3.3 Health and vulnerability

3.3.1 Physical health

As noted earlier, it is important to take into account reverse causality in assessing the effects of education on health; that is to say it is likely that healthier children are more educationally successful and become healthier adults. The association of good health and education could be interpreted causally in either direction or might reflect some other unmeasured characteristic with a biological base. In addition, there is a large body of literature on research in the UK relating poorer health (Davey-Smith et al, 1990) and higher risk of accident (Whitehead and Dahlgren, 1991) to family socio-economic status. It was possible to control for these family characteristics – father's occupational class, mother's education and childhood poverty – in assessing the relative health of graduates compared to other qualifiers.

Just over one-third of men and exactly a third of women reported that they were in "excellent" health. Strong higher education effects as revealed by the odds ratios were apparent. Figures 3.3.1a and 3.3.1b show that when the controls were applied the effects persisted: excellent health is likely to be more commonly reported among graduates than among people with lower qualifications. The difference between graduates and respondents with just A-levels was statistically significant.

Independently of the higher education effect, manual class origins and childhood poverty were also associated with poorer self-rated health for both men and women (see Appendix 2, Tables 3.3.1a and 3.3.1b). This would merit further investigation, drawing on all measures of health collected earlier in the cohort members' lives, and other characteristics, such as maternal health. There is a wider range of such measures in BCS70, so when the new round of age 29 data becomes available in this study the focus of investigation might usefully move there.

Figure 3.3.1a: Likelihood of excellent health by qualification, with and without controls for family origin and ability - Men

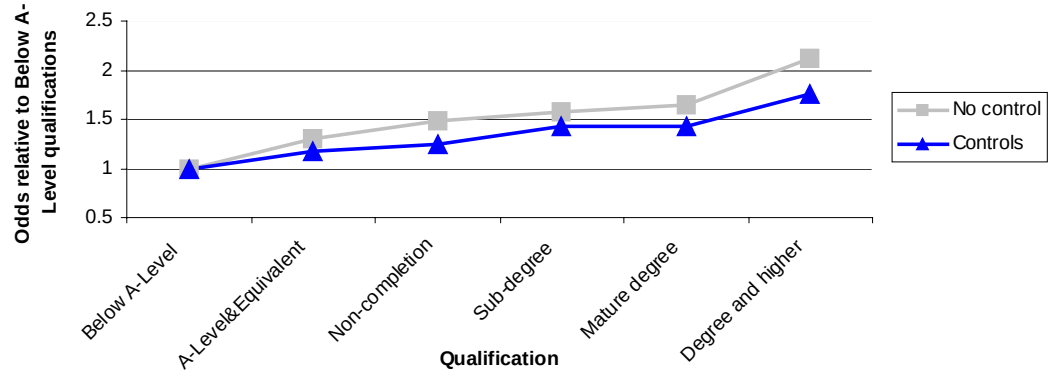
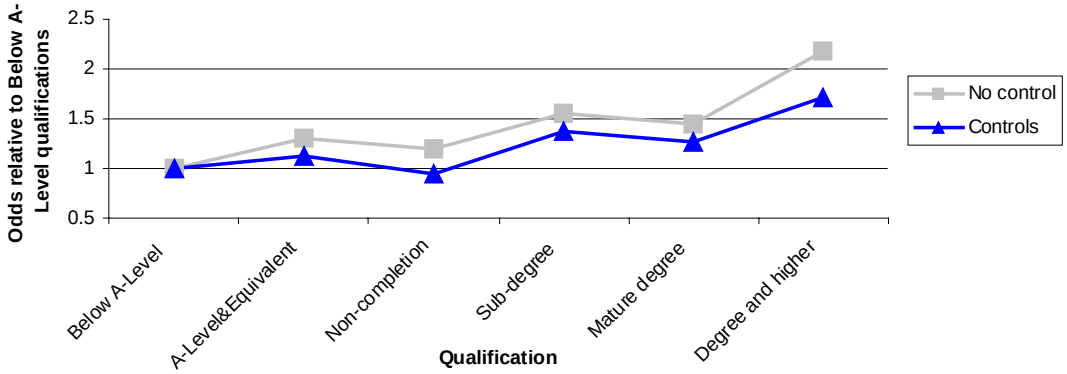


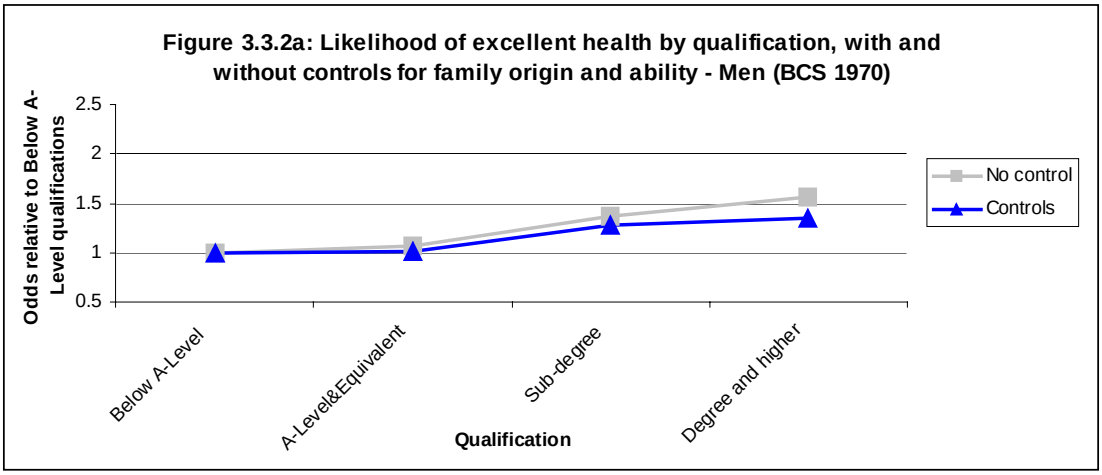
Figure 3.3.1b: Likelihood of excellent health by qualification, with and without controls for family origin and ability - Women

