identification of graduate and non-graduate jobs is vital, and as seen earlier, has implications for the estimated number of graduates in each position. Some definitions go so far as to change the perception of graduate jobs to the jobs that graduates do (Tholen, et al., 2015). Various ways exist in which the proportion of graduates in non-graduate jobs can be measured, however, it is important to indicate that these definitions and operationalisations are not static in order to reflect the flexible nature of the labour market.
30. Previous HEFCE publications (for example HEFCE, 2016; HEFCE, 2015) and the recent White Paper (BIS, 2016) divided occupations into professional and non-professional jobs using the major groups of the Standard Occupational Classification (SOC). Occupations of the first three major SOC groups, i.e. 'managers, directors and senior officials', 'professional occupations', and 'associate professional and technical occupations' are identified as professional jobs while those classified in the other major groups are classed as non-professional jobs. Both the Wakeham Review (2016) and the Shadbolt Review (2016) used the same method but in contrast to the HEFCE publications did not use the term 'professional job', referring to these occupations as non-graduate jobs. This classification can be criticised as it is unclear if all of the occupations classified in the first three major SOC groups require workers to hold a degree to undertake its tasks, especially those working in occupations classified as 'associate professional and technical' (Green and Henseke, 2014).
31. Dolton and Vignoles (2000) used the term 'overeducation' to identify graduates working in a job requiring sub-degree or no qualifications. Most of the research in this context refers to the earnings of overeducated graduates similar to Green and Zhu (2010), who also use the term overqualification as a synonym for overeducation, and stress that their definition refers to 'getting, rather than doing, the job' (p.11).
32. For this report, the term 'graduates in non-graduate occupations' is based on a classification undertaken by Elias and Purcell (2004). They explain that the term 'non-graduate occupation' is 'not meant to imply that an incumbent is inappropriately placed within the labour market. Instead, it indicates that the majority of jobs classified (...) are jobs for which a graduate level education is inappropriate' (Elias and Purcell, 2004, p. 5). The authors concentrated on the type of work typically performed in a job and the extent to which such work makes use of the skills and knowledge gained through higher education. The Standard Occupational Classification Higher Education (SOC (HE)) therefore

takes the nature of changes in occupational structure in the UK labour market into account and, in addition to the SOC unit groups, uses 'precise and relevant occupational description' (p. 4). In 2013, the SOC(HE) was updated to SOC(HE) 2010 (Elias and Purcell, 2013) using the revised SOC 2010. The revised classification was based on the relationship between higher education, knowledge development and its labour market application, aiming to increase its transferability to other countries.

33. While Elias and Purcell concentrated on expert judgements to classify occupational units, Green and Henseke (2014) further developed this work using additional statistical analysis. They defined non-graduate jobs as those where 'a substantial proportion of the skills used are normally acquired in the course of higher education, its accoutrements and its aftermath' (Green and Henseke, 2014, p. 4). Their classification, entitled '*SOC(HE)2010_GH*', intends to capture the intensity with which the job required graduate-level skills. They note that skills cannot exclusively be acquired during higher education and that especially older workers have often learned their skills through work experiences or work-based training.
34. The existing body of research acknowledges that it is not possible to provide a universal definition of what constitutes a graduate job as a general taxonomic category (Wakeham Review, 2016, Shadbolt Review, 2016, UUK, 2015, Elias and Purcell, 2013). Due to the variety of different classifications and definitions it is therefore also important to state the definition, operationalisation and data used in each approach.
35. The literature (see for example Dolton and Vignoles, 2000, Scurry and Blenkinsop, 2011) also distinguishes different ways to measure graduate employment:
 - Self-assessment, in which graduates are asked directly about the minimum education level needed for their current jobs which can then be compared to their current level of education;
 - External methods to assess the average education required for a particular job, generally using job analysis data;
 - The mean education level across a range of occupations which can be contrasted with individuals' level of education and thus identify if this individual is overqualified for their current position.
36. All these methods for measuring graduate employment have their shortcomings. Self-assessment relies on the objectivity of respondents and external methods are based on the assumption that all employees in the same occupation undertake tasks which are equally difficult. Basing the definition on a statistical average, the cut-off point could be seen as arbitrary

and, if the proportion of graduates in a particular occupation is high, disregarding the content of employment, it will be easier to identify this job as a graduate job. A common critique of all three methods is that neither changing complexity of job nor credential inflation, whereby employers upgrade the educational requirements of the job without changing their content, can be measured (Dolton and Vignoles, 2000).

37. The classification used for this project therefore uses all three methods described. Aggregated occupational information based on existing secondary data (from the LFS), together with detailed information, was used to identify the skill level of individual occupations. The obtained classification was later validated using empirical graduate data (Elias and Purcell, 2004). A HEFCE publication (HEFCE, 2011) describes as one of the strengths of this classification that a vast majority of graduates can be classified and that it captures information on employment beyond six months after graduation. Although it is acknowledged that it was seen as problematic that the classification represents historical rather than recent patterns of graduate recruitment and that it does not reflect an individual's particular occupational situation.

Data adaptations and analysis

38. Data used to analyse the research questions are required to cover a significantly large group of graduates in order to be representative and include details of graduates' SOC units. Many previous reports (HEFCE, 2011, 2015, Wakeham Review, 2016, Shadbolt Review, 2016) use HESA Destination of Leavers from Higher Education (DLHE) and HESA Longitudinal Destination of Leavers from Higher Education (LDLHE) survey data mainly to identify the situation of graduates in non-professional jobs. The DLHE invites all recent graduates from UK HEIs to respond to the survey, and the current employment status of graduates is measured approximately six months after graduation. The LDLHE survey covers a subsequent sample of graduates who provided a valid response to the DLHE, and captures graduates' employment three and a half years (or 40 months) after leaving higher education. Both surveys cover a representative number of graduates and variables and include the Standard Occupational Classification (SOC) of current employment.
39. While both the DLHE and the LDLHE present useful snapshots of graduates' activities six months and three and a half year after graduation, they do not include an activity history to cover graduates' monthly activities. In addition, they do not hold any qualitative data and thus do not allow for an analysis of the view of graduates. Therefore, the following empirical analysis uses two alternative data sets: Futuretrack and Moving On.
40. Futuretrack was an online survey to which all UCAS applicants to undergraduate higher education courses in 2006 were invited. Altogether, they were surveyed four times, during the application stage and twice during their studies. Students from three-year courses completed their degree in 2009 and those from four-year courses completed in 2010. The final field phase which covers their activities after leaving higher education took place in autumn/winter 2011 and respectively in 2012. The data also included those who left their course without graduating. Moving On was a postal survey in which only UK-domiciled graduates from 1999, in selected HEIs, were invited to take part. It also included graduates from part-time courses. The final field phase which covers their activities after leaving higher education took place between February 2003 and April 2004,
41. In order to be comparable, both data sets needed to be adapted due to the range of graduates they included. Futuretrack data needed to be restricted to only the HEIs covered in the Moving On data set. Non-UK domiciled graduates and those who did not gain their degree were excluded from the analysis. Graduates from part-time courses were excluded from the Moving

On data. As a result, there are usable records of 4,699 graduates in the Futuretrack data set and 8,088 in the Moving On data. The data was weighted using the weights supplied in the data sets.

