



Department
for Education

The wider (non-market) benefits of post 18 education for individuals and society

**Research report
May 2019**

**Wil Hunt & Gaby Atfield
(Warwick Institute for Employment
Research)**

Contents

List of figures	4
List of tables	6
Executive Summary	7
Approach to the review	7
Civil engagement activities?	7
Economic activity and productivity?	8
Health and wellbeing outcomes?	9
Benefiting local communities?	10
Wider economic, social and cultural benefits to the UK?	10
1 Introduction	12
1.1 Research focus of the review	12
1.2 Literature review methodology	13
1.3 Structure of this report	15
2 Civic engagement and political participation?	17
2.1 Post-18 education increases propensity to vote	18
2.2 Post-18 education increases the likelihood of taking action on political issues	21
2.3 Post-18 education increases political interest	25
2.4 Post-18 education increases political efficacy	26
2.5 Post 18 education increases political trust	28
2.6 Post-18 education increases engagement with political issues	28
2.7 Post-18 education increases altruistic volunteering	35
2.8 Summary	36
3 Economic activity and productivity?	38
3.1 Post-18 education increases the productivity of individuals, colleagues and workers more widely	40
3.2 Post-18 education leads to increased economic growth	45
3.3 Post-18 education can facilitate entrepreneurial activity	49
3.4 Post-18 education can stimulate innovation	51
3.5 Summary	54

4	Health and wellbeing outcomes	56
4.1	Summary	61
5	Benefiting local communities?	62
5.1	Introduction	62
5.2	Post-18 education increases tolerance towards immigrants	63
5.3	Post-18 education increases tolerance of cultural difference	67
5.4	Post-18 education promotes tolerance of personal difference	71
5.5	Post-18 education promotes tolerance of different experiences	76
5.6	Summary	79
6	Wider economic, social and cultural benefits to the UK?	80
6.1	Introduction	80
6.2	Post-18 education promotes the development of social and cultural capital	81
6.3	Post-18 education promotes social mobility	83
6.4	Summary	85
7	Conclusion	87
8	References	91

List of figures

Figure 2.1 How many of the things on this card have you done about a government action which you thought was unjust and harmful?	23
Figure 2.2 Effect of different educational levels on political action: regression analysis	24
Figure 2.3 How much interest do you generally have in politics?	25
Figure 2.4 Effect of educational attainment on how much interest participants generally politics: regression analysis	26
Figure 2.5 Effect of different educational levels on agreement with statement 'people like me have no say in what the government does': regression analysis	28
Figure 2.6 Effect of different educational levels on how much respondents understood about the causes of environmental problems	30
Figure 2.7 Self-reported knowledge of environmental problems: regression analysis	30
Figure 2.8 We worry too much about the future of the environment and not enough about prices and jobs today	31
Figure 2.9 We worry too much about the future of the environment and not enough about prices and jobs today: Regression analysis	32
Figure 5.1 Do you think the number of immigrants to Britain nowadays should change?	63
Figure 5.2 Do you think the number of immigrants to Britain nowadays should change? regression analysis	64
Figure 5.3 Would you say that Britain's cultural life is generally undermined or enriched by migrants coming to live here from other countries?	65
Figure 5.4 Effect of different educational levels on whether felt immigration was bad or good for British economy: Regression analysis	66
Figure 5.5 Effect of different educational levels on whether felt immigration undermined or enriched cultural life: Regression analysis	66
Figure 5.6 How important is being born in Britain for being truly British?	69
Figure 5.7 Effect of educational levels on whether respondents felt it was important to have been born in Britain to be truly British: Regression analysis	70

Figure 5.8 Effect of educational levels on whether respondent felt it was impossible for people who do not share Britain's customs to become British	71
Figure 5.9 All in all, family life suffers when the woman has a full-time job	73
Figure 5.10 Effect of educational participation on agreement with the statement 'All in all, family life suffers when the woman has a full-time job': regression analysis	73
Figure 5.11 Effect of educational participation on agreement with the statement 'A job is all right, but what most women really want is a home and children: regression analysis	74
Figure 5.12 What about sexual relations between two adults of the same sex... Are they always wrong, mostly wrong, sometimes wrong, rarely wrong, not wrong at all?	75
Figure 5.13 Effect of educational participation on attitudes towards same-sex relationships	76
Figure 5.14 Effect of educational levels on whether people felt that many people who get social security don't really deserve any help	78
Figure 5.15 Effect of educational levels on whether respondents thought that most people on the dole are fiddling it one way or another	78

List of tables

Table 1.1 Search results from the focused review, by research question	15
Table 2.1 Turnout at 2015 general election and 2016 EU referendum	19
Table 2.2 Percentage choosing point 10 on a scale 0–10 of likelihood to vote in 2015 UK General Election	21
Table 2.3 Taken part in any political action, by nation and highest educational attainment	22
Table 2.4 ‘Politics is too complicated for someone like me to make sense of it all’ by nation and highest educational attainment	27
Table 2.5 Proportion of registered voters who said that they would vote to leave the EU in the 2015 referendum	33
Table 3.1 Marginal and average lifetime productivity returns for intermediate qualifications	43
Table 3.2 NPV per aim and NPV per £ of government funding	44

Executive Summary

Skills are a major part of the UK government's industrial strategy, and in tandem with this, driving up the quality, scope and range of educational options is central to DfE work.

The Department for Education has commissioned this review of the recent literature on post-18 education in order to understand the wider (non-market) benefits of different types of education for individuals and society.

Approach to the review

The review employed a 9-step methodology (outlined in section 1.2) informed by the principles of systematic reviewing. While the review was not a full systematic review of the literature, a set of systematic steps were followed in order to ensure a wide range of sources were captured and to achieve a level of transparency. The review included:

- a) a 'focused review' of academic literature covering six relevant databases of published data;
- b) a 'grey literature' review of more than 65 websites of relevant policy, third sector and research organisations, identified by the researchers; and
- c) a call for any new or recent research evidence using formal and informal networks of the research team.

Overall, the search methodology identified more than 1,577 sources, of which 483 were selected for further review.

Civil engagement activities?

The review found that there was limited evidence on the relationship between post-18 education and civic engagement, and it was difficult to identify causality, rather than simple correlation. Additionally, definitions of what constitutes civic engagement and political participation make comparison across studies and drawing conclusions from the literature as a whole problematic. The review suggests that:

1. **Education increases civic engagement, including propensity to vote, political engagement and interest in politics** – this happens in an incremental way. The more education someone has, the more likely they are to be politically engaged;
2. **Education promotes understanding of political processes and political efficacy** – people with higher levels of education are more likely to think that they understand political issues, to have the resources to try to influence political situations and to know how to do so to their own advantage. However, there is

evidence that class-based social resources also play a role in determining the extent to which individuals can leverage their educational experience to take part in civic engagement activities;

3. **Education can promote civic engagement, but the impact can decline over time** – other social, cultural and economic factors intervene across an individual's life-course. This can be seen in the way individuals adopt the attitudes and beliefs of the dominant group in their local community. Higher education appears to make people more immune to this decline, largely as a result of the more dispersed social networks it creates for graduates;
4. However, **education is often a proxy for a variety of other factors**, including skills, time and other resources, and studies controlling only or primarily for demographic background factors may consequently over-estimate the impact of education, in itself, on civic engagement.

Economic activity and productivity?

On the benefits of post-18 education for economic activity and productivity, the review found an abundance of literature examining the productivity and growth inducing effects of education. There is rather less evidence in the literature in relation to the effects of education on entrepreneurship and innovation. The literature review has found the following:

1. **Education increases the productivity of individuals and has spillover effects for colleagues and others working in the wider industry or network** – research shows that these effects can be significant for all levels of post-secondary education, but may be particularly strong for graduates and for vocational qualifications at the intermediate level;
2. **Education contributes to economic growth** – the studies reviewed suggest that there is evidence that education leads to stronger growth at the aggregate level. This is true for intermediate level qualifications and higher level qualifications, although there may be some evidence that certain types of graduates (such as researchers and science and engineering graduates) may stimulate growth more than others;
3. **Education can facilitate entrepreneurial activity** – while there would appear to be little evidence to support a causal relationship between increased levels of education and chances of engaging in entrepreneurial activity, there is some evidence to suggest that education helps facilitate entrepreneurial success. More highly educated entrepreneurs tend to earn more than entrepreneurs with lower levels of education;

4. **Education can stimulate innovation** – as with entrepreneurial activity, while we found little evidence to support a direct causal link between education levels and innovation, there is some evidence that those with higher levels of education can help make use of innovation and can help turn research and development (R&D) activity into innovation.

Health and wellbeing outcomes?

While the literature on the health and wellbeing effects of education was less well developed than other areas covered by this review, the evidence suggests that education can have implications for a number of health and wellbeing outcomes:

1. **Education can lead to self-reported improvements on a range of subjective measures** – including: self-confidence and self-esteem; wellbeing and happiness; coping with mental health and physical disabilities; and ability to assist with children's education;
2. **Education can improve wellbeing and quality of life** – evidence suggests a causal link between informal learning and formal learning leading to a qualification and increased wellbeing as measured by quality of life scores. Formal learning not resulting in a qualification, on the other hand, does not appear to have the same effect;
3. **Education can lead to greater job satisfaction and a sense of being valued by employers** – research found that Vocational Education and Training (VET) delivered through the workplace improves life and job satisfaction, can improve skills match, can lead to job enrichment and can make employees feel valued by their employer.

On the other hand, however, there is evidence that:

1. **Over-education can lead to lower levels of life satisfaction** –where an individual's education level exceeds the average level of the typical worker working in the same occupational group they may be more likely to have lower levels of life satisfaction;
2. **Education can have unexpected effects on health-related choices and behaviours** – research has shown that in certain circumstances higher levels of education can lead to parents choosing not to get their child immunised and more highly educated women tend to have fewer children and to have them later on in life.

Benefiting local communities?

The literature on the benefits of post-18 education on local communities largely focuses on the attitudes and values developed while in education and the impact these have on relationships and community-building. Specifically, the review found evidence that:

1. **Higher education increases tolerance towards immigration** – graduates are more likely to have a positive view of the economic and cultural impact of immigration on the UK - but regression analysis shows no evidence that other types of post-18 education have a similar impact;
2. **Further education can promote social network formation and community engagement** – but much of this effect can be attributed to FE colleges acting as a venue for more excluded people to meet others, rather than to formal learning activities;
3. This suggests that **it is the type of education that is important, not just the volume** – across a range of measures, regression analysis suggests that while HE graduates show the most liberal and tolerant attitudes, people with an FE or HE qualification below degree level have more traditional attitudes than their education level would predict. However, there may be a pre-18 'sorting' effect that accounts for this difference, which is related to the propensity of people with more conservative views to take more vocational study routes that lead directly into employment.

Wider economic, social and cultural benefits to the UK?

While there is a large variety of ways in which post-18 education can potentially benefit the UK, the two most developed areas of literature focus on the development of social and cultural capital and social mobility, i.e. the extent to which post-18 education reinforces or helps overcome social inequality. The literature suggests that:

1. **Both HE and FE provide opportunities for social and cultural capital development** – but that factors associated with social class and pre-existing 'capital deficits' mean that participants from lower socio-economic groups are often unable to take full advantage of these opportunities. As the participants from higher socio-economic groups can take advantage, it is possible that HE and FE experience, rather than promoting social mobility, can in fact further entrench disadvantage;
2. **As HE has expanded, an increased stratification has developed which mimics the previous HE / non-HE divide** – access to more favoured HE providers and subjects remains associated with social class, leading to continued stratification of outcomes;

3. **The mediating effect of HE participation is weaker later in graduates' careers** – and HE cannot completely reduce the effect of social class on opportunity. Indeed, HE and, to an extent FE, can be seen to shield graduates from higher socio-economic groups from downward social mobility;
4. **Education can entrench existing disadvantage** – while there is potential for post-18 educational participation to result in desirable social and cultural benefits for individuals and society, there is also a risk that it can further entrench existing disadvantage because of the impact background and prior experience can have on educational choice and experiences. Instead of reducing inequality, there is a risk that post-18 education experience can reinforce and perhaps even extend existing patterns of advantage and disadvantage leading to the development of cumulative disadvantage that can extend well into the labour market.

1 Introduction

Skills are a major part of the UK's industrial strategy (Department for Business, Energy and Industrial Strategy [BEIS], 2017). Technological change is expected to increase demand for technical and high-level skills. In response the government plans to boost skills through a more competitive higher education (HE) system, aligned with the skills needs of employers, and the establishment of a 'world class' technical education system. Policies aimed at addressing these goals include: the creation of the Office for Students, opening up HE to a broader range of providers, expansion of apprenticeships, introduction of T Levels and the creation of the National Retraining Scheme.

The Post-16 Skills Plan (Department for Business Innovation and Skills/Department for Education [BIS/DfE], 2016) aims to provide two meaningful options for young people: an academic route and a vocational route. Both should include options that extend to the highest levels of education. Sentiments echoed in the recently announced post-18 review: "Driving up quality, increasing choice and ensuring value for money are at the heart of a major review of post-18 education"¹.

At the same time, changes to the HE funding system since at least 2006 have intensified debates about the value of HE, mostly focusing on the financial returns to HE for individuals (e.g. Walker and Zhu, 2013; London Economics, 2011). Research published by BIS has attempted to collate evidence on the benefits of HE for individuals and society (BIS, 2013a). However, given the government's goal of broadening the options open to young people, and older people wanting to retrain, a broader assessment of the value of different types of post-compulsory education is needed.

The previous work commissioned by BIS, the 'Quadrants Report', reviewed the literature covering the period from 2003-2013, investigating the market and non-market benefits of HE (but not benefits arising from knowledge exchange, income generation or to the local economy). Benefits identified in the literature were organised into four 'quadrants' based on the extent to which they were market or non-market, or benefitted the individual or wider society. Examples of wider non-market benefits for the individual include better health, longer life expectancy and greater life satisfaction. For society, wider benefits include greater social cohesion and trust, less crime and greater political stability.

1.1 Research focus of the review

Building on, and extending the coverage of, the previous report looking at HE (BIS, 2013a), the current review seeks to establish what evidence is available about the influence of the different types of post-18 education (HE, FE and vocational and technical education) on

¹ <https://www.gov.uk/government/news/prime-minister-launches-major-review-of-post-18-education>

two of the four quadrants (i.e. the non-market benefits for the individual and society) with particular attention to:

1. Civil engagement activities;
2. Economic activity and productivity;
3. Health and wellbeing outcomes;
4. Benefiting local communities;
5. Wider economic, social and cultural benefits to the UK, and general impacts.

Research by IER and others has shown that those from some demographic groups face disadvantage in terms of educational choices, access, experiences and outcomes, particularly related to HE (e.g. Futuretrack²; or see Waller, Ingram and Ward, 2018). Where possible we have tried to draw out any systematic variations in the benefits of education based on learners' backgrounds in the text of each chapter. However, our ability to do this was limited by the relative lack of studies that have looked at this question.

1.2 Literature review methodology

The literature review contained in this report employed a 9-step methodology informed by the principles of systematic reviewing. Although the review was not a full systematic review, a systematic set of steps were followed in a bid to capture a wide range of sources using a transparent approach. The review used the following steps:

1. Identifying the most relevant **(a)** databases for published data (e.g. Scopus; EBSCO HOST databases: Education Research Complete, ERIC, British Education Index; Applied Social Science Index and Abstracts (ASSIA), International Bibliography of the Social Sciences (IBSS), Taylor & Francis or Web of Science); **(b)** web-based grey literature (targeting websites of key stakeholders [e.g. HEFCE, HECSU, DfE, Social Mobility Commission - SMC], research institutes (Centre for Vocational Education Research, JRF); and Google Scholar); and **(c)** (published and unpublished) documents/data/projects gathered through IER networks.
2. Setting search parameters: Identifying best match to the research question's key words, concepts, phrases in each selected database thesaurus and developing search strings (using Boolean operators, field abbreviations, wildcards and truncation symbols) and limits (e.g. English language; peer-reviewed; time period suited to each search platform/database).

² <https://warwick.ac.uk/fac/soc/ier/futuretrack/findings/>

3. Saving initial search records into Endnote X8 and eliminating duplicate records.
4. Preliminary mapping of retrieved abstracts to develop relatively broad inclusion/exclusion criteria (e.g. about the benefits of different types of education; focusing on the UK and an agreed list of developed countries but with a primary focus on the UK).
5. Download and storage of full texts of included abstracts in Endnote.
6. Development of tighter inclusion/exclusion criteria for full texts, including quality criteria (e.g. exclude texts containing no research data).
7. Review of full texts using agreed inclusion/exclusion criteria.
8. Structured summaries of all included texts (informed by PICOD framework).
9. Thematic report and synthesis, with bibliography.

To avoid duplication of the Quadrants Report, the search focused on research on the benefits of HE published since 2013, but research published since 2008 for all other areas of post-18 education. The search methodology identified more than 1,577 sources of which 483 were selected for further review. The breakdown of search results was as follows:

- **(a) Focused review:** the focused bibliographic literature review covered **6** databases. These databases are the ones identified as the most relevant to the study based on the experience of the researchers and consultation with University of Warwick library staff. The database search identified **1,512** sources relating to the wider returns to education, of which **417** were selected for further review.
- **(b) 'Grey' literature review and (c) use of networks:** this review covered **65** websites identified as relevant (through the researchers' experience) to the main research questions. This covered the websites of international organisations (such as the ILO and UNESCO), European and UK governmental organisations (e.g. Cedefop and the Department for Education), other governmental organisations (for example, Ofsted), as well as research institutions and third sector organisations (TSOs). In addition, a Google search was undertaken using the search terms of the focused review. A total of **66** relevant reports were identified as a result of this process.

The main conclusions from both search processes were as follows:

- The bibliographic review turned up a considerable amount of literature that needed to be reduced down during the second stage of the research. On further inspection many of the sources identified were not directly relevant to the research questions;
- There was considerably more evidence on the non-market benefits of HE than FE, or that has looked at the effects of education in general terms rather than focusing on a specific type or level of education, although there was an increasing amount of research on VET;

- The review found it difficult to draw conclusions about the regional dimension of the impacts of education, as articles often cover the whole of the UK or refer to a single (often anonymised) institution;
- In many cases it is difficult to disentangle the benefits of education of different types studied through different qualifications, modes or completed at different ages.

Table 1.1 'Search results from the focused review, by research question' shows the number of abstracts that were reviewed against the inclusion criteria and the questions they were assigned to.

Table 1.1 Search results from the focused review, by research question

Group (based on research questions)	Number of abstracts reviewed	Number identified for full article review
Q1 Civic engagement	182	65
Q2 Economic activity and productivity	274	89
Q3 Health and well-being	123	46
Q4 Benefiting local communities	120	16
Q5 Wider economic, social and cultural benefits & General impacts	813	201
Total	1512	417*

*note some articles are relevant to more than one category so the actual number of articles for further review is slightly lower than this

1.3 Structure of this report

The structure of this report has been guided by the research questions but also by the literature available. As can be seen from the literature reviewed, there has been a wealth of studies in some areas but far fewer studies in other areas. For example, while there are a number of studies looking at the impact of education on economic activity and productivity, there are far fewer studies in the UK that have looked at civic engagement.

Similarly, while the benefits of higher education have been a major concern of research for a number of years, further education and vocational education and training has received much less attention in the literature, although there has been a growing interest in VET in recent years. Due to a lack of evidence in some areas it was necessary to draw upon findings from studies focusing on education in general or that were carried out outside the UK.

Each chapter attempts to identify and review the most salient literature in relation to each area, broadly defined, and tries to draw out where possible any additional lessons that can be gleaned from the research in terms of regional differences and/or for particular

disadvantaged groups. The review takes a broad definition of disadvantage depending upon the type of education and the overarching context. In many cases evidence relates to qualifications gained at different levels but provides no information as to the age at which qualifications were achieved.

2 Civic engagement and political participation?

Education is commonly assumed to be linked to civic engagement through increasing democratic values and political awareness and through increased participation in civic groups. In concluding his 1999 literature review of the nature and extent of social capital in Britain, Hall notes “it is well-established that each additional year in education increases the propensity of an individual to become involved in community affairs”³.

The mechanisms through which education influences civic engagement are less well understood and the literature published since 2013 adds to this only in minor ways. Literature predating this review provides some possibilities to suggest why education appears to be related to civic participation:

- The expansion of higher education may have made people more civic because higher education (in particular) encourages critical thinking. This promotes the development of cognitive abilities that have been associated with political engagement. Related to this is the suggestion that different kinds of study are associated with different levels of engagement, for example, study of vocational subjects and sciences has been linked to lower levels of engagement in politics⁴;
- Adult learning can develop self-confidence that facilitates engagement in civic activities;
- Education affects attitudes and participation, but what is important is relative education. There is not space for everyone to participate, so it is those who have the highest educational capital who are the most likely to participate;
- Political participation is driven by different types of motivation: instrumental, expressive and acculturation.
 - Instrumental motivation suggests that more well-educated people become more politically engaged because it serves their own and class interests. As a result, educational experience (including activities outside the classroom) can enhance an individual’s ability to engage in the kind of actions that allow them to further their own interests as it provides access to the soft skills and social networks needed to do this most effectively. However, this also suggests that existing social and cultural capital acts as an intervening factor, influencing both propensity to enter different types of post-18 education and the skills and networks developed while in education.
 - Expressive motivation links attitudes and political participation to socialisation in childhood. It suggests that intergenerational access to education promotes values related to propensity for civic engagement. Consequently, education has longer-term effects on civic engagement

³ Hall, P. (1999). 'Social capital in Britain', *British Journal of Politics*, Vol. 29, p. 417-61

⁴ Paterson 2009

- because it affects the attitudes of students themselves and also the values they pass onto their children.
- Acculturation presents the opposite view to expressive motivation. It suggests that expressive ties are modified as people move, for example, as a result of education, into a different societal group to those in which they were brought up. Acculturation theories suggest that education potentially has a strong impact on civic engagement⁵.

Aside from the failure of studies published since 2013 to explain the mechanisms by which post-18 education affects civic engagement, there are also gaps in the literature related to the methodologies employed. The primary issue involves the reference group against which HE or FE graduates are compared. The reference group most frequently used in studies is those with no qualifications⁶ with assumptions being made about the existence of a linear increase in civic engagement as educational levels increase, but with little or no primary evidence presented to support this assertion. Such studies have largely been excluded from this review, as they do not fully address the question of the impact of post-18 education choices (i.e. self-selection issues).

Political participation can be divided into four areas, and the literature suggests that there is a relationship between education level and three of these areas (political engagement, interest and efficacy) but there is no evidence on the relationship between education and political trust:

- Political engagement, including propensity to vote and to take action on political issues;
- Political interest;
- Political efficacy;
- Political trust.

2.1 Post-18 education increases propensity to vote

The prevailing assumption is that because students are often young and typically live in relatively short-term rented accommodation with only loose links to the communities in which they reside, they are often absent from the electoral role and are less likely to turn out to vote. However, Fisher and Hillman (2014) using evidence from the British Election Studies in 2005 and 2010 suggest that this is not the case⁷.

⁵ Adapted from Paterson, L. (2014). 'Education, Social Attitudes and Social Participation Among Adults in Britain', *Sociological Research Online* 19:1

⁶ See, for example, Chan, T.W. (2014). *Understanding Cultural Omnivores: Social and Political Attitudes*. University of Oxford

⁷ Fisher, S.D. and Hillman, N. (2014). Do students swing elections? Registration, turnout and voting behaviour among full-time students/ HEPI Report 70

Furthermore, the expansion of higher education might be expected to lead to a weakening of the relationship between education and voting⁸, as individuals with characteristics associated with a low propensity to vote, such as lower socio-economic class, become part of the graduate cohort. However, there is also little evidence to support this assumption.

The BIS review of the literature on the benefits of HE⁹ found that there was a correlation between the amount of higher education received and propensity to vote, but that questions of causality were rarely addressed in the literature. Our review provided similar findings.

A 2013 meta-analysis by Smets and van Ham of 67 studies conducted in the US and in Europe found that education was among the strongest predictors of voting behaviour. The average effect size was statistically significant at the level of tests and studies, but education also acted as a social sorting mechanism and proxy for other factors, including social class, resources, time and skills¹⁰.

Turning to research carried out in Britain, Birch (2016) found that HE graduates were more likely to vote than non-graduates. Using descriptive statistics from the British Election Study's 2015 face-to-face post-election survey and wave 8 of the panel survey, Birch's (2016) showed that HE graduates were more likely than non-graduates to have voted in the 2015 general election by six percentage points and more likely to have voted in the EU membership referendum in 2016 by three percentage points¹¹.

Table 2.1 Turnout at 2015 general election and 2016 EU referendum

	General election 2015	Referendum 2016
Higher education	79.6%	77.7%
No higher education	73.1%	74.9%

Source: Birch (2016)

Bivariate figures for different groups do not on their own show whether HE leads to political participation, as they do not control for other factors. Persson's 2014 research¹² using 1970

⁸ See, for example, Nie, N., Junn, J. and Stehlik-Barry, K. (1996). *Education and Democratic citizenship in America*. Chicago: The University of Chicago Press.

⁹ Brennan, J., Durazzi, N. and Tanguy, S. (2013). *Things we know and don't know about the Wider Benefits of Higher Education: A review of the recent literature*. BIS Research Paper No. 133. London: Department for Business, Innovation and Skills

¹⁰ Smets, K., & van Ham, C. (2013). The embarrassment of riches? A meta-analysis of individual-level research on voter turnout. *Electoral Studies*, 32, 344–359.

¹¹ Birch, S. (2016). Our new voters: Brexit, political mobilisation and the emerging electoral cleavage. *Juncture* 23(2):107-110. <https://onlinelibrary.wiley.com/doi/epdf/10.1111/newe.12003>

¹² Persson, M. (2014). Testing the Relationship Between Education and Political Participation Using the 1970 British Cohort Study. *Political Behaviour* 36: 877

British Cohort Study data, on the other hand, does control for the effect of other factors and suggests that there is, in fact, no significant effect of education on political participation. Instead, rather than causing political participation, education is a proxy for a range of other characteristics that are more strongly associated with participation.

However, research using more recent cohorts suggests that after controlling for other factors, education, and in particular higher education, is related to certain types of political participation. Paterson's 2014 analysis of British Social Attitudes Survey (BSAS) from the mid-1980s to the mid-2000s – two decades in which participation in higher education rose by half – showed that not only has the association between higher education and voting *not* weakened, there is some evidence that it has strengthened¹³. Paterson (2014) also looked specifically at whether there is any regional association with the tendency for education to be associated with propensity to vote to test whether *relative* or *absolute* educational levels had the most explanatory power. Using BSAS data from 2000 for four areas: London, South East England, Northern England and Scotland, Paterson demonstrated that there was no relationship between relative education levels and propensity to vote. Graduates in the area with the lowest level of higher education (Northern England) show no greater likelihood to vote than those in the two areas with the highest levels of higher education (London and Scotland). This pattern holds when looking at the five general elections to the UK parliament held between 1979 and 2005, using data from the British Election Survey 1979, 1992 and 1997 and British Social Attitudes Survey 2001 and 2005, suggesting, again, that expansion of higher education has not weakened the relationship between education and civic engagement, and expansion of HE has not lead to a decrease in the likelihood that an HE graduate will vote.