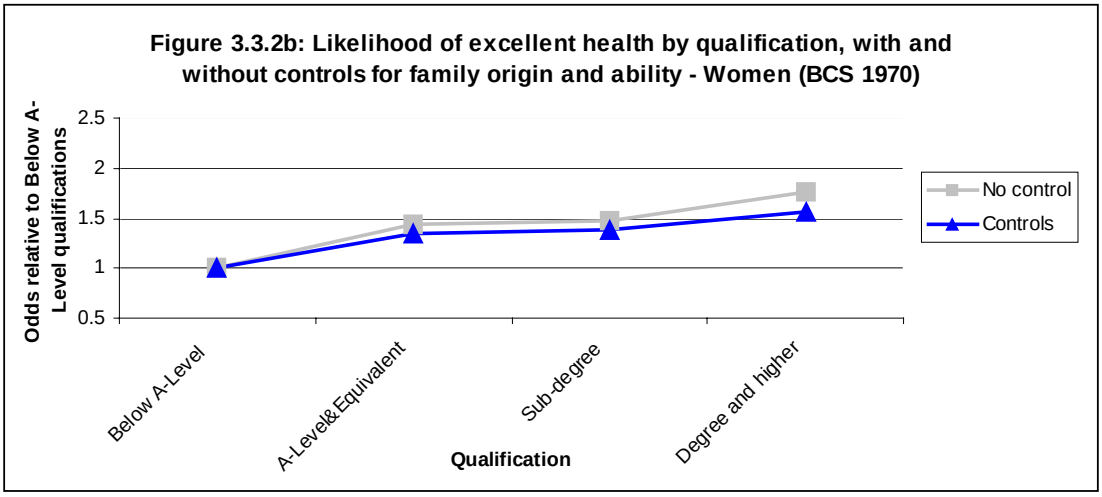


3.3.2 Physical health in the BCS70 cohort

Another extension to the enquiry was to compare the returns to health in BCS70 as well as NCDS. This enabled us to identify any effects of social change over the twelve years separating the two studies. Socio-economic status is a relative matter. It would be possible for the whole population to become more prosperous and healthy, while relative income and health inequalities remained. Although the full picture of higher education is less complete at age 26 than at age 33 in NCDS (the ages for the most recent surveys), it has been possible to make a preliminary investigation of the effects of higher education expansion on health relativities. Health inequalities by qualification were examined for the BCS70 cohort using a similar analysis to that for the NCDS cohort. About 12% of the NCDS age cohort entered the labour market as graduates in the late 1970s, while about 20% of the BCS70 age cohort entered the labour market as graduates in the early 1990s, so the graduate population increased by about 50%.

Overall 38% of men reported excellent health and 33% of women – surprisingly, much the same proportions as for the 33-year-olds in NCDS. Figures 3.3.2a and 3.3.2b show that graduates in this group in 1996 still retained a health advantage over lower-qualified people. The effects, as revealed by the odds ratios, were reduced by the control variables, and as with the NCDS sample the most important variables for both men and women were father's occupation and whether or not children had had free school meals. However, even controlling for family origin and ability, the differences between graduates and respondents with A-levels was still statistically significant for women ($P<.05$), and for men ($P<.10$). The differences in health statuses between BCS70 graduates and the less qualified are less marked than the differences between these groups in the NCDS sample. However that may be attributable to their younger age, with self-rated health deteriorating less rapidly for the more highly qualified.