42. Both data sets, Futuretrack and Moving On, include variables which categorise the occupations of employed graduates. In both data sets, employed graduates were asked about their job titles which were subsequently coded in the SOC. Moving On used the SOC 2000 and Futuretrack the SOC 2010. These classifications were used to identify if the occupations were appropriate for the level of skills expected from graduates from UK HEIs. As both data sets included the SOC(HE), the classification based on the SOC 2000, this variable is used for the report's analysis rather than the more up-to-date classification based on the SOC 2010.
43. The SOC(HE) was created using the following sources (more information about the classification of occupations can be found in Elias and Purcell, 2004):
 - a) data from nine quarterly Labour Force Surveys;
 - b) a specific file prepared by the Office for National Statistics (ONS) from the winter 1996/97 quarter of the LFS which contained occupational information together with text descriptions of job titles, job descriptions and qualifications required for the job for over 65,000 employees;
 - c) additional material about occupations. Graduate occupations were classified in 'traditional', 'modern', and 'new' according to the proportion of employed people holding a first degree in the SOC unit group and information based on the text descriptions from the specific ONS file.
 - d) 'niche' occupations was installed to cater for those occupations where the distinction between graduate jobs and non-graduate jobs was not clear cut. Those occupations which were not classified to one of these four categories were termed 'non-graduate occupation', and used for this report.
44. The data analysis that will be conducted for this report includes four elements to get a coherent picture of the differences between the two cohorts of graduates:
 - a) A descriptive analysis will use the activity history and describe the proportion of all employed graduates working in non-graduate jobs. Following on, the number of months employed graduates spend in non-graduate jobs after leaving university will be analysed.
 - b) Regression models will be used to estimate the impact of various variables on the lengths of time spent in non-graduate jobs.

- c) Using logistic regression, the impact of personal, higher education-related and employment-related variables on the odds of currently working in non-graduate jobs will be estimated.
- d) Finally, to include graduate voices, qualitative information gathered in the Futuretrack survey will be included. Qualitative responses will be coded as snippets of text into recurring themes and selected quotes will illustrate various findings.

45. Variables used to understand the impacts on the lengths of time graduates work in non-graduates jobs can be divided in two categories:

- 1. Personal characteristics including: gender; age; current location; Socio-Economic status, and ethnicity
- 2. HE-related variables including: subject studied; the class of degree; if graduates gained work experience during their time at higher education, and the type of HEI. HEIs are divided in highest tariff HEIs and other HEIs using the Purcell et al. (2009) classification based on the entry requirements of providers.

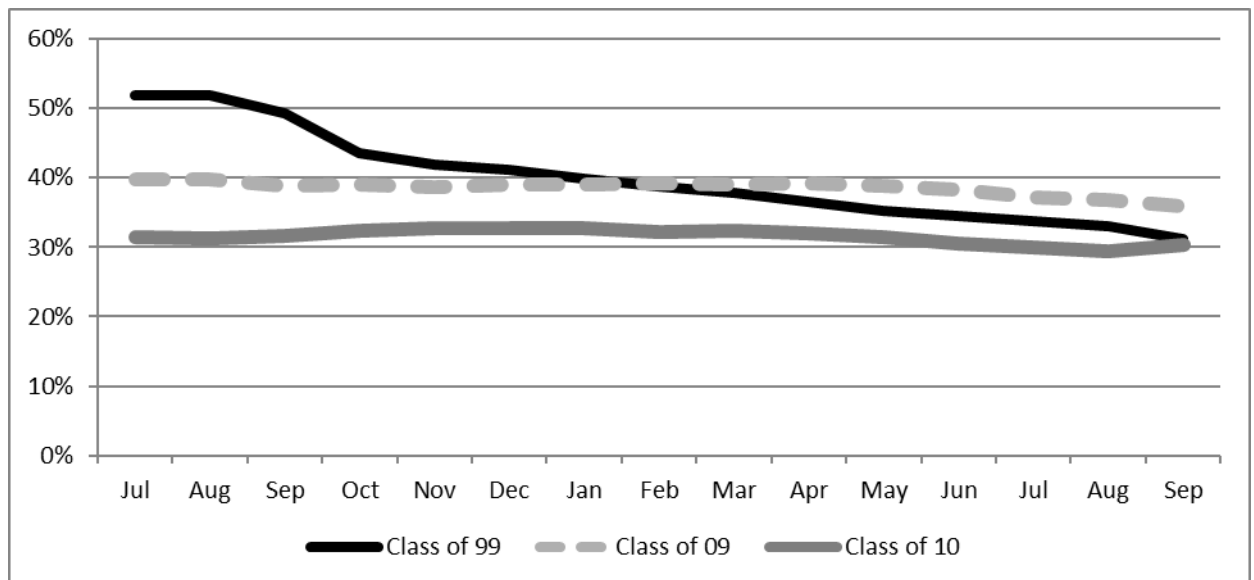
46. In order to understand the impacts on current work in non-graduate jobs, two other categories are additionally included:

- 3. Employment-related variables describe the hours worked, the sector and the salary obtained.
- 4. A retrospective variable asks if, in hindsight, graduates would attend higher education again.

Description of graduates in non-graduate jobs

47. Both Moving On and Futuretrack data include an activity history in which the early trajectories of graduates can be followed. Figure 1 describes the proportion of all employed graduates in non-graduate occupations by the months after leaving higher education. The first month, July, therefore, refers to the year in which the students graduated from higher education. For Moving On, Figure 1 covers the time from July 1999 to Sept 2000. Futuretrack covered two graduate cohorts: the career paths of students on three-year courses were tracked from July 2009 to September 2010 and those from four-year courses from July 2010 to September 2011.

Figure 1: Employment in non-graduate jobs, employed graduates only, by graduation cohort



Source: Moving On, n = 3936 (July 1999) – 4656 (September 2001); Futuretrack (selected HEIs), Class of 2009 n=638 (July 2009) – 1070 (June 2011), Class of 2010 n=633 (July 2010) – 1047 (June 2012), weighted.

48. The differences between the cohorts of graduates are clearly visible. While in 1999, more than half of all graduates entered non-graduate occupations, this was less for the later cohorts. In July 2009 and 2010, approximately 40 per cent of all employed graduates from three-year courses, and less than a third of those from four-year-courses, entered employment in non-graduate positions. However, while for these later cohorts the proportion of all employed graduates in non-graduate occupations has remained on an even level, this is not the case for the earlier cohort.

49. In October 1999, after the summer break for the first graduate cohort based on Moving On data, the proportion of graduates working in non-graduate roles decreased to 44 per cent falling steadily to 31 per cent by September 2001.

50. To better understand graduates' deployment in non-graduate jobs, the number of months in employment in general and in non-graduate employment during the first 15 months following graduation was calculated (Table 1).

Table 1: Months spent in employment, 15 months after graduation

	Average months in Employment	Average months in non-graduate employment	% of graduates never employed	% of graduates persistent in non-graduate employment
Class of 1999	10.4	4.1	14.1	13.4
Class of 2009 (3-year courses)	9.2	3.4	28.7	18.9
Class of 2010 (4-year courses)	9.6	3.0	25.5	15.5

Source: Persistence in non-graduate employment defined as more than 14 months spent in non-graduate jobs. Moving On n = 6144, Futuretrack (three-year courses) = 1603, Futuretrack (four-year courses) = 1572, weighted. 15 months after graduation refers to a period of time defined by the July immediately after graduation to September the following year.

51. While graduates from both the 1999 and 2009 & 2010 cohorts worked on average for a total of approximately 10 months and for three to four months in non-graduate jobs, the distribution of these variables varies across the cohorts. The proportion of graduates from the 2009 and 2010 cohort who never entered employment is nearly twice the size, compared to those who graduated 10 years earlier in the 1999 cohort. One way to interpret this is that many graduates entered other activities such as further studies to avoid non-graduate employment. Despite the lower percentage of graduates entering the labour market, the proportion of those who persistently worked in non-graduate employment is higher, compared to the earlier cohort.