However, research by Kenealy et al. (2017) suggests that Scotland may be an exceptional case when looking at the relationship between education and propensity to vote¹⁴. Their research using a 2015 survey of 6,596 people who were eligible to vote shows that in each of the four nations, the proportion who declared themselves certain to vote was lower amongst people with lower levels of education. However, in Scotland, voting intentions were much higher than in the other nations and even the group with the lowest levels of certainty to vote (those with only lower secondary education) were almost as certain to vote as graduates in the other three nations.

¹³ Paterson, L. (2014). 'Education, Social Attitudes and Social Participation Among Adults in Britain', *Sociological Research Online* 19:1

¹⁴ Kenealy D., Eichhorn J., Parry R., Paterson L., Remond A. (2017). *Political Engagement*. In: *Publics, Elites and Constitutional Change in the UK*. Comparative Territorial Politics. Palgrave Macmillan, Cham

Table 2.2 Percentage choosing point 10 on a scale 0–10 of likelihood to vote in 2015 UK General Election

	Degree	Higher education below degree	Upper secondary	Lower secondary	Low or none
England	63	74	53	56	57
Scotland	77	78	69	65	74
Northern Ireland	56	54	43	40	40
Wales	65	72	57	61	53
UK	64	74	53	57	58

Source: Kenealy et al., 2017

Notes: 2015 survey of 6,596 people. Restricted to those eligible to vote.

Paterson (2014) also examined the impact of vocational and academic education on propensity to vote¹⁵. The education measure used was based on qualification titles using the approach adopted in the General Household Survey in Britain. Academic education included qualifications at all levels, while vocational education only included qualifications below degree level. She found that although there were differences in attitudes related to measures such as ‘political cynicism’ (i.e. political trust and efficacy), no consistent difference could be found using BSAS 1986-2006 data to examine propensity to vote.

Thus, when looking at the evidence overall, while there appears to be a bivariate relationship between education and propensity to vote, other variables such as social class and regional factors also play a part. Certainly, the expansion of HE does not appear to have weakened propensity to vote and education does appear to have an effect on attitudinal measures related to political trust and efficacy.

2.2 Post-18 education increases the likelihood of taking action on political issues

The relationship between political interest, political action and educational attainment is complicated. As has been noted, some forms of political action can be seen as scarce resources, i.e. they can be undertaken by a finite number of people. Previous research has shown that political participation is socially stratified, with education, alongside income and occupation, being strongly correlated with political participation, including contacting elected or government officials and signing petitions. This is usually explained with

¹⁵ Paterson (2014) *ibid*

reference to models of civic voluntarism which suggest that there is a ‘cost’ to participation in terms of time and effort. Consequently, people with lower educational levels are less likely to participate because they have fewer of the necessary resources, including time, money and cultural capital, to understand political information and to take action in relation to this information.

There is some evidence from studies prior to 2013¹⁶ that the link between education and participation is less clear in the UK than in the US, but also that more advantaged groups may be more politically involved for other reasons beyond their access to greater resources to ‘pay’ for involvement. These include their greater social and cultural capital, i.e. their connection to dominant or elite culture, practices and positions, including political culture, which helps them to feel that they have ‘the right to speak’¹⁷.

Kenealy et al. (2017) found that, as in the case of voting, propensity to take any type of political action is lowest amongst those with low attainment, but is highest not amongst those with the highest levels of education (i.e. those with a degree), but instead amongst those with an HE qualification below degree level. This would include those who gained a qualification above A Level or equivalent but who studied at an FE institution. This can be seen most clearly in Wales and Northern Ireland, but is evident in each of the four nations¹⁸.

Table 2.3 Percentage who have taken part in any political action, by nation and highest educational attainment

	Degree	Higher education below degree	Upper secondary	Lower secondary	Low or none
England	61	63	54	55	50
Scotland	67	73	64	57	48
Northern Ireland	61	79	46	52	47
Wales	69	78	57	49	42
UK	62	65	55	55	49

Source: Kenealy et al., 2017

Notes: 2015 survey of 6,596 people. Restricted to those eligible to vote.

¹⁶ See, for example, Milligan, K., Moretti, E. and Oreopoulos, P. (2004). 'Does education improve citizenship? Evidence from the United States and the United Kingdom', *Journal of Public Economics*, 88, 1667-95

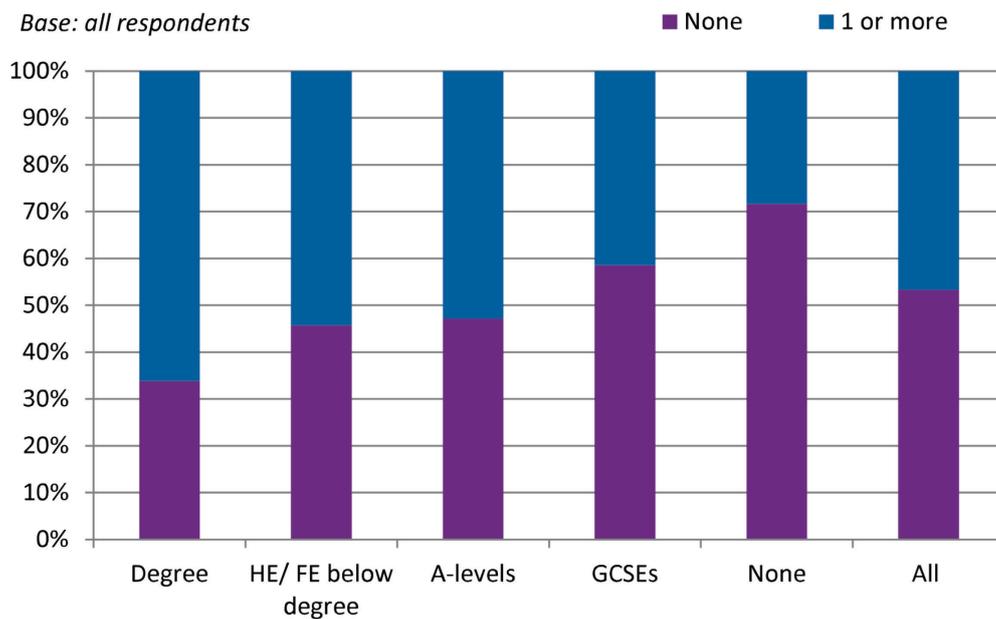
¹⁷ See Laurison, D. (2015). The right to speak: differences in political engagement among the British elite. *The Sociological Review*, Vol. 63, 349–372

¹⁸ Kenealy et al. (2017) *ibid*

Using secondary analysis of data from the British Social Attitudes survey 2010, 2011, 2012 and 2013, Brennan et al. (2015) produce a composite variable to look at different types of political action¹⁹. This variable includes whether the respondent had contacted a government department, contacted a radio or television station or a newspaper, signed a petition, raised the issue in an organisation, gone on a protest or demonstration or joined a group of like-minded people in relation to a government action that they thought was unjust or unfair. Their findings, based on 3,330 respondents of whom a quarter had a degree or equivalent and twelve per cent had an HE or FE qualification below degree level, show again that those with the lowest qualifications are least likely to take political action.

However, in contrast to the findings of Kenealy et al. (2017), they found that after controlling for other background (socio-demographic) factors HE graduates were significantly more likely to have taken part in at least one political participation activity than those from other groups. It must be noted that the cell sizes in both surveys were relatively small, which may account for the divergence in findings on the small and somewhat diverse 'HE below degree level' group. Approximately 66 per cent of graduates reported that they had taken part in at least one of the activities, while those with below degree level HE or FE qualifications were no more likely than those with A Levels of equivalent (54 per cent and 53 per cent respectively) to have participated.

Figure 2.1 How many of the things on this card have you done about a government action which you thought was unjust and harmful?

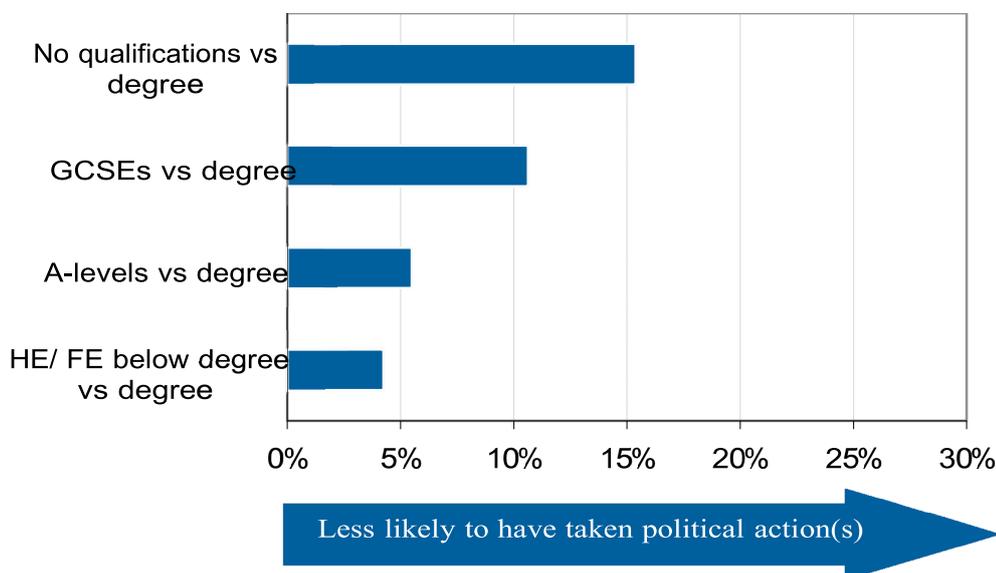


Source: Brennan et al, 2015 using data from British Social Attitudes survey 2010, 2011, 2012 and 2013

¹⁹ Brennan, J. Chanfreau, J., Finnegan, J., Griggs, J., Kiss, Z. and Park, A. (2015). The effect of Higher Education on graduates' attitudes: Secondary Analysis of the British Social Attitudes Survey. BIS Research Paper No. 200. <http://dera.ioe.ac.uk/24684/1/BIS-15-89-the-effect-of-higher-education-on-attitudes.pdf>

Using regression analysis, they found that there was a statistically significant difference between the propensity of respondents with a degree and those with an HE or FE qualification below degree level to have taken political action.

Figure 2.2 Effect of different educational levels on political action: regression analysis



Source: Brennan et al, 2015 using data from British Social Attitudes survey 2010, 2011, 2012 and 2013

Similarly, Laurison’s (2015) analysis of the Great British Class Survey (GBCS), a BBC survey of 164,000 respondents with generally high incomes and levels of education, showed that the elite group in this survey (graduates earning over £100,000) were more likely to have contacted an elected or government official than other respondents to the GCBS and were more involved than UK residents as a whole²⁰. The GBCS is not a representative sample of the UK population, but is a useful resource because it includes high numbers of highly-educated high earners. Within the elite group, Laurison found that there was a correlation between engagement in cultural activities and social connections (whether they know someone in a high-status occupation) and political participation, which suggests that political participation is a relational phenomenon, as absolute resources matter, but social position, and how people perceive the world around them and their place in it, are also important.

²⁰ Laurison (2015) *ibid*

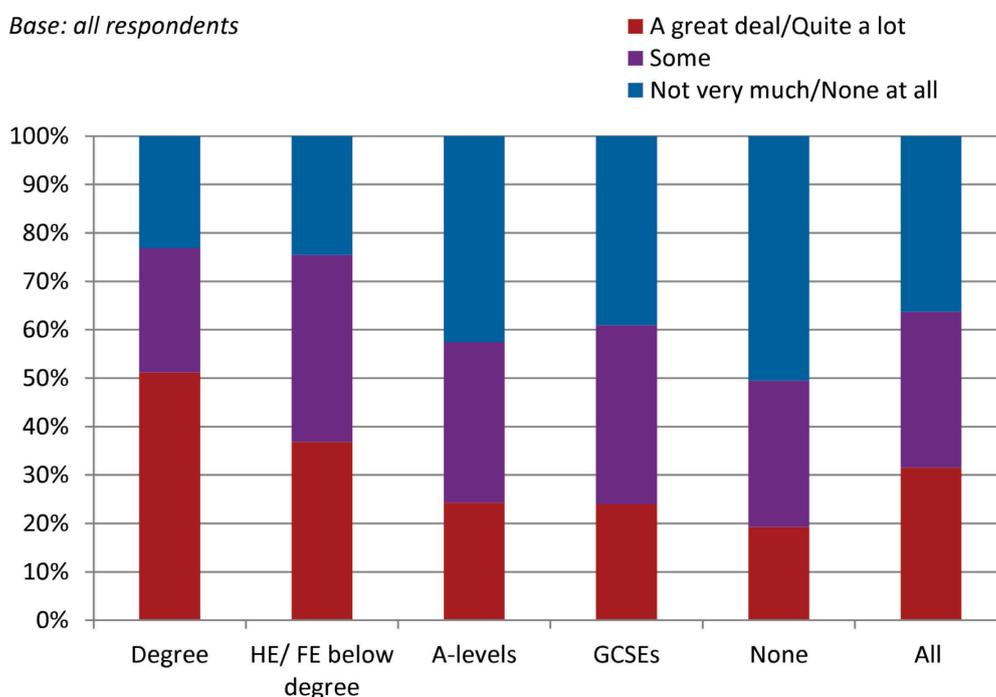
2.3 Post-18 education increases political interest

As noted in Brennan et al.'s 2013 review²¹, it is generally accepted that universities develop and strengthen civic engagement, through enhancing distribution of knowledge, a sense of criticality in the public and professional spheres, and participation in public debates. However, there has been little research since Borgonovi and Miyamoto's (2010) study²² examining whether education is related to political interest in general.

Analysis of this issue has primarily used data from the British Social Attitudes Survey (BSAS). The BSAS asks how much interest the respondent has, generally, in what is going on in politics. Brennan et al. (2015) use data from the 2010, 2011, 2012 and 2013 surveys and find that, consistent with other measures of political participation, interest in politics was lowest amongst people with no qualifications (19 per cent report a great deal or a lot of interest) and highest amongst HE graduates (51 per cent).

Figure 2.3 How much interest do you generally have in politics?

Base: all respondents



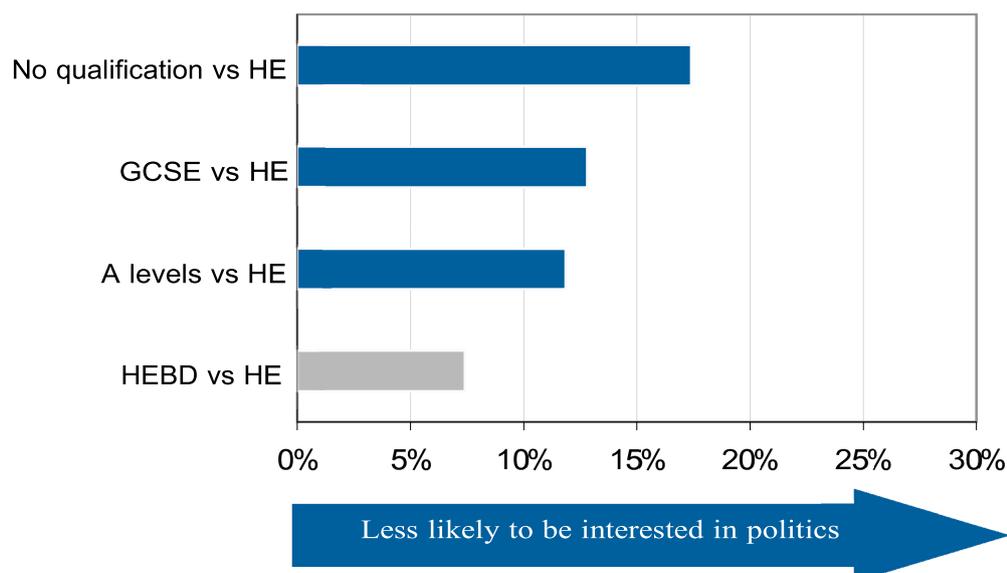
Source: Brennan et al, 2015 using data from British Social Attitudes survey 2010, 2011, 2012 and 2013

However, as Figure 2.4 shows, when they control for other characteristics, such as age and social class, there is no statistically significant difference between those with HE and FE qualifications below degree level and those with degrees.

²¹ Brennan et al. (2013) *ibid*

²² Borgonovi, F. and Miyamoto, K. (2010). Education and civic and social engagement, OECD, *Improving Health and Social Cohesion through Education*, chap.3, pp. 65-110

Figure 2.4 Effect of educational attainment on how much interest participants generally politics: regression analysis



NB: Blue bars denote statistically significant coefficients; grey bars non-significant ones

Source: Brennan et al., 2015 using data from British Social Attitudes survey 2010, 2011, 2012 and 2013

This finding reflects other analysis of BSAS data, including the work of Lee and Young (2013) using the same data as Brennan et al.²³.

2.4 Post-18 education increases political efficacy

Political efficacy relates to how much say individuals feel they have in how governments run the country and whether they feel their voice is listened to. This involves understanding how governments function and the most efficacious methods for engagement.

Kenealy et al.'s 2015 survey of respondents across the four nations of the UK assessed whether respondents were able to understand the political system, using agreement with the statement 'sometimes politics and government seem so complicated that a person like me cannot really make sense of it all'²⁴. They found that across all four nations,

²³ Lee, L. and Young, P. (2013). 'A disengaged Britain? Political interest and participation over 30 years', in Park, A., Bryson, C., Clery, E., Curtice, J. and Phillips, M. (eds.), *British Social Attitudes: the 30th Report*, London: NatCen.

²⁴ Kenealy et al. (2017) *ibid*

understanding of the political system decreased as education levels decreased and those with degrees were the least likely to find politics difficult to understand²⁵.

Table 2.4 'Politics is too complicated for someone like me to make sense of it all' by nation and highest educational attainment

	Degree	Higher education below degree	Upper secondary	Lower secondary	Low or none
England	41	48	51	50	57
Scotland	35	42	48	50	56
Northern Ireland	45	50	61	62	75
Wales	39	47	57	57	58
UK	40	47	51	51	57

Source: Kenealy et al. (2017).

Notes: Survey conducted in 2015 of 6,596 people who were eligible to vote

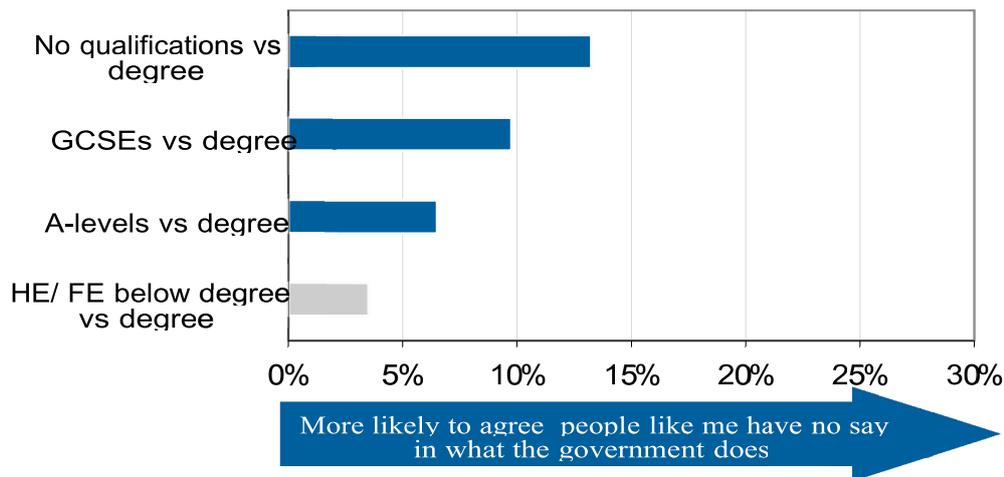
Brennan et al. (2015) use the 2011 British Social Attitudes Survey to look at subjective feelings of political efficacy²⁶. Their findings showed a similar pattern to that found by Kenealy et al. (2017), although they found no significant difference, when controlling for other characteristics, between those with degree level qualifications and those with HE and FE qualifications below degree level. Looking at personal efficacy, Brennan et al. analysed responses to the statement 'People like me have no say in what the government does', while to examine system efficacy, i.e. the belief that the government works for those it represents, they used responses to the BSAS statement 'It doesn't really matter which party is in power, in the end things go on much the same'.

Overall, 72 per cent of respondents agreed to some extent that people like them have no say in what the government does, but this figure is as high as 82 per cent for those with no qualifications compared with under half (47 per cent) of those with a degree.

²⁵ It must be noted that the cell size for respondents from Northern Ireland is particularly small, with 55 respondents having an HE or FE qualification below degree level, 55 having low or no qualifications and 95 having lower secondary level qualifications. All other cells have at least 100 respondents.

²⁶ Brennan et al. (2015) *ibid*

Figure 2.5 Effect of different educational levels on agreement with statement ‘people like me have no say in what the government does’: regression analysis



NB: Blue bars denote statistically significant coefficients; grey bars non-significant ones

Source: Brennan et al, 2015 using data from British Social Attitudes survey 2011

Similarly, Brennan et al. found no significant difference between respondents with a degree and those with a below degree level HE/FE qualification when looking at the system efficacy measure of views about whether which party is in power matters. They found statistically significant differences between graduates and respondents with all other qualification levels. People with lower education levels were more likely to think that it does not really matter which political party is in power, with 83 per cent of those with no qualifications agreeing with the statement, compared to 58 per cent of those with a degree.

2.5 Post 18 education increases political trust

While Paterson (2014) looked at relationship between the level of academic education and level of ‘political cynicism’ (a combination of political efficacy and trust), he did not look at the relationship between education and political trust *per se*. Paterson’s findings, however, suggested that while higher levels of academic education led to more optimism and less cynicism, there was no clear relationship between vocational qualifications and political cynicism. Brennan et al. (2015), on the other hand, did look at political trust using data from the 2011 BSAS. Their research found that there was no relationship between education and political trust when other characteristics are taken into account.

2.6 Post-18 education increases engagement with political issues

As well as looking at the extent to which education is related to propensity to engage in political processes, various studies have looked at the relationship between education and

particular attitudes and values in relation to political issues. Most commonly, this research looks at attitudes to migration, personal relationships and attitudes towards other groups, all of which are discussed in Chapter 5. This section looks at engagement with two political issues that are currently high on the political agenda: the environment and Brexit.

The most comprehensive studies assessing the relationship between education and engagement with environmental issues use the British Social Attitudes Survey. The literature search also found some smaller scale qualitative studies looking at the experiences of particular groups of students and the impact of the curriculum in particular subjects²⁷, but these studies are not generalisable.

Using the BSAS 2010, Brennan et al. (2015) looked at respondents' knowledge and understanding of environmental problems using the question 'How much do you feel you know about the causes of environmental problems?'²⁸. As in the case of understanding of the political system, respondents with a degree were most likely to say that they understood a great deal (55 per cent), while understanding decreased alongside decreases in educational level. However, they found that there was little difference in the responses of those with an HE or FE qualification and those with A Levels or equivalent, around a third of whom said they understood a great deal in both cases.

When controlling for background characteristics (gender, age, ethnic background, economic activity, NS-SEC, household income, whether a respondent was born in the UK²⁹ and UK region), regression analysis showed that the relationship between education levels and understanding of environmental issues was significant across all educational groups.

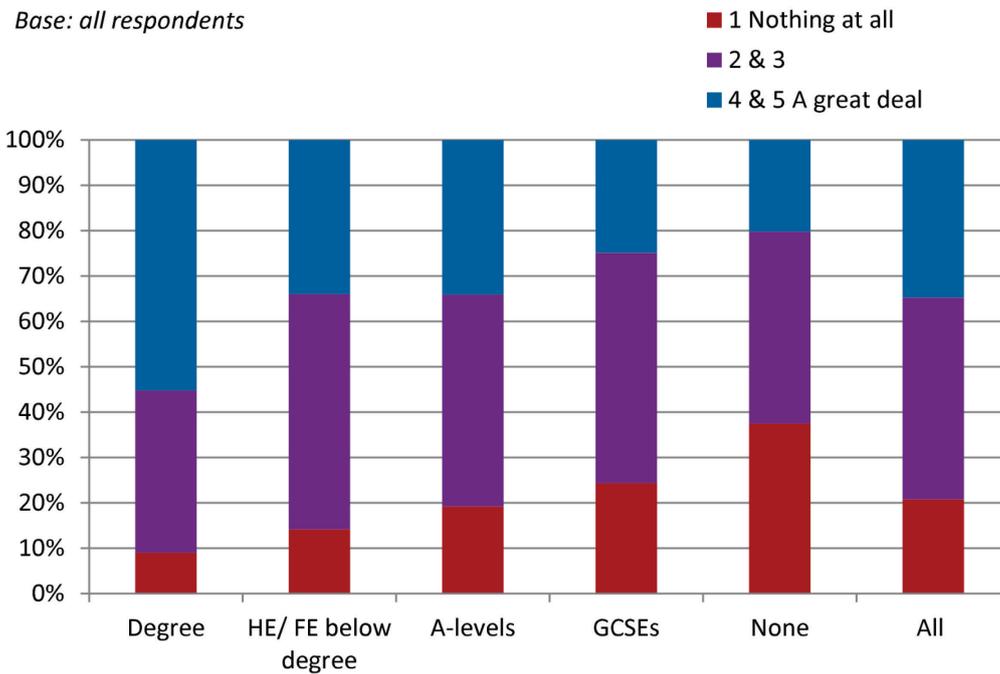
Brennan et al.'s (2015) analysis of 2010 BSAS data also showed that concern about environmental issues was highest amongst those with a degree (70 per cent) and lowest amongst those whose highest qualification was GCSEs (45 per cent, slightly higher than the figure for respondents with no qualifications). However, when controlling for background characteristics, they found no significant difference in the attitudes of respondents with a degree and those with an HE or FE qualification below degree level.

²⁷ See, for example, Spalding, R. (2013). "Daring to Volunteer": some reflections on geographers, geography students and evolving institutional support for community engagement in higher education. *Journal of Geography in Higher Education* 37(1):59-64 and Cotton, D. and Alcock, I. (2013) Commitment to environmental sustainability in the UK student population. *Studies in Higher Education* 38(10):1457-1471.