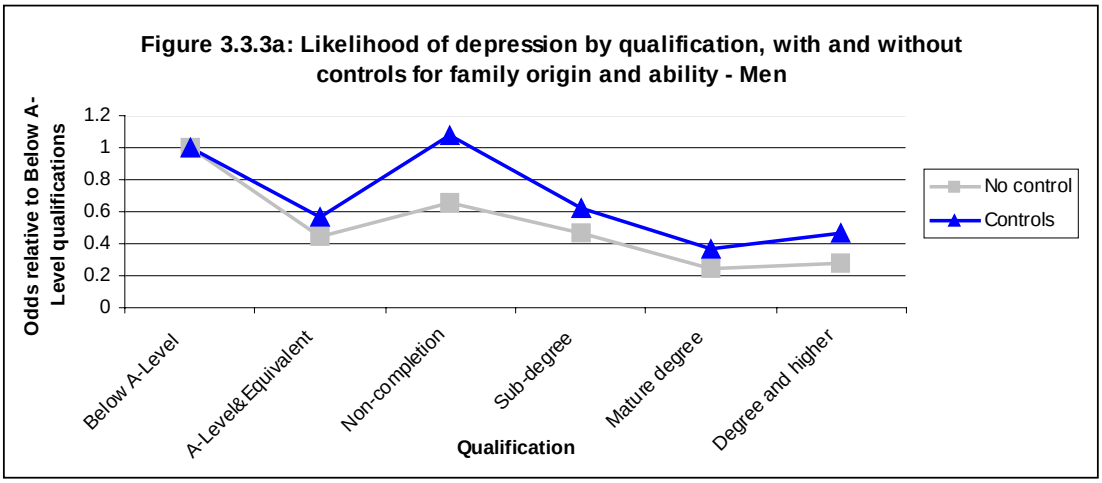


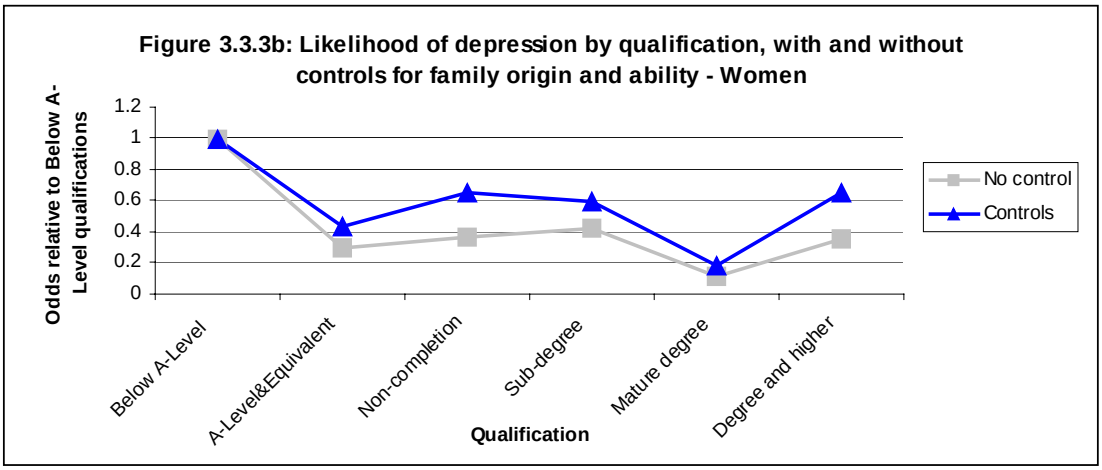
3.3.3 Psychological health

The measure of depression used in NCDS – the Malaise inventory – revealed large differences between men and women: 4% of men were classified as clinically depressed and 10% of women. The NCDS cohort of graduate men seemed to be relatively protected from psychological stress (Figure 3.3.3a). However, middle-class social origins and freedom from childhood poverty also contributed to this effect, which was much diminished when these factors were taken into account, as Figure 3.3.3a shows. (Also see Appendix 2, Table 3.3.3a.)

Even then, graduate men were less than half as likely to suffer depression as people with below A-level qualifications. Among women, the effects of childhood

circumstances were more marked and, taking these factors into account, graduate women were no less likely to suffer from depression than the group without A-levels (Figure 3.3.3b and Appendix 2, Table 3.3.3b).



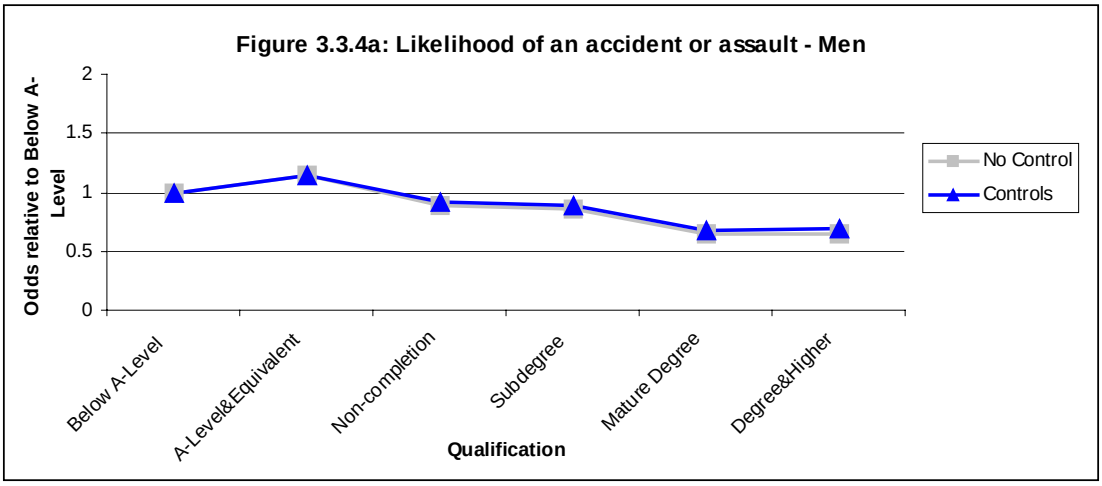


Men who started a higher education course but did not complete it were as depression-prone as the below A-level group, once the effects of family origin and ability had been controlled. Though strictly to be sure of this we would need to take into account how long ago the drop-out occurred. Mature women graduates seemed to be particularly well protected from depression. There is a complex of possible reasons for these effects, and stage in the life-cycle may be important for mature women graduates, many of whom have passed the early stage of family formation, with its concomitant stresses and fatigue.

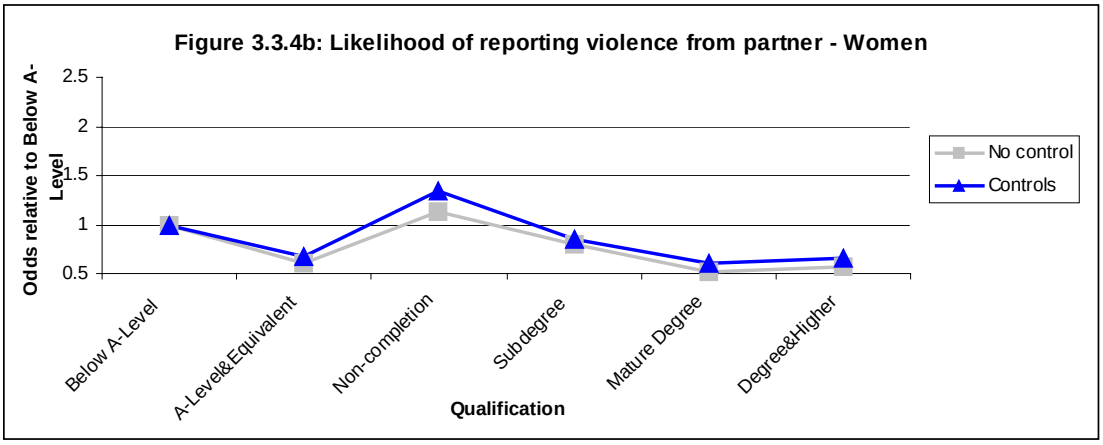
3.3.4 Physical vulnerability - accidents and assaults