52. It becomes apparent that graduates from 2009 and 2010 are less likely to be employed in general. Employment in non-graduate positions is not a regular experience for all graduates but is very consistent for specific groups of graduates. The following chapter looks at this in more depth, and asks which

of the graduates were more likely to remain in non-graduate roles for a longer period of time.

Who spends more time in non-graduate roles?

53. A regression analysis was conducted to compare the influences solely of personal characteristics, and of both personal and higher education-related variables on the length of time graduates spent in non-graduate jobs. The results of this analysis are available at Annex A.
54. Interestingly, there were not many significant differences between the 1999 and 2009 & 2010 cohorts. Female and younger graduates were more likely to work longer in non-graduate positions while graduates working outside of London but within the UK were less likely to remain in these kinds of jobs. These influences remained constant when higher education-related variables were included in the equation, indicating these characteristics had a significant influence which was not absorbed by other variables.
55. With regard to subjects, graduates from Mathematics, Computer Science, Medicine, Engineering and Education were more likely to be employed for longer in graduate jobs compared to those who studied Natural Sciences¹, which was the reference group for subject analysis. Unsurprisingly, those from high tariff HEIs and those holding a First Class degree were more likely to work longer in graduate jobs.
56. Employment experience gained during studies was classified in three different groups: those who did not work at all; those who worked for money only; and those who also gained subject-related employment experiences. Students who worked to gain subject-related employment experience during their studies were less likely to work for a longer period of time in non-graduate jobs. Interestingly, there was no difference in the time spent in non-graduate jobs between those working for money only and those who did not work during their studies.
57. There were small differences in the impact of personal and higher education-related variables on the probability of working longer in non-graduate jobs. When working in a different, non-UK country, the current Futuretrack cohort was less likely to remain in non-graduate jobs, which confirms previous findings (Behle, 2016). Also, while, for the earlier cohort, starting a family would increase the amount of time graduates remained in non-graduate positions, this was no longer significant for the later cohorts. For the 2009 and 2010 cohort, graduates from Arts courses were significantly more likely to work in non-graduate jobs while, 10 years earlier, for the 1999 cohort,

¹ The group referred to as Natural Sciences covers Biology, Veterinary Sciences, Agricultural Studies and Physical Sciences

graduates from Humanities subjects were more likely to work in non-graduate jobs.

Current employment in non-graduate jobs

58. The previous analysis has focussed on a process-orientated view, and the impact of independent variables on the lengths of time graduates spend in non-graduate jobs. While this approach provides valuable insights, due to its longitudinal nature, it was not possible to include variables describing the current² workplace, such as the sector, the amount of hours worked, or the wages earned. To additionally capture graduates' employment activities, logit regression models were estimated to compare the impact of personal, higher education-related and employment-related variables on the odds of currently working in non-graduate occupations, for both cohorts of graduates. The results of this analysis are available at Annex B.
59. The comparability between both data sources, the 1999 cohort and the 2009 and 2010 cohort, however, is somewhat limited. The final Futuretrack survey took place in autumn and winter 2011/12, approximately two years after the 2009 and 2010 cohort had left higher education. The data collection for Moving On was conducted between February 2003 and April 2004, between three and four years after the 1999 cohort had left higher education. It is not possible to eliminate the time differences between both surveys as, in both sets of data, detailed specific employment-related variables such as sector and wages were only captured for the current employment at this specific time. For Moving On, the number of graduates working in non-graduate jobs had already decreased over time (see Figure 1) and thus it can be expected that those who were able to use their non-graduate position as a stepping stone had already done so. In contrast, some of the graduates from the 2009 and 2010 cohort were surveyed at an earlier stage and some of them may later have been able to find a graduate job. Nevertheless, this snapshot of current employment in non-graduate jobs enables a classification of the type of graduates working in non-graduate jobs.
60. For each graduate cohort, the following four models were therefore estimated:
1. Model (1) looked into **personal characteristics** such as gender, age, socio-economic status and mobility after graduation.
 2. Model (2) took **higher education-related variables** into account. As seen earlier, the odds of entering non-graduate employment can depend on the type of HEI and the courses studied. Similarly to the previous models, HEIs were classified using the Purcell et al. (2009) analysis. Additionally, the class of degree was included in the model.

² In this report, the term 'current' employment refers to the time approximately two years after graduation for the Class of 2009/2010 and to between three and four years after graduation for the Class of 1999.

The variable 'work experience' describes whether graduates had, during their higher education, gained employment experience either by undertaking work experience or other work during term or during holiday time. In contrast to the existing evidence (Wakeham Review, 2016, Shadbolt Review, 2016, NCUB, 2015) where work experience is mainly considered and recorded by HEIs by means of sandwich courses, self-reporting surveys such as Moving On and Futuretrack were able to include all kinds of work experience.

3. Model (3) included **employment-related variables** such as sector, the hours worked, and the salary. The cut-off point for salary was £21,000³. Working hours were included to check whether graduates in part-time positions were more likely to work in non-graduate jobs.
4. Model (4) only added one variable to the equation related to **choices about higher education**: namely if, with hindsight, graduates would definitely embark on the same course, choose a different course or HEI, or if they would have preferred not to attend higher education.

61. The models reveal both differences and similarities about the group of graduates working in non-graduate jobs. In both cohorts, younger graduates were more likely to work in non-graduate jobs. Those coming from higher social classes and those who had moved to London after their studies were more likely to find graduate employment. In both graduate cohorts, the influence of specific subjects was consistent, and graduates from Mathematics and Computer Science, Engineering, Medicine and subjects allied to Medicine were less likely to work in non-graduate jobs.
62. It is not surprising that graduates from high tariff HEIs and those with a First Class degree were less likely to work in non-graduate jobs. In both cases, however, this influence loses its significance in later models, which indicates that it gets absorbed in employment-related variables. Graduates in full-time positions were, in both cohorts, less likely to work in non-graduate jobs. However, this was more pronounced in the earlier cohort.
63. Information and Communications Technology (ICT) and the education sector were the only sectors where graduates were significantly less likely to work in non-graduate jobs, while those working in distribution, hotel and catering; transport and tourist services; and banking, finance and insurance (see also UKCES, 2015) were more likely to be classified as non-graduate jobs. Again, the salary attained is not surprising, and those earning higher wages were less likely to work in jobs classified as non-graduate jobs.

³ HECSU expected that this would be a starting salary for graduates over all sectors and regions (Charlie Ball in The Guardian, 3 February 2013). Using the CPI (Consumer Price Index), this was translated into £17k for the earlier graduate cohort.

64. Finally, those who would definitely attend higher education again were more likely to work in graduate jobs, while those who said that they regretted their decision to enter higher education were less likely to work in graduate employment. However, the causality of this variable might need to be reversed so that those who work in graduate positions could be more likely to say that they would attend higher education again.

65. Differences between the cohorts refer to the following variables:

1. In the earlier cohort, **gender** did not show any significant impact on the odds of working in non-graduate employment; however, this is no longer the case for the later cohort, where men were significantly less likely to work in non-graduate jobs.
2. While in the earlier cohort, **mobility** to London was the only significant mobility variable, this has changed for the later cohort. Consistent with other findings based on Futuretrack data (Behle, 2016), it could be seen that those who went to work in a different country were less likely to work in non-graduate jobs.
3. Differences also existed related to the impact of **work experience**. In the earlier cohort, work experience did not have any impact on the odds on working in non-graduate jobs. When looking at Futuretrack data gained in 2011/12 (for the class of 2009 and 2010), it becomes clear that those who did not gain any work experience were less likely to work in graduate employment. Interestingly, graduates from Humanities were in the earlier years consistently less likely to enter graduate employment; however, in recent years there is no longer a significant influence.