²⁸ Brennan et al. (2015) *ibid*

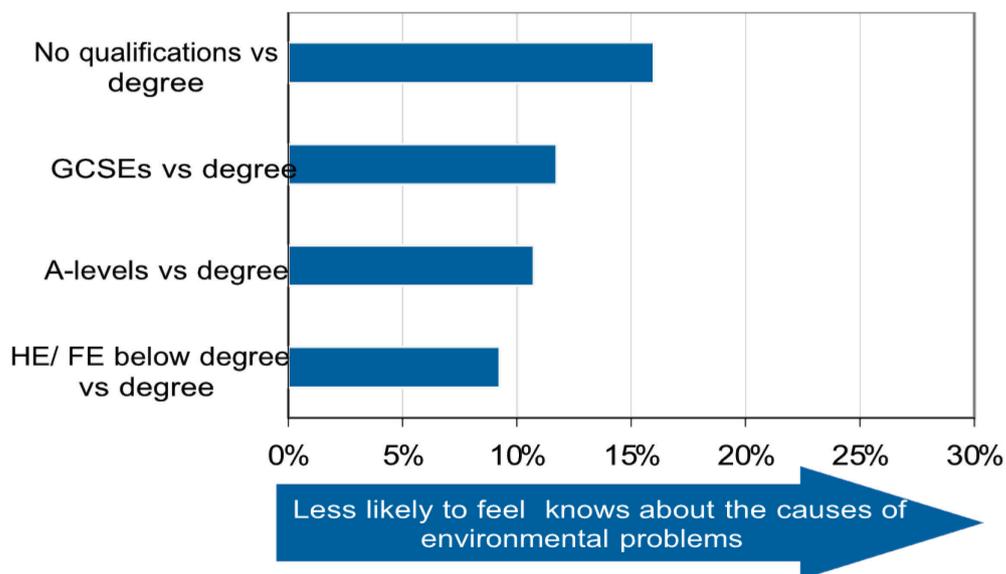
²⁹ Except in data from the 2010 and 2012 BSA surveys as this variable was not included in these surveys

Figure 2.6 Effect of different educational levels on how much respondents understood about the causes of environmental problems



Source: Brennan et al, 2015 using data from British Social Attitudes survey 2010

Figure 2.7 Self-reported knowledge of environmental problems: regression analysis

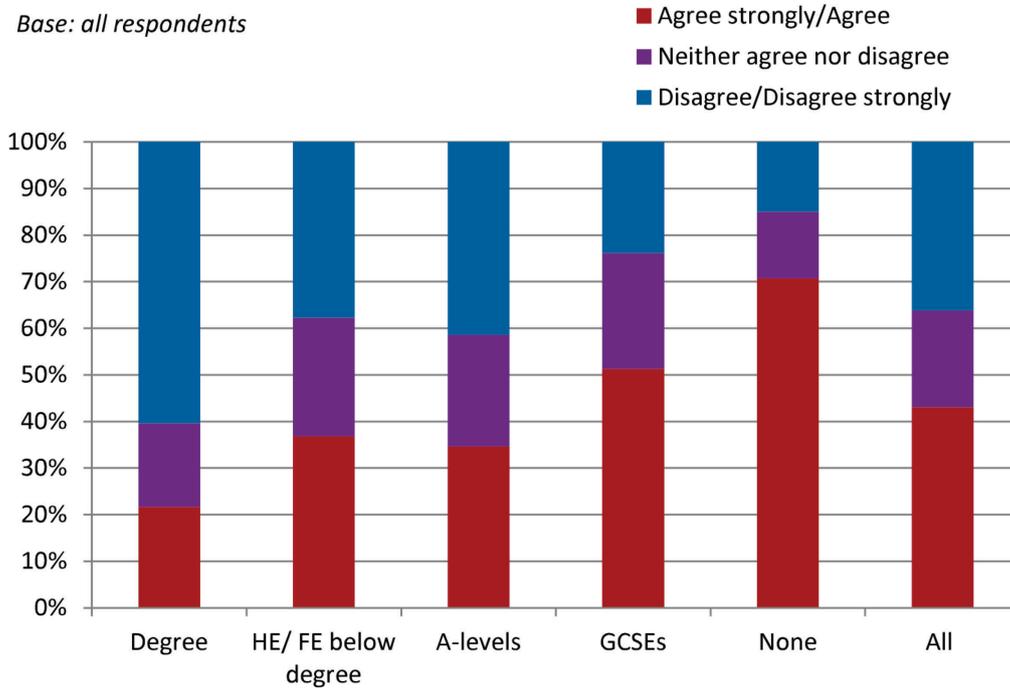


Source: Brennan et al., 2015 using data from British Social Attitudes survey 2010

Similarly, when looking at responses to the statement ‘We worry too much about the future of the environment and not enough about prices and jobs today’ from the BSAS 2010 survey, respondents educated to degree level were the most likely to disagree or strongly

disagree with the statement (60 per cent) compared with 41 per cent of those with A Levels and 38 per cent of those with an HE or FE qualification below degree level.

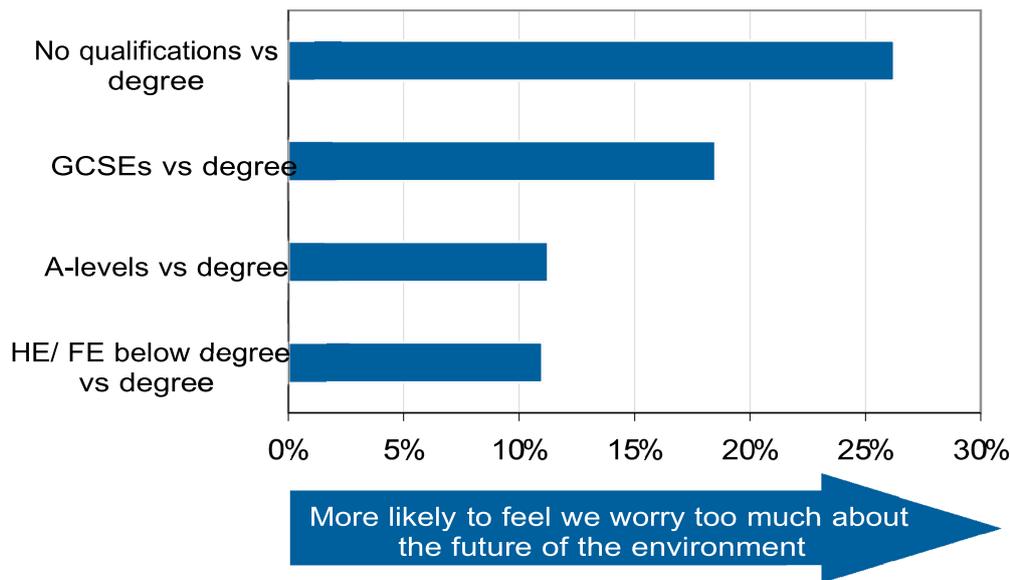
Figure 2.8 We worry too much about the future of the environment and not enough about prices and jobs today



Source: Brennan et al, 2015 using data from British Social Attitudes survey 2010

This disruption of the education level-environmental concern incremental relationship at the A Level / HE or FE qualification below degree level was found to be maintained when controlling for background factors, although overall the effect of education was particularly strong in relation to attitudes about the prioritisation of environmental issues. This may reflect the greater impact of job loss and rising prices on those with lower incomes (which is related to qualification level).

Figure 2.9 We worry too much about the future of the environment and not enough about prices and jobs today: Regression analysis



Source: Brennan et al., 2015 using data from British Social Attitudes survey 2010

There has been considerably more research since 2013 on attitudes towards Brexit, and much of this work draws on a similar thesis to that posited to explain the relationship between education and attitudes towards the prioritisation of the environment vis-à-vis prices and jobs. This thesis can broadly be described as the ‘winners of globalisation’ thesis. It suggests that the ‘winners of globalisation’ are highly educated and qualified people who have the educational, social and cultural capital to compete for jobs and other resources that become scarce in periods of economic downturn or through global competition.

Conversely, the ‘losers of globalisation’ are those with lower skills and qualifications whose immediate priorities focus on retaining their jobs and standard of living in the face of increasing competition and rising prices. Much of the literature highlights that there is not a linear relationship between educational levels and attitudes towards Brexit. There is a middle group, composed either of those with A Levels as their highest qualification or those who have an HE or FE qualification below degree level, whose attitudes are particularly affected by globalisation and recession (those who find themselves newly vulnerable).

Controlling for age, overall, support for Brexit was around 30 percentage points higher amongst those with GCSE qualifications or below than it was amongst those with a

degree³⁰. Using the 7th Wave of the British Election Study (a pre-campaign Panel Survey of 30,895 respondents' voting intentions prior to the referendum), Hobolt (2016) found that going from A Level education to an undergraduate degree reduced the probability of voting to leave the EU by around 10 percentage points when all other factors were held equal³¹. Similarly, Curtis (2016), using 3,000 participant British Social Attitudes 2015 data, found that graduates were four to five times more likely to support remaining in the EU than withdrawing, while there was a more even balance, trending towards leaving, across other educational groups³².

However, there is not a clear linear relationship between education level and attitudes towards Brexit. Using British Election Survey (BES) data on how people anticipated voting ahead of the EU referendum, Ormston (2015) found that there were higher levels of support for Brexit amongst those who had an HE or FE qualification below degree level than amongst those whose highest qualification was A Level or equivalent³³.

Table 2.5 Proportion of registered voters who said that they would vote to leave the EU in the 2015 referendum

	A Level or equivalent	HE below degree	Degree or above
England	39	42	27
Scotland	28	31	15
Wales	32	47	22

Source: Ormston (2015) using BES internet panel Wave 6,

Notes: excluding those who said they did not know how they would vote

Using the British Election Study (BES) based on a sample of more than 31,000 respondents surveyed during May and June 2016, Goodwin and Heath (2017) found that while the 'winners of globalisation' thesis holds, there is an additional geographical dimension to the relationship between education and attitudes towards Brexit. They found that education can act as a socialising agent that inculcates people with a more outward

³⁰ See Johnston, R., Jones, K. and Manley, D. (2016). Can we really not predict who will vote for Brexit, and where? <http://blogs.lse.ac.uk/politicsandpolicy/can-we-really-not-predict-who-will-vote-for-brexit-and-where/>

³¹ Hobolt, S.B. (2016). The Brexit vote: a divided nation, a divided continent, *Journal of European Public Policy*, 23:9, 1259-1277

³² Curtis, J. (2016). A Question of Culture or Economics? Public Attitudes to the European Union in Britain. *The Political Quarterly* 87/2. 209-218. It should be noted that the proportion of those people with lower qualifications who ultimately voted to leave the EU in the referendum was considerably higher than was suggested by responses to this question asked between July and November 2015.

³³ Ormston, R. (2015). Disunited Kingdom? Attitudes to the EU across the UK. The UK in a changing Europe and NatCen. <https://whatukthinks.org/eu/wp-content/uploads/2015/12/Analysis-paper-3-Disunited-kingdom.pdf>

looking and liberal perspective, but that the reverse could also occur, so that graduates who lived and socialised in communities which were dominated by people with lower qualification and skill levels were more likely to vote for Brexit³⁴.

A similar thesis is proposed by Scott et al. (2017) based on a YouGov survey of 1,661 adults in August 2016 weighted to provide a sample representative of the British public on key demographic indicators. They suggest that attitudes towards Brexit were shaped not just by the role educational qualifications play in determining the winners and losers of globalisation, but also by the world-view of those with higher education qualifications and the social networks people engage in³⁵.

Goodwin and Heath (2017) defined low-skilled areas as those where ten per cent or less of the population were university educated and high-skilled areas as those where at least 60 per cent of the local population were university educated. Overall, their findings followed a similar pattern to that outlined above, with respondents in low-skilled areas being more likely to vote for Brexit. However, the authors also found that the attitudes of more highly educated people were more similar to those of people with lower educational levels in areas dominated by this latter group.

In low-skilled areas, the difference in support for Brexit between low and high educated respondents was around 20 percentage points and support for Brexit was much more evenly distributed across educational groups, but in high-skilled areas, it was just under 40 per cent and in these communities there was much more polarisation along education lines. The authors suggest various explanations of this phenomenon. They suggest that these highly educated people are nonetheless a 'left behind' group because they remain in areas that are declining or which have fewer opportunities to use higher skills and education, but that there is also an element of socialisation in the development of political opinions. Combined, these two phenomena promote and accentuate the feelings of exclusion and marginalisation discussed above even amongst this more highly educated group.

Scott et al. (2017) also discussed the role of socialisation and social networks in different geographical areas. They found that remain supporters in low-skill areas often had wider and more varied social networks that made them more resilient to their attitudes being affected by the prevailing discourse in their local area. Fieldhouse (2014) used the second wave of 2015 British Election Panel Study to examine the role of social networks in voting

³⁴ Goodwin, N. and Heath, O. (2016). Brexit vote explained: poverty, low skills and lack of opportunities. York: Joseph Rowntree Foundation

³⁵ Scott, R., Cadywould, C., Hilhorst, S. and Reynolds, L. (2017). 'Great Britain - It's who you know': exploring the factors behind the UK's vote to leave the EU' in Demos (2017) Mapping and responding to the rising culture and politics of fear in the European Union: Nothing to fear but fear itself? https://www.demos.co.uk/wp-content/uploads/2017/02/DEMJS104_nothing_to_fear_report_140217_WEBv1.pdf#page=51

intentions, and similarly found that social networks can affect voting intentions across the education spectrum³⁶.

Goodwin and Heath (2017) identify what may be termed as a 'squeezed middle' in the spectrum of educational qualifications, similar to that identified by Ormston (2015). However, they suggest that this group is composed of respondents with A Level or equivalent qualifications (they do not include those with HE or FE qualifications below degree level in their analysis). They found significant differences between those with A Levels or equivalent and the groups either side (those with degrees and those whose highest qualification is GCSEs). This is the group that decided at the age of 18 not to pursue further educational opportunities, and their attitudes appear to be the most sensitive to the community they live in. In predominantly low-skilled communities, those with A Levels display attitudes more akin to people with low qualifications, while in predominantly higher skilled communities, they hold similar views about Brexit to people with degrees. This, again, is likely to be related to opportunities in the local area as well as social contact and sharing of opinions between different groups.

2.7 Post-18 education increases altruistic volunteering

The 2013 BIS review of literature on benefits of HE published before 2013³⁷ showed that people who had experience of higher education were more likely to volunteer, but that higher education levels affected this somewhat less than some other types of civic participation. Much of the post-2013 literature on volunteering and education focuses on the role of volunteering by students as a means of developing employability skills³⁸. As the development of employability skills has been covered elsewhere in this review, this section reviews the limited literature on volunteering that is primarily undertaken for altruistic reasons – volunteering to improve local communities and/or to 'give something back'.

Research by London Economics and IPSOS Mori (2013) found that half of all respondents who had taken part in further education or learning indicated that this had helped them to undertake more voluntary work or community-related activity³⁹. The OECD 2013 survey of adult skills also found that people with an HE or FE qualification at Level 4 or above were

³⁶ Fieldhouse, E. (2014). 'Are we influenced by how our friends vote?'. British Election Study, 10 Dec 2014, <http://www.britishelectionstudy.com/bes-resources/are-we-influenced-by-how-our-friends-vote/#.WCWrrdKLTIU>

³⁷ Brennan et al. (2013) *ibid*

³⁸ See, for example, Barton, E., Bates, E. and O'Donovan, R. (2017). 'That extra sparkle': students' experiences of volunteering and the impact on satisfaction and employability in higher education' *Journal of Further and Higher Education*, DOI: 10.1080/0309877X.2017.1365827

³⁹ London Economics and IPSOS Mori. (2013). *The Impact of Further Education Learning*. BIS Research Paper No 104. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69179/bis-13-597-impact-of-further-education-learning.pdf

more likely to report having engaged in voluntary work⁴⁰. Conversely, Paterson's (2014) examination of regional variations in membership of civic organisations shows no clear relationship between relative levels of higher education and propensity to belong to civic organisations⁴¹. BSAS 2000 data shows that although membership of civic organisations is higher in London and Scotland (the two areas with the highest levels of higher education), than in Northern England (the area with the lowest HE rate), it is higher in Scotland, which has the same higher education rate as London.

Three small qualitative studies also investigated volunteering amongst small, select groups of students and graduates. These reviews⁴² did not compare attitudes of students or graduates towards volunteering with those held by other groups, so have not been included for detailed review. However, overall, they found that students undertake voluntary work for altruistic reasons when they feel that they enjoy a particularly privileged position in society by virtue of being a student (and in the case of Power et al.'s 2016 study, by virtue of being particularly privileged students).

2.8 Summary

This chapter has shown that there is a relationship between engagement in post-18 education and political engagement.

1. **Propensity to vote, political engagement and activity and interest in politics increase incrementally with education level.** Across all measures, graduates show increased political engagement. Those with an HE or FE qualification below degree level show lower engagement than graduates, but nonetheless higher levels of engagement than people whose highest educational qualification is A Levels or lower;
2. **Education can act as a proxy for various other factors, such as resources, time and skills,** that cannot be controlled for in regression analysis of existing datasets, so while simple descriptive analysis suggests that education is a predictor of voting behaviour, it is not always possible to attribute causality to this relationship;

⁴⁰ OECD (2013) Skilled for Life? Key findings from the survey of adult skills, OECD http://www.oecd.org/site/piaac/SkillsOutlook_2013_ebook.pdf

⁴¹ Peterson (2014) *ibid*

⁴² Dyson, S. E., Liu, L., Van Den Akker, O. and O'Driscoll, M. (2017) The extent, variability, and attitudes towards volunteering among undergraduate nursing students: Implications for pedagogy in nurse education. *Nurse Education in Practice* 23:15-22, Kyriacou, C. and Kato, Y. (2014) Original Article: Undergraduate students' motives towards volunteer civic engagement in England and Japan. *Psychology of Education Review* 38(1):33-39 and Power, S., Allouch, A., Brown, P. and Tholen, G. (2016) 'Giving something back? Sentiments of privilege and social responsibility among elite graduates from Britain and France' *International Sociology* 31(3) 305-323

3. **There is no statistically significant difference between people with a degree and those with an HE or FE qualification below degree level when considering likelihood of being interested in politics.** However, there is a statistically significant difference between those two groups and people with no experience of HE or FE;
4. **There is a relationship between highest education level and people's perceived understanding of political issues,** although again, it is difficult to attribute causality to this, as the ability to understand complex issues is also likely to be related to the likelihood of an individual pursuing further or higher education;
5. **The pattern is less clear when looking at the particular political issues that concern people with different education levels.** While graduates show the highest levels of understanding of, and engagement with, environmental policies, and were the group who were most likely to vote to remain in the EU, there is not a linear relationship between education level and attitudes in relation to these issues;
6. **People whose highest qualification was an HE or FE qualification below degree level frequently showed similar attitudes on these issues to those whose highest qualification was A Levels or equivalent.** It has been suggested that this is due to the higher vulnerability faced by individuals without degrees to forces of globalisation and economic recession who feel that their jobs are increasingly threatened by external forces beyond their control;
7. **There is a social aspect to the formation of attitudes towards political issues.** While there is evidence of a relationship between attitudes towards Brexit and post-18 educational experience, there is also evidence that **the impact of education can decline over time** as attitudes become influenced by the social and economic context of the individual post-graduation. Graduates, who generally have wider and more dispersed social networks, are less likely to be affected by local attitudes, but in cases where graduates live in communities that are heavily dominated by people with lower qualifications, their attitudes towards particular political issues can become more similar to those held by people with lower qualifications.

3 Economic activity and productivity?

From a policy perspective, one of the main purposes of education, arguably, is to provide the workforce with the skills and knowledge needed for employment, and by extension contribute to economic activity and productivity. As a consequence there has been considerable interest in the topic over the years, from governments and academics alike, particularly in terms of the contribution of education to productivity and growth. Indeed, the UK industrial strategy sees ‘people’, and by extension the skills of those people, as one of the five foundations that will, it is envisaged, lead to growth and a more equitable economy. Policies aimed at improving VET and linking HE closer to the needs of employers might be seen as evidence of this intent.

The Quadrants Report identified from the literature four main ways in which higher education is thought to contribute to economic activity and productivity, either at the individual or societal level:

1. Increased entrepreneurial activity and productivity of graduates themselves (Bloom, Hartley and Rosovsky, 2006; Dearden, Reed and Van Reenan, 2005⁴³);
2. Increased productivity of co-workers (Machin, Vignoles and Galindo-Rueda, 2003; Haskel and Galindo-Rueda, 2005; Moretti, 2004);
3. Greater innovation and labour market flexibility (UK Innovation Survey, 2009; Florida et al., 2006);
4. Faster economic growth (Holland, Liadze, Rienzo and Wilkinson, 2013; Harmansson et al., 2010).

Using these four areas as a starting point, our review aimed to update the evidence on the above benefits in relation to HE and broaden the scope to examine the extent to which other types of post-18 education lead to increased economic activity and productivity.

While there is an abundance of evidence in the literature in relation to the effect of education on economic growth, the productivity of graduates themselves and on their co-workers (areas 2, 4 and part of 1 above), there is considerably less evidence on the effect on innovation, labour-market flexibility and entrepreneurial activity in the UK. In addition, it should be noted that much of the literature looking at the impact of education on productivity ‘spillovers’ (i.e. the effects of education on colleagues and other workers more widely) tends to consider the effects on the productivity of individuals at the same time.

⁴³ Also published in 2006 as: Dearden, L, Reed, H, & Van Reenen, J (2006). The Impact of Training on Productivity and Wages: Evidence from British Panel Data. *Oxford Bulletin of Economics and Statistics*, 68(4), 397-421.

Therefore, in this chapter we consider the evidence on the impact of education on productivity of individuals and co-workers together. Furthermore, where key studies identified in the Quadrants Report provide evidence of the impact of wider post-18 education on economic activity and productivity, we have considered these here also. With this in mind, our review found evidence to support the following benefits of post-18 education:

1. Education increases the productivity of individuals, colleagues and workers more widely;
2. Education leads to increased economic growth;
3. Education has impacts on entrepreneurial activity;
4. Education can facilitate innovation.

The vast majority of research on the productivity inducing effects of education comes from the economics literature and so attempts to quantify the value of the changes in monetary terms, rather than focusing on the qualitative changes that education may have on an individual's productive capacities or the quality of their work. Rather this is assumed to show up in economic output and/or wages. Given the time constraints of the review, and the relative prominence in the literature, our review tends towards studies that focus on the former rather than the latter. This reflects the aim of the research to identify benefits of education that can be generalised more widely. However, we have included some contextual insights on the more qualitative impacts of education where possible.

As Rincón-Aznar, Forth, Mason, O'Mahony and Bernini (2015) observe, the literature investigating the effect of education on productivity and growth can be seen as falling into two main approaches, both drawing upon Human Capital Theory:

1. Growth Accounting approaches – that attempt to estimate the extent to which observed changes in output (e.g. Gross Domestic Product [GDP] per hour worked) are attributable to changes in various inputs⁴⁴ observed at the aggregate level (usually at the national or industry level);
2. Econometric approaches⁴⁵ – that use data at the individual level (often using panel data) in order to estimate the effect of a variety of determinants, including human capital, on a given output (e.g. productivity, wages or economic growth).

⁴⁴ The main inputs are assumed to be the productive power of capital investment, labour productivity (hours worked and the quality of labour, of which human capital is a key part) and Total Factor Productivity (TFP), with the latter reflecting the portion of changes in output not accounted for by changes in labour and capital, often assumed to reflect things like advancements in technology.

⁴⁵ Cattán and Crawford (2013) characterise the two broad camps as – macroeconomic and microeconomic approaches – with growth accounting falling within the former and microeconomic broadly corresponding to 'econometric' in Rincón-Aznar et al's terminology.

While one of the benefits of growth accounting approaches is that they offer the potential to estimate the total effect of education on the economy, estimates should be considered as an upper bound and the disadvantage is that it cannot account for indirect effects or complementarities between skills and other inputs such as returns to scale (Rincón-Aznar et al, 2015; Cattan and Crawford, 2013). On the other hand, while econometric approaches may struggle to measure the wider effects of education on productivity not captured in wages, the advantages are that:

- a) they allow for non-constant returns to scale (e.g. at different levels of education);
- b) they allow for estimation of interactions between education and other factors, and
- c) a sophisticated array of methodologies have been developed over time to overcome biases or weaknesses within specific approaches (Rincón-Aznar et al., 2015; Cattan and Crawford, 2013).

In both the above approaches education is used as a proxy for human capital and tends to be measured by number of years in education, level of monetary investment, or qualifications obtained. While there are various pros and cons to each of these measures, the latter is of more relevance to this review as it allows us to more easily identify the various benefits of different types of education. The reviewed studies that follow mostly use education level or qualifications obtained as a measure of education.

The majority of evidence on the productivity enhancing aspects of education for individuals fall into the econometric approaches category. These approaches attempt to estimate increases in productivity by estimating the effect of more education on earnings. The majority of studies that attempt to measure the effect of education on colleagues or wider workers in the industry tend to adopt the Growth Accounting approach (as do studies that look at the effect of education on economic growth discussed in the subsequent section). Below, we focus on a few key studies that attempt to identify the effect of different types of education on the productivity of individuals and wider workers.

3.1 Post-18 education increases the productivity of individuals, colleagues and workers more widely

In Human Capital Theory education is generally assumed to increase the productive capacity of individuals by imparting knowledge, skills and other capacities that will help them perform work tasks more efficiently and/or to a higher standard (Becker, 1993). The vast majority of studies identified in the review draw upon this basic principal in order to estimate the contribution that human capital makes to increases in productivity. In most cases education is used as a proxy for human capital and productivity is measured by wages or GDP per hour worked.

An individual's productivity is assumed to be reflected, at least in part, in their wages, based on the assumption that market forces mean that wages will tend to find their true value and that "wage differentials reflect true productivity differences between Workers" (Rincón-Aznar et al., 2015, p16). There is no shortage of studies that attempt to estimate the effect that education has on wages, particularly in relation to higher education, often in the form of lifetime earnings or educational premia (e.g. Walker and Zhu, 2013; Conlon and Patrignani, 2011; Sloane and O'Leary, 2004; Buscha, Cerqua and Unwin, 2014). While a review of such studies would be beyond the scope of this literature review, concerned as they are with the financial returns of individuals, it is worth noting that based on the assumption that wages reflect an individual's productivity these studies can also be considered as providing evidence of the capacity for education to increase the productivity of learners (and not only their wages).

However, only some of an individual's productivity is reflected in their wages. An individual's true productivity is likely to be equal to at least the *full* cost of their employment to the employer, or else an employer would have no incentive to employ them (Hayward, Hunt and Lord, 2014). This would include non-wage labour costs (NWLCs) such as any taxes, pension contributions, benefits and overheads. Of course, even this is likely to be an underestimate as it does not take into account any profits accrued by the employer.