Analyses of vulnerability to physical harm through accidents or assaults were carried out for men, since the numbers of women who had experienced these was low: 58% of men reported such experiences. Confirming previous findings, graduate men had lower odds ratios than those with A-levels for suffering an accident or assault. Controlling for childhood characteristics reduced the effect, but not below statistical significance (Figure 3.3.4a). Men from middle-class origins were less likely to suffer an accident or assault than men with A-levels or lower qualifications. Controlling for the social class of the current occupation reduced the effect markedly (Appendix 2, Table 3.3.4a). Both clerical workers and managerial/professional workers were less likely to suffer accidents and assaults.

Figure 3.3.4a: Likelihood of an accident or assault - Men



Women who had suffered physical violence from a previous partner were also compared across the education levels, although again the frequencies for such experiences were low. Of those who had broken up with partners, 47% reported violence – 12% of the sample as a whole. The data were only available for those women who had separated from a previous partner. Graduate women and women with A-levels were least likely to have been a target of marital violence (Figure 3.3.4b). However, the strongest effect in this analysis was that of measured ability at age 11, and the qualifications effect may simply denote the effects of intelligence, or these effects combined with assortative mating (see Appendix 2, Table 3.3.4b). Childhood poverty was also a statistically significant predictor of marital assaults. Notably the non-completing women appeared to be the most vulnerable to assault.



3.3.5 Conclusions

The analysis reveals strong gradients in physical and psychological health effects with higher education experience that are sustained in the BCS70 cohort. Graduates also seem to get a degree of protection from the likelihood of physical accidents (men) and the experience of violence from a partner (women). Women non-completers appear particularly vulnerable to this latter experience. It is possible that the gradients revealed are reflecting a "selection effect" whereby people entering higher education are already more healthy and less vulnerable than those who do not enter higher education. However, the variables that were used as controls are themselves strongly related to health status, so it is unlikely that selection effects account for the differences entirely. What seems probable is that the experience of higher education does produce a boost in well-being, not least because of the prospects it offers for more secure and satisfying jobs after graduation. Further work will be needed to identify precisely how this happens, especially by examining not only earlier health status but also the kinds of occupations that the graduates entered.

3.4 Parenting

3.4.1 Educational problems of children

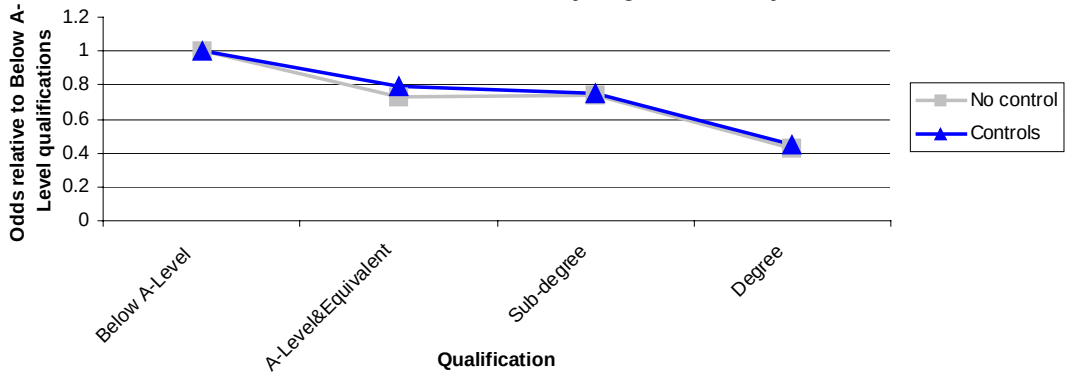
There is much evidence to suggest that parents' educational attainment is an important factor in children's educational attainment, especially at the bottom end of the educational

scale, e.g. in the acquisition of the basic skills (Bynner and Steedman, 1995). There is less direct evidence about the distinctive educational benefits graduate parents bestow on their offspring. Again we need to ask what added value to parenting, if any, does higher education bring?

The NCDS gives the opportunity to examine educational outcomes over three generations. The 1995 10% sample was used to examine the relationship between respondents' qualifications and their children's educational problems. Men and women were combined for this analysis in order to increase sample size[1]: 8% of men and 11% of women parents reported such problems. The higher education effects were controlled for childhood social class and poverty, mother's education, and for cognitive skills tests at age 11. The only respondent childhood factor to reach statistical significance was cognitive skill scores (Appendix 2, Table 3.4.1).

Confirming expectations, it can be seen from the odds ratios (Figure 3.4.1) that graduate parents were less likely than others to have children with educational problems.