66. In summary, differences could be found with regards to gender, mobility, and work experience. Similar influences between both cohorts could be found according to age, social background, specific subjects (Mathematics and Computer Science, Engineering, Medicine and subjects applied to Medicine), type of HEI and class of degree. Typical employers for graduates in non-graduate jobs could be found in the following sectors: distribution, hotel and catering; transport and tourist services; and banking, finance and insurance.

How do graduates see their work in non-graduate roles?

67. The Futuretrack questionnaire asked students to comment on their career pathways and on their experiences with higher education in general. Many of them used this opportunity to describe the impact of their higher education studies on their post-graduation pathways. The examples of comments below are used to integrate the graduate voice and to illustrate the contexts under which graduates work in non-graduate jobs.

68. Here is a typical example for a graduate in a non-graduate job:

Just to make it clear after leaving uni I was forced to move back home as I couldn't get a job. After several months of unemployment I got a part-time job working in security at nightclubs. I then managed to get work at a college as an exams invigilator. I've done those until August 2010 when a failed interview led to a temporary job at the university. After this ended I joined the [UK HEI] internal temp register, which I am still a part of.

(Female, currently working in education, medium tariff HEI, Business and Administration Studies)

69. Some students expressed how under-employment had impacted on their mental health. The mechanisms they described are remarkable, as these experiences will also affect their chances of finding graduate employment. Long-term work in non-graduate jobs can result in lower self-esteem, as graduates feel their work is not valued on the graduate labour market. Previous research has shown that the prospects of leaving unemployment or employment in non-graduate jobs can protect graduates from negative effects of their over-education which is one way for them to keep up their employability (Scurry and Blenkinsopp, 2014).

70. However, some of the graduates from the Futuretrack study who described their situation were mainly affected by a vicious circle in which employment in non-graduate jobs and mental health problems reinforced themselves through a feedback loop which led to a decrease in employability. In a recession, these graduates were not able to see their current positions as finite; they felt that they were stuck in their current jobs, despite all the efforts to gain a good degree. This resulted in lower motivation and lack of self-confidence, and this experience might further lead to a degrading of skills and knowledge, as seen in the following quotes.

I worked incredibly hard for my degree and have faced a battle to find a job. The job I am in is unchallenging; I am over-qualified for it. I feel very disheartened and have little

self-confidence. I am in so much debt and all the hours of studying, all the hard work seems to mean nothing.

(Female, currently working in the education sector, high tariff HEI, Law)

Working in these types of jobs after all that hard work and studying is downright depressing, demeaning and makes you feel like a complete failure.

(Female, currently working in the distribution, hotels and catering sector, medium tariff HEI, Interdisciplinary Studies)

Having any job is of course better than having no job at all but it's hard to keep your chin up about the situation when your only reason for staying in a job is so you don't have to claim benefits and be looked down upon for it.

(Female, working in distribution, hotels and catering, medium tariff HEI, Interdisciplinary Studies)

71. Some graduates connected their problems finding graduate employment and the shortage of jobs on the labour market to the increased number of leavers from higher education. They indicated the increased pool of graduates had led many employers to raise their expectations of new employees, and that they now expected a higher level of skills and work experience from graduates applying for entry positions. Some graduates also referred to entering the labour market during a world-wide recession.

It took six months to find a job in 2009 after about 40-50 applications. I think employers are spoilt for choice and raise entry requirements higher than necessary, which prevents people from around my generation from getting a job.

(Male, currently unemployed, high tariff HEI, Creative Arts and Design)

The only problem I have faced is managing to get a job which matches my skill set and education. This is something which, because of the economic climate, is becoming a greater challenge by the day.

(Female, currently working in other public services, high tariff HEI, Interdisciplinary Studies)

In my overall opinion there are too many people coming out of university and too few jobs for them meaning there are all these talented people unemployed and unable to pay back their debts.

(Female, currently looking for work, medium tariff HEI, Mass Communication and Documentation)

72. Many felt that they were trapped in a vicious circle as employers expected work experience but were not prepared to provide internships for new, inexperienced graduates to learn a role in their companies. Other graduates complained that they had not been able to gain work experience as an integral part of their course. As seen in the earlier logistic regression, graduates with work experience were significantly less likely to work in non-graduate jobs.

I have been turned down for so many jobs because I do not have the real life experience needed ..., but cannot gain this experience without being given the opportunity; a vicious cycle I am sure many graduates have and will face.

(Female, currently working in other public services, high tariff HEI, Interdisciplinary Studies)

Higher Ed was a disappointment; I am now 18 months unemployed working part-time as a private tutor making £70 a week for 3 hours work. I cannot get a job because I never got work experience in uni.

(Male, high tariff HEI, Interdisciplinary Studies)

No employer will give a graduate a chance to prove that they can do a job. They ask for experience, but how can one gain experience if no one will give said graduate a job!!! Or even an apprenticeship/voluntary position.

(Female, currently unemployed and looking for work, high tariff HEI, Biology)

73. Quite regularly, graduates in non-graduate jobs also worried about their ability to repay their debts.

At the end of the day you do not get in to £20,000 debt just to end up in the dole queue.

(Female, currently looking for work, medium tariff HEI, Mass Communication and Documentation)

No one gets themselves into thousands of pounds worth of debt in order to gain a degree, just to work in a supermarket!! *(Female, currently unemployed and looking for work, high tariff HEI, Biology)*

74. It should be noted, however, that these graduates started their studies in 2006, and thus were charged variable tuition fees of up to £3000 a year which, in later years, was increased to £3225 a year to take account of inflation. It is to be expected that the situation for graduates working in non-graduate jobs who started to study under the new tuition fee regime of £9000 will be exacerbated.

75. One male graduate, currently working in education after having studied Creative Arts and Design at a high tariff HEI, expressed his discontent with the way in which his course was taught. He complained about the quality of teaching he experienced during his course:

...degrees are also being devalued. There also needs to be a better standard of teaching/course content at HE level.

76. As discussed earlier, it is problematic to define non-graduate jobs, as both the employers' requirements and the activities that employees actually undertake need to be taken into account. Graduates understood the differences between the skills requirements of the job and employers' practises, and explained that in some cases employers take on new staff on the basis of their degree rather than their skills and knowledge (credential inflation):

The job that I have does not require me to have a university degree in terms of skills, however their requirement to enter the company does require it.

(Female, working in banking, high tariff HEI, Social Science)

77. Some graduates who started in non-graduate jobs hoped to use this position as an entry to higher skilled jobs within the internal labour market of the employer, and in some cases they were successful, as the first quote below shows. In contrast, the second quote below reflects the views of a graduate who expected to use her higher level of skills and knowledge and thus actively, in conjunction with the employer, transfer the role held. However, it was no longer felt this was happening:

The only option for me seemed to be retail jobs or call centre work, but I've found I'm good at it and have been promoted, get bonuses etc.

(Male, medium tariff HEI, Creative Arts and Design)

Most people who work for my company and do the same job as me, are not hired because they are graduates; this role was supposed to be a stepping stone and the graduate scheme should have meant fast-tracking through. I no longer feel this is likely to happen and I am considering my options and alternatives.

(Female, employed in the distribution, hotels and catering sector, high tariff HEI, Biology)

78. Most graduates reported it was not their choice to work in their lower skilled position, although a few respondents said that they were happy in their current settings and it suited their life choices.