Cambridge Econometrics (2011, 2015) adopt such an approach to estimate the economic impact and net present value (NPV) of further education qualifications in England. Their analysis assumes that productivity returns are related to wage returns at a fixed rate. This is based on the research of Dearden et al. (2005) who, employing data from the UK Labour Force Survey (LFS) and other sources, found that the effect of engaging in work-related education or training led to an increase in 'total productivity' that was twice that of the increase to wages, such that for every additional ten per cent of staff who engaged in training the effect on total productivity was an increase of six per cent while the increase in wages was three per cent. Thus, Cambridge Economics apply a factor of two to estimate wage returns in order to estimate the total productivity gains of different types of further education (as is outlined below).

The Quadrants Report cite Dearden et al.'s (2005) study as evidence of the effect higher education has on productivity. However, it should be noted that the productivity gains found were for any job-related training or education that respondents had engaged in during the previous four weeks and the researchers themselves note that it is not possible to disentangle the effects for training and education, and so isolating the effect that higher education might have on productivity is not possible from the data presented⁴⁶. That being

⁴⁶ The measure of education/training was a positive response to the question '*over the 4 weeks ending Sunday... have you taken part in any education or training connected with your job, or a job that you might be able to do in the future?*'

said, arguably the research does provide evidence of the productivity gains that can be attributed to post-18 learning and training more widely, although it is hard to say what the productivity gains are for different types of training and formal education and, as we will see, there are good reasons to assume that the productivity gains vary considerably for different types of learning. However, the key strength of the study is that it at least attempts to measure the wider productivity spillovers of learning directly.

More recent studies have attempted to estimate the individual and wider productivity gains of different forms of education (either at post-18 level or for education in general) using a variety of methodologies. Three studies are reviewed here.

Hayward et al. (2014) estimated the productivity returns for individuals for different types of intermediate level qualifications employing a microeconomic approach using data from the UK LFS covering the period 2006 to 2013. Their analysis concentrated on the effect of qualifications on the productivity of individuals by assuming that their productivity is equal to the full cost of employing them (i.e. including a 30 per cent uplift to cover tax, benefits and overheads covered by an employer). They excluded any productivity gains captured by employers in the shape of increased profits and any spillover effects on colleagues or captured by the firm or industry more widely. They estimated the productivity gains of holding a range of intermediate qualifications ranging from 1-2 GCSEs at grade C or above to holding two A Levels⁴⁷. The gains associated with holding level 2 and level 3 apprenticeships were also estimated. The research found that:

- Overall, intermediate qualifications were associated with higher lifetime productivity;
- Even just having 1-2 GCSEs was associated with substantial productivity gains;
- Modest improvements in GCSEs increased lifetime productivity returns.

The estimated 'marginal' returns (i.e. for those holding a given qualification as their highest qualification) and the estimated 'average' returns (i.e. for all those holding the qualification regardless of whether or not they gain a further qualification, while controlling for other qualifications) for both men and women are presented in Table 3.1. While it should be noted that the qualifications investigated are often achieved before the age of 18, they are also often studied post-18 at the FE level. So while the returns to each of these qualifications may be different for individuals achieving these qualifications at different ages they provide some insight into the potential productivity gains of different types of qualifications.

⁴⁷ Hayward et al. also discount the returns at a rate of 3.5% for first 30 years and then 3% for the following 30 to adjust for inflation.

Table 3.1 Marginal and average lifetime productivity returns for intermediate qualifications

	Men		Women	
	Marginal	Average	Marginal	Average
1-2 GCSEs A-C	£170,984		£110,395	
3-4 GCSEs A-C	£59,043	£39,047	£51,055	£28,432
5-7 GCSEs A-C (inc. English and Maths)	£72,999	£60,611	£55,445	£59,019
8+ GCSEs A-C	£2,909	£91,686	£32,592	£36,147
A Levels	£90,486	£57,973	£76,099	£42,982
Level 2 Apprenticeship	£138,999		£67,444	
Level 3 Apprenticeship	£175,000		£78,477	

Source: Hayward et al. (2014) Tables 13-16

Notes: Compared to qual level below, except: A Levels compared to 5-7 GCSEs A-C (inc. English and Maths); Level 2 apps compare to any other Level 1-2; Level 3 apps compared to other Level 2.

Cambridge Econometrics (2011, 2015) also estimated the returns to qualifications gained at FE as part of an exercise aimed at measuring the Net Present Value (NPV) of government funded qualifications provided by the post-19 FE sector. The researchers estimate the NPV associated with different qualifications and then aggregate them up to estimate the sector as a whole. In order to do this they estimate the discounted benefits (wages and employment, plus spillovers to other employees and employers) over the working life of the learner and subtract the costs associated with undertaking the qualification (i.e. government funding and fees paid by individuals and employers, as well as foregone output). Spillover effects are thought to include:

- Increased profits or competitiveness of employers due to increased productivity of staff;
- Increased wages for other workers through knowledge transfer or improved research and development;
- Increased profits; and
- Competitiveness of other businesses (through increased productivity not passed on as wages).

Cambridge Econometrics assume the level of spillovers to be equal to 100 per cent of increases in wages based on Dearden et al. (2005) as this was reported to be the only study to have attempted to estimate spillovers. The same level of spillovers was assumed across all FE qualifications. Their 2011 study estimated returns for qualifications started in 2008/09 while their 2015 study looked at courses started 2013/14 using a slightly revised

model using updated estimates of the wage and employment returns associated with different qualifications.

The most recent study estimated an average return to each qualification started of £34,000, although returns for different qualifications varied substantially as can be seen in Table 3.2. The highest returns were observed for Level 3 apprenticeships at £88,000 per aim started while the lowest return was for below level 2 qualifications (£7,000).

Table 3.2 NPV per aim and NPV per £ of government funding

	NPV per aim started (£000)	NPV per pound of government funding (£)
Full level 2	66	21
Full level 3 – grant	67	21
Full level 3 – loans	68	16
English and maths	14	17
Below Level 2	7	10
Level 2 Apprenticeship	61	26
Level 3 Apprenticeship	88	28
Total	34	20

Source: Cambridge Econometrics (2015)

While the figures reported by Cambridge Econometrics represent productivity gains NET of the costs associated with achieving a given qualification, they give some indication of the relative productivity inducing benefits of FE education for individuals and to firms.

The above two studies have attempted to estimate the productivity gains for individuals associated with intermediate qualifications, including estimated firm-level spillovers in the second of these. Neither have attempted to measure empirically the productivity benefits of education at the firm level or wider.

More recently, Sena and Añon-Higon (2014) have attempted exactly that, employing data from the Annual Business Enquiry (ABI) (along with other datasets such as the LFS) in the UK covering the period from 1997 to 2002. Using establishment-level data Sena and Añon-Higon investigated the effect of employees' education level (GCSE, A Level and degree level or higher), as well as the average education of the wider workforce at the regional and industry level, on an establishment's productivity and how able they were to absorb R&D spillovers. The analysis showed that establishments located in regions/industries with a more educated workforce benefitted more from R&D spillovers than those in less qualified regions and were more productive.

While the above studies cannot say definitively how these spillovers occur a number of mechanisms have been proposed:

- More educated and productive workers may boost the productivity of colleagues directly through knowledge transfer, research and development, faster technological adoption, better training, management skills and/or creating business opportunities (Cambridge Econometrics, 2015; Cattan and Crawford, 2013; Kirby and Riley, 2008; Mason et al., 2014);
- By increasing profits and competitiveness of employers by creating a more highly-skilled workforce relative to competitors (Cambridge Econometrics, 2011);
- By extending the above effects to wider networks at city, state/region or industry level through staff movements, contact and supply chains (explaining why graduates tend to earn more in well-educated cities) (Cattan and Crawford, 2013);
- By increasing other firms' productivity as they compete through reciprocal human capital investment (Cambridge Econometrics, 2015);
- By allowing managers at a more senior level to think strategically and do their own jobs well rather than having to deal with problems that could have been avoided by having better more competent staff (Mason et al., 2014);
- The productivity of high-skilled workers may be augmented by the presence of intermediate-skilled workers elsewhere in the organisation (Mason et al., 2014).

While there is little in the way of empirical research that can attest to these mechanisms thus far, they provide a strong basis for future research enquiry.

3.2 Post-18 education leads to increased economic growth

Economic growth can be seen as directly related to productivity. However, while the studies investigating the effects of education on the productivity of individuals and potential spillover effects to colleagues and others working in the same firms or industry tend to adopt an econometric or microeconomic approach, studies looking at the effect of education on growth tend to adopt a macro approach, often growth accounting, outlined in the introduction to this chapter.

As with the literature on productivity, the effect of education on economic growth is a central concern of researchers and policy-makers. The literature searches carried out as part of this review unearthed a substantial amount of literature. We have limited our review to only those studies that were most directly relevant to the aims of the review.

The Quadrants Report outlined two studies that presented evidence of the effect of HE on growth at the aggregate level, one at the national level and one at the country/regional level (Holland, Liadze, Rienzo and Wilkinson, 2013; Hermansson, Lisenkova, Lecca,

McGregor, and Swales, 2010). Using data covering 15 developed economies from the EUKLEMS⁴⁸ project and adopting a methodology that incorporated growth accounting and econometric approaches, Holland et al. (2013) estimated that: around 20 per cent of economic growth in the UK from 1985 to 2005 was attributable to increased numbers of graduates. Taking indirect effects into account, it is estimated that for every one per cent increase in the proportion of graduates in the workforce, long-run productivity increases by between 0.2 and 0.5 per cent. The authors estimate, therefore, that between 1994 and 2005 at least a third of the increase in productivity can be attributed to the rising number of graduates in the workforce.

Hermansson et al. (2010) employed a 'micro-to-macro' approach, involving growth accounting and micro-econometric approaches, simulating the impact of an increasing proportion of graduates on the Scottish economy. While the precise estimates are sensitive to various assumptions, they project that as the share of graduates in Scotland increase it will have a major impact on the Scottish economy, both by increasing the productivity of the population, but also by providing a productivity related stimulus to the economy.

However, more recent research suggests that the growth stimulating effects of HE may not always be so clear cut. Using World Bank and UNESCO data covering 81 countries for the period from 1966 to 2006, Holmes (2013) suggests that moving to a mass HE system does not necessarily lead to growth, but having a greater number of researchers (as measured by the proportion research degree graduates) does. Employing a growth accounting approach, drawing upon neo-classical and endogenous growth models, Holmes' research resulted in three main findings.

- Firstly, growth equations used in previous research are sensitive to the countries included in the analysis (which is often affected by the variables available) and the time period covered, and thus should be treated with a degree of caution.
- Secondly, neither the increase in HE, nor the initial starting point, has a statistically significant relationship with growth rates in the OECD or worldwide, although Holmes adds a caveat based on the first finding.
- Thirdly, while the expansion of HE may not lead to growth in and of itself, the number of researchers employed in the economy was found to be a strong predictor of growth.

⁴⁸ The EUKLEMS project ran from 2003 until 2008 and was an attempt to "create a database on measures of economic growth, productivity, employment creation, capital formation and technological change at the industry level for all European Union member states from 1970 onwards" (http://www.euklems.net/project_site.html).

The author suggests that high level technical skills are the real driver of growth and that it is the skills imparted by HE rather than simply increasing the number of graduates that leads to growth.

However, as noted in the introduction to this chapter, while growth accounting approaches have the advantage of estimating the contribution of education to productivity and economic growth directly, they cannot account for positive effects arising from indirect effects or complementarities between inputs (Rincón-Aznar et al., 2015). Cattan and Crawford (2013) recommend using a combination of growth accounting and econometric approaches to overcome various weaknesses of individual approaches.

Two studies that have done just that are those of Mason, Holland, Liadze, Riley and Rincón-Aznar (2014) and Rincón-Aznar et al. (2015), both of which attempt to estimate the impact of different qualifications on productivity and economic growth using cross country comparisons. Rincón-Aznar et al. (2015) break down education into four groups, allowing the analysis to estimate the contribution of skills to growth and productivity at the higher (degree level or higher), upper-intermediate (university level below degree), lower-intermediate (A Levels, GCSEs grade A-C or equivalent – level 2 or 3) and low-skill levels (below level 2 or GCSEs below C). Analysis carried out by Mason et al. (2014) had the added benefit of further distinguishing between vocational and general qualifications at the lower-intermediate level. Both studies found significant contributions of qualifications to economic growth and productivity, although the precise impact varied depending on qualification level and national and industry context. A brief outline of the research and their findings is as follows.

Rincón-Aznar et al.'s (2015) study aimed to estimate the contribution of skills to productivity growth in the UK. Using data from a range of sources including EUKLEMS, the UK and EU Labour Force Survey and others, covering the period from 1995 to 2013, they employ a growth accounting approach to look at impact of skills on the whole economy level and an econometric approach to look at impacts at the industry level. The countries covered by their analysis were Canada, Japan, Germany, France, Italy, the USA and the UK. Findings from the growth accounting exercise showed that:

- While Total Factor Productivity contributed most to productivity growth pre-crash (30 per cent), upskilling of the workforce accounted for 20 per cent of labour productivity growth;
- Growth would have been lower following the 2008 crash had it not been for the contribution of skills to labour composition;
- Qualifications at the high-skilled level account for the greatest contribution of skills to labour productivity growth between 2002 and 2007;

- Even during a period of weak growth, skills continue to have a positive effect on growth.

Meanwhile, findings from their econometric analysis showed that:

- The proportion of the workforce with high skills is positively associated with higher productivity outcomes (an increase in the proportion of the labour force with a degree level qualification by ten per cent increases productivity by two per cent);
- While the effect of upper-intermediate skills on productivity appears to be in the positive direction, the effect was not always found to be significant in their analysis;
- Workplace training was positively associated with productivity (a ten per cent increase in the availability of training increases productivity by two per cent);
- High-level academic skills were found to have a greater impact on productivity in industries with high ICT intensity, while upper-intermediate skills were found to have more effect in industries with high capital investment in non-ICT;
- High-level and upper-intermediate skills also have a stronger effect in industries with high innovation property investment, although the effect was stronger for high-level skills.

Although it is hard to know from their research whether qualifications obtained at the lower-intermediate level were gained at school or through further education post-18, the research suggests a strong effect of education on productivity, particularly for higher education.

Using the same methodological approach Mason et al.'s (2014) research resulted in similar findings, although in their analysis they were able to distinguish between the contributions to growth of vocational and general qualifications at the lower-intermediate level. Covering the period from 1980 to 2007, their analysis focused on data from six EU countries with the countries selected because of their dominant modes of delivery for VET: apprenticeships in Denmark, Germany and the Netherlands; vocational schooling in France, Sweden and the UK. General findings across the sample of countries were:

- Skills were found to have a stable long-run effect on average labour productivity (ALP), but a weaker short-run effect;
- The effects of skills on productivity vary depending upon the level and mode through which they were gained;
- Upper-intermediate skills⁴⁹ have a positive effect on ALP, particularly in production sectors and in countries where apprenticeships predominate as the means to VET;

⁴⁹ Mason et al. (2014) call this category 'upper-intermediate vocational' because courses covered at this level tend to be aimed at specific jobs or occupations.

- Lower-intermediate VET reinforce the productivity inducing effects of ICT, particularly in countries where apprenticeships predominate;
- Higher-level skills reinforce the productivity effects of ICT, especially in countries where VET tends to be delivered in the classroom;
- There are complementarities between different types of education in different industries, such that skills gained at a higher level tend to increase the productivity of skills at a level below;
- The effect of VET qualifications are more pronounced in countries where VET tends to take the form of apprenticeships.

In relation to the UK, Mason et al. (2014) found that although Total Factor Productivity (TFP) was the main contributor to growth in the UK (more than 50 per cent) and capital deepening was the second (around 30 per cent), skills contribution to growth in the UK (around 18 per cent) was high relative to Sweden, Germany and France, and on a par with Denmark and Netherlands. Furthermore, higher-level skills were found to be the main driver of skills-related productivity growth during the period (explaining around 61 per cent), relative to intermediate skills (vocational 20 per cent and general 17 per cent approximately).

The three studies reviewed in this section, published since the Quadrants Report, suggest that by and large there would appear to be fairly strong evidence that education leads to stronger growth at the aggregate level. While Holmes' study suggests that some types of HE may have a stronger impact on growth and that moving to a mass HE system has not necessarily had the desired effect in terms of growth, all the other studies reviewed in this chapter do provide evidence that intermediate level qualifications (vocational and general) and higher level qualifications have a positive impact on productivity and economic growth.

3.3 Post-18 education can facilitate entrepreneurial activity

The recent evidence base for the effect of post-18 education on entrepreneurial activity in the UK is not well developed. The Quadrants Report highlighted just one source providing evidence of a link between HE and increased entrepreneurial activity (Bloom et al., 2006). Bloom et al. cited findings from the 2002 'Global Entrepreneurship Monitor' (GEM) (Reynolds et al., 2002) that reports data using the Total Entrepreneurship Activity (TEA) index – which measures the share of adults involved in new firms and start-ups – covering 17 countries. The findings showed that individuals with higher levels of education had higher levels of entrepreneurship activity and that entrepreneurs who were more educated created more jobs than those who were less educated.

Analysis of the GEM also found a statistically significant correlation between enrolments in tertiary education and engagement in high potential entrepreneurial activity (HPEA) ($r=.38$), whereas primary and secondary enrolments were not correlated with HPEA

(Reynolds et al., 2002). However, as Bloom et al. themselves note, while bivariate relationships, such as these, are broadly supportive of the idea that education leads to greater engagement in entrepreneurial activity, they do not prove causation.

Van Praag, Van Witteloostuijn and Van der Sluis (2009) have attempted to investigate the causal effect of education on entrepreneurial activity, albeit in the US and not the UK. Using data from the National Longitudinal Survey of Youth (NLSY), that followed a cohort of respondents who were aged 14 to 22 in 1979 covering the period from 1979 to 2000, the authors estimated the effect of education (measured by years in education) on engagement in entrepreneurial activity (as measured by self-employment and company owner/directorship) compared to normal employment. They found that education was negatively associated with engagement in entrepreneurship, with every additional year of education decreasing the probability of entrepreneurial activity by between one and four percentage points. However, they did find that education had higher wage returns for entrepreneurs than for employees. Their findings were robust even when controlling for selectivity of choosing entrepreneurial positions and for the endogenous effects of ability on education. The authors noted that the negative relationship between education and choosing entrepreneurial work is surprising given the higher returns to education for entrepreneurs and argue that this suggests an informational deficiency.

Van Der Sluis, Van Praag and Vijverberg (2008) made a similar discovery in their meta-analysis of 94 studies containing 299 observations covering the period from 1980 to 2002 investigating the link between education and entrepreneurship. Their research suggests that there is no evidence of a systematic relationship between education and selection into entrepreneurial activity. However, there was evidence that education does lead to better outcomes for those who do choose entrepreneurship, including for earnings, growth of company and survival. Finally, while the returns to education appear to be higher for entrepreneurs than for employees in the US, studies covering European countries found no such relationship. Thus, in the absence of any more compelling evidence it would appear that the effect of education on entrepreneurial activity may be less clear cut than previously thought.

This perhaps should be unsurprising given the mixed results of attempts at including a greater level of enterprise and employability skills in the curriculum in HE. Surveys that ask graduates to assess the level of skills development consistently find that entrepreneurial skills are less well developed than other skills (e.g. Lyonette, Hunt and Baldauf, 2017; Purcell et al., 2012; Ball, Pollard and Stanley, 2010). This may have as much to do with the motivations of students as it does with the difficulties HEIs face in trying to incorporate enterprise and entrepreneurship related skills into the curriculum. There is evidence from the same studies that graduates of subjects where entrepreneurial skills are more likely to be seen as important, such as business and administration and creative arts and design, tend to report greater development of skills in these areas.

In a qualitative study looking at the reasons why students and graduates may choose an entrepreneurial path or decide against it Nabi, Walmsley and Holden (2015) found that the decision whether to start-up a business was influenced by a range of push and pull factors that worked in different ways for different people, with the information received during their studies being one of them (albeit not the most important one). Their research involved longitudinal qualitative interviews with 15 graduates some of whom were involved in start-ups and some who were not (despite initially wanting to). The push and pull factors can be seen as fitting in within three main categories:

- Personal characteristics – freedom/autonomy, entrepreneurial identity, drive urgency and tenacity;
- Environment, support and context – labour market context, university/institutional support (curriculum and extra-curricular advice), and family and significant others; and
- The business idea itself – nature of the idea, financial capital required, and complexity/feasibility of the idea.

There was some evidence that course content aimed at increasing enterprise and entrepreneurial understanding could help increase knowledge and confidence which could enhance the attractiveness and perceived desirability of entrepreneurial activity. However, it could also have the opposite effect by giving students a realistic view of the challenges. The authors note, however, that of the push and pull factors found in the research, enterprise related content was not such a strong factor in graduates decisions.

Overall, then, the evidence for the effects of education on entrepreneurial activity is mixed. While there is some evidence of a correlation between education level, and particularly higher education, and engagement in entrepreneurial activity, studies that have tried to isolate the effect of education on entrepreneurial activity have failed to support the existence of a relationship. However, there appears to be more support for the idea that education may facilitate the success of entrepreneurial activity, with start-ups being more likely to grow and survive and with entrepreneurs tending to see higher financial returns to their education than employees, although this may not always be the case.

3.4 Post-18 education can stimulate innovation

Innovation is considered as a key part of both UK and EU economic strategy and is seen as a key driver of economic growth and as a route to a high-skill, high-wage economy (BEIS, 2017; European Commission, 2010). This approach is built to a large extent on a growing body of literature that sees technological change as increasing demand for high-level and intermediate-level technical skills (e.g. Levy and Murnane, 1992, 2013), although there continues to be debate about the full impacts of technological innovation on jobs and job quality (e.g. Muñoz de Bustillo et al., 2016; Erhel and Guergoat-Larivière, 2016). However, despite the interest in innovation and its effect on jobs and labour-market

change, our searches found relatively few studies directly investigating the relationship between education and increased innovation at the firm or industry level, something that has been noted elsewhere (Brandenburg, Gunther and Schneider, 2007).

The Quadrants Report highlighted two sources that purport to show evidence that HE leads to greater innovation and labour-market flexibility. First, the 2009 UK Innovation Survey⁵⁰, outlined in the supporting analysis for the HE White Paper (BIS, 2011), showed that firms that are innovation active⁵¹ tend to have a higher proportion of their workforce on average who are science graduates (five per cent) or graduates generally (eight per cent) than firms who are not innovation active (one and three per cent respectively).

Second, the Quadrants Report cited findings from a US study by Florida, Gates, Knudson and Stolarick (2006) that found a positive correlation between the number of students per capita in an area and measures of talent including the proportion of those aged 25 or over who hold a degree and the proportion of people working in creative occupation (broadly defined including management, business and healthcare occupations) as well as 'super-creative' occupations (e.g. computing, engineering, arts and design and media occupations). While the main focus of Florida et al.'s analysis is the impact of universities on growth through its impact on the '3Ts' – technology, talent and tolerance – the research suggests that a university's impact on innovation and creativity goes wider than direct contribution to knowledge creation and exchange, and plays a major role in attracting and retaining talent and raising the stock of human capital in an area.

More recent findings from the 2015 UK Innovation Survey (BIS, 2016) suggest that if anything, demand for higher level skills among innovating firms has increased since 2009. Organisations that reported some form of innovation activity had a higher proportion of their workforce on average that were science and engineering graduates (twelve per cent) or graduates of other subjects (15 per cent). This compares to four per cent science and engineering and ten per cent graduates of other subjects for non-innovating firms. While these figures cannot answer the question as to whether higher levels of education or skills lead to innovation, or whether innovative firms require more graduates, they do suggest an association between high-level skills and innovation.

Brandenburg, Gunther and Schneider (2007) have investigated the causal relationship between education and innovation at the firm level in Germany. The research looked at whether qualification level is related to innovation at the firm level using the linked employer-employee dataset (LIAB), a firm-level annual panel survey of 15,000 German

⁵⁰ The UK Innovation Survey is part of the EU-wide Community Innovation Survey, and is a survey of organisations employing ten or more people the 2009 survey covered 14,281 businesses in the UK, while the 2015 survey covered 15,091 businesses.

⁵¹ Innovation active was defined as those that had introduced new products, services or processes, had active R&D projects or had R&D, training or acquisition expenditure linked to innovation projects.

firms with individual-level data including all workers covered by the country's national insurance scheme. Their analysis focused on manufacturing firms with more than ten employees using both formal qualification level and an occupational measure of qualification as independent variables and four measures of innovation as dependent variables: 1) improvement of an existing product, 2) introduction of a new product, 3) creation of market novelty, and 4) any of the above three innovations.

While qualification level was associated with increased innovation at the bivariate level, with firms in industries with higher levels of qualification tending to innovate more than those with lower qualification levels, multivariate analysis at a firm level found no significant relationship between qualification level and innovation. However, a statistically significant interaction between research and development intensity and qualification level suggests that, where highly qualified individuals are engaged on research and development (R&D) activity, firms tend to innovate more. With the findings contributing to the mixed evidence on the importance of human capital (usually the share of employees with an HE degree) as a driver of innovation, citing a number of studies employing a cross-country or German data (Dakhli and De Clercq, 2003; Rammer et al., 2005; Gunther and Gerbhardt, 2005), the authors conclude that more research is needed to investigate whether there are qualitative aspects of qualification level that determine a firm's innovative capacity. However, overall, their research suggests that the relationship between higher-level skills and innovation may be more complex than policy generally assumes.

While the empirical evidence supporting a link between education, skills and innovation may be mixed there is no shortage of literature detailing the ways in which education and skills contribute to innovation in theory. Mason and Rincón-Aznar (2015) review the literature in this area and outline some of the mechanisms by which high level skills and graduates are thought to contribute to innovation and productivity, as follows:

1. Graduates are 'well placed' to generate new ideas and knowledge related to innovation and can help firms take advantage of new technology (citing Bresnahan et al., 2002; Autor et al., 2003; Hollenstein, 2004; Bayo-Moriones and Lera-López, 2007);
2. Through knowledge transfer between and within firms, sectors and countries, through collaboration on R&D, 'technical problem-solving among skilled workers involved in supply chains', mobility of workers between firms, and though attracting foreign direct investment, which also often has the added benefit of bringing with it new technologies (citing Lundvall, 1992; Saxenian, 1994; Barrell and Pain, 1997; Blomstrom and Kokko, 2003); and
3. Through increased 'absorptive capacity' - ability to make sense of knowledge, ideas and technology (both external and internal to the organisation) (citing Cohen and Levinthal, 1989; Zahra and George, 2002). Intermediate-skilled workers can also

contribute to innovation and productivity through absorptive capacity because they are ideally-placed to suggest efficiencies (citing Toner, 2010; Prais, 1995).

Some of the proposed mechanisms have significant overlaps with those highlighted by literature in relation to productivity spillovers, perhaps underlining the interrelated nature of innovation and skills on the one hand and productivity and growth on the other.