Figure 3.4.1 : Likelihood of educational problems in children, with and without controls for family origin and ability



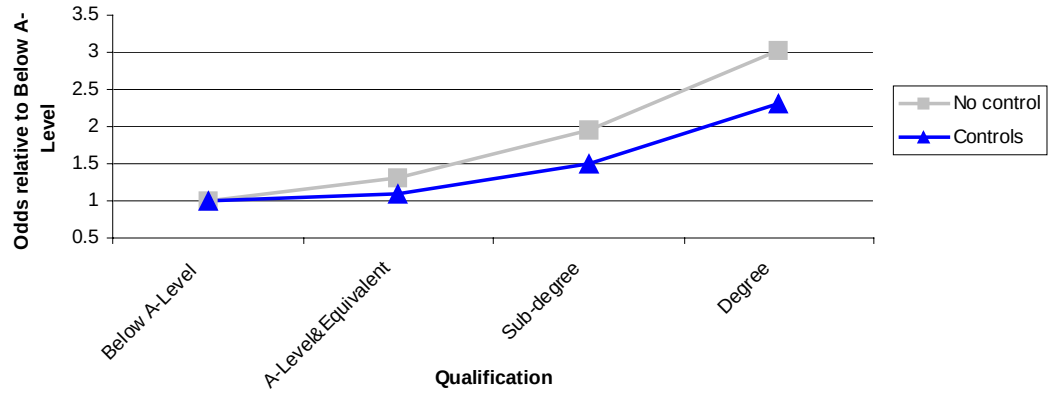
3.4.2 Books owned by children

[1] It should be noted that 42% of (standard) graduate women had not had children by the age of 37. This is a decrease of 5% since 1991, when 47% of (standard) graduate women had not had children. About a third of these women had health or other problems preventing fertility, while another third did not wish to have children.

A related effect is the number of books owned by children in the family (signifying the cultural capital of the parents). One-quarter of parents said that their children had fewer than 50 books. Again it can be seen that the children of graduate parents were more likely to own in excess of 50 books (Figure 3.4.2).

An analysis controlling for the number of children in the family and the age of the oldest child made little difference to the odds ratios reflecting these effects (see Appendix 2, Table 3.4.2). Again the only childhood factor to reach statistical significance was respondents' childhood test scores. However, in both analyses the effects of higher education remained statistically significant. While these results are preliminary, they suggest that higher education may have a role in breaking the cycle of educational disadvantage among the children of those people who make the transition into the higher education system. Their children are likely to gain more of the advantages in relative terms that they lacked.

Figure 3.4.2: Likelihood of owning more than 50 books



3.4.3 Conclusions

Graduate families appeared to have significant educational benefits for children in so far as absence of educational problems and evidence of children's reading is concerned. This may of course be due again to the intergenerational transmission of educative childhood experiences on the part of the graduates themselves, but this is unlikely to be the whole

explanation. Application of the controls for family background and earlier educational attainment suggest that it is the higher education experience itself which lays the foundations for educationally effective parenting. Graduates' children clearly have advantages over those of their non-graduate peers.

3.5 Civic engagement

There has been little research in the UK on the topic of civic engagement, and in particular on the relationship of higher education to various forms of civic activity. Carr-Hill (2000), reviewing the evidence from the USA, reports a strong relationship between education and voluntary work. However, he attributes this mainly to the higher socio-economic status of graduates.