I take a weekend job, just earning enough to eat/pay rent because during the week I'm aspiring to be a writer. (...) My weekend job is fantastic for what I want it to do for me, but I'm not exactly in it to progress there.

(Male, working in architecture and building, high tariff HEI, Interdisciplinary Studies)

The job role I have now does not require a degree but I love the job I do.

(Female, working in education, low tariff HEI, Education)

79. Finally, many graduates took the opportunity to express their frustration about their current jobs. Some students explained how they were now in the same labour market position as when they started higher education but with a high level of debt.

Graduates cannot win. At school we were told to study hard and go to uni so we don't end up working in McDonalds, now we have graduated, we cannot find any decent jobs yet are criticised for thinking we are too good for McDonalds!! (...) Where I am right now, I can't help feeling I would be in the exact same situation had I not decided to go to uni, minus the £20,000 debt of course, which isn't the easiest pill to swallow. *(Female, working in distribution, hotels and catering, medium tariff HEI, Interdisciplinary Studies,)*

Now I owe money to Student Loans and I cannot get a job, I feel that going to university has ruined my life and I am now looking for a part-time unskilled job that I could have got without a degree.

(Female, sector unknown, medium tariff HEI, subject allied to Medicine,)

Everyone wants you "to have experience", so I am currently employed in the job I had before I started university, for only a few pence more an hour. I cannot afford to pay back my student loan, and yet the interest increases by £30 every month.

(Female, working in other social sector, medium tariff HEI, subject allied to Medicine).

Summary

80. The descriptive analysis shows that there is some evidence that employment in non-graduate jobs takes on different roles according to the economic cycle during which graduates enter the labour market. For the graduates from the 1999 cohort, non-graduate jobs acted as temporary activities to bridge the period between graduation and working in a graduate job, mainly undertaken during the summer months. Little more than half of all employed graduates from that cohort entered non-graduate jobs during the first few months after leaving higher education. However, after a year, only a third of them were still in non-graduate employment.
81. Graduates from the Class of 2009 and 2010 were less likely to enter non-graduate positions immediately after graduation, with approximately 40 per cent of graduates from three-year courses and approximately 30 per cent of all graduates from four-year courses doing so. However, employment in these positions was more persistent and after more than one year, the proportion of graduates from this cohort in non-graduate jobs had not decreased. These graduates entered the labour market during the recession and, at least during their first year, most of them were unable to use their non-graduate employment as a stepping stone to enter graduate employment.
82. These differences took place in the context of a changing labour market for graduates. It was noticeable that the proportion of graduates who entered, both graduate and non-graduate, employment after leaving higher education had decreased dramatically in the course of 10 years. It could be interpreted that graduates enrolled for further study to avoid employment in non-graduate jobs, although routes into further study was not included as part of this particular research. While only 14 per cent of the 1999 cohort did not enter employment during the first 15 months following graduation, this was the case for 29 per cent of graduates from three-year courses from the class of 2009 and 26 per cent of graduates from four-year courses from the class of 2010. Similarly, the proportion of graduates who, during the first 15 months following graduation, only ever worked in non-graduate jobs increased from 13 per cent for the 1999 cohort to between 16 to 19 per cent for the later cohort, depending on their length of course.

Employment during the first fifteen months after graduation differs between the two observed graduate cohorts (Class of 1999 and Class of 2009 & 2010). Many of the 1999 graduates entered non-graduate employment during the first months after graduation, which they subsequently left for graduate employment. Graduates from the 2009

and 2010 cohort, in contrast, were less likely to enter employment in general, and were more likely to remain in non-graduate jobs.

83. There were not many differences in the characteristics of graduates who remained in non-graduate employment for a longer period of time. In both cohorts, older and male graduates, together with those working in London, were less likely to spend longer in non-graduate jobs. Compared to those in Natural Sciences, subjects such as Mathematics and Computer Science, Medicine, Engineering, and Education were less likely to increase the amount of months in non-graduate jobs. Attendance at a high tariff HEI and a First Class degree decreased the length of time spent in non-graduate jobs. Graduates who gained employment experience were less likely to remain in non-graduate jobs for a longer period of time.

The characteristics of graduates who remain in non-graduate employment for a longer period of time are similar in both cohorts. The likelihood of spending time in non-graduate jobs was significantly reduced for: male graduates; those working in London; graduates from Mathematics and Computer Science, Medicine, Engineering, and Education programmes; graduates from high tariff HEIs; graduates with a first class degree; and for graduates who had gained employment experience.

84. With regards to the characteristics of graduates currently working in non-graduate employment, in both cohorts, younger graduates were more likely to work in non-graduate jobs while those who came from higher social classes and/or those who had moved to London after their degree were less likely to work in non-graduate jobs. Similar influences could be found in both cohorts with higher education-related variables as those who graduated from courses in Mathematics and Computer Science, Engineering, Medicine and subjects allied to Medicine; from a high tariff HEI; and those with a First Class degree were less likely to work in non-graduate jobs.

85. Typical sectors for graduates from both cohorts currently working in non-graduate jobs were: distribution, hotel and catering; transport and tourist services; and banking, finance and insurance. In both cohorts, the influence of subjects decreases when sectors are included in the model which indicates that the sectors hold a higher explanatory power to explain work in non-graduate jobs.

86. Differences between both cohorts were associated with gender, mobility, and work experience. Female graduates from the 2009 and 2010 cohort were more likely to work in non-graduate jobs while gender did not have a significant influence for the earlier 1999 cohort. International mobility and

work experience was also not significant for the earlier cohort but did significantly decrease the probability of working in a non-graduate jobs for the later cohort of 2009 and 2010 graduates.

In both cohorts, younger graduates and those coming from middle and lower social classes were most associated with current work in non-graduate jobs. Gender did not play a significant role for the 1999 cohort, however, female graduates from the 2009 & 2010 cohort were more likely to work in non-graduate jobs. Similarly, international mobility and work experience increased the probability of working in a graduate job for the earlier 1999 cohort.

87. For the 2009 and 2010 cohort, many graduates working in non-graduate jobs felt that their current non-graduate role did impact their mental health. They felt that, due to the increased number of graduates entering the labour market, it was harder to enter graduate employment compared to previous cohorts and that many employers were not prepared to take on inexperienced staff for higher level occupations. Some graduates from the 2009 & 2010 cohort, however, reported that they were able to progress from their chosen position, and some said that it would suit their lifestyle to work in lower skilled positions. However, the majority of graduates working in non-graduate jobs were frustrated with their lack of progression in the labour market; they contrasted their labour market position to the amount of debt they had accrued and felt that their financial and work investment had not paid off.

Many of the 2009 and 2010 graduates who were working in non-graduate jobs at the final stage of the original study struggled to maintain their level of employability which they required to find a graduate job. Many felt that it would have been easier for them to enter graduate jobs had they gained work experiences during higher education or thereafter.