Overall, as with the evidence on the entrepreneurial activity, the literature investigating the links between education and innovation (let alone specifically looking at post-18 education) is less well developed relative to other areas reviewed in this chapter. And while there is some evidence of a correlation between education and innovation, the evidence of a causal relationship is not so clear. It would appear that while having a well-educated workforce may not necessarily lead to greater levels of innovation in a firm, putting more educated employees to work on R&D related projects does stimulate innovation.

3.5 Summary

This chapter has attempted to update the literature on the benefits of higher education for economic activity and productivity and to broaden out the scope to include other forms of post-18 education. The review found that while there is an abundance of literature examining the productivity and growth inducing effects of education, there is rather less evidence in the literature in relation to the effects on entrepreneurship and innovation. The literature review has found the following:

1. **Education increases the productivity of individuals and has spillover effects for colleagues and others working in the wider industry or network** – research shows that these effects can be significant for all levels of post-secondary education, but may be particularly strong for graduates and for vocational qualifications at the intermediate level;
2. **Education contributes to economic growth** – there is fairly strong evidence that education leads to stronger growth at the aggregate level. This is true for intermediate level qualifications and higher level qualifications, although there may be some evidence that certain types of graduates (such as researchers and science and engineering graduates) may stimulate growth more than others;
3. **Education can facilitate entrepreneurial activity** – while there would appear to be little evidence to support a causal relationship between increased levels of education and chances of engaging in entrepreneurial activity, there is some evidence to suggest that education helps facilitate entrepreneurial success;
4. **Education can stimulate innovation** – as with entrepreneurial activity, while we found little evidence to support a direct causal link between education levels and

innovation, there is some evidence that those with higher levels of education can help make use of innovation and can help turn R&D activity into innovation.

4 Health and wellbeing outcomes

The evidence on the health and wellbeing benefits of education is relatively sparse and can come from a wide range of academic disciplines. As a consequence this chapter is briefer than other chapters in the review and the evidence is of a more variable quality and relevance.

The Quadrants Report identified a number of different health and wellbeing outcomes associated with participation in higher education covering both physical and mental health, including evidence on:

- Life expectancy;
- Smoking;
- Alcohol consumption;
- Obesity;
- Preventative care;
- Physical health more generally (assessments of own health);
- Life satisfaction;
- Mental health;
- And educational parenting.

Most of the evidence highlighted in the Quadrants Report referred to non-UK data or reported on the effects of education more generally rather than specifically about HE. Our review reinforces and extends the evidence base on the health and wellbeing benefits of education, with the sources reviewed here covering a range of benefits and types of education and with most drawing upon UK data. From studies employing a combination of bivariate and multivariate analyses, the review found evidence to support the following benefits of education:

- Improved self-confidence and self-esteem;
- Greater wellbeing and happiness;
- Improved coping with mental health and physical disabilities;
- Greater ability to assist with children's education;
- Greater job satisfaction and sense of being valued by employer.

However, not all of the outcomes identified in the literature are positive. There was evidence that education could lead to outcomes that could be viewed as positive, negative, or neutral, depending upon one's point of view:

- Over-education and/or job mismatch could lead to lower life satisfaction;

- Greater awareness of health information could lead to risky responses to health scares;
- Education is associated with delayed and reduced childrearing.

As some of the studies highlighted here cover more than one benefit or outcome, we discuss each study in turn highlighting the benefits and the type of education covered in the text, focusing on the more positive outcomes first.

4.1 Post-18 education can lead to improved confidence, self-esteem, wellbeing and quality of life

Firstly, a study carried out by London Economics and IPSOS MORI (2013a) looked at the financial and non-financial benefits of further education in the UK. The research involved a survey of 4,000 **FE learners** who had either completed a course or had left the course early. Those studying apprenticeships and various active labour market programmes were excluded from the research. Completers reported the following self-reported benefits:

- 82 per cent said that their self-confidence and self-esteem had increased;
- 75 per cent said it helped them keep active and make use of their time;
- 58 per cent reported increased job satisfaction;
- 55 per cent reported increased ability to help children with their homework;
- 52 per cent said it had helped them deal with a health problem or disability;
- And 60 per cent said it had improved their quality of life.

Simple bivariate analysis showed that completers in the study were more likely to report these outcomes than non-completers. The study also employed multivariate techniques to assess whether learning had led to greater wellbeing and life satisfaction. The analysis revealed that while a level 2 completion was significantly related to greater wellbeing, level 3 completions were not.

Using the same survey data the researchers also carried out a separate analysis focusing on 1,995 learners who were not in employment at the start of their FE course (London Economics and IPSOS MORI, 2013b). Using simple bivariate analysis and self-reported outcomes the researchers found that of the completers:

- 81 per cent gained confidence/self-esteem as a result of the course;
- 72 per cent said they would take on more activities or voluntary work;
- 76 per cent reported that it helped keep them active and make a better use of their spare time;
- 75 per cent said it helped them get a better idea of what to do with their life;

- 66 per cent said it improved their quality of life; and
- 30 per cent said it enabled them to help their children with school work.

A similar but separate study also commissioned by BIS surveyed 1,000 adult learners who had studied a Maths or English course at level 2 or below (BIS, 2013b). Employing a set of slightly more sophisticated measures of satisfaction and wellbeing, the researchers found that learners increased their scores on a range of psychometric scales, including life satisfaction, mental well-being, locus of control and self-esteem. In addition, more than three-quarters of those with children said that they felt more able to help their children with their homework, and more than two-fifths said that they had increased the number of times they had helped their children with homework during the previous week. The study did not include a control group and so, by the authors' own admission, only provides weak evidence of causality.

Jenkins and Mostafa (2012) investigated the impact of formal and informal learning on the wellbeing of older adults aged 50 to 69 using data from the English Longitudinal Study of Ageing (ELSA). After controlling for other factors using panel regression models (and therefore attempting to isolate the causal effect of learning) as well as marital and work status, informal learning such as gym and exercise classes and arts, music and evening classes were found to be significantly related to improvements in wellbeing, as measured by CASP-19 quality of life scores. While obtaining a qualification was also found to be significantly related to increased wellbeing, formal learning without a qualification was not. The associated rise in wellbeing was estimated to be roughly equivalent to a move from the bottom to middle quintile of the wealth distribution, or equivalent to one-sixth of the wellbeing of being in 'fair' as opposed to 'poor' health, and was large enough to offset the decline in wellbeing associated with ageing or unemployment. The analysis was carried out using a nationally representative sample covering four waves of the ELSA from 2002 to 2009.

Bosworth, Giernalczyk, Hogarth and Vogler-Ludwig (2011) investigated the wider social benefits of Vocational Education and Training (VET) using multivariate analysis techniques. VET was broadly defined to include any education or training aimed at equipping people with knowledge, know-how, competencies and skills required in specific occupations or in the labour market more broadly. This includes Initial VET (IVET), normally carried out before entering the workplace, and Continuing VET (CVET), carried out after IVET or after entering the workplace aimed at updating skills/knowledge. The researchers combined data, focusing on the workplace level, from a range of sources including: Continuing Vocational Training Survey, European Working Conditions Survey, and the European work-life balance survey. The researchers also carried out 25 case studies across four sectors and eight countries. The researchers found that:

- 1) Training that was funded by the *employer* increased employees satisfaction with their working conditions;

- 2) Conversely, training that was paid for by the *employee* themselves reduced satisfaction with working conditions;
- 3) Jobs that place higher intellectual demands on employees tend to attract higher satisfaction, but employees are less keen on problem solving (particularly fire-fighting) and the relationship between job demands and satisfaction are complex; and
- 4) Individuals with a good skills match are more satisfied than those who are over-qualified.

The qualitative research suggested that training can: improve job content (job enrichment); provide skills to manage conflict in the workplace (which would otherwise lead to dissatisfaction); send a signal that the employer is investing in them (feeling valued); and provide a social context to share experiences so that problems and solutions can be shared. Overall, the research suggested that vocational education and training delivered through the workplace can increase job satisfaction and make employees feel valued by their employer.

4.2 Over-education can lead to lower life satisfaction

On the other hand, one recent study has suggested that more education does not always lead to greater life satisfaction. Drawing upon data from the British Household Panel Survey (BHPS) covering the period from 1991 to 2007, Piper (2015) found that the rapid expansion of HE relative to higher-level jobs has led to an increase in the proportion of young people who are overeducated and that this over-education is significantly related to lower levels of life satisfaction.

Piper defined over-education as where an individual's education level (years in education) was more than one standard deviation above the average for someone in the same occupational group (or industry occupation for a more stringent measure). Multivariate analysis techniques were then used to regress over-education onto a measure of life satisfaction⁵² while taking account of a range of other variables that were predicted to be related to satisfaction. Piper found that those who were overeducated were less likely to be satisfied with their life than their peers, although the effect was found to dissipate over time, perhaps as people accept the new situation.

⁵² Answers to the question 'How dissatisfied or satisfied are you with your life overall?'.

4.3 Education can have unexpected effects on health-related choices and behaviours

In addition, studies have shown that higher levels of education can lead to health related outcomes that may not always be considered favourable. One such example can be seen in that of Anderberg, Chevalier and Wadsworth's (2009) study where higher level of education was associated with parents choosing not to get their child immunised with the MMR vaccine (with many apparently choosing not to opt for individual replacements either).

Using administrative data as well as data from the Health Survey England and the Millenium Cohort Study, Anderberg et al. investigated the effect of education level (measured by staying on in education after the age of 19) on uptake of the MMR vaccine. They also controlled for income and other factors using multivariate analysis techniques, during the period when there was widespread controversy around the safety of the vaccine. During the peak of the controversy in the media (1999-2001) uptake of the vaccine saw a 21 per cent reduction compared to pre-controversy levels. At the same time uptake of the individual vaccines was between 2.9 and 5.3 per cent, corresponding to just 24 to 45 per cent of those who rejected the MMR vaccine, which means for some, the decision not to have the MMR vaccine might be considered as a risky choice. Anderberg et al. found that education level had a strong negative effect on uptake of the MMR vaccine and also appears to have had a 'spillover' effect to other vaccines, suggesting that while education level appears to have enabled them to absorb health information quickly, the health scare surrounding the controversy led them to 'overreact' leaving some children unvaccinated.

Finally, two separate studies, one in the UK and one in Japan, used multivariate analysis techniques to investigate the effect of educational level on childrearing behaviour, in terms of timing and number of children. Tavares (2016) used data from the British Household Panel Survey to investigate whether personality traits and education level (below A Level, A Level, above A Level) helped predict the age at which women chose to have their first child. The findings revealed that education did have an impact on maternity timing, with more educated women choosing to have their first child later.

Meanwhile, Nozaki (2017) used data from the Japanese General Social Survey to investigate what factors are determinants of the number of children that a woman chooses to have in their lifetime, with education measured in terms of years in education and whether they stayed on in education until age 19. Nozaki found that women with a higher level of education tended to have fewer children. While the choice of if and when to have children is clearly a highly personal choice and there are no value judgments implied in the findings of these studies, they do provide evidence that education may be an important factor in contributing to health related decisions and behaviours.

4.4 Summary

Overall, while the literature in relation to the health and wellbeing effects of education is perhaps less well developed than other areas covered by this review, there is evidence to suggest that education can have implications for a lot of health related factors.

For example, the evidence presented in this chapter suggests the following:

1. **Education can lead to self-reported improvements on a range of subjective measures** – bivariate analysis suggests a range of types of education can lead to self-reported improvements in: self-confidence and self-esteem; wellbeing and happiness; coping with mental health and physical disabilities; and ability to assist with children's education;
2. **Education can improve wellbeing and quality of life** – econometric analysis suggests that completion of an FE course at level 2 leads to higher life satisfaction and, in a separate study, fixed effects panel regressions found that informal learning and formal learning leading to a qualification can lead to increased wellbeing as measured by quality of life scores. Formal learning not resulting in a qualification, on the other hand, does not appear to have the same effects. Less sophisticated analysis focusing on adult learners also suggests that Maths or English studied at level 2 or below may also have similar effects on self-reported quality of life;
3. **Education can lead to greater job satisfaction and a sense of being valued by an employer** – research combining qualitative research and multivariate analysis showed that VET delivered through the workplace can improve life and job satisfaction, can lead to job enrichment and can make employees feel valued by their employer;

However, on the other hand there was some evidence that:

4. **Over-education can lead to lower levels of life satisfaction** – there is evidence to suggest that where an individual's education level far exceeds the average level of the typical worker working in the same occupational group they may be more likely to have lower levels of life satisfaction;
5. **Education can have unexpected effects on health-related choices and behaviours** – the review found evidence that higher levels of education were significantly related to parents choosing not to get their child immunised and are linked to childrearing choices, with more highly educated women tending to have fewer children, and have children later on in life.

5 Benefiting local communities?

5.1 Introduction

In order to assess the ways in which post-18 education benefits local communities, the literature search focused on the role of post-18 education in promoting community cohesion and associated factors, such as tolerance of diversity, that promote good relationships within communities.

The Quadrants Report⁵³ identifies social cohesion as a benefit of higher education. Primarily, this looks at the engagement of students and universities with their local communities. Examining the post-2013 literature provides limited evidence on the relationship between post-18 education type and community cohesion, but significant literature on factors related to community cohesion.

Some authors have argued that attitudes provide a more accurate measure of engagement than studies of, for example, voting turnout. They suggest that people, and in particular young people, may be engaged in society and have an interest in various issues affecting society generally, but may be disillusioned with political processes⁵⁴. This chapter examines the literature on three aspects of this: attitudes towards immigration and diverse communities and, in particular, the development of more tolerant attitudes; attitudes towards personal relationships; and attitudes towards welfare recipients. By far the largest body of literature exists on attitudes towards immigrants, and the related issues of national identity and belonging.

Changes in the attitudes of people with post-18 education are particularly significant as this is a growing proportion of the population, and consequently their attitudes are increasingly important in driving change in society. Research for the ESRC in 2014 showed that having a degree had a significant effect on tolerance and other attitudinal measures related to community cohesion⁵⁵.

⁵³ BIS (2013a) *ibid*

⁵⁴ See, for example, Rheingans, R. and Hollands, R. (2013). "There is no alternative?": challenging dominant understandings of youth politics in late modernity through a case study of the 2010 UK student occupation movement', *Journal of Youth Studies* 16:4, 546-564 and Henn, M. and Foard, N. (2014) 'Social differentiation in young people's political participation: the impact of social and educational factors on youth political engagement in Britain', *Journal of Youth Studies* 17:3, 360-380.

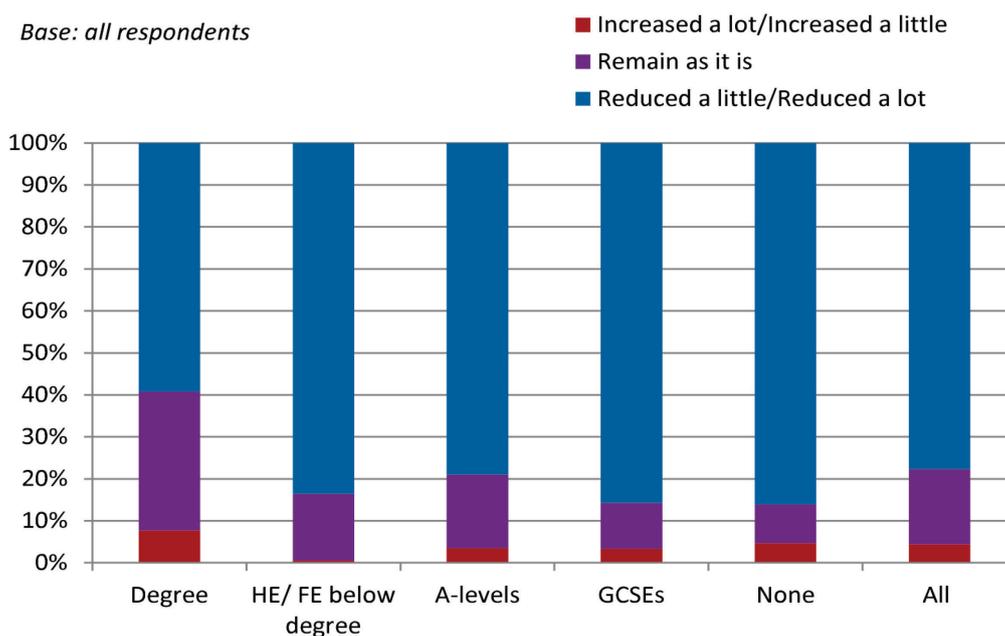
⁵⁵ ESRC. (2014). The wellbeing effect of education, ESRC Evidence Briefing, published July 2014

5.2 Post-18 education increases tolerance towards immigrants

Easterbrook et al. (2016) found that education effects were most strongly observed when examining negative attitudes towards immigrants. Education explained over ten per cent of the variance in this measure in the UK⁵⁶.

The British Social Attitudes Survey asks a question about attitudes towards the scale of immigration to Britain: ‘Do you think the number of immigrants to Britain nowadays should be increased a lot, increased a little, remain the same as it is, reduced a little or reduced a lot?’. Analysis of responses between 2010 and 2013 to this question by Brennan et al. (2015) shows that overall, more than three quarters of respondents (77 per cent) thought that the number of immigrants coming to Britain should be reduced, and over half (56 per cent) thought it should be reduced a lot⁵⁷. Differences in attitudes were found to be related to education levels, with 86 per cent of people with no qualifications and those with GCSEs stating that the number of immigrants should be reduced. While this figure was still high amongst graduates (59 per cent), it was much lower than amongst other educational groups.

Figure 5.1 Do you think the number of immigrants to Britain nowadays should change?



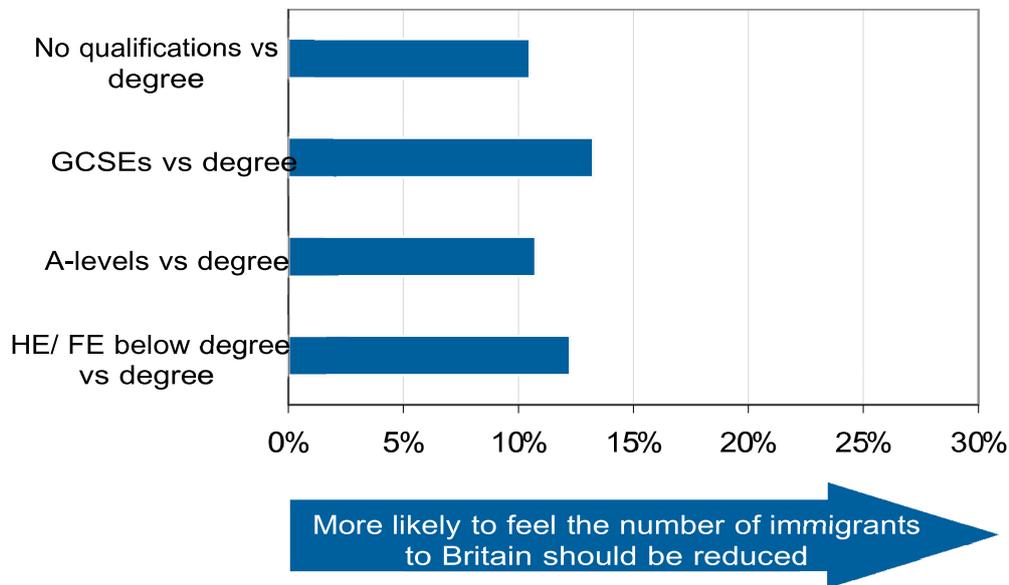
Source: Brennan et al. (2015) using data from the 2010 – 2013 British Social Attitudes Survey

⁵⁶ Easterbrook, M., Kuppens, T. and Manstead, A.S.R. (2016). ‘The Education Effect: Higher Educational Qualifications are Robustly Associated with Beneficial Personal and Socio-political Outcomes’. *Soc Indic Res*, 126, 1261–1298

⁵⁷ Brennan et al. (2015) *ibid*

When controlling for background characteristics, a linear, incremental pattern was not observed. While respondents from all other educational groups were more likely than graduates to think that the number of immigrants should be reduced, there was more consistency across the other educational groups, with all being between ten and 13 percentage points more likely to believe immigration should be reduced.

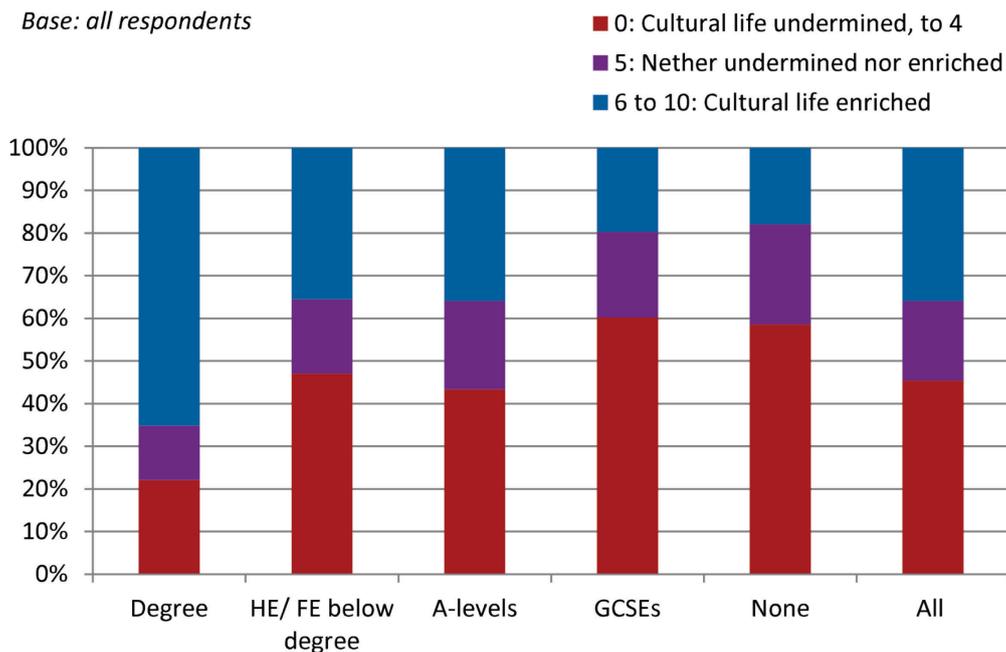
Figure 5.2 Do you think the number of immigrants to Britain nowadays should change? regression analysis



Source: Brennan et al. (2015) using data from the 2010 – 2013 British Social Attitudes Survey

Two further questions from the BSAS related to tolerance of immigration were analysed by Brennan et al. (2015). These indicators were whether respondents thought that migrants coming to Britain was generally good or generally bad for the British economy and whether Britain’s cultural life was undermined or enriched by migrants coming to live in Britain from other countries. Responses to both these questions were found to be significantly related to educational level. Approximately 20 per cent of respondents with degrees thought that immigration generally had a negative impact on the economy, but this figure was as high as 60 per cent amongst both those with no qualifications and those whose highest qualification was GCSEs. An almost identical pattern can be seen when looking at perceptions of the impact of immigration on cultural life.

Figure 5.3 Would you say that Britain's cultural life is generally undermined or enriched by migrants coming to live here from other countries?

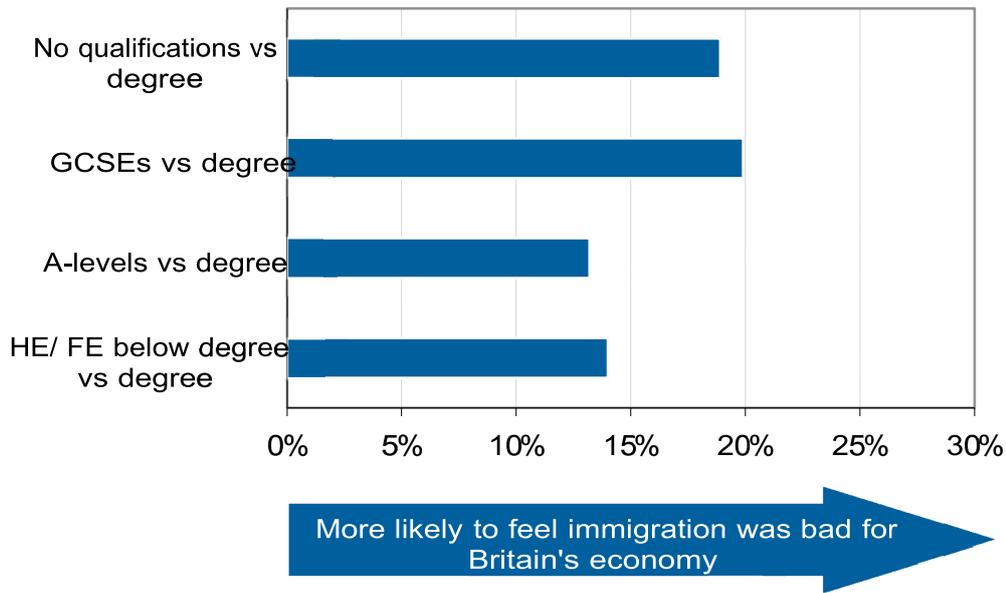


Source: Brennan et al. (2015) using data from the 2010 – 2013 British Social Attitudes Survey

This relationship remained significant when controlling for background characteristics⁵⁸. Respondents with A Levels and those with an HE or FE qualification below degree level showed very similar attitudes to each other but that were significantly different than those shown by graduates. People whose highest education level was GCSE or who had no qualifications also displayed similar attitudes. There was a bigger gap in attitudes between graduates and those with an HE or FE qualification below degree level (approximately 14 percentage points) than there was between those with an HE or FE qualification below degree level and those whose highest qualification is GCSEs or lower (approximately six percentage points).