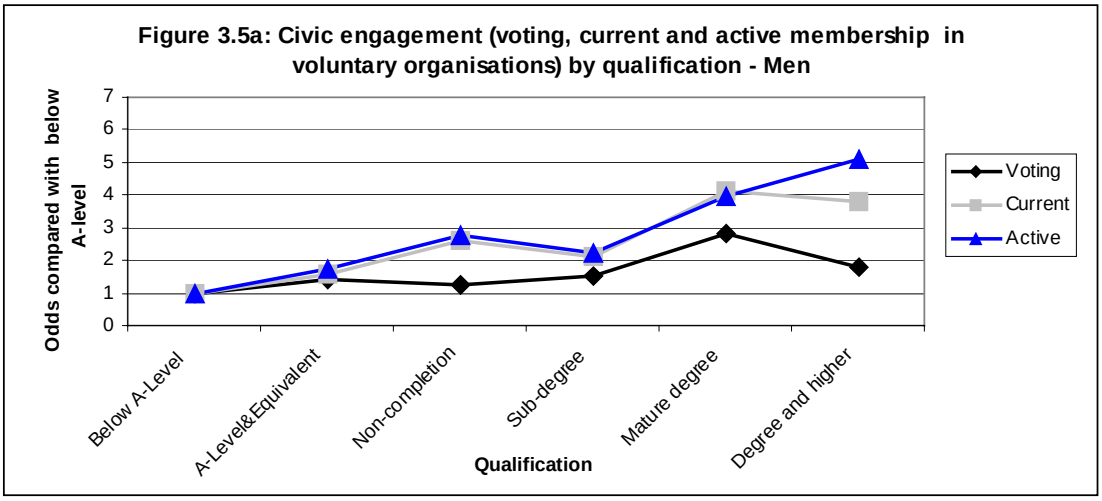
3.5.1 Voting

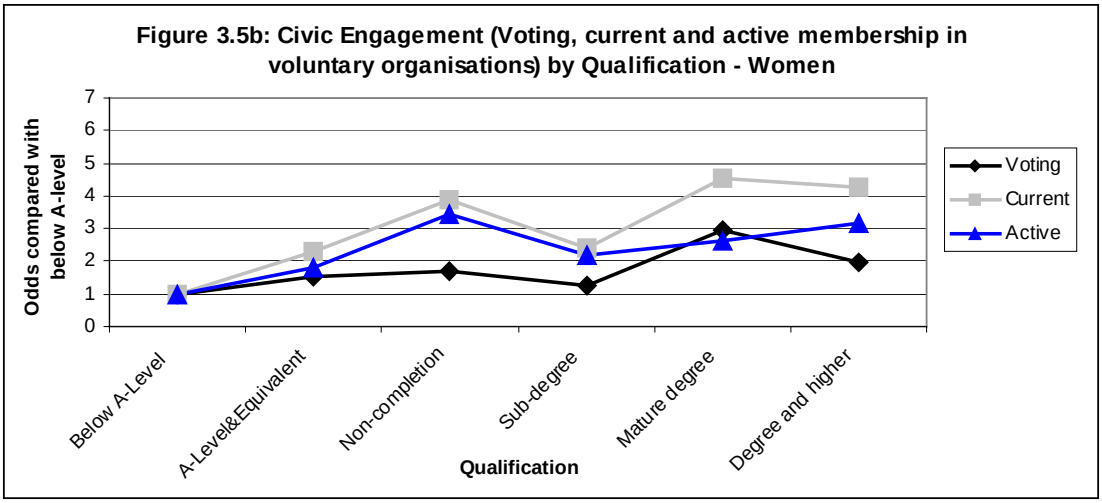
56% of men and 55% of women said they had voted in four previous elections. Graduates were more likely to have voted than people without A-levels. However, the difference in the odds ratios between graduates and those with A-levels was not statistically significant in the case of people who graduated at the usual age (Figures 3.5a and 3.5b). Mature men graduates were more likely to vote than people with lower qualifications, an effect which remained statistically significant ($P<.10$) when family origin and ability had been controlled (Appendix 2, Tables 3.5.1a and 3.5.1b).

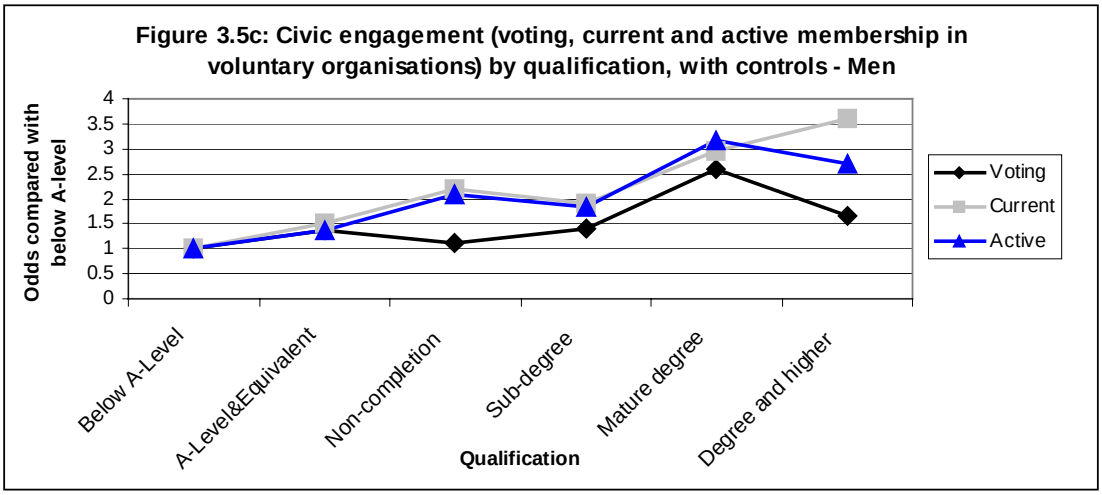
3.5.2 Engagement in voluntary organisations and community activity

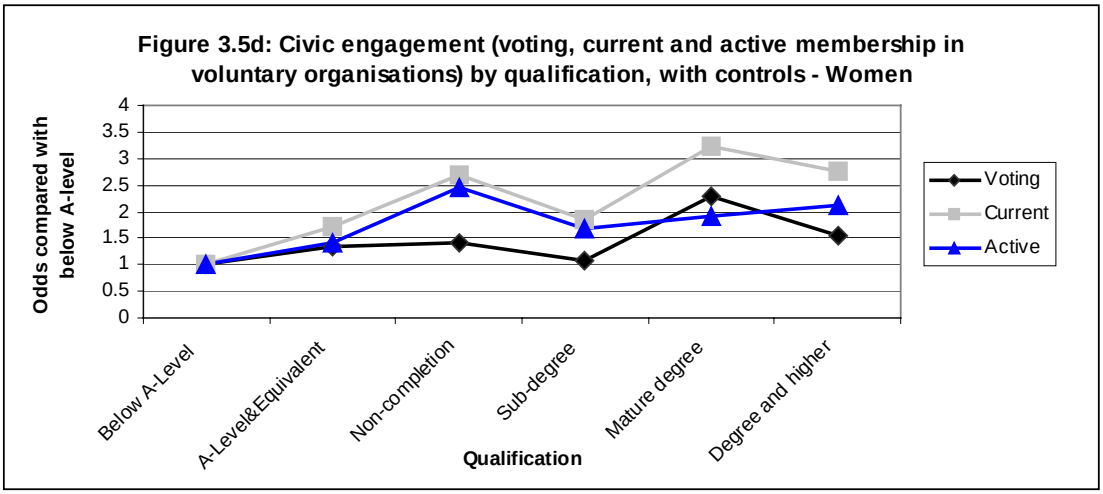
14% of men were members of voluntary and community organisations and 9% were active in them. Women showed much more evidence of such civic engagement: 25% were members and 21% were active. As Figures 3.5a and 3.5b show, there is a clear gradient by qualifications for such activity. Graduates of both sexes had the highest membership and activity rates, with the exception of women non-completers. Controlling for childhood characteristics reduced the odds ratios but they remained statistically significant (Figures 3.5c and 3.5d). Parental social class, childhood poverty and ability tests also had statistically significant relationships with civic activity (Appendix 2, Tables 3.5.1a to 3.5.2d).