Conclusion

88. It is clear, especially for the Class of 1999, that non-graduate employment was a common bridge between study and graduate employment during the first few months after graduation. However, a large proportion of graduates from the 1999 cohort had already left their non-graduate job by the September after graduation. In contrast, for the 2009 and 2010 cohorts, the option of being able to take a non-graduate job may not have existed during a recession. And for those that did enter employment, the time spent in non-graduate jobs might not be finite as, even when the economy improves, there was a perception that they would be in competition with newer graduates.
89. Many graduates of the 2009 and 2010 cohort complained about their lack of work experience. The value of work experience was confirmed by the logistic regression analysis which showed its power to prevent work in non-graduate employment for this cohort. That value has been recently highlighted in research such as the Wakeham Review (2016) or the Shadbolt Review (2016) of graduate employment outcomes. Both reviews focus on the employment outcomes of graduates from selected subjects and conclude that employment experience gained through formal organised placements or informal mechanisms are highly valued by employers as they see these graduates to be in possession of a strong set of 'soft' or 'work ready' skills. In placements, graduates could also learn how the skills and knowledge they have developed during their degrees relate and map onto the jobs market. As a consequence, many HEIs endeavour to provide work experience opportunities for their students to help them gain necessary transferable skills and knowledge together with a greater awareness of a particular sector.
90. Still, the analysis of graduate views on their employment position, indicates that many graduates feel that they did not gain appropriate work experience during higher education. Work experience in graduate jobs might be one crucial factor to enable graduates to overcome the vicious cycle of not obtaining appropriate work due to the lack of work experience. Clearly this suggests employer engagement by HEIs is important to generate the appropriate opportunities. On the other hand, it also places an obligation on employers to respond positively to such overtures to ensure that sufficient high quality opportunities (for example placements, projects and internships) are available for all students to benefit from. And given their preference for graduates with work experience, they would appear to have a strong incentive to do so, as already demanded by the Shadbolt Review (2016).
91. Mobility, including moving to London and working in a different country, was also found to decrease the probability of working in non-graduate jobs.

Moving to a different country significantly decreased the risk of working in non-graduate employment, which is in line with previous findings on the intra-European mobility of graduates (Behle, 2016). These graduates seem to benefit from the free movement of labour, which BREXIT negotiators may want to keep in mind.

92. This report has highlighted the persistence of graduates working in non-graduate jobs, indicated which groups are mainly affected and the implications of under-employment for graduates. However, there are still fundamental questions about the purposes of higher education and the weight that should be attached to employment outcomes. Wider theoretical and empirical work is necessary to identify the role of universities in increasing the employability of its graduates. The question is whether this is the only outcome we want from higher education, or if higher education should, in the words of Green and Henseke (2016), be more focussed on social returns as its main purpose.

Need for further research

93. The analysis presented here is based on a limited number of HEIs and, as such, is not representative of the whole higher education landscape of the UK. It would be a valid exercise to repeat this analysis for all HEIs within the UK, and thus include also the large variety of lower tariff HEIs, and Further Education Colleges (FECs). The considerable heterogeneity of HEIs with its implications for the transferability of skills and knowledge to specific workplaces could not be covered by this report.
94. Additionally, as the funding regime for higher education courses has changed significantly, it would be helpful to explore whether the proportions of graduates from more recent cohorts follow the same patterns of distribution between graduate and non-graduate jobs as for the Class of 1999 and Class of 2009 & 2010.
95. The analysis presented here has identified what types of graduates were significantly more likely to work persistently in non-graduate jobs. In addition to the findings presented, it would also be helpful to know the type of graduates significantly more likely to work in non-graduate occupations within groups to identify interactions between different variables.
96. There is some evidence that, in a balanced economy, non-graduate jobs can act as a bridge to avoid unemployment. However, in a recession a lower proportion of graduates enter the labour market and many of them remain in non-graduate jobs with possible implications for their mental health. It would be helpful to learn how these graduates could increase and maintain their employability while working in a non-graduate job as this might enable them to move to a graduate job. In this context, it is extremely important to help graduates working in non-graduate jobs to maintain their mental health, and so retain their employability for higher level jobs.
97. Fewer of the graduates from the recent cohort did enter employment - either graduate or non-graduate - compared to the earlier cohort. One interpretation was that these graduates, rather than entering the labour market during a recession, remained in higher education and started postgraduate degrees. It is unknown, however, whether the individual skills and knowledge gained in a postgraduate degree have enabled them to avoid non-graduate jobs and unemployment in the future, or if they simply postponed entering a non-graduate position. It is also seen as problematic that graduates in further study are included in the professional employment rate, as seen in the previous HEFCE study (2016)

98. Graduates, who felt that they enjoyed their time in higher education and, with hindsight, would choose to attend the same course at the same HEI again, were found to be significantly less likely to work in a non-graduate job. It is very likely that the causality describes the opposite phenomenon: graduates who work in a graduate job were more likely to say that they would choose to attend the same course at the same HEI. Again; however, further research is needed to investigate this connection.
99. A need for further research was also identified with regards to the way in which work experiences increased a graduate's chances of finding a graduate job. While the limitations of data used in previous reviews (Wakeham Review, 2016, Shadbolt Review, 2016, NCUB, 2015) meant that analysis concentrated on the impact of sandwich courses on graduate employment outcomes, this report proves that any kind of work experience significantly impacts a graduate's chances of finding graduate employment. Only 'employment for the experience' impacted on the time spent in non-graduate jobs. It would be a valid research exercise to compare the impact of different kinds of work experiences (see for example BIS, 2013) on work in non-graduate jobs.

Annex A: Who spends more time in non-graduate jobs?

The following regression analysis compares the influences of personal characteristics (Model 1) and of both personal and higher education-related variables (Model 2), on the length of time graduates spent in non-graduate jobs. The months spent in employment in general were included in the model to account for the observed differences in employment behaviour between the different cohorts. The given unstandardised coefficients B describe the probability of increasing the time spent in non-graduate employment by one month if all other variables are held constant. For example, for every additional year of age, a decrease of 0.083 in the months worked in non-graduate jobs is estimated (Futuretrack, Model 1).

Table 2: Regression model (independent variable months in non-graduate employment)

		Futuretrack		Moving On	
		Model 1	Model 2	Model 1	Model 2
		Unstandardised Coefficients B		Unstandardised Coefficients B	
(Constant)		2.205***	2.185***	2.888***	2.080***
Months in Employment		0.355***	0.368***	0.334***	0.373***
Gender	Male	-0.913***	-0.962***	-0.624***	-0.745***
	Female	Reference Group			
Age	In years	-0.083***	-0.068***	-0.063***	-0.049***
Current Location	London	-0.763***	-0.876***	-0.924***	-1.014***
	UK, outside London	Reference Group			
	Outside the UK	-0.808**	-0.88**	-0.499	-0.740**
Children	Children	0.255	0.476	-1.404***	-0.875***
	No Children	Reference Group			
Subject	Art		1.275***		0.408
	Humanities		0.402		0.794***
	Languages		-0.299		-0.032
	Law		-0.026		-0.177
	Social Science		0.382		0.422
	Mathematics and Computer Science		-1.02***		-1.408***
	Medicine		-3.132***		-4.431***
	Engineering		-1.873***		-1.517***
	Natural sciences	Reference group			
	Business and Administration studies		0.47		0.408
	Education		-1.947***		-4.480***
	Interdisciplinary		0.227		0.441
	Type of higher education institution	Highest Tariff		-0.749***	
Other		Reference group			
Class of degree	First		-0.758***		-0.953***
	Other	Reference group			
Employment during HE	Not worked		1.312***		0.617**
	Worked for money only		1.495***		1.368***
	Employment for experience	Reference group			
F		147.018	59.507	168.247	98.702
n		4215	4215	6111	6111
Adjusted R Square		.172	.234	.142	.254

Source: Moving On, Futuretrack (selected HEIs). In an earlier version of this regression analysis, the following variables were tested which were not significant: Socio-economic status, ethnicity, lengths of courses. *** $\alpha \leq 0.001$, ** $\alpha \leq 0.01$, * $\alpha \leq 0.05$.