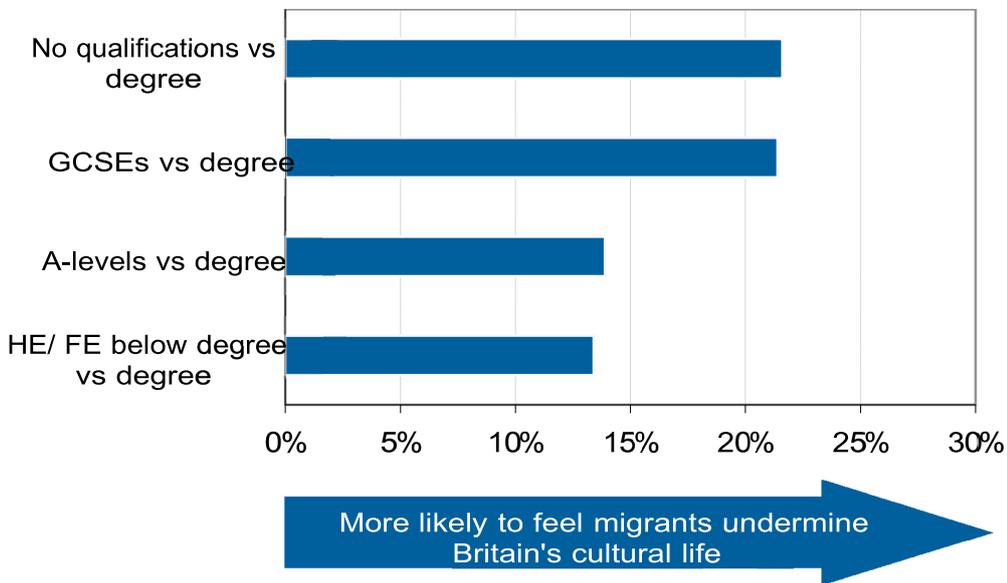
⁵⁸ See Ford, R. and Heath, A. (2014) 'Immigration: A nation divided?', in Park., A., Bryson, C. and Curtice, J. (eds.), British Social Attitudes: the 31st Report, London: NatCen

Figure 5.4 Effect of different educational levels on whether felt immigration was bad or good for British economy: Regression analysis



Source: Brennan et al. (2015) using data from the 2010 – 2013 British Social Attitudes Survey

Figure 5.5 Effect of different educational levels on whether felt immigration undermined or enriched cultural life: Regression analysis



Source: Brennan et al. (2015) using data from the 2010 – 2013 British Social Attitudes Survey

5.3 Post-18 education increases tolerance of cultural difference

Multiculturalism, as a political project that supports ethnic minorities to maintain their cultures while still being part of the wider British community has been criticised for creating ‘parallel-lives’ and posing as a threat to national unity⁵⁹. It has been associated in political discourse with radicalism and extremism⁶⁰. Consequently, social cohesion has been posited as a new political project that stresses shared British values and identities to promote national bonding⁶¹.

Participation in FE has been found to be positively associated with social cohesion by SQW Ltd et al. (2013). It was found to facilitate the development of social networks and to combat isolation. This finding was based on self-reported information from interviews and a 1,016 (Wave 1) and 665 (Wave 2) participant longitudinal survey of adult literacy and numeracy learners, i.e. those with low qualifications who were now participating in FE. The authors note that the benefits of this form of adult learning could be seen particularly amongst groups that tended to be solitary and/or cut off from wider society (e.g. the unemployed, single parents and those with mental and emotional difficulties). All of whom are significant groups amongst adult learners undertaking basic skills education⁶².

Similarly, when looking at participants in adult FE, following the work of Dolan et al. in 2012⁶³, a learner survey by London Economics and Ipsos MORI found that social cohesion was positively related to participation in adult FE. They took a broad definition of social cohesion incorporating some of the issues discussed in Chapter 2, namely civic participation and involvement in voluntary and socio-political groups⁶⁴. Research on

⁵⁹ Rietveld, E. (2014). ‘Debating Multiculturalism and National Identity in Britain: Competing Frames.’ *Ethnicities* 14 (1): 50–71

⁶⁰ Dobbernack, J. M., and Modood, T. (2015). ‘Tolerance in Critical and Political Theory: Coexistence or Parts of Something Bigger?’ *Contemporary Political Theory* 14 (2): 164–171

⁶¹ Jones, H. (2014). ‘The Best Borough in the Country for Cohesion!’: Managing Place and Multiculture in Local Government’ *Ethnic and Racial Studies* 37 (4): 605–620 and Sturgis, P., Bruton-Smith, I., Kuha, J. and Jackson, J. (2014). ‘Ethnic Diversity, Segregation and the Social Cohesion of Neighbourhoods in London’ *Ethnic and Racial Studies* 37 (8): 1286–1309

⁶² SQW Limited (SQW), the National Research and Development Centre for adult literacy and numeracy (NRDC, at the Institute of Education, University of London), GfK NOP and the National Foundation for Educational Research (NFER) (2013) *Investigating the Benefits of English and Maths Provision for Adult Learners*. BIS Research Paper No 129.

⁶³ Dolan, P., Fujiwara, D. and Metcalfe, R. (2012). *Review and update of wider benefits of Adult Learning*. London: BIS.

⁶⁴ London Economics and Ipsos MORI. (2013). *The impact of Further Education Learning*. BIS research paper no. 104. London: BIS.

community learning⁶⁵ and on learning below Level 3⁶⁶ shows a similar effect on combating isolation and increasing community involvement.

Using data from the 2012 FP7 EUCROSS mixed methods project on 'Europeanisation of Everyday Life', Duru et al. (2017) found that people with tertiary education were more likely to perceive a diverse society as a good thing. When asked whether they agreed that 'it is a good thing for society to be made up of people from different ethnic groups, religions and cultures', overall 80 per cent of the 1001 British respondents agreed⁶⁷.

Research by McCollum et al. (2014) suggests that patterns in views concerning ethnic diversity are likely to be fairly consistent across the UK. They analysed the 2011 British Social Attitudes Survey and the 1200-1500 respondent 2002, 2006 and 2010 Scottish Social Attitudes Surveys to look specifically at the attitudes of people in Scotland. They found that higher educational levels were associated with a decreased propensity to see ethnic minorities taking jobs from other people in Scotland or to see multiculturalism as a threat to Scotland's identity⁶⁸. As has been noted previously, Scotland is the nation where educational levels appear to have a lower impact on various attitudes and behaviours, so it may be possible to assume that if this pattern remains clear in Scotland, it is likely to do so for the other three nations.

The perceived threat to national identity posed by cultural difference is a common theme in the literature linking attitudes to educational participation. Taking a step back, research by Brennan et al. (2015) investigated the relationship between national identity and educational participation using the 2013 British Social Attitudes Survey⁶⁹. The BSAS asked respondents living in England whether they consider themselves to be more English or more British or both equally. In line with possibly more liberal and cosmopolitan attitudes discussed in Chapter 2, graduates were more likely than other groups to consider themselves 'more British than English' or 'British not English'. Overall, 36 per cent of graduates considered themselves to be more British than English, a significantly higher proportion than amongst any of the other educational groupings. Compared with those whose highest qualification was an HE or FE qualification below degree level, a slightly

⁶⁵ Harding, C. and Ghezelayagh, S. (2014). Community Learning Learner Survey: Additional analysis of participants following family learning courses. BIS Research Paper no. 180. London: BIS; Harding, C., Clay, D., Mortimer, E., Ghezelayagh, S. and Bloch, A. (2014). Community Learner Learning Survey Wave 2. BIS Research Report No 170.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/300555/bis-14-688-community-learning-learner-survey-wave-2.pdf

⁶⁶ Gloster, R., Buzzeo, J., Marvell, R., Tassinari, A., Williams, J., Williams, M., Swift, S. and Newton, B. (2015). The Contribution of Further Education and Skills to Social Mobility. BIS Research Paper No 254. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/466420/BIS-15-579-contribution-of-further-education-and-skills-to-social-mobility.pdf

⁶⁷ Duru, D.N., Hanquinet, L. and Cesur, N.S. (2017). Perceptions of diversity and attitudes of tolerance in the 'fragmented' U.K., *Journal of Ethnic and Migration Studies*, 43:4, 674-692

⁶⁸ McCollum, D., Nowok, B. and Tindal, S. (2014). Public attitudes towards migration in Scotland: Exceptionality and possible policy implications. *Scottish Affairs* 23.1 (2014): 79–102

⁶⁹ Brennan et al. (2015) *ibid*

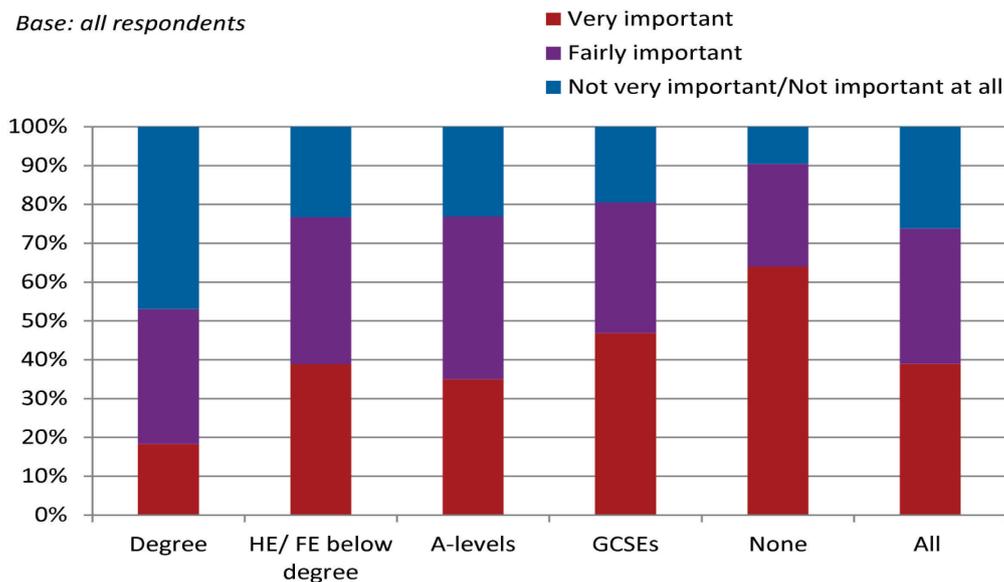
higher proportion of respondents whose highest qualification was A Levels said that they considered themselves to be more British than English (23 per cent of those with A Levels compared with 21 per cent of those with a below degree level HE/FE qualification). This is similar to the proportion of respondents with no qualification (20 per cent) and slightly higher than the proportion of those whose highest qualification was GCSEs or equivalent.

Controlling for background characteristics, the significance of the difference between HE graduates and those whose highest qualification was an HE or FE qualification below degree level disappears, but there was still a significant relationship between educational participation and feelings of Britishness amongst the other educational groups.

The 2013 BSAS also asks what makes people ‘truly British’. Analyses of this data by Brennan et al. (2015) and Kiss and Park (2014) show differences across the educational groups in terms of the importance of being born in Britain and the importance of shared beliefs and traditions.

Whilst graduates were fairly evenly divided between those who regarded being born in Britain as very or fairly important (53 per cent) and those who saw it as not very important or not important at all (47 per cent). The proportion of respondents who saw being born in Britain as important was higher amongst respondents from all other educational groups⁷⁰.

Figure 5.6 How important is being born in Britain for being truly British?

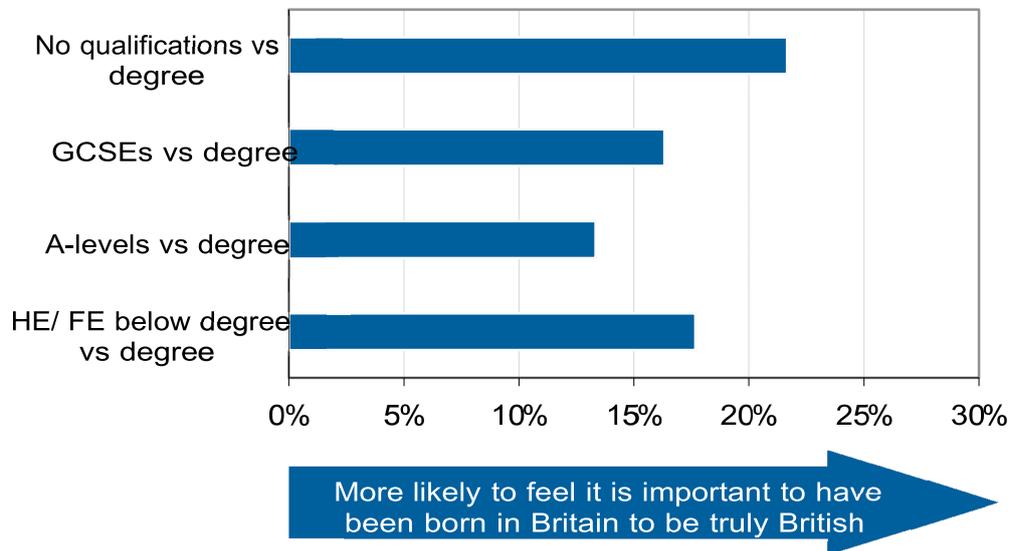


Source: Brennan et al. (2015) using data from the British Social Attitudes Survey 2013. Respondents resident in England only

⁷⁰ Kiss, Z. and Park, A. (2014). ‘National identity: Exploring Britishness’, in Park, A., Bryson, C. and Curtice, J. (eds.), British Social Attitudes: the 31st Report, London: NatCen

Controlling for other background factors, the impact of educational participation on attitudes towards Britishness showed one of the most significant degrees of correlation across the attitudinal variables in the BSAS.

Figure 5.7 Effect of educational levels on whether respondents felt it was important to have been born in Britain to be truly British: Regression analysis

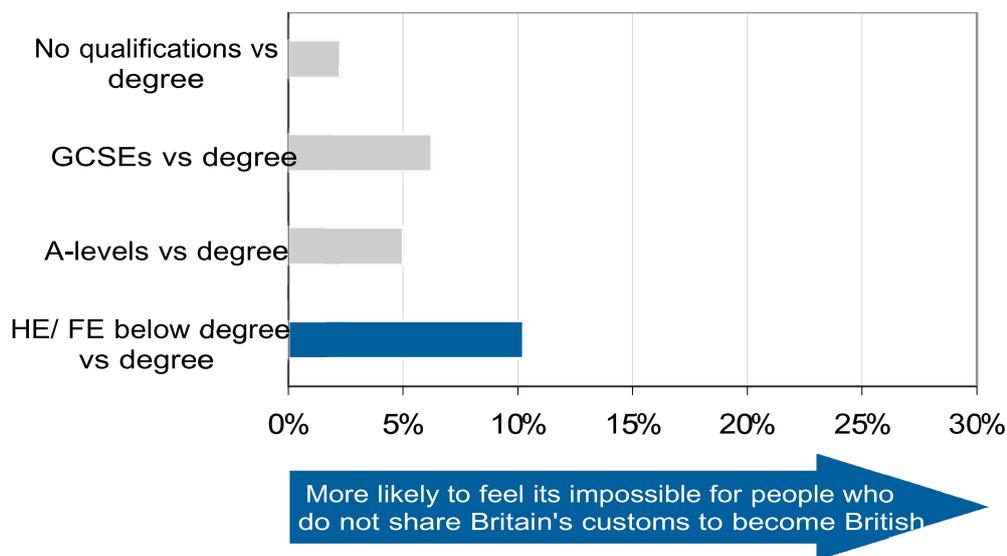


Source: Brennan et al. (2015) using data from the British Social Attitudes Survey 2013. Respondents resident in England only

Conversely, educational participation appeared to have no significant relationship with attitudes related to the role of shared culture and traditions in Britishness. The 2013 BSAS measures this using responses to the statement ‘It is impossible for people who do not share Britain’s customs and traditions to become fully British’. While statistical analysis shows differences between educational levels, with graduates being least likely to agree with the statement (40 per cent) and around 60 per cent of the other groups agreeing, when background characteristics are controlled for, the only statistically significant difference is between graduates and those whose highest qualification is an HE or FE qualification below degree level.

The reasons for this are unclear. While the group of respondents with HE or FE qualifications below degree level generally show more similarities to the lower qualification groups in their attitudes towards both immigration and cultural difference, the scale of the difference in their attitudes when compared to graduates is unexpected, particularly given that they are a more heterogeneous group than those with lower qualifications when defining their own national identity. However, as will be seen later in this chapter, there are significant differences in the attitudes of respondents with a degree and those whose highest qualification is an HE or FE qualification below degree level across a range of variables associated with tolerance and community cohesion, including attitudes towards female employment.

Figure 5.8 Effect of educational levels on whether respondent felt it was impossible for people who do not share Britain’s customs to become British



NB: Blue bars denote statistically significant coefficients; grey bars non-significant ones

Source: Brennan et al. (2015) using data from the British Social Attitudes Survey 2013. Respondents resident in England only

5.4 Post-18 education promotes tolerance of personal difference

The literature search provided evidence of research relating educational participation to two aspects of tolerance around personal identity and difference. The first of these is in relation to gender roles and the second concerns attitudes towards sexuality.

Evidence on attitudes towards gender roles focuses primarily on the role of the curriculum in different subjects and its relationship with identity development. Abbas et al. (2016) used a longitudinal mixed methods approach, combining 98 interviews with first year and 31 second and third year sociology students at four universities with reviews of curricula documents and recordings of seminars, to examine the development of feminist knowledge⁷¹. Similarly, Guest (2016) used interviews with 25 self-identified feminist women aged between 20 and 35 to examine shifts in political identity and engagement with academic feminism in graduates’ narratives of ‘becoming feminist’, finding that

⁷¹ Abbas, A., Ashwin, P. and Mclean, M. (2016). The influence of curricula content on English sociology students’ transformations: the case of feminist knowledge. *Teaching in Higher Education* 21(4):442-456.

university experience legitimised and enabled articulation of pre-existing 'feminist instincts'⁷².

Taking a more quantitative approach, Paterson's (2014) analysis of the British Household Panel Survey 1991 to 2008 showed that although there is no clear relationship between increasing education and support for women's rights, there is one exception, and that is the strong positive association between possession of degree-level academic qualifications and support for women's rights⁷³.

Brennan et al.'s (2015) detailed analysis of the British Social Attitudes Survey examined respondents' attitudes towards specific issues related to women's employment⁷⁴ using questions asking whether respondents believe that family life suffers when the woman has a full-time job and whether they think that women are more concerned about a home and children than employment.

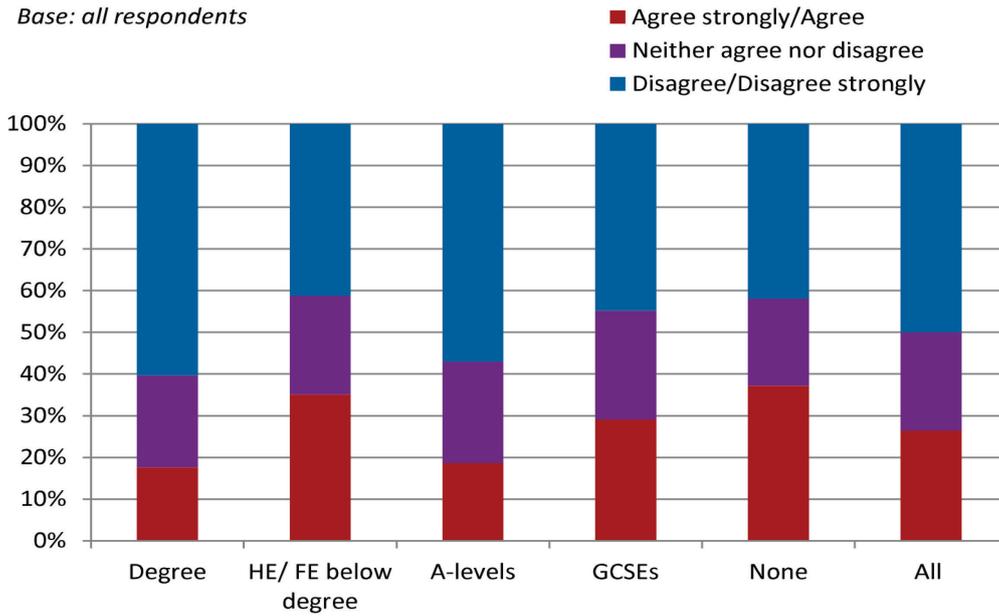
They found that, controlling for background variables, there was no significant relationship between education participation and views on these issues, with the exception of differences between graduates and those who hold an HE or FE qualification below degree level. Participants whose highest qualification was A Levels or equivalent showed a more similar pattern of attitudes to graduates in their responses to the statements than those whose highest qualification was an HE or FE qualification below degree level. More than 60 per cent of those with a degree level qualification disagreed that family life suffers when the woman has a full-time job, compared with just over 40 per cent of those with HE or FE qualifications below degree level, those with GCSEs and those with no qualifications.

⁷² Guest, C.J. (2016) Knowing feminism: the significance of higher education to women's narratives of 'becoming feminist', *Gender and Education*, 28:3, 471-476

⁷³ Paterson (2014) *ibid*

⁷⁴ Brennan et al. (2015) *ibid*

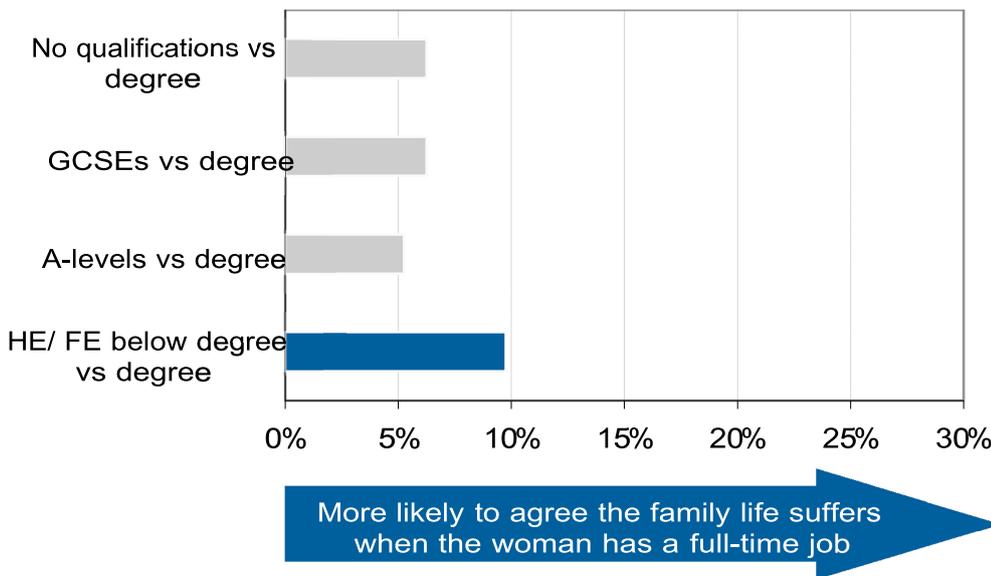
Figure 5.9 All in all, family life suffers when the woman has a full-time job



Source: Brennan et al. (2015) using data from the British Social Attitudes Survey 2013

Controlling for other variables, respondents whose highest qualification was an HE or FE qualification below degree level were ten percentage points more likely than those with a degree to think that family life suffers when the woman has a full-time job, while there was no statistically significant relationship amongst the other groups, most likely reflecting the impact of age on responses to questions on social attitudes.

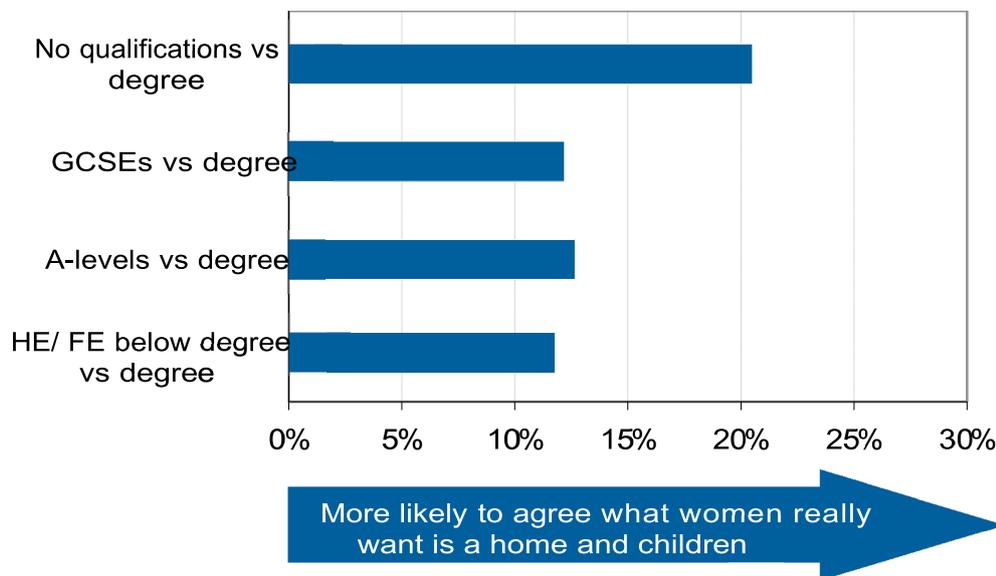
Figure 5.10 Effect of educational participation on agreement with the statement 'All in all, family life suffers when the woman has a full-time job': regression analysis



NB: Blue bars denote statistically significant coefficients; grey bars non-significant ones

Similarly, when looking at responses to the statement ‘A job is all right, but what most women really want is a home and children’, there were differences between the responses of the people in different educational groups, with 62 per cent of graduates disagreeing to some extent, compared with under a third (32 per cent) of those with no qualifications. As in the case of attitudes towards female employment and family life, those with A Levels as their highest qualification shared the most similarities with graduates in their responses, and there was a linear relationship between increasing education levels and increasing disagreement with the statement. However, as with the previous question, responses by those whose highest qualification was an HE or FE qualification below degree level disrupt this pattern. While they were no more likely than those with A Levels to say that they agreed with the statement, they were significantly less likely to say that they disagreed.

Figure 5.11 Effect of educational participation on agreement with the statement ‘A job is all right, but what most women really want is a home and children: regression analysis



Together with the findings from the review of literature on political participation, the findings suggest that individuals whose highest qualification is an HE or FE qualification below degree level are a relatively politically engaged group, but also hold quite traditional values.

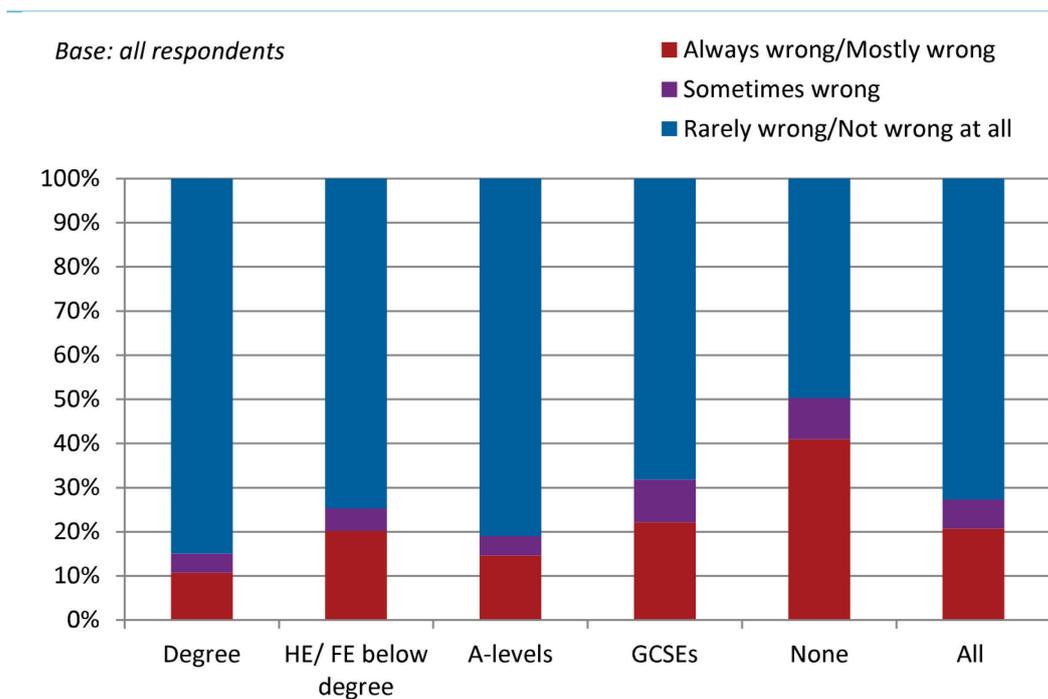
This appears to support Paterson’s (2014) findings that it is not just the amount of education that matters, but the kind of education⁷⁵. Using data from the British Social

⁷⁵ Paterson (2014) *ibid.*

Attitudes Survey (BSAS), Scottish Social Attitudes Survey (SSAS), British and Scottish Election Surveys, National Child Development Study (NCDS), 1970 British Cohort Study, and the British Household Panel Study (BHPS) including the British Youth Panel, he found that it is possible to have quite a lot of education, including vocational further or higher education, but that in some cases, vocational education can be associated with more traditional views.