Among men graduates, mother's education level was also important, whereas this was not the case for women graduates. Perhaps these women with better-educated mothers had greater time commitments in their careers. However, women graduating at the conventional time had higher activity rates. A control variable for working in the public sector was also applied. Although this variable predicted civic involvement (P<.001), it did not change the odds ratios for various levels of qualification very much. Even with these controls the effects of higher education on civic engagement remained strong, with graduates generally being about *three times* more likely to be a current member or active member than respondents without A-levels and about *twice* as likely as those with A-levels. Mature graduate men were slightly more likely to be active than other graduates, and vice-versa for mature and other graduate women.









3.5.3 Conclusions

The findings presented in this section give some of the most striking evidence of the social benefits accruing from higher education. Unlike some of the other outcomes considered so far – which, despite the controls, may still be subject to a selection bias – civic participation is essentially an adult activity that is unlikely to be affected markedly by pre-higher education experience.

Although mature students may well bring prior experience of civic engagement with them into higher education, this is not the case for ordinary undergraduates. Moreover, even for the mature graduates, when occupational experience is taken into account, the higher education benefit to civic participation remains.

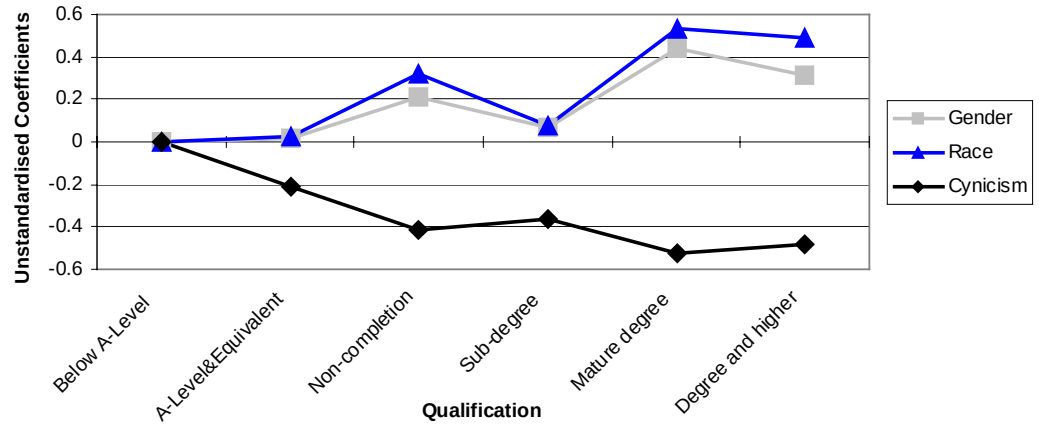
3.6 Values and attitudes

3.6.1 Political cynicism

Attitudes were measured on continuous scales (see Table 2a) so, as noted in section 2, multiple regression was used as the analysis method. This produces – as estimates of relationship –
regression coefficients, which show the unit change (on a scale of 1 to 5) in the outcome variable (this time an attitude score) associated with particular categories of the independent or predictor variables. To demonstrate the education gradients we plot these regression coefficients against education levels in an analogous way to the odds ratios.

Although, as we have seen, graduates were only slightly more likely to vote than people with lower qualifications, graduates of both sexes were markedly less cynical about politics (Figures 3.6a and 3.6b). Multiple regression analyses (Appendix 2, Tables 3.6.1a and 3.6.1b) show that the differences between graduates and A-level or below A-level remained statistically significant when controls for family origin, ability and public sector employment were applied (Figures 3.6c and 3.6d).

Figure 3.6a: Attitudes (gender and race equality, political cynicism) by qualification - Men



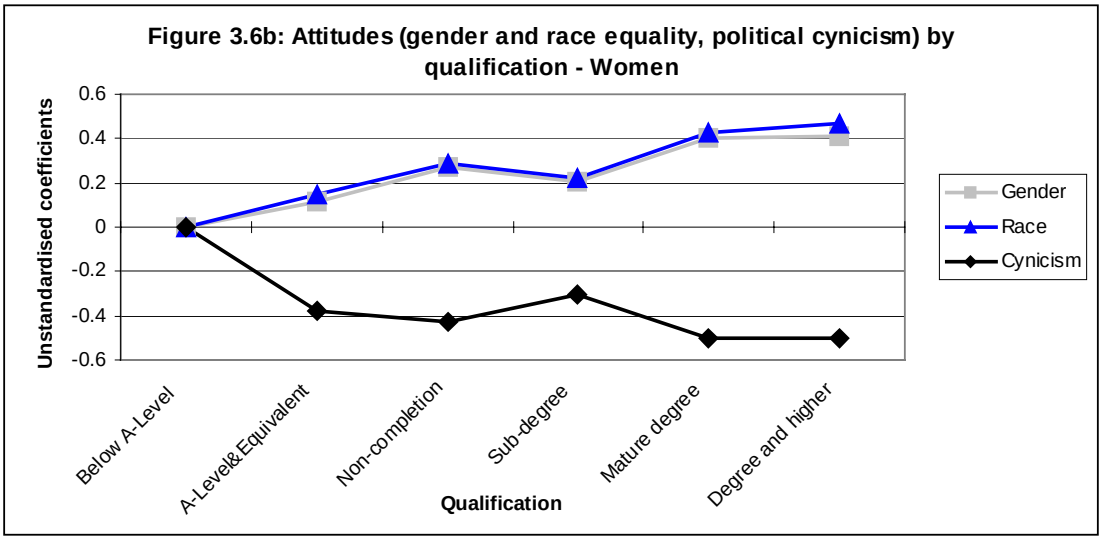


Figure 3.6b: Attitudes (gender and race equality, political cynicism) by qualification - Women
Unstandardised coefficients
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
Below A-Level
A-Level&Equivalent
Non-completion
Sub-degree
Mature degree
Degree and higher
Qualification
Gender
Race
Cynicism