Annex B: Current employment in non-graduate jobs

The following hierarchical logistic regression models were estimated in order to understand which group of graduates was more likely to be employed in non-graduate jobs. For this exercise, employment in non-graduate employment was coded as '1' and employment in graduate employment was coded as '0' (Table 3 for results from Moving On, Table 4 for Futuretrack). The logit model assesses the relationship between the categorical dependent variable ('work in a non-graduate role') and independent variables by estimating probabilities. The tables, similarly to the linear regression model in Annex 1, show the non-standardised coefficients B. The interpretation of these coefficients, however, is not as straightforward, as they measure the impact on the odds ratio, i.e. the probability of working in non-graduate employment in relation to the probability of working in a graduate job.

This analysis is limited to employed graduates only. Graduates currently pursuing other activities (such as postgraduate studies) or who were unemployed were excluded from the models. For each graduate cohort, four models were estimated to take the personal characteristics, higher education-related variables and employment-related variables into account. In order to improve the readability of the models, only significant variables are shown. The specific interest when estimating a hierarchical logistical regression analysis is how specific explanatory variables are absorbed into other variables. For example, gender may be a significant influence on work in non-graduate jobs which could be absorbed by gender-specific subject choices if, at a later hierarchical stage, subjects are included.

Table 3: Hierarchical regression model Moving On (Current employment in non-graduate job = 1, current employment in graduate job = 0)

		Model 1	Model 2	Model 3	Model 4
		Non-Standardised Coefficients B			
Constant		-1.326***	-0.894***	-1.493***	-1.327***
Gender	Male	-0.114	-0.152*	-0.018	-0.043
	Female	Reference group			
Age (at graduation)	22 years or younger	0.168**	0.05	0.017	0.021
	23 years or older	Reference group			
SES (parents' occupation)	Managerial and professional occupations	-0.131*	-0.133*	-0.123	-0.111
	All other SES	Reference group			
Mobility after graduation	Left the UK	-0.15	-0.235	-0.186	-0.162
	All other graduates	Reference group			
	Moved to London	-0.379***	-0.431***	-0.008	0.007
Subjects	All other subjects	Reference group			
	Mathematics and Computer Science		-0.443***	-0.265*	-0.258
	Medicine and subjects applied to Medicine		-2.016***	-1.979***	-1.929***
	Engineering		-0.615***	-0.477**	-0.501**
	Education		-2.057***	-1.291***	-1.252***
	Law		-0.446**	-0.244	-0.206
	Humanities		0.325***	0.348***	0.37***
Type of HEI	Highest tariff HEI		-0.315***	-0.199**	-0.175*
	All other HEIs	Reference group			
Class of degree	First		-0.349**	-0.218	-0.172
	All other	Reference group			
Work Experience	No		-0.053	-0.029	0.094
	Yes	Reference group			
Hours worked	29 hrs or less			0.464***	0.475***
	30 to 39 hours	Reference group			
	40 hrs or more			-0.663***	-0.665***
Sector	Distribution, hotels, catering			1.106***	1.077***
	Transport and tourist services			0.974***	0.942***
	ICT			-0.531***	-0.545***
	Banking, finance and insurance			0.297**	0.285**
	Education			-0.673***	-0.646***
	All other sectors	Reference group			

Salary	Less than £18k			1.204***	1.151***
	£18k or more	Reference group			
Would attend HE again	Definitely				-0.308***
	Not sure, other course/HEI	Reference group			
	No				0.712***
-2 Log likelihood		7403.658 a	7005.770 a	6310.828 a	6253.870 a
Cox & Snell R Square		0.005	0.056	0.14	0.146
Nagelkerke R Square		0.008	0.09	0.222	0.233

Source: Moving On, n= 7494, employed graduates only. In an earlier version of this regression analysis, the following variables were tested which were not significant: ethnicity, type of contract. *** $\alpha \leq 0.001$, ** $\alpha \leq 0.01$, * $\alpha \leq 0.05$.

Table 4: Hierarchical regression Model Futuretrack (Current employment in non-graduate job = 1, current employment in graduate job = 0)

		Model 1	Model 2	Model 3	Model 4
Non-Standardised Coefficients B					
Constant		-0.279***	0.265**	0.653***	0.666***
Gender	Male	-0.377***	-0.431***	-0.296**	-0.33**
	Female	Reference group			
Age (at graduation)	22 years or younger	0.262**	0.24**	0.198*	0.219*
	23 years or older	Reference group			
SES (parents occupation)	Managerial and professional occupations	-0.218**	-0.173*	-0.142	-0.146
	All other SES	Reference group			
Mobility after graduation	Left the UK	-0.541**	-0.592**	-0.316	-0.303
	All other graduates	Reference group			
	Moved to London	-0.695***	-0.736***	-0.178	-0.158
Subjects	All other subjects	Reference group			
	Mathematics and Computer Science		-0.613***	-0.414	-0.402*
	Medicine and subjects applied to Medicine		-1.78***	-1.195***	-1.174***
	Engineering		-0.619**	-0.461*	-0.5*
	Education		-1.036***	-0.361	-0.337
Type of HEI	Highest tariff HEI		-0.507***	-0.197*	-0.174
	All other HEIs	Reference group			
Class of degree	First		-0.405***	-0.087	-0.033
	All other	Reference group			
Work experience	Yes	Reference group			
	No		0.381***	0.273*	0.272*
Hours worked	29 hrs or less			-0.267	-0.332
	30 to 39 hours	Reference group			
	40 hrs or more			-0.419***	-0.417***
Sector	Distribution, hotels, catering			1.364***	1.316***
	Transport and tourist services			2.008***	2.026***
	ICT			-0.829***	-0.836***
	Banking, finance and insurance			0.834***	0.814***

	Education			-0.432**	-0.418**
	All other sectors	Reference group			
Salary	Less than 21k	Reference group			
	21k or more			-1.719***	-1.668***
Would attend HE again	Definitely				-0.307**
	Not sure, other course/HEI	Reference group			
	No				1.074***
-2 Log likelihood		3985.985	3742.942	3074.391	3047.680
Cox & Snell R Square		0.029	0.103	0.279	0.285
Nagelkerke R Square		0.04	0.141	0.379	0.388

Source: Futuretrack (selected HEIs), n= 3071, employed graduates only. In an earlier version of this regression analysis, the following variables were tested which were not significant: ethnicity, type of contract, length of HE course *** $\alpha \leq 0.001$, ** $\alpha \leq 0.01$, * $\alpha \leq 0.05$.

Abbreviations

BIS	Department for Business, Innovation and Skills
CPI	Consumer Price Index
DLHE	HESA Destination of Leavers from higher education
HE	Higher Education
HEI	Higher Education Institution
ICT	Information and Communications Technology
LDLHE	HESA Longitudinal Destination of Leavers from higher education
LFS	Labour Force Survey
ONS	Office for National Statistics
SES	Socioeconomic status
SOC	Standard Occupational Classification
UKCES	UK Commission for Employment and Skills
UUK	Universities UK