In addition to questions about gender roles, the British Social Attitudes Survey asks questions about attitudes towards same-sex relationships. Again, those whose highest qualification is an HE or FE qualification below degree level disrupt the linear relationship between educational attainment and liberalism and tolerance of difference. Almost three quarters of respondents (73 per cent) with a degree thought that sexual relations between two adults of the same sex were not wrong at all, and the proportion of respondents with A Levels giving this response was similar (72 per cent), but there was a ten percentage point difference between these two educational groups and those with an HE or FE qualification below degree level.

Figure 5.12 What about sexual relations between two adults of the same sex... Are they always wrong, mostly wrong, sometimes wrong, rarely wrong, not wrong at all?

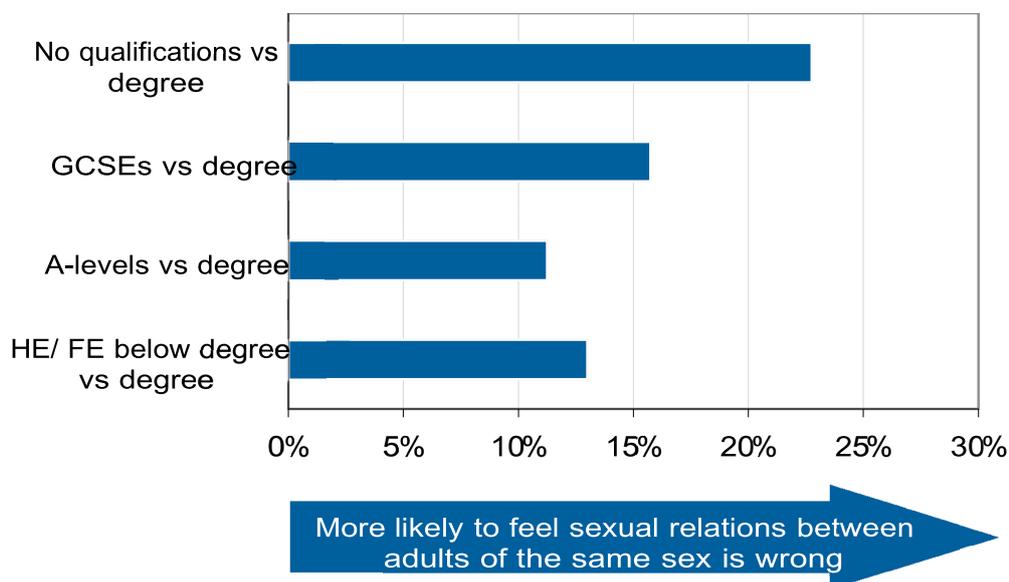


Source: Brennan et al. (2015) using data from the British Social Attitudes Survey 2013

These bivariate patterns are likely to be strongly related to the age of respondent in each group, particularly as older respondents are disproportionately more likely to have no

qualifications⁷⁶. However, even when controlling for age and other background characteristics, Brennan et al. (2015) found a significant relationship between education participation and attitudes towards same-sex relationships.

Figure 5.13 Effect of educational participation on attitudes towards same-sex relationships



Source: Brennan et al. (2015) using data from the British Social Attitudes Survey 2013

5.5 Post-18 education promotes tolerance of different experiences

In Chapter 2, we presented evidence to suggest that students and graduates were likely to engage in volunteering because they thought that although they had worked hard, there had been some degree of luck involved in their achievement of their current position. This section further examines the relationship between education participation and attitudes towards people who may be considered less fortunate, focusing in particular on how post-18 education is related to attitudes towards those receiving welfare benefits.

There have been several studies that broadly associate increases in education with different attitudes towards benefit claimants, but these have tended to be inconclusive⁷⁷.

⁷⁶ Park, A. and Rhead, R. (2013). 'Changing attitudes towards sex, marriage and personal relationships', in Park, A., Bryson, C., Clery, E., Curtice, J. and Phillips, M. (eds.), *British Social Attitudes: the 30th Report*, London: NatCen.

⁷⁷ See, for example, Fossati, F. (2018). 'Who Wants Demanding Active Labour Market Policies? Public Attitudes towards Policies that put Pressure on the Unemployed', *Journal of Social Policy*, 47(1):77-97, Macnicol, J. (2017). 'Reconstructing the Underclass', *Social Policy and Society* 16(1):99-108 and Taylor-Gooby, P. (2017). 'Re-Doubling the Crises of the Welfare State: The impact of Brexit on UK welfare politics', *Journal of Social Policy* 46(4):815-835.

The most robust analysis of attitudes towards welfare recipients uses data from the British Social Attitudes Survey. Brennan et al. (2015) analysed responses to three statements about welfare benefits and their recipients: 'Many people who get social security don't really deserve any help'; 'Most people on the dole are fiddling it one way or another'; and 'If welfare benefits weren't so generous, people would learn to stand on their own two feet'. It might be expected that the generally more liberal views expressed by graduates would mean they are less likely to agree with these statements. On the other hand, graduates are less likely than other groups to have experienced unemployment and consequently there may be more social distance between graduates and welfare recipients and less shared experience that would encourage them to express more tolerant views.

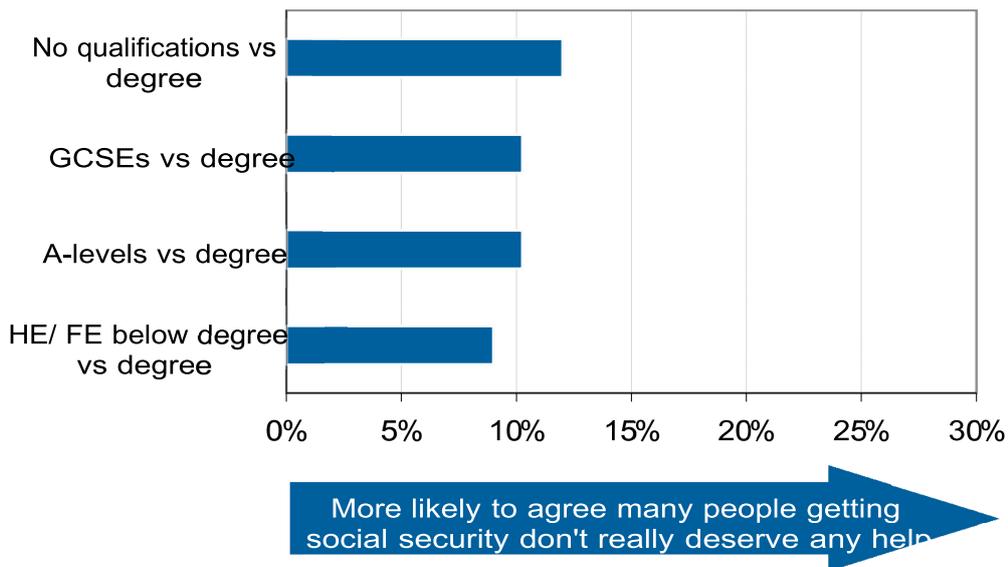
Brennan et al.'s analysis suggests that both these theses may be correct. Although graduates were more likely than other educational groups to disagree with these statements, the difference between graduates and the other educational groups was smaller than has been seen in relation to other attitudinal variables outlined previously in this report. However, despite this, the relationship between educational participation and attitudes towards benefits recipients was statistically significant when controlling for other variables. Although the analysis was unable to control for an individual being a benefit recipient themselves, the analysis did control for economic activity (including unemployment, and income)⁷⁸. It should be noted that across all three questions concerning attitudes towards benefits recipients, a large proportion of respondents give neutral responses, i.e. they neither agree nor disagree with the statements provided.

Overall, 42 per cent of respondents with a degree level qualification disagreed to some extent that people who claim benefits do not deserve help. There is a linear relationship between level of education and propensity to think that benefits recipients do not deserve help, with 30 per cent of those with an HE or FE qualification below degree also disagreeing. The exception to this pattern occurred with those with no qualifications who were more likely to disagree than respondents with GCSEs or A Levels, most likely reflecting the higher rates of benefit receipt amongst this group. Differences related to educational attainment remained significant when controlling for background characteristics.

Responses to the statements regarding the likelihood of benefits recipients committing benefit fraud and the probability of welfare recipients 'standing on their own two feet' if welfare benefits were not so generous showed very similar patterns. Again, graduates were the least likely to agree with both statements.

⁷⁸ Brennan et al. (2015) *ibid*

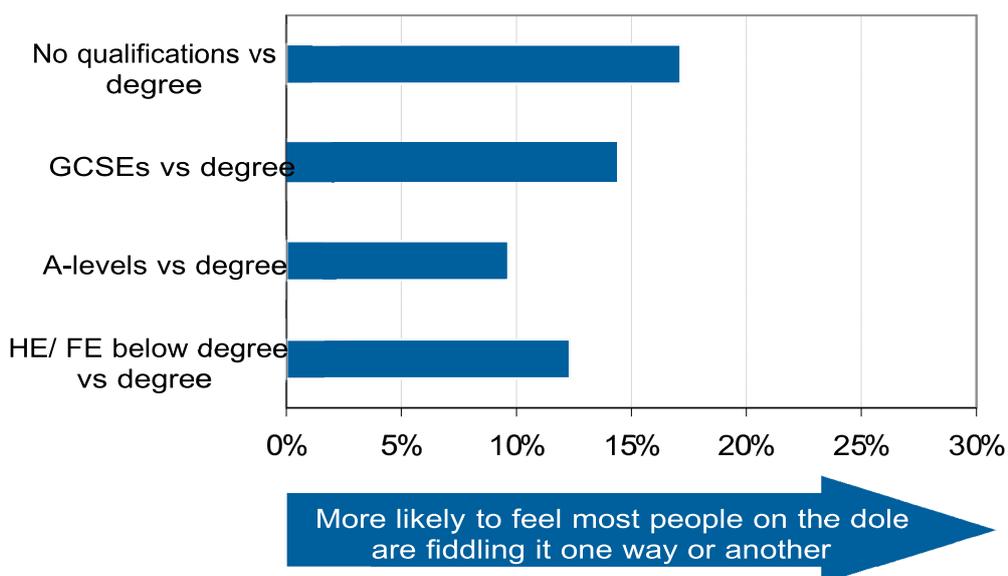
Figure 5.14 Effect of educational levels on whether people felt that many people who get social security don't really deserve any help



Source: Brennan et al. (2015) using data from the British Social Attitudes Survey 2013

Nineteen per cent of graduates agreed that most people on the dole were 'fiddling it one way or another', with the level of agreement increasing as educational levels fell. The exception to this was that those with A Levels were slightly less likely to agree (33 per cent) than those with a below degree HE/FE qualification (36 per cent). In contrast to views about benefit recipients deserving help, those with no qualifications were the most likely to agree that benefit recipients were fiddling the system (45 per cent). Regression analysis found large significant differences by educational level when controlling for other factors.

Figure 5.15 Effect of educational levels on whether respondents thought that most people on the dole are fiddling it one way or another



A similarly strong relationship was found between education level and whether respondents thought that the benefits system encouraged dependency. As in the case of other attitudinal variables, graduates were more likely to hold liberal views, with 43 per cent agreeing that the benefits system encouraged dependency, and respondents with an HE or FE qualification below degree level demonstrating less liberal attitudes than might be predicted by their educational level (61 per cent agreed that the generosity of the benefits system encouraged dependency, the highest figure amongst all the educational groups).

5.6 Summary

The literature reviewed in this chapter shows that post-18 education has a mixed impact on attitudes associated with community cohesion

1. Overall, **participation in HE appears to promote tolerance**, but there is much less evidence of education levels below HE having a similar impact;
2. **Those with an FE or HE qualification below degree level show much less tolerant attitudes than would be predicted by their education level.** This suggests that *volume* of education alone is not enough to promote for tolerant attitudes, but that greater attention needs to be paid to the *type* of education concerned and the type of learning and the attitudes and values it promotes. There has been little analysis of factors such as the relationship between subject studied (except for some studies on feminism in the social sciences), type of institution attended or the interaction between education and the wider social environment in development of attitudes and values;
3. **Post-18 education FE promotes the development of social networks and social cohesion**, although evidence suggests that this is a situational benefit rather than one related to learning, as it was the act of attending classes and consequently meeting people that appeared to have the biggest effect on combatting social isolation;
4. **Education level is related to holding more tolerant views on immigration**, but there is not a linear incremental relationship. People with a degree level qualification hold significantly more tolerant views on immigration, but there is no significant difference between respondents with different levels of education below degree level;
5. **Education levels are much less closely associated with attitudes towards multiculturalism and gender roles** than they are to attitudes towards immigration and views about the recipients of welfare benefits.

6 Wider economic, social and cultural benefits to the UK?

6.1 Introduction

Education as a vehicle for social mobility and a route out of poverty is central to policy debates. Education is seen to enhance human, social and cultural capital in a way that makes individuals more competitive in the labour market.

Within the literature, there are various theories linking education participation and social mobility:

- **Human capital theory** suggests that education is a source of human capital and hence productive capacity that will be rewarded with higher financial returns in the labour market.
- **Screening and signalling theory** posits that participation in education acts as a signal of productive potential which includes both skills-based and socio-cultural assessments of the worth of the individual and their suitability for employment.
- **Job competition theory** suggests that education promotes social mobility simply because it makes an individual more competitive because they possess certain skills and experiences that are relatively scarce in the labour market.
- **Incentive-enhancing preference theory** holds that education is an agent of socialisation and gives individuals the values, norms and preferences that make employers regard them as more or less suitable for different types of work.

Much of the literature related to social mobility focuses on widening access to HE and FE, making the assumption that this, in itself, is the key to promoting social mobility. It is certainly the case that if poorer students are less likely to access HE or higher level FE, then they will be subsequently unlikely to access higher level jobs or to achieve higher levels of income (both measures used as a proxy for social mobility). However, there is little evidence in the literature that looks at the outcomes of post-18 education for social mobility. Access to HE or FE is just the start, but much of the literature treats it as a destination in itself. Linked to this, there is little literature that examines cumulative development of social capital or the cumulative impact of 'capital deficit' as an individual moves through the education system.

In assessing the wider benefits of post-18 education, this chapter looks at the literature published since 2013 on the relationship between educational participation and the development of social capital and then on the relationship between educational participation and social mobility. These are, of course, interlinked variables, as the development of social capital promotes social mobility, but there is surprisingly little empirical evidence that investigates these two concepts together.

6.2 Post-18 education promotes the development of social and cultural capital

In recent years, there has been relatively little literature published using primary research to investigate the relationship between educational participation and the development of social capital. In part, this is because social capital is a multifaceted concept which can be measured in different ways and research on some measures, such as developing an empirical understanding of social networks and their effects, is an emerging area in academic and policy research. There is a far larger body of literature that takes a theoretical approach (usually following Bourdieu) to social capital development, drawing to a limited extent on secondary data.

Most of the primary research identified in the literature used qualitative methods to examine the experience of students while they were in higher or further education and to relate these experiences to their preparedness for entering the labour market.

Pemberton and Humphris (2018) carried out research involving focus groups and semi-structured interviews with 40 individuals who had experienced material deprivation during their childhood or young adulthood and who had at least two years' experience of the labour market post-education⁷⁹. Their sample included a mixture of graduates and those with FE qualifications. They found that although HE and FE can provide opportunities to develop social and other types of capital, factors associated with social class and pre-existing 'capital deficits' meant that participants were often unable to fully take advantage of these opportunities. This was particularly true in comparison to their wealthier peers. As a consequence, education did not necessarily promote the development of social capital and social mobility, and instead could be seen as a factor further entrenching disadvantage. They identify various reasons for this:

- Participants believed that they lacked the necessary cultural capital to successfully navigate educational institutions to access extracurricular opportunities;
- Participants also lacked the economic resources to enable them to access these opportunities and were limited in the time they had available as they needed to work alongside their studies;
- Lower levels of pre-existing social and cultural capital meant that participants found it harder to adapt to education, particularly higher education. Consequently, they spent more time trying to adapt, particularly academically, which further inhibited their participation in extracurricular activity and other mechanisms for building soft-credentials. Even once they had settled in, these participants were likely to focus more

⁷⁹ Pemberton, S. and Humphris, R. (2018). *Invisible Rules: Social Mobility, Low-income and the Role of Further and Higher Education*. Walcot Foundation.
http://www.walcotfoundation.org.uk/uploads/1/7/2/2/17226772/invisible_rules_-_final.pdf

on achieving a good degree, rather than pursuing internships or other activities that would enable them to develop soft skills and social networks. Using Bathmaker et al.'s (2013) terminology, they were still playing an old game, but that game had moved on⁸⁰;

- Lack of cultural capital and the lower levels of self-confidence that often accompanied it, made it difficult for some participants to build relationships with academics⁸¹. Without these connections, participants were unable to access resources, including academic and emotional support, as well as extracurricular opportunities including internships, that may have enabled them to develop social capital.

As a result of these barriers to social and cultural capital development, Pemberton and Humphris (2018) found that there was a group of respondents who were unable to envisage a route into fulfilling work. Despite having high levels of aspiration, this group generally experienced static or stalled mobility, moving from education into low-waged work. This group contained both graduates and those who had obtained FE qualifications. They were likely to believe that they had not built the right networks or taken part in the right work experience to ease their transition into the labour market.

Similarly, some respondents were attempting to enter professions with poorly defined routes of entry, such as the media and creative arts. They had a relatively clear idea of what they wanted to do but less idea of how to get there and consequently had needed to adapt their ambitions. Respondents in this group had often identified a career path relatively late in their educational careers and were now trying to develop suitable networks and experience outside education. This group can be seen as a contrast to those who had embarked on very vocational courses with clearly defined career outcomes. This group often showed higher levels of social capital both before and after they entered HE and were particularly likely to have social networks that acted as important information channels.

While the respondents in Pemberton and Humphris' research did not know 'how to play the game', Bathmaker et al. (2013) found that while their participants from lower social classes knew the rules of the game, they did not have the kind of instinctive feel for it that those from higher social classes had developed as a result of their prior educational and social experiences, and consequently, they were not as ready to play as their more advantaged peers⁸².

Bathmaker et al. followed 80 students at two contrasting universities through their undergraduate degrees between 2010 and 2013. They found that the students were aware that a degree (educational capital) was no longer enough to guarantee the labour market outcomes they wanted and that to gain a positional advantage they would need to mobilise

⁸⁰ See Bathmaker, A.-M., Ingram, N. & 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, 723-743.

⁸¹ See also Jack, A. (2016) '(No) Harm in Asking: Class, Acquired Cultural Capital, and Academic Engagement at an Elite University', *Sociology of Education*, 89:1, 1-19

⁸² Bathmaker et al. (2013) *ibid*

additional capitals that might be gained through a variety of non-academic activities. However, while this was true of all students, there were differences in how students were able to mobilise these additional capitals. They use the example of access to internships to show how working-class students were unable to immediately draw upon pre-existing social networks and other forms of social, cultural and economic capital to create a cycle of social capital development.

6.3 Post-18 education promotes social mobility

As in the case of the literature on development of social capital, more theoretical contributions to the debate on education and social mobility dominate the sources identified during the literature search. These studies are not reviewed for the purpose of this review as they provide no new primary data on the benefits of post-18 education. However, it is worth noting that these theoretical contributions have become increasingly pessimistic about the role of HE, in particular, as a vehicle for social mobility⁸³. Marginson (2016) argues that the expansion of HE, particularly through the development of hybrid HE/FE qualifications and institutions, has resulted in vertical stretching and stratification leading to an increasingly hierarchical system of fields of study and HEIs, and the sorting of people in this system reflects their social backgrounds, reinforcing existing inequalities⁸⁴. Bathmaker (2017) similarly suggests that the same processes may occur within FE and between FE and HE⁸⁵.

Literature investigated for this review generally takes as a starting point the view that higher or further education participation acts as a mediating factor in class formation. Using regression analysis, much of this work seeks to identify the factors that lead to reproduction of social classes, i.e. the movement of children into the same social class as their parents (measured by either occupation or income), and the extent to which education can intervene or account for these processes.

Macmillan and Vignoles (2013) used data on 2006/07 HE graduates (those aged 18 to 25 only) from the Destinations of Leavers from Higher Education (DLHE) survey to examine whether a graduate's social class is linked to their likelihood of entering the highest status occupations⁸⁶. They found that at six months after leaving university when controlling for

⁸³ See, for example, Brown, R. (2017) 'Higher education and inequality' Perspectives: Policy and Practice in Higher Education 22:2 and Antonucci, L. (2016) Student Lives in Crisis: Deepening inequality in times of austerity. Bristol: Policy Press

⁸⁴ Marginson, S. (2016). "The Worldwide Trend to High Participation Higher Education: Dynamics of Social Stratification in Inclusive Systems." Higher Education 72: 413–434.

⁸⁵ Bathmaker, A-M. (2017) Post-secondary education and training, new vocational and hybrid pathways and questions of equity, inequality and social mobility: introduction to the special issue, Journal of Vocational Education & Training, 69:1, 1-9

⁸⁶ Macmillan, L. and Vignoles, A. (2013) Mapping the occupational destinations of new graduates. Social Mobility and Child Poverty Commission.

http://dera.ioe.ac.uk/18589/7/Mapping_the_occupational_destinations_of_new_graduates_Final.pdf

academic achievement, degree subject, degree class and university choice, there was no link between social class and chances of securing a high status occupation.

However, three years after graduation they found that more socially advantaged graduates were more likely to be in the high status occupations. This suggests that social class has an impact on determining who benefits most from HE and that HE has a relatively weak mediating role in overcoming disadvantage three and a half years into graduates' careers. They found that there was also a regional dimension to this impact, as while there is a link between socio-economic background and chance of entering the highest status occupations for students in England and Wales, the same link is not seen amongst Scottish domiciled students.

Using the 1946 and 1970 Birth Cohorts, Goldthorpe (2016) found that the link between social class and returns to HE is unclear⁸⁷. While the expansion of HE would be expected to lead to greater meritocracy in recruitment into the professions, Goldthorpe found that when controlling for scarcity of qualifications, HE cannot completely reduce the effect of social class on opportunity. Additionally, parental attainment and consequent labour market advantage can be seen to shield graduates from higher social groups from downward social mobility.

Evidence on the role of FE in promoting or hindering social mobility is relatively scarce compared to the evidence on HE. Using the British Household Panel Survey (BHPS) and its successor Understanding Society (1998 to 2012), Gloster et al. (2015) found that the children of highly educated parents are more likely than those of lower educated parents to benefit from FE in terms of access to managerial occupations⁸⁸. Focusing on adult learners aged over 19, their sample includes all participants who took part in any adult learning in the preceding year, including learning up to Level 3 and episodes of learning not leading to a qualification. They found that although the effect of parental education becomes smaller when a control for the individual's own education is introduced, particularly five years post-education, overall it appears that FE is acting as a mediator in class reproduction. However, this is not the case when looking at entry to managerial occupations and the elite professions.

⁸⁷ Goldthorpe, J. H. (2016). 'Social class mobility in modern Britain: changing structure, constant process', *Journal of the British Academy*, 4, 89–111. See also Bukodi, E. and Goldthorpe, J. H. (2016). 'Educational Attainment—Relative or Absolute—as a Mediator of Intergenerational Class Mobility in Britain', *Research in Social Stratification and Mobility*, 43:5–16 and Bukodi, E., Goldthorpe, J. H., Waller, L. and Kuha, J. (2015). 'The Mobility Problem in Britain: New Findings from the Analysis of Birth Cohort Data', *British Journal of Sociology*, 66: 93-117.

⁸⁸ Gloster, R., Buzzeo, J., Marvell, R., Tassinari, A., Williams, J., Williams, M., Swift, S. and Newton, B. (2015). 'The Contribution of Further Education and Skills to Social Mobility'. BIS Research Paper No 254. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/466420/BIS-15-579-contribution-of-further-education-and-skills-to-social-mobility.pdf

Bukodi (2017) presents a similarly mixed picture when considering the impact of further education on social mobility and class reproduction⁸⁹. Using the 1970 British Cohort Study, Bukodi showed that individuals from higher social classes benefit the most from FE. They are more likely to use FE as part of a process of life-long learning, particularly if their current class position is lower than that of their parents. She found that while someone from a salariat background has relatively poor initial academic performance, they can increase or update their academic qualifications in FE which increases their chances of becoming part of the salariat themselves. In contrast, individuals from a working-class background who enter the labour market in a working-class position may be able to increase their qualifications through FE participation, but this does not result in upward occupational mobility. She concludes that qualifications obtained through life-long learning primarily serve to maintain, rather than to narrow inequalities in life chances.

6.4 Summary

This chapter has shown that the relationship between post-18 education and the development of social capital and social mobility is not as straightforward as might have been imagined. Following various theories of social mobility, HE and FE should serve as mediating factors in class reproduction because they provide participants with opportunities to develop social (and other types of) capital which they can then utilise in the labour market, but the evidence to support this is mixed.

- 1. Educational participation does not act as a mediating factor and vehicle for social mobility to the extent that might be supposed.** This is particularly the case when assessing the longer-term benefits of HE. Regression analysis has shown that more socially advantaged graduates are more likely to be in higher status careers three and a half years after graduation when all other factors are controlled for;
- 2. HE expansion has increased stratification** resulting in an increasingly hierarchical system of fields of study and HEI that perpetuates the sorting of people by social background;
- 3. In some cases HE and FE further entrench existing disadvantage** because more disadvantaged participants are unable to access social capital-building activities to the same extent as their more advantaged peers due to their prior 'capital deficit' resulting in the cumulative development of disadvantage;
- 4. Social, cultural and economic capital all impact on an individual's ability to benefit from higher levels of education.** Qualitative research suggests that more disadvantaged groups lack the knowledge to successfully navigate the HE system,

⁸⁹ Bukodi, E. (2017). 'Cumulative Inequalities over the Life-Course: Life-long Learning and Social Mobility in Britain', *Journal of Social Policy* 46, 2, 367-404

the economic capital to participate fully in it, and the cultural capital to understand the benefits that may potentially be available to them.