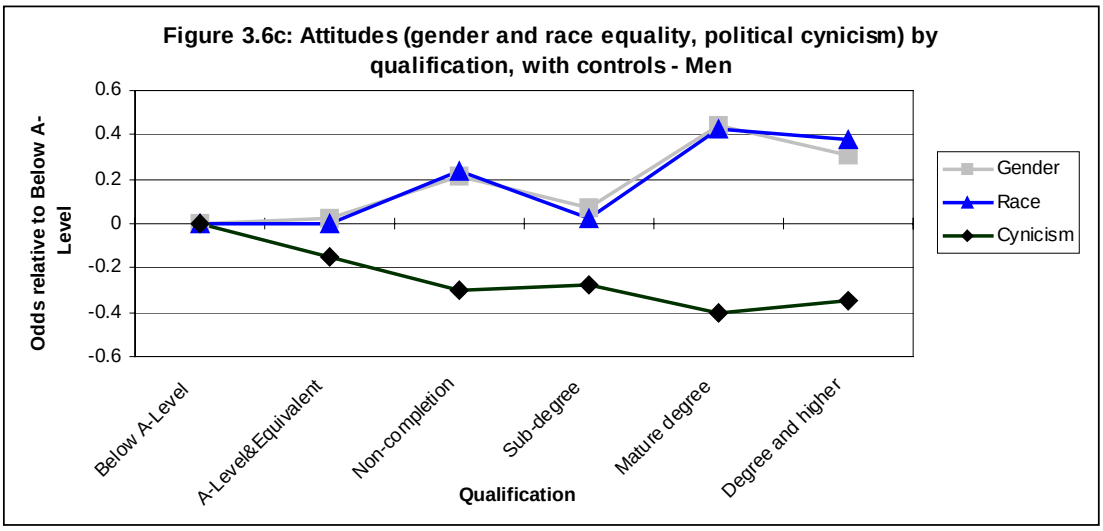
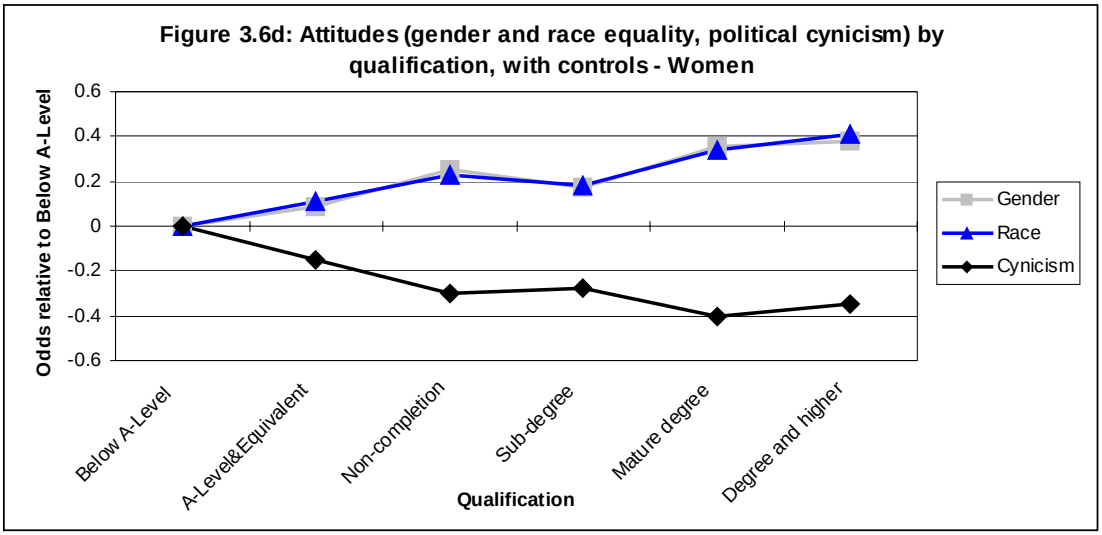


Figure 3.6c: Attitudes (gender and race equality, political cynicism) by qualification, with controls - Men
Odds relative to Below A-Level
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
Below A-Level
A-Level&Equivalent
Non-completion
Sub-degree
Mature degree
Degree and higher
Qualification
Gender
Race
Cynicism



3.6.2 Gender and race equality

As Figures 3.6a to 3.6d show, graduates were notably less discriminatory in their attitudes to racial and sexual equality. This remained the case when controls for family origin, ability, public sector employment and ethnic origin were applied. There were statistically significant differences between graduates and people with lower qualifications (Appendix 2, Tables 3.6.2a to 3.6.2d). It seems that graduates show a distinctive profile of tolerant attitudes and civic engagement. In this sense, the aims of higher education in facilitating democratic values and citizenship appear to have been successful.

3.6.3 Conclusions

The findings for attitudes reinforce the conclusions of the previous section. Higher education appears to make a distinctive contribution to increased tolerance of diversity, to commitment to equal opportunities and to resistance to political alienation. Such values can be seen as lying at the heart of social cohesion, which underlines the significant contribution higher education makes to bringing this about. As for civic participation, it is difficult to see how these attitudes can be formed in more than an embryonic way before young people enter higher education. In so far as they have orientations in the directions indicated, these are likely to be related to the controls, especially those concerned with earlier educational ability. The fact that the higher education effect is sustained suggests that it is the experience itself that makes the difference. Mature students are particularly attuned to anti-discriminatory attitudes, and absence of political cynicism. Their attitudes are of course likely to be affected

by community and employment experience (e.g. in public sector jobs) and this needs to be investigated further. But again, this is unlikely to provide the whole explanation. Higher education experience itself appears to be a significant factor.