References

- Alpin, C., Shackleton, J.R. and Walsh, S. (1998). "Over- and undereducation in the UK graduate labour market." *Studies in Higher Education* 23(1): 17-34.
- Ball, Ch. (2013) Reality check: are most graduates really on £29,000? *The Guardian*, 3/2/13 <https://www.theguardian.com/careers/reality-check-graduate-salary>
- Bathmaker, A.-M., Ingram, N. and Waller, R., 2013. Higher education, social class and the mobilisation of capitals: recognising and playing the game. *British Journal of Sociology of Education*, 34 (5-6), pp. 723-743.
- Behle, H. (2005) "Moderators and mediators on the mental health of young participants in active labour market programmes: Evidence from East and West Germany." *International Review of Psychiatry*, 17 (5), 337–345.
- Behle, H. (2016) "The early Career Paths of UK-educated Intra-European mobile Graduates." *Journal for Further and Higher Education*, online first.
- Behle, H., Atfield, G., Elias, P., Gambin, L., Green, A., Hogarth, T., Purcell, K., Tzanakou Ch. and Warhurst. Ch. (2015). Reassessing the employment outcomes of higher education. In: Huisman, J. and Case, J. (eds.) *Investigating Higher Education. International perspectives on theory, policy and practice*. Oxon and New York, Routledge Press: 114-131.
- Bimrose, J., Brown, A., Behle, H., Barnes, S-A., Hughes, D., Andrews, D., Davies, E. and Wiseman, J. (2014) "Understanding the link between employers and schools and the role of the National Careers Service." *BIS Research Paper No. 206*, London: Department for Business, Innovation & Skills, *BIS Research Paper No. 206*
- BIS (2013) *Learning from Futuretrack: The impact of work experience on Higher Education students' outcomes*. *BIS Research Paper No. 143*. Can be downloaded here: http://www.hecsu.ac.uk/futuretrack_research_reports.htm
- BIS (2016) *Higher education: success as a knowledge economy: teaching excellence, social mobility, and student choice*. Can be downloaded here: <https://www.gov.uk/government/publications/higher-education-success-as-a-knowledge-economy-white-paper>
- Boliver, V. (2013) "How fair is access to more prestigious UK universities?" *British Journal of Sociology*, 64, (2), 344-364.
- Brynin, M. (2013) "Individual Choice and Risk: The Case of Higher Education." *Sociology* 47(2): 284-300.

Chillas, S. (2010) "Degrees of fit? Matching in the graduate labour market." *Employee Relations* 32(2): 156-170.

Cranmer, S. (2006) "Enhancing graduate employability: best intentions and mixed outcomes." *Studies in Higher Education* 31(2): 169-184.

Dolton, P. and Vignoles, A. (2000) "The incidence and effects of overeducation in the UK graduate labour market." *Economics of Education Review* 19: 179-198.

Elias, P. and Purcell, K. (2004) "Is mass higher education working? Evidence from the graduate labour market experiences of recent graduates." *National Institute Economic Review*, No. 190: 60-74.

Elias, P. and Purcell, K. (2004) SOC (HE): A classification of occupations for studying the graduate labour market.

<http://www2.warwick.ac.uk/fac/soc/ier/research/completed/7yrs2/rp6.pdf>

Elias, P. and Purcell, K. (2013) Classifying graduate occupations for the knowledge society. Futuretrack, Working Paper 5. Can be downloaded here: <https://www2.warwick.ac.uk/fac/soc/ier/futuretrack/findings/>

Green, F. (2013) *Skills and skilled work: an economic and social analysis*. Oxford University Press.

Green, F. and Zhu, Y. (2010) Overqualification, job dissatisfaction and increasing dispersion in the returns to graduate education. *Oxford Economic Papers*, 62.4:740-763.

Green, F. and G. Henseke, G. (2014) *The Changing Graduate Labour Market. Analysis using a new indicator of graduate jobs*. Institute of Education, Centre for Learning and Life Changes in Knowledge Economies and Societies, Research Paper 50. Can be downloaded here: www.llakes.ac.uk/research-papers

Green, F. and G. Henseke, G. (2016) "Should governments of OECD countries worry about graduate underemployment?" *Oxford Review of Economic Policy*. Can be downloaded here: <http://www.researchcghe.org/publications/should-governments-of-oecd-countries-worry-about-graduate-over-education/>

HEFCE (2011) *Approaches to measuring employment circumstances of recent graduates*. Issues paper. Can be downloaded here: <http://www.hefce.ac.uk/pubs/year/2011/201102/>

HEFCE (2015) *Differences in employment outcomes. Equality and diversity characteristics*. Can be downloaded here: <http://www.hefce.ac.uk/pubs/year/2015/201523/>

HEFCE (2016) Differences in employment outcomes: Comparison of 2008-09 and 2010-11 first degree graduates. Can be downloaded here:

<http://www.hefce.ac.uk/pubs/year/2016/201618/#alldownloads>

Helyer, R. and Lee, D. (2014) "The Role of Work Experience in the Future Employability of Higher Education Graduates." *Higher Education Quarterly* 68(3): 348-372.

Mason, G. (2002) "High Skills Utilisation Under Mass Higher Education: Graduate employment in service industries in Britain." *Journal of Education and Work*, 15:4, 427-456.

NCUB (2015) Growing Experience. Can be downloaded here:

<http://www.ncub.co.uk/reports/computing-placements.html>

Okay-Somerville, B. and Scholarios, D. (2015) "Position, possession or process? Understanding objective and subjective employability during university-to-work transitions." *Studies in Higher Education*: 1-17.

Oreopoulos, P., Von Wachter, T. and Heisz, A. (2012) "The short-and long-term career effects of graduating in a recession." *American Economic Journal: Applied Economics* 4.1 : 1-29.

Pearson R. (2006) "The demise of the graduate labour market." In: McNay, I. (ed.) *Beyond Mass Higher Education: Building on Experience*. Maidenhead: Open University Press, 68–78.

Piper, A. (2015) "Heaven knows I'm miserable now: overeducation and reduced life satisfaction." *Education Economics* 23(6): 677-692.

Purcell, K., Elias, P. and Atfield, G. (2009) *Analysing the relationship between higher education participation and educational and career development patterns and outcomes. A new classification of higher education institutions*. Can be downloaded here: <https://www2.warwick.ac.uk/fac/soc/ier/futuretrack/findings/>

Rafferty, A. (2012) "Ethnic penalties in graduate level over-education, unemployment and wages: evidence from Britain." *Work, Employment & Society* 26(6): 987-1006.

Scurry, T. and Blenkinsopp, J. (2011) "Under-employment among recent graduates: a review of the literature." *Personnel Review*, Vol. 40 Iss: 5, 643 - 659

Scurry, T. and Blenkinsopp, J. (2014) "Graduates' experiences of non-graduate jobs: stop gaps, stepping stones, or dead ends?" *Graduate Market Trends*, Summer 2014

Shadbolt Review (2016) *Shadbolt Review of Computer Sciences Degree Accreditation and Graduate Employability*. Can be downloaded here:

<https://www.gov.uk/government/publications/computer-science-degree-accreditation-and-graduate-employability-shadbolt-review>

Tholen, G., James Relly, S., Warhurst, C. and Commander, J. (2015). Higher education, graduate skills and the skills of graduates: the case of graduates as residential sales estate agents. *British Educational Research Journal*, 42(3):508-523

UK Commission for Employment and Skills (UKCES) (2016) Employer Skills Survey 2015. Skills in the labour market. Can be downloaded here: <https://www.gov.uk/government/publications/ukces-employer-skills-survey-2015-supplementary-documents>

UUK (2015) Supply and Demand for Higher Level Skills. Can be downloaded here: <http://www.universitiesuk.ac.uk/blog/Pages/supply-and-demand-for-higher-level-skills.aspx>

Verhaest, D. and Omeij, E. (2010) "The Impact of Overeducation and its Measurement." *Social Indicators Research* 77(3): 419-448.

Verhaest, D., Schatteman, T. and Van Trier, W. (2015) "Overeducation in the Early Career of Secondary Education Graduates: An Analysis Using Sequence Techniques." *Young* 23(4): 336-356.

Wakeham Review (2016) Wakeham Review of STEM Degree Provision and Graduate Employability. Can be downloaded here: <https://www.gov.uk/government/publications/stem-degree-provision-and-graduate-employability-wakeham-review>