7 Conclusion

This report has aimed to review the literature in relation to the wider benefits of post-18 education for individuals and society. It has sought to update the evidence base in relation to the benefits of HE and broaden out the scope to include other forms of post-18 education, such as intermediate and higher level taught courses delivered through further education as well as vocational education and training.

The review found that the evidence in relation to each of the five main research questions identified at the beginning of the research is patchy at times, and often does not allow us to disentangle education carried out at different levels and/or obtained at different ages. With those caveats in mind the review found evidence of the following benefits in relation to each of the research questions:

Civil Engagement

1. **Post-18 education increases the propensity to vote** – despite the geographical mobility of HE students and graduates, education is a strong predictor of voting behaviour. There is a correlation between highest level of education and propensity to vote. Although there is little evidence of causation between education level and the act of voting, there is between level of education and attitudes towards political processes, which may in turn increase propensity to vote;
2. **Post-18 education increases participation in political action** – educational level is correlated with likelihood of participating in political action, but sub-degree level HE graduates, rather than HE graduates, have the highest levels of participation indicating that there is not a linear relationship between these two issues;
3. **Post-18 education increases political interest** – political interest is lowest amongst those with the lowest levels of education and highest for those with the highest levels of education, but there is not a statistically significant difference between HE graduates and those with HE or FE qualifications below degree level;
4. **Post-18 education increases political efficacy** – those with higher levels of qualifications are less likely to feel that politics is too complicated for them, although determining causality is complicated as people who more easily understand complex issues may also be more likely engage in higher levels of study;
5. **Post-18 education increases engagement in political issues** – more educated individuals are more likely to feel that they understand the background to various political issues, making them more likely to engage and act upon their evaluation of these issues. However, there is not a linear relationship between highest education level and engagement, and on many measures there is no statistically significant difference between the attitudes of people with A Levels and people with HE or FE qualifications below degree level.

6. **Post-18 education increases altruistic volunteering** – adults who had completed an FE course felt more able to engage in volunteering than previously, but the evidence was not always so clear on this point.

Economic Activity and productivity

1. **Education increases the productivity of individuals and has spillover effects for colleagues and others working in the wider industry or network** – research shows that these effects can be significant for all levels of post-secondary education, but may be particularly strong for graduates and for vocational qualifications at the intermediate level;
2. **Education contributes to economic growth** – the studies reviewed suggest that there is evidence that education leads to stronger growth at the aggregate level. This is true for intermediate level qualifications and higher level qualifications, although there may be some evidence that certain types of graduates (such as researchers and science and engineering graduates) may stimulate growth more than others;
3. **Education can facilitate entrepreneurial activity** – while there would appear to be little evidence to support a causal relationship between increased levels of education and chances of engaging in entrepreneurial activity, there is some evidence to suggest that education helps facilitate entrepreneurial success;
4. **Education can stimulate innovation** – as with entrepreneurial activity, while we found little evidence to support a direct causal link between education levels and innovation, there is some evidence that those with higher levels of education can help make use of innovation and can help turn research and development activity into innovation.

Health and wellbeing

1. **Education can lead to self-reported improvements in a range of subjective measures** – a number of studies suggest various forms of education can lead to improvements in: confidence and self-esteem; wellbeing and happiness; coping with mental health and physical disabilities; and ability to assist with children's education;
2. **Education can improve wellbeing and quality of life** – multivariate analyses suggest that completion of an FE course at level 2, formal learning leading to a qualification more generally and informal learning can lead to increased wellbeing as measured by life satisfaction and quality of life scores. Formal learning not resulting in a qualification, on the other hand, does not appear to have the same effect;
3. **Education can lead to greater job satisfaction and a sense of being valued by an employer** – research combining qualitative research and multivariate analysis showed that VET delivered through the workplace can improve life and job

satisfaction, can lead to job enrichment and can make employees feel valued by their employer;

4. However, **over-education can lead to lower life satisfaction** – there is evidence to suggest that individuals whose education level is much higher than the average level within the same occupational group are more likely to report lower levels of life satisfaction in the short term;
5. And **education can also have unexpected effects on other health-related choices and behaviours** – reviewed studies found that higher levels of education were significantly related to parental choice not to get a child immunised and were linked to choices about childrearing, with more highly educated tending to have fewer children, later in life.

Local communities

1. **Education increases tolerance, but this is only true for participation in degree-level education.** Those whose highest qualification is an HE or FE qualification below degree level show lower levels than might be expected given their educational participation across a range of measures, including in their attitudes towards immigration, gender equality and views about welfare recipients;
2. **Volume of education is not an accurate predictor of attitudes** that promote community cohesion. The type of education (i.e. level, institution type and possibly subject area) is also important;
3. **Education can promote community cohesion** but the mechanisms through which post-18 education influence community cohesion are unclear. The literature suggests that the role of FE colleges in providing a location where people can meet others may be as important as any benefits related to the teaching curriculum or qualifications obtained while in FE.

Wider economic, social and cultural benefits

1. **HE and FE provide opportunities for the development of social capital**, but the ability to take advantage of these opportunities is related to prior social capital development;
2. **The relationship between post-18 education and social mobility is not straightforward.** Increased HE and FE participation has not resulted in the entirely meritocratic job market some theorists envisaged. Social class continues to play an important role in preventing downward mobility of people from higher social classes as well as limiting the extent to which HE and FE can act as a mediating factor in class reproduction;
3. **Higher education has a relatively weak mediating role further into graduates' careers** – three and a half years after graduation more socially advantaged

graduates are more likely to be in the highest status occupations when holding all other factors constant;

4. **Education can entrench existing disadvantage** – while there is potential for post-18 educational participation to result in desirable social and cultural benefits for individuals and society, there is also a risk that it can further entrench existing disadvantage due to the impact prior experience and background has on HE and FE experience. Instead of reducing inequality, there is a risk that post-18 education experience can reinforce and perhaps even extend existing patterns of advantage and disadvantage leading to the development of cumulative disadvantage that extends into the labour market and can have a life-long impact on economic, social and cultural outcomes.

8 References

Abbas, A., Ashwin, P. & Mclean, M. (2016). The influence of curricula content on English sociology students' transformations: the case of feminist knowledge. *Teaching in Higher Education*, 21(4), 442-456.

Abel, W., Burnham, R. & Corder, M. (2016). Wages, productivity and the changing composition of the UK workforce. *Bank of England Quarterly Bulletin*, 56(1), 12-22.

Anderberg, D., Chevalier, A. & Wadsworth, J. (2009). *Anatomy of a Health Scare: Education, Income and the MMR Controversy in the UK*. CEP Discussion Paper No 929. <http://cep.lse.ac.uk/pubs/download/dp0929.pdf>

Antonucci, L. (2016). *Student Lives in Crisis: Deepening inequality in times of austerity*. Bristol: Policy Press.

Barton, E., Bates, E. and O'Donovan, R. (2017). 'That extra sparkle': students' experiences of volunteering and the impact on satisfaction and employability in higher education. *Journal of Further and Higher Education*, DOI: 10.1080/0309877X.2017.1365827

Bathmaker, A.-M., Ingram, N. & 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), 723–743.

Bathmaker, A-M. (2017). Post-secondary education and training, new vocational and hybrid pathways and questions of equity, inequality and social mobility: introduction to the special issue. *Journal of Vocational Education & Training*, 69(1), 1-9.

Becker, G. (1993). *Human Capital: Theoretical and empirical analysis with special reference to theory*. Chicago: University of Chicago Press.

Birch, S. (2016). Our new voters: Brexit, political mobilisation and the emerging electoral cleavage. *Juncture*, 23(2), 107-110.

<https://onlinelibrary.wiley.com/doi/epdf/10.1111/newe.12003>

Borgonovi, F. & Miyamoto, K. (2010). Education and civic and social engagement. In Centre for Educational Research and Innovation (CERI) (Eds.), *Improving Health and Social Cohesion through Education*. OECD iLibrary: Organisation for Economic Co-operation and Development.

Bosworth, D., Giernalczyk, H., Hogarth, T. & Vogler-Ludwig, K. (2011). *The anatomy of the wider benefits of VET in the workplace*. Cedefop 2011, Research Paper No. 12.

Brandenburg, B., Gunther, J. & Schneider, L. (2007). *Does Qualification Drive Innovation? A Microeconomic Analysis Using Linked-employer-employee Data*. IWH-Discussion Papers.

https://www.researchgate.net/publication/5134934_Does_Qualification_Drive_Innovation_A_Microeconomic_Analysis_Using_Linked-employer-employee_Data

Brennan, J. Chanfreau, J., Finnegan, J., Griggs, J., Kiss, Z. & Park, A. (2015). *The effect of Higher Education on graduates' attitudes: Secondary Analysis of the British Social Attitudes Survey*. BIS Research Paper No. 200. <http://dera.ioe.ac.uk/24684/1/BIS-15-89-the-effect-of-higher-education-on-attitudes.pdf>

Brennan, J., Durazzi, N. & Tanguy, S. (2013). *Things we know and don't know about the Wider Benefits of Higher Education: A review of the recent literature*. BIS Research Paper No. 133. London: Department for Business, Innovation and Skills

Brown, R. (2017). Higher education and inequality. *Perspectives: Policy and Practice in Higher Education*, 22(2), 37-43.

Bukodi, E. (2017). Cumulative Inequalities over the Life-Course: Life-long Learning and Social Mobility in Britain. *Journal of Social Policy*, 46(2), 367-404.

Bukodi, E. & Goldthorpe, J. H. (2016). Educational Attainment—Relative or Absolute—as a Mediator of Intergenerational Class Mobility in Britain. *Research in Social Stratification and Mobility*, 43:5–16.

Bukodi, E., Goldthorpe, J. H., Waller, L. & Kuha, J. (2015). The Mobility Problem in Britain: New Findings from the Analysis of Birth Cohort Data. *British Journal of Sociology*, 66, 93-117.

Buscha, F., Cerqua, A. & Urwin, P. (2014). *Estimation of the labour market returns to qualifications gained in English Further Education*. Research Paper No. 195. London: Department for Business, Innovation and Skills.

Cambridge Econometrics (CE) (2011). *Measuring the Economic Impact of Further Education*. Research Paper No. 38. London: Department for Business, Innovation and Skills.

Cambridge Econometrics (CE) (2015). *Measuring the Net Present Value of Further Education in England*. Research Paper No. 228. London: Department for Business, Innovation and Skills.

Chan, T.W. (2014). *Understanding Cultural Omnivores: Social and Political Attitudes*. Conference Paper, International Sociological Association Research Committee on Social Stratification RC28 Conference, University of Queensland, Brisbane, 16-20 July 2013 - 18 Jul 2013. University of Oxford: <http://users.ox.ac.uk/~sfos0006/papers/att3.pdf>

- Conlon, G. & Patrignani, P. (2011). *The Returns to Higher Education Qualifications*. Research Paper No. 45. London: Department for Business, Innovation and Skills.
- Cotton, D. & Alcock, I. (2013). Commitment to environmental sustainability in the UK student population. *Studies in Higher Education*, 38(10), 1457-1471.
- Curtis, J. (2016). A Question of Culture or Economics? Public Attitudes to the European Union in Britain. *The Political Quarterly*, 87(2), 209-218.
- Dakhli, M. & De Clercq, D. (2003). *Human Capital, Social Capital, and Innovation: A multi-country study*. Vlerick Leuven Gent Working Paper 2003/18.
- Dearden, L., Reed, H. & Van Reenen, J. (2005). *The Impact of Training on Productivity and Wages: Evidence from British panel data*. The Institute for Fiscal Studies WP05/16.
- Department for Business, Innovation and Skills (2011). *Supporting analysis for the Higher Education White Paper*. Economics Paper No. 14. London: Department for Business, Innovation and Skills.
- Department for Business, Innovation and Skills (2013a). *The Benefits of Higher Education Participation for Individuals and Society: key findings and reports "The Quadrants"*. Research Paper No. 146. London: Department for Business, Innovation and Skills.
- Department for Business, Innovation and Skills (2013b). *Investigating the Benefits of English and Maths Provision for Adult Learners: Part 1 Quantitative Assessment*. Research Paper No. 129a. London: Department for Business, Innovation and Skills.
- Department for Business, Innovation and Skills (2016). *Headline Findings from the UK Innovation Survey 2015: Innovation Analysis*. London: Department for Business, Innovation and Skills. <https://www.gov.uk/government/publications/innovation-survey-2009-statistical-annex>
- Department of Business, Energy and Industrial Strategy (BEIS) (2017). *Industrial Strategy: Building a Britain fit for the future*. London: Department of Business, Energy and Industrial Strategy.
- Dobbernack, J. M., & Modood, T. (2015). Tolerance in Critical and Political Theory: Coexistence or Parts of Something Bigger? *Contemporary Political Theory*, 14 (2), 164-171.
- Dolan, P., Fujiwara, D. & Metcalfe, R. (2012). *Review and update of wider benefits of Adult Learning*. London: Department for Business, Innovation and Skills.

Duru, D.N., Hanquinet, L. & Cesur, N.S. (2017). Perceptions of diversity and attitudes of tolerance in the 'fragmented' U.K. *Journal of Ethnic and Migration Studies*, 43(4), 674-692.

Dyson, S. E., Liu, L., Van Den Akker, O. & O'Driscoll, M. (2017). The extent, variability, and attitudes towards volunteering among undergraduate nursing students: Implications for pedagogy in nurse education. *Nurse Education in Practice*, 23, 15-22.

Easterbrook, M., Kuppens, T. & Manstead, A.S.R. (2016). The Education Effect: Higher Educational Qualifications are Robustly Associated with Beneficial Personal and Socio-political Outcomes. *Social Indicators Research*, 126(3), 1261–1298.

ESRC (2014). *The wellbeing effect of education*. ESRC Evidence Briefing, published July 2014. Economic and Social Research Council. <https://esrc.ukri.org/files/news-events-and-publications/evidence-briefings/the-wellbeing-effect-of-education/>

European Commission (2010). *Europe 2020: A strategy for smart, sustainable and inclusive growth*. Brussels: Publications Office of the European Union.

Fieldhouse, E. (2014). *Are we influenced by how our friends vote?* British Election Study, 10 Dec 2014, <http://www.britishelectionstudy.com/bes-resources/are-we-influenced-by-how-our-friends-vote/#.WCWrrdKLTIU>

Fisher, S.D. & Hillman, N. (2014). *Do students swing elections? Registration, turnout and voting behaviour among full-time students*. HEPI Report 70. Oxford: Higher Education Policy Institute.

Ford, R. & Heath, A. (2014). Immigration: A nation divided? In A. Park., C. Bryson, & J. Curtice (eds.), *British Social Attitudes: the 31st Report*. London: National Centre for Social Research.

Fossati, F. (2018). Who Wants Demanding Active Labour Market Policies? Public Attitudes towards Policies that put Pressure on the Unemployed. *Journal of Social Policy* 47(1), 77-97.

Gloster, R., Buzzeo, J., Marvell, R., Tassinari, A., Williams, J., Williams, M., Swift, S. & Newton, B. (2015). *The Contribution of Further Education and Skills to Social Mobility*. BIS Research Paper No 254. London: Department for Business, Innovation and Skills. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/466420/BIS-15-579-contribution-of-further-education-and-skills-to-social-mobility.pdf

Goldthorpe, J. H. (2016). Social class mobility in modern Britain: changing structure, constant process. *Journal of the British Academy*, 4, 89–111.

- Goodwin, N. & Heath, O. (2016). *Brexit vote explained: poverty, low skills and lack of opportunities*. York: Joseph Rowntree Foundation.
- Guest, C.J. (2016). Knowing feminism: the significance of higher education to women's narratives of 'becoming feminist'. *Gender and Education*, 28(3), 471-476.
- Günther, J. & Gebhardt, O. (2006). *Auswärtige Betriebe und Innovationstätigkeit*, in: IWH; IAB (eds.): Beschäftigungsanalysen mit den Daten des IAB-Betriebspanels– Tagungsband zum Workshop des IAB und IWH. IWH: Halle, 107-129.
- Hall, P. (1999). Social capital in Britain. *British Journal of Politics*, 29, 417-461.
- Harding, C. & Ghezelayagh, S. (2014). *Community Learning Learner Survey: Additional analysis of participants following family learning courses*. BIS Research Paper no. 180. London: Department for Business, Innovation and Skills.
- Harding, C., Clay, D., Mortimer, E., Ghezelayagh, S. & Bloch, A. (2014). *Community Learner Learning Survey Wave 2*. BIS Research Report No 170. London: Department for Business, Innovation and Skills.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/300555/bis-14-688-community-learning-learner-survey-wave-2.pdf
- Hayward, H., Hunt, E. & Lord, A. (2014). *The economic value of key intermediate qualifications: estimating the returns and lifetime productivity gains to GCSEs, A levels and apprenticeships*. London: Department for Education.
- Henn, M. & Foard, N. (2014). Social differentiation in young people's political participation: the impact of social and educational factors on youth political engagement in Britain. *Journal of Youth Studies*, 17(3), 360-380.
- Hobolt, S.B. (2016). The Brexit vote: a divided nation, a divided continent. *Journal of European Public Policy*, 23(9), 1259-1277.
- Holmes, C. (2013). Has the Expansion of Higher Education Led to Greater Economic Growth? *National Institute Economic Review*, 224, 29-47.
- Jack, A. (2016). (No) Harm in Asking: Class, Acquired Cultural Capital, and Academic Engagement at an Elite University. *Sociology of Education*, 89(1), 1-19.
- Jenkins, A. & Mostafa, T. (2012). *Learning and Wellbeing Trajectories Among Older Adults in England*. Research Paper No. 92. London: Department for Business, Innovation and Skills.
- Johnston, R., Jones, K. & Manley, D. (2016). Can we really not predict who will vote for Brexit, and where? <http://blogs.lse.ac.uk/politicsandpolicy/can-we-really-not-predict-who-will-vote-for-brexit-and-where/>

- Jones, H. (2014). 'The Best Borough in the Country for Cohesion!': Managing Place and Multiculture in Local Government. *Ethnic and Racial Studies*, 37(4), 605–620.
- Kenealy, D., Eichhorn, J., Parry, R., Paterson, L., & Remond, A. (2017). Political Engagement. In D. Kenealy, J. Eichhorn, R. Parry, L. Paterson & A. Remond, *Publics, Elites and Constitutional Change in the UK. Comparative Territorial Politics*. London: Palgrave Macmillan.
- Kiss, Z. & Park, A. (2014). National identity: Exploring Britishness. In Park, A., Bryson, C. and Curtice, J. (eds.), *British Social Attitudes: the 31st Report*. London: National Centre for Social Research.
- Kyriacou, C. & Kato, Y. (2014). Undergraduate students' motives towards volunteer civic engagement in England and Japan. *Psychology of Education Review*, 38(1), 33-39.
- Laurison, D. (2015). The right to speak: differences in political engagement among the British elite. *The Sociological Review*, 63, 349–372.
- Lee, L. & Young, P. (2013). A disengaged Britain? Political interest and participation over 30 years. In Park, A., Bryson, C., Clery, E., Curtice, J. and Phillips, M. (eds.), *British Social Attitudes: the 30th Report*. London: National Centre for Social Research.
- Levy, F. & Murnane R. J. (1992). U.S. Earnings and Earnings Inequality: A review of recent trends and proposed explanations. *Journal of Economic Literature*, 30(3), 1333-1381.
- Levy, F., & Murnane, R. J. (2013). *Dancing with robots: Human skills for computerized work*. Cambridge, MA: Third Way.
- London Economics and IPSOS Mori (2013a). *The Impact of Further Education Learning*. BIS Research Paper No 104. London: Department for Business, Innovation and Skills. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69179/bis-13-597-impact-of-further-education-learning.pdf
- London Economics and Ipsos MORI (2013b). *The economic and social benefits associated with Further Education and Skills: Learning for those not in employment*. BIS Research Paper No. 127. London: Department for Business, Innovation and Skills.
- Macmillan, L. & Vignoles, A. (2013). *Mapping the occupational destinations of new graduates*. Social Mobility and Child Poverty Commission. http://dera.ioe.ac.uk/18589/7/Mapping_the_occupational_destinations_of_new_graduates_Final.pdf
- MacNicol, J. (2017). Reconstructing the Underclass. *Social Policy and Society*, 16(1), 99-108.

- Marginson, S. (2016). The Worldwide Trend to High Participation Higher Education: Dynamics of Social Stratification in Inclusive Systems. *Higher Education*, 72, 413-434.
- McCollum, D., Nowok, B. & Tindal, S. (2014). Public attitudes towards migration in Scotland: Exceptionality and possible policy implications. *Scottish Affairs*, 23(1), 79-102.
- Milligan, K., Moretti, E. & Oreopoulos, P. (2004). Does education improve citizenship? Evidence from the United States and the United Kingdom. *Journal of Public Economics*, 88, 1667-1695.
- Nie, N., Junn, J. & Stehlik-Barry, K. (1996). *Education and Democratic citizenship in America*. Chicago: The University of Chicago Press.
- Nozaki, Y. (2017). The effects of higher education on childrearing fertility behavior in Japan. *International Journal of Social Economics*, 44(5), 653-669.
- OECD (2013). *Skilled for Life? Key findings from the survey of adult skills*. Organisation of Economic Co-operation and Development.
- Ormston, R. (2015). *Disunited Kingdom? Attitudes to the EU across the UK. The UK in a changing Europe*. London: National Centre for Social Research.
<https://whatukthinks.org/eu/wp-content/uploads/2015/12/Analysis-paper-3-Disunited-kingdom.pdf>
- Park, A. & Rhead, R. (2013). Changing attitudes towards sex, marriage and personal relationships. In Park, A., Bryson, C., Clery, E., Curtice, J. and Phillips, M. (eds.), *British Social Attitudes: the 30th Report*. London: National Centre for Social Research.
- Paterson, L. (2014). Education, Social Attitudes and Social Participation Among Adults in Britain. *Sociological Research Online*, 19(1).
- Pemberton, S. & Humphris, R. (2018). *Invisible Rules: Social Mobility, Low-income and the Role of Further and Higher Education*. London: Walcot Foundation.
http://www.walcotfoundation.org.uk/uploads/1/7/2/2/17226772/invisible_rules_-_final.pdf
- Persson, M. (2014). Testing the Relationship Between Education and Political Participation Using the 1970 British Cohort Study. *Political Behaviour*, 36(4), 877-897.
- Piper, A. (2015). Heaven knows I'm miserable now: overeducation and reduced life satisfaction. *Education Economics*, 23(6):677-692.
- Power, S., Allouch, A., Brown, P. & Tholen, G. (2016). Giving something back? Sentiments of privilege and social responsibility among elite graduates from Britain and France. *International Sociology*, 31(3), 305-323.

- Rammer, C., Peters, B., Schmidt, T., Aschhoff, B., Doherr, T., & Niggemann, H. (2005). *Innovationen in Deutschland. Ergebnisse der Innovationserhebung in der deutschen Wirtschaft*. Nomos-Verlagsgesellschaft: Baden-Baden.
- Reynolds, P. D., Bygrave, W. D., Autio, E., et al. (2002). *Global Entrepreneurship Monitor: 2002 executive report*. Babson College, London Business School, Kauffman Foundation. <http://www.gemconsortium.org/report>
- Rheingans, R. & Hollands, R. (2013). 'There is no alternative?': challenging dominant understandings of youth politics in late modernity through a case study of the 2010 UK student occupation movement. *Journal of Youth Studies*, 16(4), 546-564.
- Rietveld, E. (2014). Debating Multiculturalism and National Identity in Britain: Competing Frames. *Ethnicities*, 14(1), 50–71.
- Rincón-Aznar, A., Forth, J., Mason, G., O'Mahony, M. & Bernini, M. (2015). *UK skills and productivity in an international context*. Research Paper No. 262. London: Department for Business, Innovation and Skills.
- Scott, R., Cadywould, C., Hilhorst, S. & Reynolds, L. (2017). 'Great Britain - It's who you know': exploring the factors behind the UK's vote to leave the EU. In Demos (2017) Mapping and responding to the rising culture and politics of fear in the European Union: Nothing to fear but fear itself? https://www.demos.co.uk/wp-content/uploads/2017/02/DEM5104_nothing_to_fear_report_140217_WEBv1.pdf#page=51
- Sena, V. & Añon-Higon, D. (2014). Productivity, R&D spillovers and educational attainment. *Oxford Bulletin of Economics and Statistics*, 76(1), 1-23.
- Sloane, P. J. & O'Leary, N. C. (2004). *The Return to a University Education in Great Britain*. IZA Discussion Paper No. 1199. Bonn: Institute for the Study of Labor (IZA).
- Smets, K., & van Ham, C. (2013). The embarrassment of riches? A meta-analysis of individual-level research on voter turnout. *Electoral Studies*, 32, 344–359.
- Spalding, R. (2013) "Daring to Volunteer": some reflections on geographers, geography students and evolving institutional support for community engagement in higher education. *Journal of Geography in Higher Education*, 37(1), 59-64.
- Sturgis, P., Bruton-Smith, I., Kuha, J. & Jackson, J. (2014). Ethnic Diversity, Segregation and the Social Cohesion of Neighbourhoods in London. *Ethnic and Racial Studies*, 37(8), 1286–1309.
- SQW Limited (SQW), the National Research and Development Centre for adult literacy and numeracy (NRDC, at the Institute of Education, University of London), GfK NOP and

the National Foundation for Educational Research (NFER) (2013) Investigating the Benefits of English and Maths Provision for Adult Learners. BIS Research Paper No 129. London: Department for Business, Innovation and Skills.

Taylor-Gooby, P. (2017). Re-Doubling the Crises of the Welfare State: The impact of Brexit on UK welfare politics. *Journal of Social Policy*, 46(4), 815-835.

Van Der Sluis, J., Van Praag, M. & Vijverberg, W. (2008). Education and entrepreneurship selection and performance: A review of the empirical literature. *Journal of Economic Surveys*, 22(5), 795-841.

Walker, I. & Zhu, Y. (2013). *The Impact of University Degrees on the Lifecycle of Earnings: Some further analysis*. Research Paper No. 112. London: Department for Business, Innovation and Skills.



Department
for Education

© Crown copyright

Reference: DFE-RR856

ISBN: 978-1-83870-022-5

The views expressed in this report are the authors' and do not necessarily reflect those of the Department for Education.

Any enquiries regarding this publication should be sent to us at:

www.education.gov.uk/contactus

This document is available for download at www.gov.uk/government/publications